

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
Business Data Services in an Internet Protocol) WC Docket No. 16-143
Environment)
Investigation of Certain Price Cap Local Exchange) WC Docket No. 15-247
Carrier Business Data Services Tariff Pricing Plans)
Special Access for Price Cap Local Exchange) WC Docket No. 05-25
Carriers)
AT&T Corporation Petition for Rulemaking to) RM-10593
Reform Regulation of Incumbent Local Exchange)
Carrier Rates for Interstate Special Access Services)

TARIFF INVESTIGATION ORDER AND FURTHER
NOTICE OF PROPOSED RULEMAKING

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I. INTRODUCTION

1. For several decades, the Federal Communications Commission (the Commission) has struggled to find the best way to ensure that competitive benefits flow to customers, and onward to consumers, from the provision of so-called “special access” – the business data service(s) (BDS) firms use to fulfill their enterprise-level broadband requirements.¹ The Commission has tried a variety of regulatory approaches – from traditional tariff regulation, to price caps, to methodologies that attempted, with little success, to predict where competition would exist and where it would not. Since 2012, the Commission has been looking for a new path forward.

2. In the meantime, the marketplace has been changing. Cable companies have entered the market, supplementing the BDS offerings of both traditional incumbent local exchange carriers (incumbent LECs) and competitive local exchange carriers (competitive LECs). Internet Protocol (IP)-based packet services, available from a variety of providers, can meet the communications needs traditionally satisfied by legacy circuit-based products, most notably the warhorses of enterprise services, DS1s and DS3s. At the same time, incumbent LECs in their home territories remain a ubiquitous presence, easily able to provide BDS to virtually all enterprise locations in a manner that no other competitor can duplicate.

3. Competition in this marketplace is uneven. The best available data suggest that competitive entry and potential competition are bringing material competitive benefits to some places and to some products (most notably high bandwidth services), but competition remains stubbornly absent from other places and different products (most notably low bandwidth services). And not all consumers are the same – in particular multi-location businesses, like large retail chains, have very distinctive requirements.

4. It is time for a new start. Today, the Commission initiates reform by proposing to end the traditional use of tariffs for BDS services and discarding the traditional classification of “dominant” and “nondominant” carriers. That large scale de-regulation goes hand in hand with the use of tailored rules where competition does not exist. Thus, the Commission proposes a new regulatory framework built on four fundamental principles.

5. First, competition is best. Where competition exists, there is little for government to do except to maintain the traditional oversight of telecommunications services, because competition is the single best way of ensuring that customers benefit. But where competition does not exist, government’s role is to ensure that non-competitive market conditions do not disadvantage business customers and their ability to compete and innovate in downstream markets. For example, backhaul, a form of BDS used by wireless carriers, is critical to the ability of wireless carriers to expand and operate their networks today and will be even more critical as the advent of 5G wireless drives the creation of the dense thicket of cell

¹ Hereinafter we use the terms BDS and business data services.

sites that will be needed to deliver high bandwidth wireless services. Thus, at the core of the Commission's proposal is the adoption and application of a new Competitive Market Test designed to identify the markets in which current and potential competition is bringing material competitive effects to customers, most notably through lower prices.

6. Second, the new regulatory framework should be technology-neutral. Technological distinctions must not be allowed to obscure economic reality or distort future regulatory policy. Business data services are a quintessential form of telecommunications services under the Communications Act of 1934, as amended (the Communications Act or the Act), transmitting data for a fee from user to user without change in the form or content of the information sent or received. Thus, differences in technology between circuit-switched and packet-switched services do not mean that they now exist in different markets. Where regulation is needed in non-competitive markets, we seek comment on how best to look to economic realities, including market share, size of provider, and the legitimate differences as applicable in the product market, rather than relying on historic regulatory classifications.

7. Third, Commission actions should remove barriers that may be inhibiting the technology transitions. The supply of circuit-switched BDS, usually called time-division multiplexing (TDM) services, is still big business generating roughly 60 percent of the \$45 billion in BDS revenues reported for 2013. But, as the Commission has recognized, the future is in IP-based, packet-switched communications.² The Commission's proposal is designed, therefore, to remove barriers that may inhibit migration away from TDM to encourage the migration to new technologies. That is one of the key reasons, for example, the Commission today also resolves a continuing tariff investigation into the nature of contract terms for the supply of TDM products by incumbent LECs. The Commission finds three forms of contractual provisions (so-called "all or nothing" contracts, excessively high shortfall fees, and excessively high early termination fees) inflict current competitive harm in the marketplace and also have the effect of slowing the transition to more desirable IP-based products. Resolution of this investigation thus clears the deck for the adoption of the proposed regulatory framework.

8. Fourth, the Commission should construct regulation to meet not only today's marketplace, but tomorrow's as well. As noted above, the Commission's proposal favors the end of tariffing in the BDS marketplace. In its place, the Further Notice of Proposed Rulemaking (Further Notice) offers a framework that applies minimal regulatory oversight of competitive markets, proposing to apply the traditional requirement of just and reasonable charges and practices, while proposing that non-disclosure agreements (NDAs) not be used to block information from reaching the Commission. Where competition does not exist, the Commission goes further, seeking comment on the construction of the regulatory framework for such circumstances. For example, the Commission proposes to apply a price cap regime to the provision of TDM services in non-competitive markets and asks how best to treat the supply of IP-based products for the same purpose of ensuring that non-competitive markets do not yield artificially high prices. The Further Notice proposes a simple, but powerful pricing principle for non-competitive markets – wholesale prices for a service should be related to the retail prices for that same service and asks how that principle can best be applied.

9. In addition, the Commission asks how the practices identified in the Tariff Investigation Order should be treated under the new regulatory framework, while proposing to bar the tying of non-competitive market services to competitive-market services so that the absence of competition in one place (or product) does not artificially limit customer choice in another. The goal of the new regulatory framework is simple: To de-regulate where competition exists, while also ensuring that lack of competition does not unfairly harm commercial customers or the consumers who rely upon them.

10. Technologies change, but basic economic principles do not. Companies change their strategies, but commercial customers do not change their need for the benefits of competition – among

² See *Technology Transitions et al.*, GN Docket No. 13-5 et al., Notice of Proposed Rulemaking and Declaratory Ruling, 29 FCC Rcd 14968, 14973-74, para. 7 (2014) (*Emerging Wireline NPRM*).

them lower prices, higher quality, greater output and faster innovation. That is why dynamic changes in the offering of BDS make the creation of a modern regulatory framework ever more important. Business data services impact the lives of consumers every day – for example, every time they make a voice call on a mobile device or send a mobile text; when they withdraw cash from an ATM; when they use their credit cards to shop.

A. Executive Summary

11. In this item, the Commission takes the following actions:

- Declares unlawful in the **Tariff Investigation Order** those terms and conditions in tariff pricing plans under investigation that we find unjust and unreasonable and have the effects of decreasing facilities-based competition and the transition to newer technologies. That includes so-called “all or nothing” contracts that require a customer to make all of its purchases through a single supplier plan during the term of commitment. These contracts can last up to seven years and may contain excessive penalties to punish customers when they fall short of their volume commitments or when those customers terminate their agreements, e.g., when the purchaser wants to switch from TDM to another provider’s IP-based business services. The Tariff Investigation Order finds these excessive fees to be improper, while emphasizing that BDS suppliers retain the ability to recover shortfall fees and early-termination fees that ensure them the benefit of their original bargain.
- Proposes in the accompanying **Further Notice** to replace the existing, fragmented regulatory BDS structure with a new technology-neutral framework that classifies markets as either competitive—in which all providers are subject to minimal oversight—or as non-competitive—in which providers are subject to one set of tailored rules. The Further Notice:
 - Begins by surveying current marketplace conditions, including the location of current infrastructure and the data suggesting in which places and products and for which customers competition is more likely present and for which it is more likely to be not present. Based on this analysis, the Commission proposes to identify competitive markets as those in which material competitive effects are present;
 - Proposes a set of de-regulatory rules to govern competitive markets, using the Act’s statutory authority to ensure that the provision of telecommunications services is just and reasonable and also requiring that companies be free from NDAs that would prevent them from providing information to the Commission;
 - Proposes a tailored set of rules to safeguard customers in non-competitive markets, including the use of price regulation and the prohibition of certain tying arrangements that harm competition. The Further Notice also asks for comment on the appropriate treatment under this framework of the three types of contractual terms identified in the Tariff Investigation Order, as well as other contractual terms and conditions that have been subject to public comment;
 - Proposes that tariffs should not be used in the future as part of the regulation of any BDS;
 - Proposes a future periodic data collection of a kind that will allow the Commission to update periodically its identification of competitive and non-competitive markets; and
 - In order that the new regulatory framework be applied in a technology-neutral manner, proposes to eliminate the current exemption for certain Verizon services from the basic provisions of the Act governing just and reasonable offerings of telecommunications services.

As the Further Notice emphasizes, no issue raised by the Further Notice is locked in stone; rather the Commission seeks broad comment on the best way to execute its principles, evaluate its proposals and

answer its questions. With the launching of this Further Notice, the Commission intends to listen and to learn before it reaches final decisions.

II. BACKGROUND

A. Business Data Service Connects Business

12. BDS refers to the dedicated point-to-point transmission of data at certain guaranteed speeds and service levels using high-capacity connections. BDS is an important building block for creating private or virtual private networks across a wide geographic area and enabling the secure and reliable transfer of data between locations. Point-to-point BDS lines can also provide dedicated access to the Internet and access to innovative broadband services. Mobile wireless providers purchase BDS to backhaul voice and data traffic from cell sites to their mobile telephone switching offices. Branch banks and gas stations use BDS connections for ATMs and credit card readers. Businesses, governmental institutions, hospitals and medical offices, and even schools and libraries use BDS to create their own private networks and to access other services such as Voice over IP (VoIP), Internet access, television, cloud-based hosting services, video conferencing, and secure remote access. Carriers buy BDS from providers as a critical input for delivering their own customized, advanced service offerings to end users.

13. BDS is distinctly different from the mass marketed, “best efforts” broadband Internet access services (BIAS) provided to residential end users, such as AT&T’s U-verse or Comcast’s XFINITY. BDS services typically provide dedicated symmetrical transmission speeds with performance guarantees, such as guarantees for traffic prioritization, guarantees against certain levels of frame latency, loss, and jitter to support real-time IP telephony and video applications, or guarantees on service availability and resolving outages. As such, BDS tends to cost substantially more than “best efforts” services and are offered to businesses, non-profits, and government institutions that need to support mission critical applications and have greater demands for symmetrical bandwidth, increased reliability, security, and service to more than one location.³

14. A “best efforts” service, in comparison, is typically an asymmetrical service with greater download than upload speeds, is shared among multiple users absent service guarantees, and is subject to failure during high congestion periods. For example, the mobile wireless services enjoyed by Americans are typically “best efforts” services. As such, during high congestion periods such as during an emergency or at a stadium event, users may find themselves unable to access Internet content or complete calls when using their smartphones. Similarly, at home, you may only receive an actual download speed of 12 Mbps instead of the advertised 15 Mbps purchased under your service plan when using a “best efforts” broadband Internet access service during peak usage periods.⁴ With BDS, the purchaser is guaranteed an open connection to transmit data at a set performance level and speed. Also in contrast to BDS, best efforts services typically do not have guaranteed repair times in the event of network outages, or if they have such guarantees, the guaranteed repair times are generally considerably longer than those which apply to BDS.⁵ Again in contrast to BDS, best efforts services also typically have small or no penalties imposed on the provider for network outages.

³ See Windstream Reply Comments at 11 (highlighting the “gulf between the per-Mbps retail prices for typical best efforts offerings and typical dedicated services offerings”).

⁴ See OET/CGB, 2015 Measuring Broadband America, Fixed Broadband Report at 14-15 (rel. Dec. 30, 2015) (discussing the percentage of ISP consumers that “experienced an actual download speed (averaged over the peak usage period during our measurement period) that was (a) greater than 95%, (b) between 80% and 95%, and (c) less than 80% of the advertised download speed”), <https://www.fcc.gov/reports-research/reports/measuring-broadband-america/measuring-broadband-america-2015#block-menu-block-4>.

⁵ See, e.g., Marc Dyman, Vice President of Carrier Sales – Wholesale Access and IP Services, Time Warner Cable Business Class Carrier Services, Slide 21 (Aug. 2015) (identifying a mean time to repair of four hours for an Ethernet over fiber product offering), <http://www.slideshare.net/MarcDyman/twc-carrier-services-presentation>.

15. The Commission has traditionally viewed BDS in two distinct segments, channel terminations and dedicated transport.⁶ Channel terminations refers to the last-mile, local loop, transmission links to end user locations, i.e., laterals. Transport involves higher-capacity connections moving traffic between network aggregation points, i.e., middle-mile connections or feeder plant. Conceptually, BDS consists of an additional two layers. There is the physical network infrastructure layer, which may consist of an assortment of fiber, coaxial cable, copper or even wireless links. These connection mediums ultimately dictate the limits of throughput capacity across the network even though advancements in technology may improve transmission speeds over time. Then there is the layer of technology protocols employed to move traffic across the network to its intended destination. These protocols can vary across segments and allow for the assignment of performance and quality of service levels for handling traffic.

B. The Business Data Services Rulemaking Proceeding

1. Price Cap Regulation of Business Data Services

16. The Commission has historically subjected the provision of BDS by incumbent LECs to rate regulation and tariffing requirements, i.e., dominant carrier safeguards.⁷ The rates of other providers of BDS have largely been unregulated beyond the just and reasonable requirements applicable to all carriers under sections 201 and 202 of the Act.⁸ The Commission utilizes two forms of rate regulation – price cap and rate-of-return. The focus of this proceeding is on those geographic areas where the incumbent LEC is subject to price cap regulation that sets ceilings on the rates incumbent LECs may charge for BDS services though what are referred to as price cap indices, and carriers are theoretically incentivized to operate more efficiently to lower costs and maximize profits.⁹

⁶ Hereinafter we use the terms “dedicated transport” and “other dedicated transport services” to generically refer to non-channel terminations, e.g., those services covered by section 69.709 of the Commission’s rules. 47 CFR § 69.709.

⁷ See *Petition of AT&T Inc. for Forbearance Under 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Its Broadband Services*; *Petition of BellSouth Corporation for Forbearance Under Section 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Its Broadband Services*, WC Docket No. 06-215, Memorandum Opinion and Order, 22 FCC Rcd 18705, 18707, para. 3 (2007) (*AT&T Forbearance Order*).

⁸ 47 U.S.C. §§ 201, 202.

⁹ Hereinafter we refer to incumbent LECs subject to price cap regulation as either price cap incumbent LECs or price cap LECs.

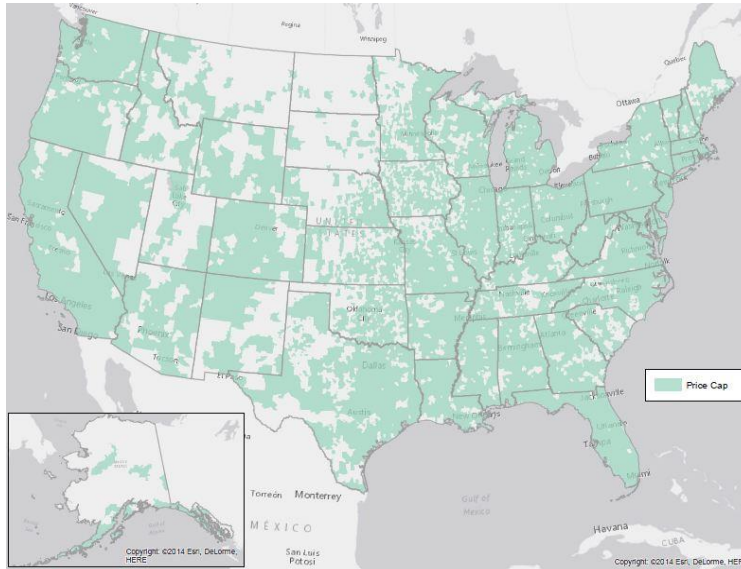


Figure 1. Map showing areas subject to price cap regulation.¹⁰

17. In 1999, the FCC established a process for granting price cap incumbent LECs a certain degree of pricing flexibility for BDS across Metropolitan Statistical Areas (MSAs) and non-MSA areas when specified regulatory triggers were satisfied.¹¹ These triggers, which were designed as a proxy for potential competition in the given geographic area, were based on the collocations of non-incumbents in the incumbent LEC’s wire centers.¹² To make a competitive showing, the Commission held that price cap LECs would need to demonstrate either that (1) competitors unaffiliated with the incumbent LEC have established operational collocation arrangements in a certain percentage of the incumbent LEC’s wire centers in an MSA, or (2) unaffiliated competitors have established operational collocation arrangements in wire centers accounting for a certain percentage of the incumbent LEC’s revenues from the services in question in that MSA.¹³ In both cases, the incumbent also must show, with respect to each wire center, that at least one collocater is relying on transport facilities provided by a transport provider other than the incumbent LEC.¹⁴

18. Under the rules, the Commission granted relief in two phases. Phase I relief, which required lower levels of collocation, gave price cap incumbent LECs the ability to lower their rates through contract tariffs and volume and term discounts, but required that they maintain their generally available price cap-constrained tariff rates to “protect[] those customers that lack competitive alternatives.”¹⁵ Phase II relief, which required higher levels of collocation, permitted price cap incumbent LECs to raise or lower their rates throughout an area, unconstrained by price cap regulations included in

¹⁰ Underlying data on price cap territories is from the Tele Atlas Telecommunications Suite 2010.06. The map does not show price cap areas in Hawaii and U.S. territories, such as Puerto Rico and the Virgin Islands.

¹¹ See *Access Charge Reform*, CC Docket No. 96-262; *Price Cap Performance Review for Local Exchange Carriers*, CC Docket No. 94-1 et al., Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 14221 (1999) (*Pricing Flexibility Order*).

¹² *Id.* at 14265-69, paras. 81-86.

¹³ 47 CFR §§ 69.709, 69.711.

¹⁴ *Pricing Flexibility Order*, 14 FCC Rcd at 14269, para. 86.

¹⁵ *Id.* at 14258, para. 69.

the Commission's part 61 and part 69 rules.¹⁶ The Commission allowed price cap incumbent LECs to obtain Phase I and Phase II pricing flexibility on different BDS segments, i.e., channel termination and dedicated transport services. The thresholds for obtaining regulatory relief for each segment varied. The competitive showings needed for the dedicated transport segment were lower than the showings needed for channel terminations,¹⁷ reflecting the understanding that for higher capacity middle-mile segments of the network, facility-based entry was more likely to occur than with the deployment of last-mile facilities.¹⁸

¹⁶ *Id.* at 14301, para. 153. Price cap incumbent LECs granted Phase II relief must continue to maintain generally available tariffs, but may file such tariffs on one day's notice. *See id.*

¹⁷ To obtain Phase I relief for interstate BDS other than channel terminations between a LEC end office and an end user's customer premises, a price cap incumbent LEC must demonstrate that unaffiliated competitors have collocated in at least 15 percent of its wire centers within an MSA or collocated in wire centers accounting for 30 percent of its revenues from these services within the MSA. To obtain Phase I pricing flexibility for channel terminations between a LEC end office and a customer premises, the incumbent LEC must demonstrate that unaffiliated competitors have collocated in at least 50 percent of its wire centers within an MSA or collocated in wire centers accounting for 65 percent of its revenues from these services within the MSA. 47 CFR §§ 69.709, 69.711; *Pricing Flexibility Order*, 14 FCC Rcd at 14235-36, 14273-77, paras. 24, 93-99. To obtain Phase II relief for BDS other than channel terminations to end users, the trigger thresholds are unaffiliated collocation in 50 percent of the incumbent LEC's wire centers or in wire centers accounting for 65 percent of the incumbent LEC's revenues from these services within the MSA. For channel terminations to end users, the Phase II thresholds are unaffiliated collocation in 65 percent of the incumbent LEC's wire centers or in wire centers accounting for 85 percent of the incumbent LEC's revenues for these services. 47 CFR §§ 69.709, 69.711; *Pricing Flexibility Order*, 14 FCC Rcd at 14235, 14298-300, paras. 25, 146-52.

¹⁸ *See Pricing Flexibility Order*, 14 FCC Rcd at 14279, para. 102 ("Entrance facilities, direct-trunked transport, channel mileage, and the flat-rated portion of tandem-switched transport all involve carrying traffic from one point of traffic concentration to another. Thus, entering the market for these services requires less investment per unit of traffic than is required, for example, for channel terminations between an end office and customer premises.").

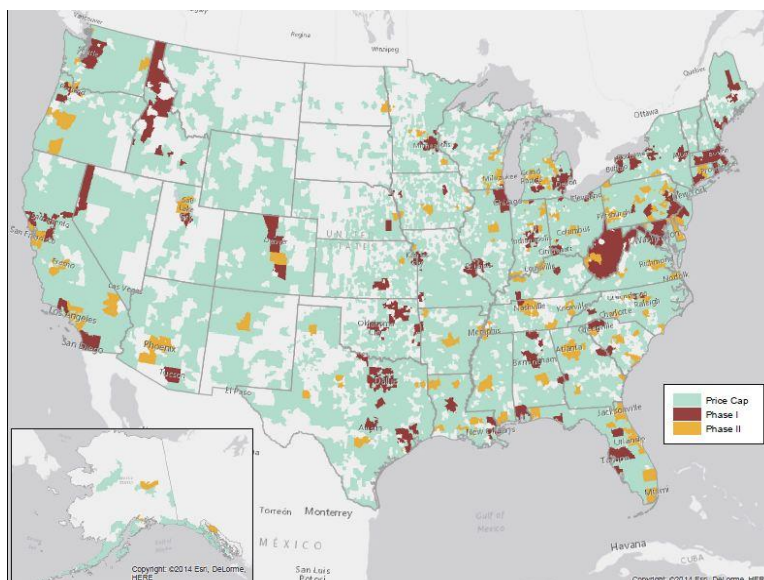


Figure 2. Map showing price cap areas and MSAs and non-MSA areas where the Commission has previously granted either Phase I or Phase II pricing flexibility per 47 CFR § 69.711.¹⁹

2. CALLS Plan

19. In 2000, the Commission adopted an order modifying the formula for determining the price cap indices to move towards a more market-based approach to rate setting.²⁰ Under the new scheme, known as the CALLS plan, the Commission separated BDS services into their own basket and applied a separate “X-factor” to that basket.²¹ Prior to the CALLS plan, the price cap indices would be adjusted annually by a measure of inflation minus a productivity-based X-factor. The X-factor was chosen to ensure that the price cap forces price changes similar to those that would have occurred in a competitive market; in particular that BDS prices would grow by the difference between BDS input price growth and BDS productivity growth (since in a competitive market, BDS prices would reflect input cost changes less any productivity gains suppliers obtained). The X-factor under the CALLS plan, unlike these prior price cap regimes, is not a productivity factor but “a transitional mechanism . . . to lower rates for a specified time period for special access.”²² The CALLS X-factor for special access was 3.0 percent in 2000, and increased to 6.5 percent for 2001, 2002, and 2003. For the final year of the CALLS plan (July 1, 2004 – June 30, 2005), the special access X-factor was set equal to inflation (i.e., the price cap

¹⁹ Underlying data on price cap territories is from the Tele Atlas Telecommunications Suite 2010.06.

²⁰ See *Access Charge Reform*, CC Docket Nos. 96-262, 94-1, 99-249, 96-45, Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in CC Docket No. 96-45, 15 FCC Rcd 12962, 12977-79, paras. 4, 36-42 (2000) (*CALLS Order*), *aff’d in part, rev’d in part, and remanded in part*, *Texas Office of Public Util. Counsel v. FCC*, 265 F.3d 313 (5th Cir. 2001), *cert. denied*, *Nat’l Ass’n of State Util. Consumer Advocates v. FCC*, 535 U.S. 986 (2002), *on remand*, *Access Charge Reform*, CC Docket Nos. 96-262, 94-1, 99-249, 96-45, Order on Remand, 18 FCC Rcd 14976 (2003) (*CALLS Remand Order*).

²¹ *CALLS Order*, 15 FCC Rcd at 12974-75, 13033-34, paras. 30, 172. The CALLS plan also retained the low-end adjustment for price cap LECs. *Id.* at 13038, para. 182. The low-end adjustment mechanism permits incumbent LECs earning rates of return less than 10.25 percent in a given year to increase their price cap indices to a level that would allow them to earn 10.25 percent. *Id.* at 13018, para. 136 n.282. The Commission subsequently eliminated the low-end adjustment mechanism for price cap LECs that qualified for and elected to exercise Phase I or Phase II pricing flexibility. *Id.* (citing *Pricing Flexibility Order*, 14 FCC Rcd at 14304, para. 162).

²² *CALLS Order*, 15 FCC Rcd at 13028, para. 160.

indices would remain unchanged, given that the annual change is determined by subtracting the X-factor from the rate of inflation).²³ As the Commission has yet to replace the interim CALLS plan X-factor, price cap LECs' special access rates have remained frozen at 2003 levels (excluding any necessary exogenous cost adjustments).²⁴

3. AT&T Petition for Rulemaking and the 2005 NPRM

20. In 2002, AT&T Corp., then a long distance provider without any ownership interest in an incumbent LEC, filed a petition for rulemaking requesting that the Commission revoke the pricing flexibility rules and revisit the CALLS plan as it applies to BDS services.²⁵ AT&T contended both that the predictive judgment at the core of the *Pricing Flexibility Order* had not been confirmed by marketplace developments, and that price cap LECs' special access rates exceeded competitive levels and hence were unjust and unreasonable in violation of section 201 of the Act.²⁶ Because the predictive judgment had proven wrong, AT&T asserted, the Commission was compelled to revisit its pricing flexibility rules in a rulemaking proceeding.²⁷ Price cap LECs countered that, among other things, their special access rates were reasonable and therefore lawful, there was robust competition for special access services, the collocation-based competitive showings were an accurate metric for competition, and the data relied upon by AT&T were unreliable in the context used by AT&T.²⁸

21. The Commission initiated a rulemaking in January 2005 to broadly examine the regulatory framework for the provision of interstate special access services by price cap LECs.²⁹ The Commission sought comment on, among other matters: (1) the type of rate regulation that should apply; (2) whether to apply and how to calculate a productivity-based X-factor; (3) the reasonableness of certain

²³ *Id.* at 13025, para. 149.

²⁴ 47 CFR § 61.45(b)(1)(iv) ("Starting in the 2004 annual filing, X shall be equal to GDP-PI for the special access basket."). The Commission hoped that, by the end of the five-year CALLS plan, competition would exist to such a degree that deregulation of access charges (switched and special) for price cap LECs would be the next logical step. *CALLS Order*, 15 FCC Rcd at 12977, para. 35. As a result, from 2003 to 2015, prices subject to the price cap fell in real terms (when factoring for increases in the level of inflation) by 26.6% when inflation was measured using GDP-PI or by 28.8% when inflation was measured using the consumer price index or CPI (all users). See U.S. Dept. of Commerce, Bur. of Economic Analysis, National Income and Product Accounts, Table 1.1.4, Price Indexes for Gross Domestic Product, http://www.bea.gov/iTable/index_nipa.cfm; U.S. Dept. of Labor, Bur. of Labor Statistics, Consumer Price Index - All Urban Consumers, <http://www.bls.gov/cpi/>.

²⁵ AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, RM-10593 at 1, 6, 39-40 (filed Oct. 15, 2002) (2002 Special Access Rulemaking Petition). The 2002 Special Access Rulemaking Petition was filed prior to AT&T's merger with SBC. See *SBC Communications, Inc. and AT&T Corp. Application for Approval of Transfer of Control*, WC Docket No. 06-65, Memorandum Opinion and Order, 20 FCC Rcd 18290 (2005) (*SBC/AT&T Merger Order*).

²⁶ 2002 Special Access Rulemaking Petition at 1-6, 20, 34-35.

²⁷ *Id.* at 6-7, 35-36.

²⁸ See, e.g., SBC 2002 Special Access Rulemaking Petition Opposition at 10-13, 19, 22-24 (filed Dec. 2, 2002); Verizon 2002 Special Access Rulemaking Petition Opposition at 9-10, 13-14, 17, 21 (filed Dec. 2, 2002). SBC noted that AT&T only provided (and could only provide) data from a single year (2001) that post-dated the initial implementation of Phase II pricing flexibility in 2001. SBC 2002 Special Access Rulemaking Petition Opposition at 16. SBC and Verizon claimed that Automated Reporting Management Information System (ARMIS) data were not designed to evaluate the reasonableness of rates. *Id.* at 22; Verizon 2002 Special Access Rulemaking Petition Opposition at 21.

²⁹ See *Special Access Rates for Price Cap Local Exchange Carriers and AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order and Further Notice of Proposed Rulemaking, 20 FCC Rcd 1994, para. 1 (2005) (*2005 Special Access NPRM*).

terms and conditions in price cap LECs' tariffs; and (4) "whether to maintain or modify the pricing flexibility rules" based on an examination of the "available marketplace data."³⁰ The Commission and the Wireline Competition Bureau (Bureau) continued to build the record in the years that followed.

4. The GAO Report

22. In 2006, the Government Accountability Office (GAO) issued a report looking at sixteen MSAs where the Commission had granted pricing flexibility to the price cap incumbent LECs and examining: (1) the extent that competitive alternatives are available in areas where the Commission granted pricing flexibility; (2) how prices had changed since the granting of pricing flexibility, and the effect on government agencies purchasing special access services; and (3) how the Commission monitors competition.³¹

23. The GAO found that facilities-based competition was not evenly distributed throughout an MSA, but typically existed in a small subset of buildings in an MSA, and that demand concentration drives competitor deployment.³² The GAO also found that on average, the prices and revenues of price cap incumbent LECs had increased in areas where the Commission had granted Phase II pricing flexibility.³³ On the Commission's ability to monitor competition, the GAO concluded the Commission's pricing flexibility rules did not work to accurately identify effective competition, and the Commission lacked current, specific and reliable data to track and assess the state of competition.³⁴ The GAO urged the Commission to "revisit the issues it initiated in the rulemaking proceeding on dedicated access and to develop measures and methods to monitor competition on an ongoing basis that more accurately represents market developments and customer choice."³⁵ To meet its regulatory responsibilities, the GAO recommended the Commission identify "a more accurate measure of effective competition" and "collect more meaningful data."³⁶

5. Forbearance Actions Starting in 2006

24. The regulatory landscape for BDS changed significantly during the years immediately following the release of the *2005 Special Access NPRM*. In 2006, Verizon's 2004 petition seeking forbearance from the application of Title II and *Computer Inquiry* requirements to certain of its enterprise broadband services was deemed granted by operation of law after the Commission did not act on the petition within the statutory time limit.³⁷ This deemed grant of forbearance relief was not based on any

³⁰ *Pricing Flexibility Order*, 14 FCC Rcd at 14227, 14236-27, 14260, 14287-88, paras. 11, 30, 72, 122.

³¹ Government Accountability Office, *FCC Needs to Improve its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services*, GAO Report No. 07-08 (Nov. 2006) (*GAO Report*), <http://www.gao.gov/new.items/d0780.pdf>.

³² *Id.* at 19.

³³ *Id.* at 27-28.

³⁴ *Id.* at 43-44.

³⁵ *Id.* at 15.

³⁶ *Id.*

³⁷ See *Verizon Telephone Companies' Petition for Forbearance from Title II and Computer Inquiry Rules with Respect to their Broadband Services Is Granted by Operation of Law*, WC Docket No. 04-440, FCC News Release (rel. Mar. 20, 2006) (*Verizon News Release*); see also Petition of the Verizon Telephone Companies for Forbearance under 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Their Broadband Services, WC Docket No. 04-440 (filed Dec. 20, 2004) (*Verizon Enterprise Broadband Forbearance Petition*); Letter from Edward Shakin, Vice President and Associate General Counsel, Verizon, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 04-440, at 2-3 (filed Feb. 7, 2006) (*Verizon February 7, 2006 Letter*) (narrowing the scope of Verizon's Forbearance Petition). Portions of Verizon's operations subject to this deemed grant forbearance were transferred to Hawaii Telecom, FairPoint Communications, and Frontier Communications and those operations remain subject to that regulatory relief. See *Applications Filed by Frontier Communications Corporation and Verizon*

(continued...)

finding by the Commission as to the state of competition for “enterprise broadband services.”³⁸ A number of other price cap LECs soon followed with similar requests for forbearance relief, which the Commission granted in part in 2007 and 2008.³⁹ These grants were based on findings by the Commission that competition occurred on a nationwide basis, and there were “a number of entities currently provid[ing] broadband services in competition” with the incumbent LECs seeking forbearance.⁴⁰ In total, AT&T, ACS of Anchorage, Inc. (ACS), legacy Embarq, legacy Frontier, and Qwest Corporation (Qwest) received forbearance from dominant carrier regulation of BDS pursuant to Commission order. Like Verizon, CenturyLink recently received similar relief through the grant of its forbearance petition by operation of law absent any findings by the Commission.

25. As a result of these forbearance actions, the Commission’s dominant carrier safeguards requiring tariffs and regulating the rates of business data services now have limited application. Although

(Continued from previous page) _____

Communications, Inc. for the Partial Assignment or Transfer of Control of Certain Assets in California, Florida, and Texas, WC Docket No. 15-44, Memorandum Opinion and Order, 30 FCC Rcd 9812 (2015); *Applications Filed by Frontier Communications Corporation and Verizon Communications, Inc. for Assignment or Transfer of Control*, WC Docket No. 10-87, Memorandum Opinion and Order, 25 FCC Rcd 5972 (2010); *Applications Filed for the Transfer of Certain Spectrum Licenses and Section 214 Authorizations in the States of Maine, New Hampshire, and Vermont from Verizon Communications Inc. and its Subsidiaries to FairPoint Communications*, WC Docket No. 07-22, Memorandum Opinion and Order, 23 FCC Rcd 514, 535-36, para. 36 (2007); *Streamlined Domestic Section 214 Application Granted*, WC Docket No. 04-234, 19 FCC Rcd 15604 (2004). CenturyLink received certain enterprise broadband relief when its forbearance petition was granted by operation of law. See *CenturyLink’s Petition for Forbearance from Dominant Carrier Regulation and the Computer Inquiry Tariffing Requirement with Respect to its Enterprise Broadband Services is Granted by Operation of Law*, WC Docket No. 14-9, News Release (rel. Mar. 16, 2015) (*CenturyLink News Release*); CenturyLink’s Petition for Forbearance Pursuant to 47 U.S.C. § 160(c) from Dominant Carrier Regulation and Computer Inquiry Tariffing Requirements on Enterprise Broadband Services, WC Docket No. 14-9 (filed Dec. 13, 2013) (*CenturyLink Enterprise Broadband Forbearance Petition*).

³⁸ In addressing the forbearance requests for next generation special access services, the Commission referred to these services as “enterprise broadband services,” which included “existing packet-based switched broadband telecommunications services and . . . existing optical transmission services.” See *AT&T Forbearance Order*, 22 FCC Rcd at 18706, 18732, paras. 1, 50.

³⁹ See *AT&T Forbearance Order*, 22 FCC Rcd at 18705-07, paras. 1-2; *Petition of the Embarq Local Operating Companies for Forbearance Under 47 U.S.C. § 160(c) from Application of Computer Inquiry and Certain Title II Common-Carriage Requirements, Petition of the Frontier and Citizens ILECs for Forbearance under Section 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Their Broadband Services*, WC Docket No. 06-147, Memorandum Opinion and Order, 22 FCC Rcd 19478 (2007) (*Embarq/Frontier Forbearance Order*), *aff’d sub mon. Ad Hoc v. FCC*, 572 F.3d 903; *Qwest Petition for Forbearance Under 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Broadband Services, Memorandum Opinion and Order*, WC Docket No. 06-125, Memorandum Opinion and Order, 23 FCC Rcd 12260 (2008) (*Qwest Forbearance Order*); *Petition of ACS of Anchorage, Inc. Pursuant to Section 10 of the Communications Act of 1934, as Amended (47 U.S.C. § 160(c)), for Forbearance from Certain Dominant Carrier Regulation of Its Interstate Access Services, and for Forbearance from Title II Regulation of Its Broadband Services, in the Anchorage, Alaska, Incumbent Local Exchange Carrier Study Area*, WC Docket No. 06-109, Memorandum Opinion and Order, 22 FCC Rcd 16304 (2007) (*ACS Forbearance Order*).

⁴⁰ See *AT&T Forbearance Order*, 22 FCC Rcd at 18716-21, paras. 20-25. The use of a nationwide geographic market for evaluating competition for forbearance requests for similar services was subsequently brought into question when the Commission decided to use a more “comprehensive analytical framework for considering forbearance requests” and used the customer location as the relevant geographic market stating “that a customer is unlikely to move in response to a small, but significant and nontransitory increase in the price of the service.” *Petition of Qwest Corp. for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Phoenix, Arizona Metropolitan Statistical Area*, WC Docket No. 09-135, Memorandum Opinion and Order, 25 FCC Rcd 8622, 8642, 8657, paras. 37, 64 (2010) (*Qwest Phoenix Order*), *aff’d Qwest Corp. v. FCC*, 689 F.3d 1214 (10th Cir. 2012).

the scope of the forbearance relief varies significantly among the recipients,⁴¹ for the carriers granted forbearance, the dominant carrier safeguards apply largely to the provisioning of legacy TDM services (i.e., DS1s and DS3s, which have symmetrical bandwidths of about 1.5 Mbps and 45 Mbps, respectively).⁴² Those services covered by the Commission's orders granting forbearance relief remain subject to the Title II obligations that rates, terms, and conditions be just and reasonable and not unjustly or unreasonably discriminatory.⁴³ The forbearance granted to the price cap LECs provided relief from dominant carrier regulation, including tariffing requirements, for many of the incumbent LECs' then existing packet-based services, using an Ethernet technology protocol for example, and optical carrier transmission services.

6. Bureau Actions in 2009 to 2011

26. In November 2009, the Bureau sought comment on the appropriate analytical framework for examining the issues raised in the *2005 Special Access NPRM*.⁴⁴ In July 2010, the Bureau held a staff workshop on the economics of BDS to gather further input on the analytical framework issue.⁴⁵ In October 2010, the Bureau issued a public notice inviting the stakeholders to submit data on the presence of competitive special access facilities to assist the Commission in evaluating the issues that the *2005 Special Access NPRM* raised.⁴⁶ In September 2011, the Bureau issued a second public notice requesting the submission of competition and pricing data on a voluntary basis.⁴⁷

27. In 2011, a coalition of telecommunications users and competitive LECs filed a petition asking the Commission to reverse the Verizon deemed grant to the extent it provided forbearance relief not granted to other incumbent LECs.⁴⁸ In 2012, a similar coalition filed a petition asking the Commission to reverse the forbearance granted to price cap LECs from dominant carrier and *Computer*

⁴¹ Compare, e.g., *AT&T Forbearance Order*, 22 FCC Rcd at 18706, para. 1 & n.5 with Verizon Broadband Forbearance Petition at 2; Verizon February 7, 2006 Letter at 2-3; see also *infra* Part V.H. Because no Commission order accompanied the grant of Verizon's forbearance, the scope of that deemed grant is unclear.

⁴² See *Data Collection Implementation Order*, 28 FCC Rcd at 13202, para. 29. DS1s and DS3s are also respectively referred to as T1s and T3s.

⁴³ See *Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Report and Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd 5601, 5800, para. 424 (2015) (noting that the services receiving forbearance in the *Enterprise Broadband Forbearance Orders* remain subject to sections 201, 202, and 208 of the Act), *appeal pending sub nom. U.S. Telecom Ass'n. v. FCC*, No. 15-1059 (D.C. Cir. filed Mar. 23, 2015).

⁴⁴ *Parties Asked to Comment on Analytical Framework Necessary to Resolve Issues in the Special Access NPRM*, WC Docket No. 05-25, RM-10593, Public Notice, 24 FCC Rcd 13638 (2009) (*Analytical Framework Public Notice*). Among other things, the *Analytical Framework Public Notice* also sought comment on additional data not in the record that the Commission should collect. *Id.* at 13640.

⁴⁵ *Wireline Competition Bureau Announces July 19, 2010 Staff Workshop to Discuss the Analytical Framework for Assessing the Effectiveness of the Existing Special Access Rules*, WC Docket No. 05-25, Public Notice, 25 FCC Rcd 8458 (2010).

⁴⁶ *Data Requested in Special Access NPRM*, WC Docket No. 05-25, RM-10593, Public Notice, 25 FCC Rcd 15146 (2010); see also *Clarification of Data Requested in Special Access NPRM*, WC Docket No. 05-25, RM-10593, Public Notice, 25 FCC Rcd 17693 (2010).

⁴⁷ *Competition Data Requested in Special Access NPRM*, WC Docket No. 05-25, RM-10593, Public Notice, 26 FCC Rcd 14000 (2011).

⁴⁸ See *Petition of tw telecom inc., BT Americas Inc., the Ad Hoc Telecommunications Users Committee, Computer & Communications Industry Association, EarthLink, Inc., and Sprint Nextel Corporation to Establish Regulatory Parity in the Provision of Non-TDM-Based Broadband Transmission Services*, WC Docket No. 11-188 (filed Oct. 4, 2011) (*2011 Reverse Forbearance Petition*); see also *Comment Sought on Petition Seeking Reverse Forbearance Granted to Verizon Telephone Companies by Operation of Law*, WC Docket No. 11-188, Public Notice, 26 FCC Rcd 15683 (WCB 2011).

Inquiry regulation of the price cap LECs' non-TDM special access services.⁴⁹ This latter petition and the responsive pleadings focused on whether the Commission had conducted an adequate market analysis in deciding to forbear and whether continuing to forbear would be consistent with marketplace conditions.⁵⁰

7. The Commission Suspends the Pricing Flexibility Rules

28. In August 2012, the Commission suspended its rules for the further grant of pricing flexibility to incumbent LECs for the remaining regulated BDS in areas subject to price cap regulation.⁵¹ The Commission took this step based on "significant evidence that these rules . . . [were] not working as predicted, and widespread agreement across industry sectors that these rules fail[ed] to accurately reflect competition in today's special access markets."⁵² The triggers reflect a simple count of the number of collocations in an incumbent LEC's wire center(s) and "are a poor proxy for the presence of competition . . ."⁵³ The Commission found collocations did not often result in collocators eventually building their own channel terminations to end users as predicted, and facilities-based competition did not always rely on collocations in wire centers, e.g., with cable systems.⁵⁴ These triggers were therefore both over- and under-inclusive as predictors of competition. In addition, the Commission found that "MSAs have generally failed to reflect the scope of competitive entry" and "in many instances, the scope of competitive entry has apparently been far smaller than predicted."⁵⁵ The Commission then set course for a one-time data collection "to identify a permanent reliable replacement approach to measure the presence of competition for special access services."⁵⁶

8. The Bureau Implements the Data Collection

29. On December 18, 2012, the Commission released the *Data Collection Order and FNPRM*, outlining a data collection for an analysis of the BDS market.⁵⁷ Services covered by the collection included TDM, packet-based services, and best efforts business broadband Internet access service to ensure a "clear picture of all competition in the marketplace."⁵⁸ Those required to respond to

⁴⁹ See *Petition of Ad Hoc Telecommunications Users Committee, BT Americas, Cbeyond, Computer & Communications Industry Association, EarthLink, Megapath, Sprint Nextel, and tw telecom to Reverse Forbearance from Dominant Carrier Regulation of Incumbent LECs' Non-TDM-based Special Access Services*, WC Docket No. 05-25, RM-10593 (filed Nov. 2, 2012) (*2012 Reverse Forbearance Petition*); see also *Wireline Competition Bureau Seeks Comment On Petition to Reverse Forbearance From Dominant Carrier Regulations of Incumbent LECs' Non-TDM-Based Special Access Services*, WC Docket No. 05-25; RM-10593, Public Notice, 28 FCC Rcd 1280 (WCB 2013) (*2013 Reverse Forbearance Public Notice*).

⁵⁰ See, e.g., *2012 Reverse Forbearance Petition* at 1-7; Comptel Apr. 16, 2013 Comments at 4-11; Level 3 Apr. 16, 2013 Comments at 1-5. But see, e.g., Verizon Apr. 16, 2013 Comments at 1-4. The 2012 Reverse Forbearance Petition along with response pleadings are part of the special access rulemaking docket. See *2013 Reverse Forbearance Public Notice*, 28 FCC Rcd 1280 at 1280-81.

⁵¹ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Report and Order, 27 FCC Rcd 10557, 10558, para.1 (2012) (*Suspension Order*).

⁵² *Id.*

⁵³ *Id.* at 10560, para. 5.

⁵⁴ *Id.* at 10596-99, paras. 68-75.

⁵⁵ *Id.* at 10573, para. 35.

⁵⁶ *Id.* at 10560, para. 6.

⁵⁷ *Special Access for Price Cap Local Exchange Carriers; AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order and Further Notice of Proposed Rulemaking, 27 FCC Rcd 16318, 16360, App. A. (2012) (*Data Collection Order* or *Data Collection FNPRM*).

⁵⁸ *Id.* at 16326-27, paras. 16-19.

the data collection included providers and purchasers of BDS and certain entities providing best efforts business broadband Internet access service.⁵⁹ As originally adopted, the collection required data on a nationwide basis for areas where the incumbent LEC is subject to price cap regulation (i.e., price cap areas) with the majority of data from calendar years 2010 and 2012.⁶⁰

30. The stated goal of the Commission's multi-faceted market analysis is to evaluate, among other things, "how the intensity of competition (or lack thereof), whether actual or potential, affects prices, controlling for all other factors that affect prices."⁶¹ The Commission intended to include, to the extent practicable, econometric regressions "of the prices for special access on characteristics such as 1) the number of facilities-based competitors (both actual and potential); 2) the availability of, pricing of, and demand for best efforts business broadband Internet access services; 3) the characteristics of the purchased service; and 4) other factors that influence the pricing decisions of special access providers, including cost determinants (e.g., density of sales) and factors that deliver economies of scale and scope (e.g., level of sales)."⁶² The Commission also intended to assess the reasonableness of terms and conditions incumbent LECs offered for BDS.⁶³ The Commission planned to use the results of its analysis to evaluate "whether it is appropriate to make changes to its existing pricing flexibility rules to better target regulatory relief in competitive areas and evaluate whether remedies are appropriate to address any potentially unreasonable terms and conditions."⁶⁴

31. In the accompanying *Data Collection FNPRM*, the Commission sought comment on: (1) the proposed market analysis for evaluating the collected data; (2) possible changes to the pricing flexibility rules for the special access services provided by incumbent LECs in price cap areas, including whether, how often, and by what process the Commission should update data for analysis; and (3) the terms and conditions offered by incumbent LECs for the sale of special access services.⁶⁵ The comment cycle on the market analysis and terms and conditions issues raised in the *Data Collection FNPRM* ended on March 12, 2013. The comment cycle for suggested changes to the pricing flexibility rules closed on February 19, 2016.⁶⁶

32. The Commission delegated authority to the Bureau to implement the data collection. On September 18, 2013, the Bureau released the *Data Collection Implementation Order* clarifying the scope of the collection, providing instructions on how to respond to the data collection questions, and providing a list of all modifications and amendments to the data collection questions and definitions.⁶⁷ These actions were based on feedback received from potential respondents, including the comments filed with

⁵⁹ *Id.* at 16327-28, para. 22 (exempting those entities providing best efforts services with fewer than 15,000 customers and fewer than 1,500 business broadband customers).

⁶⁰ *Id.* at 16328-31, paras. 23-29.

⁶¹ *Id.* at 16346-47, paras. 68-69.

⁶² *Id.* at 16346, para. 68.

⁶³ *Id.* at 16354-56, paras. 91-93.

⁶⁴ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Report and Order, 28 FCC Rcd 13189, 13192, para. 5 (WCB 2013) (*Data Collection Implementation Order*).

⁶⁵ *Data Collection FNPRM*, 27 FCC Rcd at 16341-56, paras. 58-93.

⁶⁶ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order, 30 FCC Rcd 14467 (WCB 2016).

⁶⁷ See *Data Collection Implementation Order*, 28 FCC Rcd at 13192, para. 7.

the Commission during the 60-day public comment period pursuant to the Paperwork Reduction Act of 1995 (PRA), and the Bureau's further internal review.⁶⁸

33. Importantly, in the *Data Collection Implementation Order*, the Bureau clarified connections considered capable of providing a dedicated service for the purposes of providers reporting locations. The Bureau clarified that non-cable competitive providers “must report all *Locations* with idle and in-service *Connections* that they own or lease as an *IRU* [i.e., indefeasible right of use], regardless of the type of service provided over the *Connection* . . . because these entities typically target their service offerings to businesses and other higher-capacity users where sufficient demand exists to justify the investment.”⁶⁹

34. Cable system operators were required to report differently. Within their franchise areas, cable operators were required “to report all *Locations* with *Connections* owned or leased as an *IRU* that are connected to a *Node* (i.e., headend) that has been upgraded or was built to provide Metro Ethernet (or its equivalent) service, . . . regardless of the service provided over the *Connection* or whether the *Connection* is idle or in-service.”⁷⁰ For connections not linked to a MetroE-capable node, cable system operators were only required to report in-service connections used “to provide a *Dedicated Service* or a service that incorporates a *Dedicated Service* within the offering as part of a managed solution or bundle of services sold to the customer.”⁷¹ The Bureau explained that because “cable companies deployed facilities widely in their [franchise areas] to serve primarily residential customers and other community needs” it did not want to include in the collection “those locations with facilities used to provide a service that is substantially similar to the services provided to residential customers, e.g., one or two line telephone service or best efforts Internet access and subscription television services.”⁷²

We exclude these facilities because they were most likely built to provide residential-type services instead of high-capacity services to non-residential customers based on the historical deployment of cable systems; their inclusion could thus skew our assessment of demand for special access service. We can still account for the potential competition from these facilities by referencing data provided elsewhere in the collection, e.g., we can refer to the fiber maps filed by cable system operators, the location of *Nodes* upgraded to provide Metro Ethernet (or its equivalent), and the information provided showing those census blocks within the [franchise areas] where the cable system operator reports making broadband service available with a bandwidth rate of at least 1.5 Mbps in both directions (upstream/downstream).⁷³

35. In addition, the Bureau clarified that incumbent LECs need not report locations with copper connections that are unable to provide a bandwidth connection of at least 1.5 Mbps in both directions, i.e., bare copper loops, as they were not considered connections capable of providing a dedicated service for purposes of the collection.⁷⁴ Incumbent LECs were also instructed to not report

⁶⁸ See *id.*; Public Law 104-13.

⁶⁹ *Data Collection Implementation Order*, 28 FCC Rcd at 13199, para. 23 (“They do not typically deploy their facilities (or lease *IRUs*) to blanket an entire area and instead deploy (or lease *IRUs*) to particular *Locations* within a local geographic area.”).

⁷⁰ Metro Ethernet (MetroE) “is an Ethernet metropolitan area network service offering that involves centrally positioning one or more gigabit Ethernet (GbE) or 10 gigabit Ethernet (10 GbE) switches in a metro area.” *Id.* at 13199, para. 23 n.69 (citations omitted).

⁷¹ *Id.* at 13201, para. 27.

⁷² *Id.* at 13200, para. 26.

⁷³ *Id.* at 13201, para. 27 (internal citations omitted).

⁷⁴ *Id.* at 13202, para. 30.

locations with connections over which residential-type services were provided, e.g., telephone service, best efforts Internet access, or subscription television services like AT&T's U-verse or Verizon's FiOS service.⁷⁵ As the Bureau explained, the location exclusions "again aimed at limiting the data reported to only *Locations* where the *End Users* are demanding services relevant to our inquiry (i.e., buying *Dedicated Services*)."⁷⁶ Further, the exclusions would reduce reporting burden on incumbent LECs while not impacting the Commission's analysis because the Bureau "can instead assume that the *ILEC* has deployed facilities of some kind throughout its study area and has at least one transmission link, albeit a bare copper loop, to every *Location* within its study area even when the *ILEC* does not report having a *Location* with a *Connection*."⁷⁷

36. The Bureau submitted the collection to Office of Management and Budget (OMB) for review as required by the PRA, and after a lengthy review process, OMB approved the collection subject to modifications on August 15, 2014.⁷⁸ The most notable modifications to the collection were: (1) collecting a single year's worth of data, 2013, instead of data for two years, 2010 and 2012; (2) reducing the mapping requirements for cable companies to report only fiber routes making up the local transport network and not reporting feeder routes to end user locations; (3) modifying the definition of purchasers required to respond to exclude entities spending less than \$5 million dollars on BDS in 2013; and (4) making many of the questions directed at purchasers optional.⁷⁹ The Bureau released an order implementing these changes to the collection on September 15, 2014.⁸⁰

37. The last group of filers were required to respond to the data collection on February 27, 2015.⁸¹ We hereinafter refer to this collection as the *2015 Collection*. On September 18, 2015, the Bureau released an order addressing objections to the release of confidential and highly confidential information pursuant to the terms of a protective order.⁸² This action allowed for limited public access to the data for analysis.⁸³

⁷⁵ *Id.* at 13202, para. 31.

⁷⁶ *Id.*

⁷⁷ *Id.* at 13202, para. 30. On October 22, 2013, CenturyLink filed an application for review seeking a reversal of the Bureau's decision to exclude from the collection those cable system operator locations neither used to provide a dedicated service nor connected to a MetroE-capable node. See CenturyLink, Application for Review, WC Docket No. 05-25, RM-10593 (filed Oct. 22, 2013).

⁷⁸ See *Information Collection(s) Being Submitted for Review and Approval to OMB*, 78 Fed. Reg. 73861 (Dec. 9, 2013); Notice of Office of Management and Budget Action, OMB Control No. 3060-1197 (Aug. 15, 2014), available at http://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201311-3060-001#.

⁷⁹ *Id.*

⁸⁰ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order on Reconsideration, 29 FCC Rcd 10899 (WCB 2014) (*Data Collection Reconsideration Order*). On October 24, 2014, USTelecom filed an application seeking Commission review of the Bureau's modification of the collection to one year's worth of data as approved OMB. USTelecom, Application for Review, WC Docket No. 05-25, RM-10593, at 3-4 (filed Oct. 24, 2014).

⁸¹ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order, 29 FCC Rcd 14346 (WCB 2014).

⁸² *Special Access for Price Cap Local Exchange Carriers; AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order and Modified Data Collection Protective Order, 30 FCC Rcd 10027 (WCB 2015) (*Modified Protective Order*).

⁸³ See Press Release, FCC, FCC Takes Major Step in Review of Competition in \$40 Billion Special Access Market (Sept. 17, 2015), <https://www.fcc.gov/document/fcc-takes-major-step-review-40-billion-special-access-market>.

9. Technology Transitions Rulemaking

38. In November 2014, the Commission initiated the *Technology Transitions* rulemaking to help guide and accelerate the technological revolutions that are underway as the telecommunications industry transitions from TDM copper networks to all-IP multi-media networks using copper, co-axial cable, wireless, and fiber as physical infrastructure.⁸⁴ In August 2015, the Commission adopted rules and policies and sought more focused comment on additional proposals to preserve our pro-consumer and pro-competition policies as communications facilities and services change.⁸⁵ Among other steps, the Commission ensured that retail customers will be adequately informed when incumbent LECs remove copper from the customers' premises; updated the process by which incumbent LECs notify interconnecting entities of planned copper retirements; adopted an interim section 214 discontinuance rule to preserve competitive access to wholesale inputs during the pendency of the BDS rulemaking; and proposed specific criteria for the Commission to use in evaluating applications to discontinue retail services as carriers transition from TDM services to IP and wireless services.⁸⁶

C. 2015 Collection Overview

39. The Commission required all providers of "dedicated service" in areas where the incumbent LEC is subject to price cap regulation (i.e., price cap areas) to respond to the data collection regardless of size.⁸⁷ Providers included any entity subject to the Commission's jurisdiction that provides dedicated service in a price cap area or provides a connection that is capable of providing a dedicated service in a price cap area.⁸⁸ For purposes of the collection, dedicated service is defined as a service that:

transports data between two or more designated points, *e.g.*, between an *End User's* premises and a point-of-presence, between the central office of a local exchange carrier (LEC) and a point-of-presence, or between two *End User* premises, at a rate of at least 1.5 Mbps in both directions (upstream/downstream) with prescribed performance requirements that include bandwidth-, latency-, or error-rate guarantees or other parameters that define delivery under a *Tariff* or in a service-level agreement. *Dedicated Service* includes, but is not limited to, [circuit-based dedicated service (DS1s and DS3s)] and [packet-based dedicated service (such as Ethernet)]. For the purpose of this data collection, *Dedicated Service* does not include "best effort" services, *e.g.*, mass market broadband services such as [digital subscriber line (DSL)] and cable modem broadband access.⁸⁹

40. Purchasers of dedicated service subject to the Commission's jurisdiction were also required to respond to the collection unless, among other exceptions, they purchased less than \$5 million in dedicated services in 2013.⁹⁰ Entities that provide best efforts business broadband Internet access services in price cap areas were required to respond to the data collection unless they had fewer than 15,000 customers and fewer than 1,500 business broadband customers as of December 18, 2012.⁹¹

⁸⁴ See *Emerging Wireline NPRM*, 29 FCC Rcd at 14969, para. 1.

⁸⁵ *Technology Transitions et al.*, GN Docket No. 13-5 et al., Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, 30 FCC Rcd 9372 (2015) (*Emerging Wireline Order*).

⁸⁶ *Id.* at 9375-76, paras. 5-7.

⁸⁷ *Data Collection Order*, 27 FCC Rcd at 16325, para. 20.

⁸⁸ See *2015 Collection* (defining provider and connection), http://transition.fcc.gov/wcb/Data_Questions091514.pdf.

⁸⁹ *Id.* (defining dedicated service).

⁹⁰ *Id.* (defining purchasers).

⁹¹ *Data Collection Order*, 27 FCC Rcd at 16328, para. 22.

41. The general categories of data and information collected are: market structure, pricing, demand, terms and conditions, and competition and pricing decisions.⁹² For example, market structure included, among other things, data from providers on last-mile facilities used to provide dedicated service to end user locations, non-price factors affecting deployment, collocations, and network maps.⁹³ The pricing information included data on the “quantities sold and prices charged for special access services, by circuit element” and required incumbent LECs to “list the form of price regulation that applies . . . on a wire-center-by-wire-center basis.”⁹⁴ The demand data included not only information on the bandwidth of special access sold and revenues earned by providers but also on the expenditures made by purchasers.⁹⁵ The terms and conditions collected from both providers and purchasers, included details on topics such as the discounts and benefits associated with tariff plans and the business rationale for those plans.⁹⁶ The Bureau also collected information on Requests for Proposals and advertised and marketed services to help evaluate competition and pricing decisions for special access services. Lastly, the Bureau collected coverage area and pricing information from entities providing best efforts business broadband Internet access service.⁹⁷ The large majority of information collected, especially the locations and billing information, is from the year 2013.

42. The analyzed data set includes information from 604 filers. Companies consisting of multiple affiliates and subsidiaries had the option of filing either at the parent company level or separately for individual companies. Of those that filed:⁹⁸

- 20 identified themselves as an incumbent LEC;
- 553 identified themselves as competitive providers;
- 75 identified themselves as providing best efforts business broadband Internet access services in price cap areas;
- 15 identified themselves as purchasers that are mobile wireless providers; and
- 86 identified themselves as purchasers – other.

Of the 553 filers identifying themselves as competitive providers:

- 373 identified themselves as competitive LECs;
- 96 identified themselves as cable operators;
- 63 identified themselves as interexchange carriers;
- 21 identified themselves as wireless providers; and
- 151 identified themselves as other.

43. The dataset likely represents the most comprehensive collection of information ever assembled for a Commission rulemaking proceeding. This evidentiary record exceeds the data available to the Commission when it originally adopted and when it decided to suspend the existing pricing flexibility regime. And while parties claim there are shortcomings in the data collected, this collection

⁹² *Id.* at 16331, para. 30.

⁹³ *Id.* at 16331-33, paras. 31-35.

⁹⁴ *Id.* at 16333, paras. 36-37.

⁹⁵ *Id.* at 16333-34, para. 38.

⁹⁶ *Id.* at 16334, para. 39.

⁹⁷ *Id.* at 16335-37, paras. 40-46.

⁹⁸ Note that a single filer may have identified itself as more than one filer type. For example, a company like AT&T may identify itself as an incumbent LEC, a competitive LEC, a mobile wireless provider purchaser, and a purchaser – other.

still represents the most robust dataset available to date on the suppliers and purchasers in the BDS industry in the United States, even when considering other efforts within and outside the Commission to analyze this marketplace.⁹⁹

III. BUSINESS DATA SERVICES INDUSTRY OVERVIEW

44. BDS is critical to the delivery of innovative broadband services for businesses and government institutions and is a major contributor to the nation's economy. Incumbent LECs and competitive providers reported revenues of almost **\$45 billion** for 2013 for the sale of dedicated services.¹⁰⁰ It is, however, important to recognize that BDS is an important input (sometimes self-supplied) in the broader market for enterprise services, which include voice, Internet, private network, web-security, cloud connection, and other digital services. Available information suggests that the annual revenues for the broader enterprise services industry could exceed **\$75 billion** annually.¹⁰¹

A. Business Data Services Technology

45. BDS falls into two technology categories, circuit-based and packet-based. Circuit-based BDS uses the TDM protocol, which combines multiple individual communications between two locations over a single channel by dividing the channel into distinctly allocable time segments, i.e., capacity is reserved "in the form of dedicated time slots."¹⁰² TDM services are considered a legacy technology and consist primarily of DS1s and DS3s with symmetrical capacities of 1.5 Mbps and 45 Mbps, respectively. To increase bandwidth, providers must either bond multiple circuits together or deploy a newer technology. For example, providers can, and do, bond up to eight DS1s to achieve a maximum bandwidth of 12 Mbps but DS3s are rarely bonded together.¹⁰³ As USTelecom explains, "[f]or decades, business customers' high-capacity needs were met by DS1 and DS3 technology because that was the only option."¹⁰⁴

46. Packet-based BDS refers to those services using interfaces better suited for the transmission of Internet protocol (IP) data packets than legacy technologies. Packet-based BDS includes the popular family of data network transmission standards known as Ethernet. Developed to transmit data between computers in local area networks in the 1970s, Ethernet provides specifications for the physical and data link layers¹⁰⁵ so subscribers can "set up secure, private Ethernet Virtual Connections across a

⁹⁹ See Frontier Comments at 19; Verizon Comments at 2; USTelecom Comments at 2.

¹⁰⁰ Aggregate revenue totals reported in responses to question II.A.15-16 and II.B.8-9 in the *2015 Collection*.

¹⁰¹ See Appx. B, Marc Rysman, "Empirics of Business Data Services," White Paper, Table 3 (April 2016) (Rysman White Paper).

¹⁰² See *Embarq/Frontier Forbearance Order*, 22 FCC Rcd at 19479, para. 1 n.5; Jonathan Nuechterlein and Philip Weiser, *Digital Crossroads* 28 (2d ed. 2013) (Digital Crossroads).

¹⁰³ See Level 3 et al. Comments, Attach., Declaration of Jonathan B. Baker on Market Power in the Provision of Dedicated (Special Access) Services at 5 (Baker Decl.). The rare bonding of DS3s suggests that to obtain higher bandwidth capacities in excess of 45 Mbps it may make more sense for the provider and the end user to use a more scalable and cost efficient technology.

¹⁰⁴ USTelecom Comments at 7.

¹⁰⁵ These layers refer to the Open Systems Interconnection model, which "is a conceptual and logical layout that defines network communication used by systems open to interconnection and communication with other systems. . . . The model is broken into seven subcomponents, or layers, each of which represents a conceptual collection of services provided to the layers above and below it." Techopedia, OSI Model, <https://www.techopedia.com/definition/24205/open-systems-interconnection-model-osi-model>. In this model, Layer 1 is the physical layer, which includes "all electrical and mechanical aspects relating to the connection of a device to a transmission medium," and Layer 2 is the data link layer, which "is responsible for transferring frames from one computer to another, without errors," e.g., "[a]fter sending a frame, the data-link layer waits for an acknowledgement from the receiving computer." Newton's Telecom Dictionary at 342, 859 (25th ed. 2009). The

(continued...)

Metropolitan Area, or even a Wide Area, to connect their sites together and connect to business partners, suppliers and the Internet.”¹⁰⁶ In 2002, the industry group, Metro Ethernet Forum (MEF), published the first specification “of Ethernet service capabilities in the metro and wide area network.”¹⁰⁷ Subsequently, in 2005, MEF defined the Carrier Ethernet service specification and introduced the certification program, used by MetroE service providers today.¹⁰⁸

47. Depending on the underlying connection medium, Ethernet services can provide scalable bandwidth options ranging from 2 Mbps up to 100 Gbps, allowing “subscribers to add bandwidth as needed.”¹⁰⁹ The Ethernet service offerings include:

- Ethernet Private Line Service: Point-to-point connectivity between two customer sites for bandwidth-intensive applications, i.e., accessing cloud services and data centers;
- Ethernet Virtual Private Line Service: A point-to-multipoint connection that allows customers to tailor bandwidth, performance characteristics and cost to meet the needs of their applications;
- Ethernet LAN Service: Multipoint-to-multipoint connectivity to connect organizations with high-bandwidth requirements and multiple locations across a provider’s network; and
- Ethernet Dedicated Internet Access Service: Continuous, high-bandwidth connectivity between customers’ LANs and the public Internet.¹¹⁰

48. Even with the proliferation of the Ethernet protocols, providers may, and often do, utilize different protocols in the last-mile access and transport portions of their networks. For example, a provider may offer Ethernet local access to a Multiprotocol Label Switching (MPLS) transport network, which uses labels to identify virtual links (paths) between distant nodes. MPLS allows providers to encapsulate and transport packets using various network protocols, including Ethernet, Frame Relay, and Asynchronous Transfer Mode (ATM).¹¹¹ The MPLS network can efficiently transport traffic streams using both older and newer technology specifications. Other commonly used transport protocols over fiber optic backbones include Dense Wavelength Division Multiplexing and Synchronous Optical Networking.¹¹²

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other layers are as follows: Layer 3 – Network; Layer 4 – Transport; Layer 5 – Session; Layer 6 – Presentation; and Layer 7 – Application. *Id.* at 655-56.

¹⁰⁶ See Institute of Electronics and Electrical Engineers, The 40th Anniversary of Ethernet, History of Ethernet, <http://standards.ieee.org/events/ethernet/history.html>; <http://standards.ieee.org/events/ethernet/index.html> (“Data center networks, PCs, laptops, tablets, smartphones, and now the smart grid, smart meters, personal medical devices, the Internet of Things, connected cars, and more – Ethernet touches them all in one way or another.”) (last visited Feb. 18, 2016); Metro Ethernet Forum, Metro Ethernet Services – Technical Overview, at 18, https://www.mef.net/Assets/White_Papers/Metro-Ethernet-Services.pdf (last visited Feb. 18, 2016) (MEF Overview).

¹⁰⁷ See Jim Duffy, The History of Metro Ethernet, Network World (June 22, 2011), <http://www.networkworld.com/article/2178567/lan-wan/the-history-of-metro-ethernet.html>.

¹⁰⁸ *Id.*

¹⁰⁹ See Baker Decl. at 5; MEF Overview at 1.

¹¹⁰ MEF Overview, https://www.mef.net/Assets/White_Papers/Metro-Ethernet-Services.pdf.

¹¹¹ Multi-Protocol Label Switching (MPLS), <http://www.protocols.com/papers/mpls.htm>.

¹¹² MEF Overview at 2.

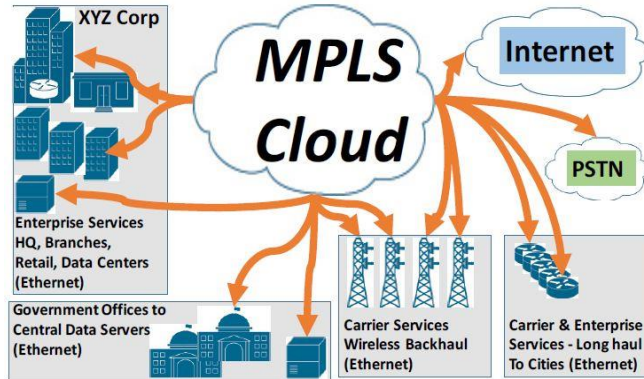


Figure 3. MPLS/Ethernet Network Architecture.

49. Provider networks can, and often do, consist of a blend of connection mediums with fiber used in the high-capacity transport portion of the network and with some mix of fiber, coaxial cable, unshielded copper (hereafter “copper”), and to a lesser extent wireless for the last mile connection. The underlying physical infrastructure plays an important role on the available capacity of the service offering. For example, using copper for the last-mile connection will greatly limit the capacity of the BDS service offering absent the deployment of additional lines to the location.¹¹³ In contrast, a last-mile fiber connection to a building will provide the greatest flexibility to increase service capacity without having to deploy additional lines.¹¹⁴

50. Incumbent LEC BDS providers have historically provided the overwhelming majority of TDM services using copper. TDM services, however, are not dependent on a certain connection medium. Providers sometimes also provide TDM services over fiber and coaxial cable.¹¹⁵ Conversely, providers use fiber and coaxial cable to supply packet-based BDS but can also deliver such service over copper.¹¹⁶

B. Facilities-Based Suppliers of Business Data Services

51. There are two main groups of BDS suppliers, incumbent and competitive LECs. At a holding-company level, there are 13 incumbent LECs subject to price cap regulation.¹¹⁷ The four largest

¹¹³ Digital Crossroads 27 (“The bandwidth of copper wires is much more limited [than fiber] and varies inversely and dramatically with length.”).

¹¹⁴ *Id.* (“[F]iber has exceptionally high bandwidth—that is, data carrying capacity—that does not vary significantly with the distance between the telephone company’s central office and a customer’s home.”).

¹¹⁵ See, e.g., Letter from Frederick Moacdieh, Executive Director, Federal Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, Certification of Network Changes, CC Docket No. 96-98, at 1 (filed Oct. 9, 2015) (“There will be no change in the underlying features and functionalities in their service: this is not a transition to IP-based service and these customers will be offered the same regulated service they have today.”); Ithiel de Sola Pool, Technologies of Freedom, 37 (1983) (discussing the use of TDM over coaxial cable).

¹¹⁶ For example, providers can, and do, add equipment to bare copper loops to offer Ethernet-over-Copper (EoC) service, with capacities ranging from 1-20 Mbps. See McReynolds Decl. at 6 (“EoC can be used to provide higher speeds to a small number of locations, but this is impossible in most locations due to the length of the copper loop and other factors.”) (McReynolds Decl.).

¹¹⁷ Incumbent LECs (at the holding company level) currently subject to price cap regulation are: ACS; AT&T, CenturyLink; Cincinnati Bell; Consolidated Communications, Frontier; Hawaiian Telecom; PTI Pacifica; Puerto Rico Telephone Company; FairPoint; Verizon; Virgin Islands Telephone Company d/b/a Innovative Telephone; and Windstream.

incumbent LECs, in order by locations reported in the *2015 Collection*, are AT&T, CenturyLink, Verizon, and Frontier.¹¹⁸

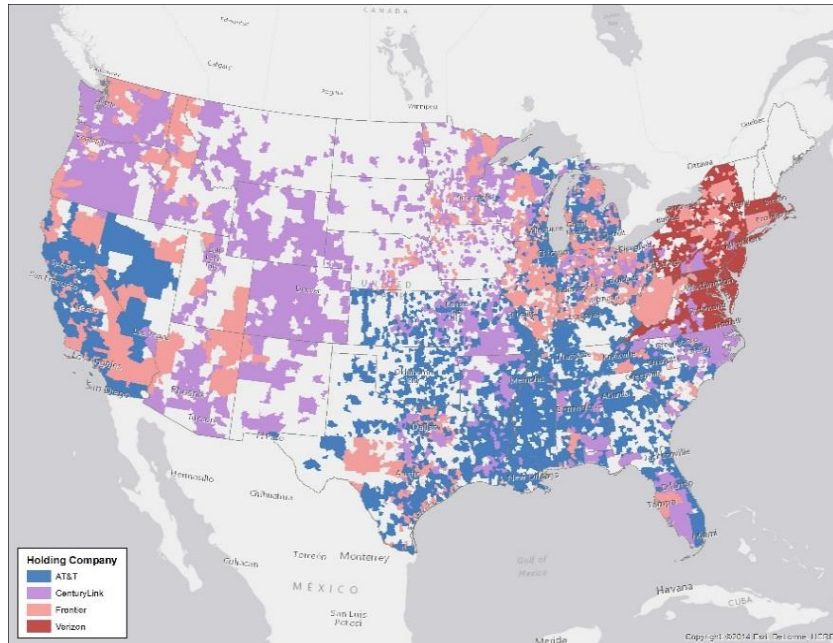


Figure 4. Price Cap Territories for the Top Four Incumbent LECs.¹¹⁹

52. Incumbent LECs are the primary facilities-based suppliers of legacy TDM services and increasingly provide packet-based BDS. Because of their historical position as the monopoly provider of telecommunications services and the carrier of last resort, the incumbent LECs' networks are ubiquitously deployed to connect residential and business locations throughout their respective incumbent service territories.¹²⁰ Their legacy networks consist of copper to locations (i.e., the same medium used to create telephone systems in the late nineteenth century), central offices, and circuit switches. But over the past few decades, incumbent LECs have increasingly updated their copper networks with fiber and IP-based architecture to improve system capacity to handle the ever increasing demand for data services, and to

¹¹⁸ In some cases, a competitive provider affiliated with an incumbent LEC reported locations as a competitive provider when the locations were in the affiliated incumbent's territory. In that case, the Bureau treated those locations as belonging to the incumbent LEC.

¹¹⁹ This map reflects: (1) the sale of Verizon's wireline operations in 14 states to Frontier in 2010 (i.e., operations in Arizona, California, Idaho, Illinois, Indiana, Michigan, Nevada, North Carolina, Ohio, Oregon, South Carolina, Washington, West Virginia, and Wisconsin); the sale of AT&T's Connecticut operations to Frontier in 2014; and the sale of Verizon's wireline operations in California, Florida, and Texas to Frontier, which closed at the end of March 2016. See Frontier Communications Receives Final Regulatory Approval in California to Acquire Verizon Operations, BusinessWire.com (Dec. 3, 2015), <http://www.businesswire.com/news/home/20151203006194/en/Frontier-Communications-Receives-Final-Regulatory-Approval-California>; Sean Buckley, *Frontier Wraps its Acquisition of AT&T's Connecticut Network Assets*, FierceTelecom (Oct. 24, 2014), <http://www.fiercetelecom.com/story/frontier-wraps-its-acquisition-atts-connecticut-network-assets/2014-10-24>; Sean Buckley, *Frontier completes 14-state Conversion of Verizon's Rural Lines*, FierceTelecom (Apr. 3, 2012), <http://www.fiercetelecom.com/story/frontier-completes-14-state-conversion-verizons-rural-lines/2012-04-03>. Underlying data is from Tele Atlas Telecommunications Suite 2010.06.

¹²⁰ Digital Crossroads 5 (discussing the 1913 Kingsbury Commitment whereby the "government placed its imprimatur on AT&T's monopoly control overall all U.S. telecommunications markets in which it was already dominant.").

gain efficiencies. Modernizing this legacy infrastructure requires significant investment by the incumbent LECs.¹²¹

53. Competitive LECs include any provider of BDS that is not an incumbent LEC.¹²² Competitive LECs are further divided based on distinctly different historical deployments into two provider types, non-cable and cable. Non-cable competitive LECs emerged in the late 1980s deploying high capacity fiber rings in metropolitan areas to offer a local transport alternative to the BDS of incumbent LECs.¹²³ Following the passage of the local competition provisions in the Telecommunications Act of 1996,¹²⁴ the number of non-cable competitive LECs grew significantly.¹²⁵

54. Unlike incumbent LECs and cable providers, non-cable operators typically do not ubiquitously deploy connections to locations in a local geographic area but instead target deployment in dense urban areas in response to significant business demand for BDS.¹²⁶ Non-cable competitive LECs lack the necessary budgets and economies of scale to viably overbuild and connect all businesses in an area with their own facilities in the hopes of attracting sales. They instead invest in transport within a local area based on potential demand and then rely on a mix of facility-based deployments and leased lines to connect end-user locations to their network facilities.¹²⁷

55. The decision to build or lease last-mile facilities generally occurs on a case-by-case basis when there is an interested, potential customer.¹²⁸ Whether to build a lateral connection can depend on a variety of factors, including the distance of a building to the competitive provider's existing network facilities, the density of business locations near the targeted location—especially the number of nearby multiple tenant buildings, the potential return on investment given the customer's service demand (e.g., revenues tend to increase with the customer's bandwidth demands), the term of the agreement with the customer, access to rights-of-way, and the ability to access buildings, among other factors.¹²⁹ Where facilities-based deployment is not commercially viable, non-cable competitive LECs look to the availability of leased lines from other providers.

56. Incumbent LECs are the primary wholesale supplier of services and leased lines to competitive providers.¹³⁰ Many of the services are DS1s and DS3s provided at FCC-regulated rates. In addition, section 251(c)(3) of the Act requires incumbent LECs to provide competitive LECs with DS1s,

¹²¹ See Teresa Mastrangleo, AT&T Details its \$14 Billion Project Velocity IP (VIP), BroadBandTrends.com (Nov. 7, 2012), <http://broadbandtrends.com/blog/2012/11/07/att-details-its-14-billion-project-velocity-ip-vip/>.

¹²² Competitive LECs include affiliates of incumbent LECs that are operating outside of the incumbent's territory.

¹²³ See, e.g., FCC, Local Competition Report, Table 2.1 (CCB Dec. 1998) (noting a more than 80 percent increase in the number of competitive access providers and competitive LECs from 1995-1997), https://transition.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcomp98.pdf.

¹²⁴ See Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996) (1996 Act).

¹²⁵ *But see* Birch et al. Comments, Appx. D (detailing a number of publicly-traded, non-cable competitive LECs that filed for bankruptcy in the 2000-2004 time period).

¹²⁶ *Data Collection Implementation Order*, 28 FCC Rcd at 13199, para. 23.

¹²⁷ XO Comments, Attach., Declaration of George Kuzmanovski at 2, para. 4 (Kuzmanovski Decl.) (“XO entered initially by building metro rings in dense areas of major cities, since these could aggregate traffic from more users and hence were more economical.”).

¹²⁸ *Id.* at 2, para. 10 (“[T]he process of XO's considering whether to build is driven by the receipt of new service requests from specific customers.”).

¹²⁹ See *infra*. Part V.F.2.

¹³⁰ See, e.g., Kuzmanovski Decl. at 4, para. 9 (“[W]here XO does not have facilities of its own and seeks access to unbundled copper loops or TDM or Ethernet special access services to a proposed customer location, XO will most often have to purchase from the ILEC.”).

DS3s, and bare copper loops as Unbundled Network Elements (UNEs).¹³¹ UNE rates, as determined by the state public utility commissions, are based on forward-looking costs and not on the incumbent LECs' historic costs.¹³² Intended to facilitate competition through facilities-based entry into local markets, UNE rates are typically lower than the incumbent LEC rates for regulated DS1 and DS3 services.¹³³

57. The availability of UNEs from incumbent LECs, however, is limited. DS1 and DS3 UNE loops are allowed only in those buildings located within the service area of an incumbent LEC wire center that falls below certain business density line and fiber collocation thresholds.¹³⁴ Further, the maximum number of available DS1 UNEs is capped at 10 and the number of DS3 loops is capped at one for any building located within an eligible wire center's territory.¹³⁵ Competitive LECs (which exclude mobile providers) also cannot obtain UNEs for the "exclusive provision of mobile wireless services."¹³⁶ Finally, the extent to which UNEs are available after copper loops are retired and replaced with fiber is the subject of a pending petition for declaratory ruling.¹³⁷

58. Many non-cable competitive LECs have deployed state-of-the-art fiber network facilities and are able to offer customers a variety of innovative business services, including dedicated high-capacity transmission, cloud computing, data storage, IT, managed security, and video conferencing. The largest facilities-based providers of this type based on the unique number of reported locations with connections in the *2015 Collection*, excluding reported locations with UNE connections, are: Level 3 Communications, LLC (Level 3), Zayo Group, LLC (Zayo), U.S. TelePacific Corp. (TelePacific), and Birch Communications, Inc. (Birch).¹³⁸

¹³¹ 47 U.S.C. § 251(c)(3).

¹³² *Verizon Commc'ns Inc. v. FCC*, 535 U.S. 467, 497 (2002) (upholding FCC decision requiring state commissions to set the rates charged by incumbents for leased elements on a forward-looking basis).

¹³³ See *United States Telecom Ass'n v. FCC*, 359 F.3d 554, 561 (D.C. Cir.) cert. denied, 125 S.Ct. 313 (2004); UNE rates are prices based on forward-looking costs, while DS1 and DS3 services are subject to the more flexible "just and reasonable standard". *Unbundled Access to Network Elements, Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Order on Remand, 20 FCC Rcd 2533, 2562-63, para. 51 (2005) (*Triennial Remand Order*).

¹³⁴ 47 CFR § 51.319(a)(4)(i) (stating that DS1 UNEs are available "to any building not served by a wire center with at least 60,000 business lines and at least four fiber-based collocators"); *id.* § 51.319(5)(ii) (stating that DS3 UNEs are available "to any building not served by a wire center with at least 38,000 business lines and at least four fiber-based collocators").

¹³⁵ 47 CFR § 51.319(a)(4)(ii), (5)(ii).

¹³⁶ *Id.* § 51.309(b).

¹³⁷ Specifically, Windstream has filed a petition "request[ing] that the Commission issue a declaratory ruling to confirm that an incumbent [LEC's] obligations to provide DS1 and DS3 capacity loops on an unbundled basis . . . are not altered or eliminated either by replacement of copper with fiber or by the conversion of transmission from TDM to [IP] format." Windstream Corporation Petition for a Declaratory Ruling, GN Docket No. 13-5 et al., at 1 (Dec. 29, 2014). *But see, e.g.,* AT&T Services, Inc., Opposition, GN Docket No. 13-5 et al., at 3-4 (Feb. 5, 2015) (disputing Windstream's position and asserting that "the Commission's rules do not require ILECs to unbundle DS1 and DS3 loops after transitioning from TDM to all-IP networks or on all fiber loops").

¹³⁸ This list is based on the reported 2013 data and combines the locations of tw telecom holdings llc with Level 3's and the locations of Cbeyond Communications, LLC with Birch's due to the 2014 merger activity involving these entities. See Press Release, Level 3, Level 3 Completes Acquisition of TW Telecom (Oct. 31, 2014); <http://investors.level3.com/investor-relations/press-releases/press-release-details/2014/Level-3-Completes-Acquisition-of-tw-telecom/default.aspx>; *Birch Communications completes Cbeyond Acquisition*, Atlanta Business Chronical (July 21, 2014), http://www.bizjournals.com/atlanta/morning_call/2014/07/birch-communications-completes-cbeyond-acquisition.html.

59. Over the past ten years, cable system operators have emerged as significant suppliers of BDS. The largest providers are Comcast Corporation (Comcast), Time Warner Cable (TWC), Charter Communications, Inc. (Charter), Cox Enterprises, Inc. (Cox), and Cablevision Systems (Cablevision).¹³⁹ Operators widely deployed cable systems in residential areas in the 1980s following the adoption of the Cable Act pursuant to local monopoly franchises to deliver cable television service to communities.¹⁴⁰ In the mid-2000s, cable operators started to strategically expand their reach to serve business customers, focusing initially on small businesses in their franchise areas with less than 20 employees with their “best efforts” Internet broadband service offerings.¹⁴¹ By 2008, network upgrades allowed cable industry executives to begin “including cell backhaul in their overall commercial service planning,” and by 2011, cable companies were expanding their service to mid-sized businesses with between 20 and 500 employees.¹⁴² In the last year, cable operators have strategically set their sights even higher on serving the needs of the nation’s largest business customers.¹⁴³

60. The cable system architecture consists of headends with cable modem termination systems, which are the equivalent to incumbent LECs’ central offices, where programming and data traffic are received from fiber-optic and satellite links. The collected traffic is then distributed to individual locations equipped with cable modems through a combination of fiber feeder plant and coaxial cable laterals, i.e., hybrid-fiber coax (HFC).¹⁴⁴ To a lesser extent, cable system operators have deployed fiber all the way to end user locations.¹⁴⁵

¹³⁹ See *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 14-16, Sixteenth Report, 30 FCC Rcd 3053, para. 25 (2015). Charter has sought Commission approval to acquire TWC and cable company, Bright House Networks LLC (Bright House). *Commission Accepts for Filing Applications of Charter, TWC, and Advance/Newhouse Partnership for Consent to Transfer Control of Licenses and Authorizations*, MB Docket No. 15-149, Public Notice, 30 FCC Rcd 8107, 8110 (MB 2015) (Charter Public Notice). Altice NV (Altice), a European company, recently acquired a 70 percent ownership interest in Cequel Corporation d/b/a Suddenlink Communications (Suddenlink) and has sought Commission approval to acquire Cablevision. *Applications Filed for the Transfer of Control of Cablevision to Altice*, WC Docket No. 15-257, Public Notice, DA 15-1258 (MB Nov. 5, 2015); Mike Farrell, *Altice Closes Suddenlink Deal*, MultiChannel News (Dec. 21, 2015), <http://www.multichannel.com/news/cable-operators/altice-closes-suddenlink-deal/396139>

¹⁴⁰ Letter from Matthew Brill, Counsel to Comcast, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, 2 (Mar. 25, 2016) (“Like all cable providers, Comcast historically focused on residential areas, but in recent years the Company has expanded its cable/broadband plant to reach additional commercial customers.”) (Comcast *Ex Parte* Mar. 25, 2016); *Qwest Phoenix Order*, 25 FCC Rcd at 8658, para. 69 (“Cox’s non-cable plant facilities are not widely deployed, however, and it apparently provides little, if any, wholesale service over its cable plant, which is deployed primarily in residential areas.”).

¹⁴¹ See Alan Weissberger, *Comcast Fiber Network Buildout Gives Rise to Metro Ethernet and PRI Trunking Services for SMBs* (May 23, 2011) (quoting Andrew Johnson, Comcast, “In 2006, Comcast made a strategic decision to invest in serving small to mid-sized business customers.”), <http://viodi.com/2011/05/23/comcast-fiber-network-buildout-gives-rise-to-metro-ethernet-and-pri-trunking-services-for-smbs/>.

¹⁴² Tim McElgunn, *Cable on Track to Grab Third of U.S. Backhaul Revenue*, Bloomberg BNA (Aug. 12, 2011), <http://www.bna.com/cable-track-grab-n12884903104/>; Stephen Lawson, *Comcast Rolls Out Metro Ethernet*, Telarus (May 16, 2011), <http://www.telarus.com/blog/comcast-rolls-out-metro-ethernet.php> (Lawson Article).

¹⁴³ See *Comcast Creates Enterprise Services Unit to Target Big Businesses*, CNBC.com (Sept. 15, 2015) (“Comcast has set up a new business services division to sell broadband, Wi-Fi, ethernet and other services to large companies in the Fortune 1000 list, hoping to attract new revenue Over the last six to nine months, Comcast has signed up 25 to 30 customers with \$45 million in contracts”), <http://www.cnbc.com/2015/09/16/comcast-creates-enterprise-services-unit-to-target-big-businesses.html>; Sean Buckley, *Charter Business Develops Website Targeting Large Businesses* (Dec. 9, 2015), <http://www.fiercetelecom.com/story/charter-business-develops-website-targeting-large-businesses/2015-12-09>.

¹⁴⁴ CableLabs defines an HFC system as “[a] broadband bidirectional shared-media transmission system using fiber trunks between the head-end and the fiber nodes, and coaxial distribution from the fiber nodes to the customer

(continued...)

61. Originally designed to carry bandwidth intensive video signals, the capacity of the HFC network is greater than the incumbent LECs' legacy copper-based infrastructure.¹⁴⁶ Cable system operators moved beyond video programming delivery into broadband Internet service offerings with the development of the Data-over-Cable Service Interface Specification (DOCSIS) in the late 1990s by Cable Television Laboratories, Inc. (CableLabs).¹⁴⁷

62. In 2006, cable companies were working on a Next-Generation Network Architecture project to combine their multi-system services into a converged network infrastructure.¹⁴⁸ The same year CableLabs released DOCSIS 3.0 enabling cable operators to offer "best efforts" transmission speeds of more than 150 Mbps downstream and 100 Mbps upstream over their HFC networks.¹⁴⁹ In 2008, TWC with its Ethernet Everywhere strategy became the first cable operator to obtain MEF 14 certification, signifying its MetroE network has the ability to offer quality of service backed by service level specifications, and became the first cable company to provide a "best efforts" version of Ethernet over DOCSIS absent performance guarantees with symmetrical speeds of 512 Kbps, 1.5 Mbps and 2 Mbps.¹⁵⁰

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 locations." DOCSIS 3.0, Operations Support System Interface Specification, CM-SP-OSSIV3.0-I28-151210, Section 3 at 33 (dated Dec. 10, 2015), <http://www.cablelabs.com/wp-content/uploads/specdocs/CM-SP-OSSIV3.0-I28-151210.pdf>; see also FCC Open Internet Advisory Committee, Specialized Services Working Group, Specialized Services: Summary of Findings and Conclusions, at 7 (rel. Aug. 20, 2013) ("In a typical implementation of an HFC system, a cable operator will extend fiber from a Cable Modem Termination System (CMTS) to an Optical Node in a local neighborhood, which can serve anywhere from a few to several hundred homes. From each Optical Node, coaxial cable is then used to deliver service to the home."), <https://transition.fcc.gov/cgb/oia/Specialized-Services.pdf>.

¹⁴⁵ Sean Buckley, Time Warner Cable, Comcast, Cox, Drive Cable MSO Ethernet Trend, says VSG, FierceTelecom (Mar. 16, 2015), <http://www.fiercetelecom.com/story/time-warner-cable-comcast-cox-drive-cable-mso-ethernet-trend-says-vsg/2015-03-16>.

¹⁴⁶ *Availability of Advanced Telecommunications Capability in the United States*, GN Docket 04-54, Fourth Report to Congress, 19 FCC Rcd 20540 at 14 (2004) ("The first specification, DOCSIS 1.0, allowed cable operators to deliver baseline high-speed Internet services on a "best effort" basis simultaneously over the same plant as core video services.").

¹⁴⁷ DOCSIS 3.0, Operations Support System Interface Specification, CM-SP-OSSIV3.0-I28-151210, Section 1.2.3 at 3 (dated Dec. 10, 2015) ("The DOCSIS system allows transparent bi-directional transfer of Internet Protocol (IP) traffic, between the cable system head-end and customer locations, over an all-coaxial or hybrid-fiber/coax (HFC) cable network."), <http://www.cablelabs.com/wp-content/uploads/specdocs/CM-SP-OSSIV3.0-I28-151210.pdf>.

¹⁴⁸ See Next-Generation Network Architectures, LightReading (Oct. 30, 2006), <http://www.lightreading.com/cable-video/video-services/next-generation-network-architecture-%28ngna%29/d/d-id/633911>.

¹⁴⁹ Eric Griffith, What is DOCSIS?, speedtest.com (Apr. 6, 2015), <http://www.speedtest.net/articles/what-is-docsis/>; but see Andrew Afflerbach et al., *Comparing Cable and Fiber Networks*, Broadband Communities 62 (Jan./Feb. 2015) ("Though cable operators widely offer download speeds of 'up to 150 Mbps' over their HFC networks, they are unable to support these speeds on a sustained basis for a large percentage of customers simultaneously without significant upgrades to their networks.") (Afflerbach Article). Some cable operators have improved network performance to enable even faster downstream speeds, e.g., TWC offers download/upload speeds of up to 300/20 Mbps in select metro areas. Karl Bode, Time Warner Cable Brings 300 Mbps 'Maxx' Upgrades to Charlotte (Apr. 9, 2015), <http://www.dsreports.com/shownews/Time-Warner-Cable-Brings-300-Mbps-Maxx-Upgrades-to-Charlotte-133312>.

¹⁵⁰ TWC Business Class Becomes First North American Service Provider to Achieve MEF 2.0 Certification for All Six Retail Ethernet Service Types (Jan. 31, 2014), <http://www.timewarnercable.com/en/about-us/press/twc-bc-achieves-mef-ce-20-certification.html#>; Aricent, MEF Certification – Challenges, Solutions, Best Practices, at 1 (2011) https://www.aricent.com/pdf/Aricent_guide_MEF_certification.pdf; TWC Business Class Becomes First North American Service Provider to Achieve MEF 2.0 Certification for All Six Retail Ethernet Service Types (Jan. 31, 2014), <http://www.timewarnercable.com/en/about-us/press/twc-bc-achieves-mef-ce-20-certification.html#>; Mike

(continued...)

That same year, Cox received its MEF 14 certification¹⁵¹ In 2011, Comcast rolled out MetroE services to 20 of the top 25 metropolitan areas entirely over fiber, meaning there must be fiber at the location to receive the service with plans ranging from 1 Mbps to 10 Gbps.¹⁵² Based on recent reports by providers, having fiber at the location is a prerequisite for receiving Ethernet services with symmetrical speeds in excess of 10 Mbps with performance guarantees; such Ethernet services are not available to users connected to the cable operators' HFC networks.¹⁵³

63. By 2013, cable networks with DOCSIS 3.0 were offering maximum download speeds in excess of 50 Mbps to 80 percent of the U.S. households and download speeds in excess of 100 Mbps to more than 55 percent of households according to the National Broadband Map data.¹⁵⁴ These numbers remain largely unchanged in the most recently available National Broadband Map statistics.¹⁵⁵

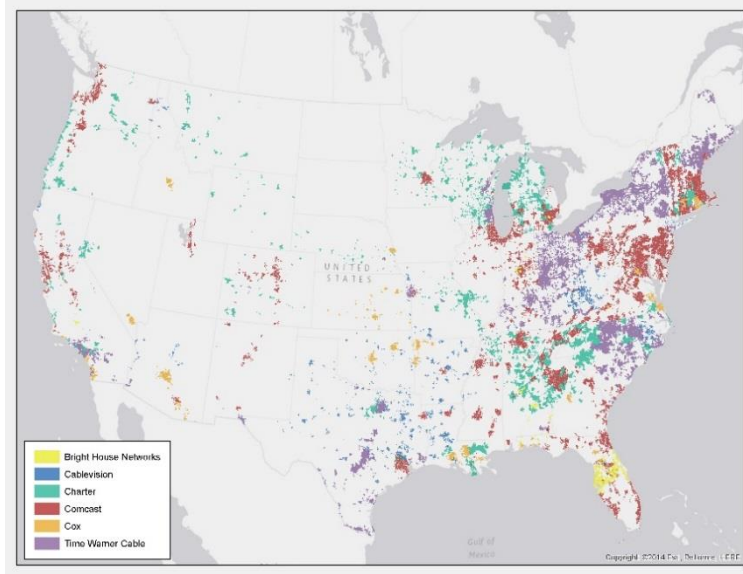


Figure 5. Map showing business DOCSIS 3.0 coverage by census block.¹⁵⁶

64. The DOCSIS 3.0 specification allows cable operators to provide a Layer 2 Ethernet virtual private network over HFC with service level agreements (SLAs) including quality of service,

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Robuck, TWC's New Ethernet Service Rolls into New York City, CED (Oct. 23, 2008), <http://www.cedmagazine.com/news/2008/10/twcs-new-ethernet-service-rolls-new-york-city>.

¹⁵¹ See Cox Nets Advanced Ethernet Nod, LightReading (Apr. 29, 2008), <http://www.lightreading.com/ethernet-ip/ethernet-services/cox-nets-advanced-ethernet-nod/d/d-id/655592>.

¹⁵² See Lawson Article.

¹⁵³ See, e.g., Comcast *Ex Parte* Mar. 25, 2016 at 3 (providing table showing bandwidth speed ranges for Ethernet over DOCSIS and Ethernet over fiber).

¹⁵⁴ National Broadband Map, Broadband Statistics Report, Access to Broadband Technology by Speed, Data as of Dec. 2013, at 4 (rel. July 2014), http://www2.ntia.doc.gov/files/broadband-data/TechnologyBySpeedDec2013_updated.pdf.

¹⁵⁵ National Broadband Map, Broadband Statistics Report, Access to Broadband Technology by Speed, Data as of June 2014, at 4 (rel. Mar. 2015), <http://www.broadbandmap.gov/download/Technology%20by%20Speed.pdf>.

¹⁵⁶ Based on National Broadband Map data as of Dec. 2014. Includes data for Technology Transmission Codes 42 (Cable Modem – DOCSIS 3.0) and 50 (Optical Carrier/Fiber to the End User) where mass market/consumer broadband service is available in the block.

enabling remote access for business employees.¹⁵⁷ Comcast began providing this type of service in 2012 at symmetrical speeds of 2 to 6 Mbps.¹⁵⁸ The latest version of the business class service rolled out by Comcast in 2014, called Ethernet @Home, is offered with symmetrical speeds ranging from 2 to 10 Mbps with a 99.9 percent uptime SLA.¹⁵⁹ At the end of 2015, TWC began offering an Ethernet-over-DOCSIS service with symmetric speeds of [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] and SLAs.¹⁶⁰ Prior to providing SLAs, TWC's service level objectives for Ethernet-over-DOCSIS were 99.95 percent availability and a mean time to repair of 4-8 hours with an installation time frame of less than 30 days.¹⁶¹ Potential applications for service include remote office or retail store VPN, bank ATM/point-of-sale, small office VoIP, remote monitoring, online collaboration, and "non-mission critical applications."¹⁶² In comparison, TWC's SLAs for its Ethernet over fiber offering with available symmetrical speeds between 5 Mbps to 10 Gbps include 99.99 percent availability, a 4 hour mean time to repair, 10 milliseconds latency, and less than 0.1 percent packet loss.¹⁶³

65. DOCSIS 3.1, released in October 2013, allows for even faster speeds than DOCSIS 3.0, e.g., "best efforts" asymmetrical speeds of up to 10 Gbps downstream and 1 Gbps upstream.¹⁶⁴ DOCSIS 3.1 is backward compatible with DOCSIS 3.0 but does require upgraded network and customer modem equipment.¹⁶⁵ The largest cable company, Comcast, plans to start offering gigabit speed service using DOCSIS 3.1 by the end of 2016.¹⁶⁶ Other large cable companies plan to conduct field trials of DOCSIS 3.1 this year with deployment plans in 2017.¹⁶⁷ CableLabs is also currently working on an extension of

¹⁵⁷ See CableLabs, *Data-Over-Cable Service Interface Specifications: Business Services Over DOCSIS; Layer 2 Virtual Private Networks; CMB-SP-L2VPN-114-150305*, at 49 (rev. Mar. 5, 2015), available at <http://www.cablelabs.com/wp-content/uploads/specdocs/CM-SP-L2VPN-I15-150528.pdf>.

¹⁵⁸ Jeff Baumgartner, Comcast Meshes Ethernet with DOCSIS 3.0, LightReading (Dec. 6, 2012), <http://www.lightreading.com/ethernet-ip/ethernet-services/comcast-meshes-ethernet-with-docsis-30/d/d-id/700115>.

¹⁵⁹ See Lawson Article (reporting that Comcast's Ethernet @Home service costs between \$200 and \$800 per month); Comcast Business, Ethernet @Home, <http://business.comcast.com/ethernet/products/ethernet-at-home> (last visited Mar. 3, 2016).

¹⁶⁰ Letter from Matthew Brill, Counsel to TWC, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, at 2-3 (filed Mar. 3, 2016) (TWC *Ex Parte*).

¹⁶¹ Marc Dyman, VP of Carrier Sales, TWC, TWC Carrier Services Presentation, Slides 20, 21 (published Aug. 31, 2015), <http://www.slideshare.net/MarcDyman/twc-carrier-services-presentation>.

¹⁶² *Id.* at Slide 20.

¹⁶³ *Id.* at Slide 22.

¹⁶⁴ See Karl Bode, CableLabs Releases DOCSIS 3.1 Specification, DSL Reports (Oct. 30, 2013), <http://www.dslreports.com/shownews/CableLabs-Releases-DOCSIS-31-Specification-126437>.

¹⁶⁵ Tony Werner, Comcast, World's First Live DOCSIS 3.1 Gigabit Class Modem Goes Online in Philadelphia (Dec. 22, 2015), <http://corporate.comcast.com/comcast-voices/worlds-first-live-docsis-3-1-gigabit-class-modem-goes-online-in-philadelphia>; see Afflerbach Article at 63-64; Allan Breznick, Smaller MSOs Prep for DOCSIS 3.1 & PON, LightReading (Feb. 17, 2016), <http://www.lightreading.com/cable/docsis/smaller-msos-prep-for-docsis-31-and-pon--/d/d-id/721118>.

¹⁶⁶ *Id.*

¹⁶⁷ Jeff Baumgartner, Cox Plots DOCSIS 3.1 Plans, Multichannel News (Sept. 22, 2015) (stating that Cox plans to ramp up DOCSIS 3.1 deployments in 2017), <http://www.multichannel.com/news/distribution/cox-plots-docsis-31-plans/393996>; Daniel Frankel, TWC's Marcus: DOCSIS 3.0 Still Has a Lot of Juice in It, FierceCable (Dec. 9, 2015), <http://www.fiercecable.com/story/twcs-marcus-docsis-30-still-has-lot-juice-it/2015-12-09>; Alan Breznick, Charter Plots Cloud Video, DOCSIS 3.1 Rollouts, LightReading (Feb. 4, 2016) (stating that Charter plans to transition in the next 18 months by deploying DOCSIS 3.1 modems), <http://www.lightreading.com/cable/set-top-boxes/charter-plots-cloud-video-docsis-31-rollouts/d/d-id/720883>.

DOCSIS 3.1 that promises to enable symmetrical speeds of 10 Gbps but the release and actual deployment of such technology is likely some years away.¹⁶⁸

66. It has recently come to our attention that a cable CLEC's data submission is inconsistent with the *2013 Data Collection Implementation Order* because it did not identify all locations with connections of any kind served by a Metro-E headend.¹⁶⁹ We expect an updated filing will be made and the data set will be updated accordingly. Although we take this omission seriously, it does not impact our action on the Further Notice today because we are adopting a further notice of proposed rulemaking and stakeholders will have the opportunity to consider the updated data and its impact on our analysis in the comment period.

C. Other Providers

67. Separate from the provision of BDS services, many companies provide access to dark fiber, and in some cases, this is the primary focus of their business. Dark fiber providers include Zayo, Integra, Level 3, and Crown Castle.¹⁷⁰ Typically dark fiber suppliers grant, for a fee, a lessee an indefeasible right of use (IRU) to a strand of fiber for a decade or more. Lessees, like mobile carriers and system integrators, can equip the fiber with the necessary electronics to provide any service they wish, including BDS. Consequently, the supply of BDS over dark fiber takes on significant aspects of facility-based competition. Dark fiber is particularly attractive for competitive LECs seeking to expand their network reach and mobile carriers needing cell site backhaul.

68. Finally, the record is somewhat mixed on the viable use of fixed wireless to provide BDS. In the mobile wireless sector, carriers have historically relied on fixed wireless, i.e., often self-provisioned microwave point-to-point links, to backhaul aggregated traffic from their macro cell sites.¹⁷¹ This is especially true when transporting traffic from towers, which often pose less line-of-sight issues. In the *2015 Collection*, mobile providers reported that about 40 percent of their cell sites have self-provisioned wireless backhaul facilities. This strongly supports a finding that fixed microwave is a viable alternative for wireline facilities to serve the needs of mobile providers.

69. The viability of fixed wireless to provide last-mile access to end users, especially in urban areas, however, is the subject of debate. TDS conducted wireless last-mile access trials and found the technology "insufficient to meet consumers' needs for bandwidth and reliability."¹⁷² Level 3 states that fixed wireless "services are subject to well-known limitations, including line-of-sight restrictions and limited range" and "[b]ecause of these limitations, these services generally do not offer the level of speed and reliability that Level 3's customers demand."¹⁷³ XO Communications, LLC (XO) states, however, that "[i]n some instances, [a] limited fixed wireless offering can substitute for a standalone wired connection" but notes there are often limitations with fixed wireless, "including congestion, interference,

¹⁶⁸ See Ben Munson, *CableLabs Says Full Duplex DOCSIS 3.0 Could Be Here Soon*, FierceCable (Feb. 26, 2016), <http://www.fiercecable.com/story/cablelabs-says-full-duplex-docsis-31-could-be-here-soon/2016-02-26>.

¹⁶⁹ Letter from Matthew Brill, Counsel for Comcast, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, at 1-2 (filed Apr. 26, 2016).

¹⁷⁰ See Sean Buckley, *Zayo, Crown Castle, other Dark Fiber Providers Could get Revenue Boost from C-RAN Fronthaul*, Says Wells Fargo, FierceTelecom (Feb. 12, 2016), <http://www.fiercetelecom.com/story/zayo-crown-castle-other-dark-fiber-providers-could-get-revenue-boost-c-ran/2016-02-12>; *The Contenders: Dark Fiber Providers Add a New Layer of Flavor on the Network Cake*, FierceTelecom (Nov. 6, 2013), <http://www.fiercetelecom.com/special-reports/contenders-dark-fiber-providers-add-new-layer-flavor-network-cake>.

¹⁷¹ Verizon Comments at 6 (stating "[w]ireless carriers have long used microwave facilities for the backhaul in their networks.>").

¹⁷² TDS Comments at 22.

¹⁷³ Level 3 Comments, McReynolds Decl. at para. 23.

rain fade, and need for line-of-sight, depending on the technology and frequencies used.”¹⁷⁴ In contrast, incumbent LEC commenters point to the fixed wireless efforts of Windstream Services, LLC (Windstream), XO and other providers as examples of its viability.¹⁷⁵ Clearly, not all wireless services are the same and the capabilities can vary significantly depending on the frequency band utilized with higher frequencies providing more line-of-sight and other operational challenges.¹⁷⁶

D. Business Data Services Purchasers

70. There are three main categories of BDS customers, the retail segment, i.e., end users, consisting of businesses, government entities, and non-profits; the carrier segment consisting of competitive LECs, who largely purchase BDS for resale and as an input to supplement their own facilities-based offerings; and mobile wireless providers, largely purchasing cell site backhaul.

71. Within the retail segment, BDS providers typically tailor their service offerings around certain business sizes and industry sectors. For example, the service options marketed by TWC vary between small businesses (1-24 employees), mid-size businesses (25-500 employees), and large businesses (500+ employees) and certain enterprise-level verticals such as commercial properties, education, financial, government, healthcare, hospitality, media transport, and retail.¹⁷⁷ Comcast has similarly focused its offerings on small businesses (1-20 employees), mid-sized business (21-500 employees), Fortune 1000 companies, and enterprise verticals such as hospitality, professional services, stadiums, government, education, manufacturing, healthcare, and financial services.¹⁷⁸

72. Windstream classifies customers by tiers: (1) lower-middle tier with 25-100 employees like a credit union, law firm, and healthcare entity with three sites in state; (2) middle tier with 100-500 employees, which commonly includes the government/education, financial, retail services and healthcare verticals; and (3) the upper-middle tier with more than 500 employees, like regional bank chains and hospital networks.¹⁷⁹ As Windstream explains, its “Enterprise business unit [focuses] on customers with complex solutions that generally need Dedicated Services with higher levels of performance and traffic prioritization requirements” and its “small and medium business . . . unit [focuses] on business service customers with less complex needs.”¹⁸⁰ XO also offers solutions by business size (small, medium, and enterprise), and Level 3 promotes solutions for healthcare, media and entertainment, financial services, government, and research and education.¹⁸¹ Additional sectors covered by Verizon include agriculture, construction, energy and utilities, and insurance sectors.¹⁸² Cincinnati Bell has also recently created a new

¹⁷⁴ XO Reply Comments at 23 n.63.

¹⁷⁵ Verizon Comments at 46.

¹⁷⁶ See, e.g., *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, GN Docket No. 14-177, Notice of Inquiry, 29 FCC Rcd 13020, 13022, para. 5 (discussing the technical challenges of providing wireless services in higher frequency bands).

¹⁷⁷ TWC *Ex Parte* at 3; TWC, <https://business.timewarnercable.com/>.

¹⁷⁸ Comcast *Ex Parte* Mar. 25, 2016 at 3; Comcast, <http://business2.comcast.com/enterprise>; Gerry Smith, Comcast Targets Big Businesses to Offset Consumer TV Defections, Bloomberg News (Sept. 16, 2015), <http://www.bloomberg.com/news/articles/2016-03-14/there-s-only-one-buyer-keeping-the-s-p-500-s-bull-market-alive>; see Alan Weissberger, Comcast Fiber Network Buildout Gives Rise to Metro Ethernet and PRI Trunking Services for SMBs (May 23, 2011) (quoting Andrew Johnson, Comcast, “In 2006, Comcast made a strategic decision to invest in serving small to mid-sized business customers.”), <http://viodi.com/2011/05/23/comcast-fiber-network-buildout-gives-rise-to-metro-ethernet-and-pri-trunking-services-for-smbs/>.

¹⁷⁹ Windstream Comments, Deem et al. Decl. at paras. 14-16.

¹⁸⁰ *Id.* at para. 10.

¹⁸¹ XO, <http://www.xo.com/>; Level 3, <http://www.level3.com/en/solutions/>.

¹⁸² Verizon, <http://www.verizonenterprise.com/about/>; see also AT&T, <http://www.business.att.com/> (promoting solutions for verticals).

unit to “focus on the needs of small to medium sized businesses [with fewer than 100 employees] that have unique needs that differ from the larger enterprise customers.”¹⁸³ AT&T similarly focuses offerings at businesses of different sizes and has solutions aimed at different industry sectors.¹⁸⁴

73. As Table 1 shows, almost 90 percent of the businesses in the United States have less than 20 employees and likely operate in a single location.¹⁸⁵ Whereas firms with greater than 500 employees, average more than 65 locations per firm.¹⁸⁶

Table 1. Statistics of U.S. Businesses for 2013¹⁸⁷

	Number of Employees Per Firm					Total
	< 5	5 - 19	20 - 99	100 - 499	500+	
Number of Firms	3,575,290	1,592,832	503,033	85,264	18,636	5,775,055
Number of Establishments	3,580,637	1,638,204	684,963	360,590	1,223,959	7,488,353

74. In the carrier segment, BDS providers promote service solutions for other carriers. For example, AT&T offers a suite of services directed at carriers, content providers, wireless providers, system integrators, Internet service providers, and international service providers.¹⁸⁸ Non-cable competitive LECs like XO offer “wholesale IP transit and high-speed network solutions to meet the explosive bandwidth demands being driven by cloud services, Internet access, video distribution, mobility, and new wireless technologies.”¹⁸⁹ Level 3 offers solutions to wireless providers to “manage [their] core infrastructure needs efficiently and cost effectively to address the massive growth in wireless data” and encourages U.S. carriers to “[g]et the whole experience” with its wholesale solutions.¹⁹⁰ And cable companies like TWC want carriers to discover a “portfolio of wholesale fiber and coax solutions from Carrier E-Access and Transport to Wholesale IP to Cell Tower Backhaul.”¹⁹¹

75. Carrier customers purchasing BDS at wholesale are most likely to include non-cable competitive LECs, including incumbent LECs operating outside their study areas. Incumbent LECs

¹⁸³ See Sean Buckley, Cincinnati Bell Creates SMB Unit Focused on Businesses with Less than 100 Employees, FierceTelecom (Feb. 10, 2016), <http://www.fiercetelecom.com/story/cincinnati-bell-creates-smb-unit-focused-businesses-less-100-employees/2016-02-10>.

¹⁸⁴ See AT&T, <https://www.att.com/smallbusiness/shop/index.html>; AT&T, <http://www.business.att.com/>.

¹⁸⁵ From the table, there are 5,168,122 firms with less than 20 employees, and those firms have 5,218,841 establishments, or on average there is 1 (= 5,218,841/5,168,122) establishment per each firm with less than 20 employees.

¹⁸⁶ From the table, there are 18,636 firms with 500 or more employees, and those firms have 1,223,959 establishments, or on average there are 66.6 (= 1,223,959/18,636) establishments per each firm with 500 or more employees.

¹⁸⁷ Definition of terms: Establishment – A business or industrial unit at a single location that distributes goods or performs services; Firm – A business organization or entity consisting of one domestic establishment (location) or more under common ownership or control; Company – For the economic census and other economic programs, the terms “firm” and “company” are synonymous. U.S. Census Bur., <https://ask.census.gov/faq.php?id=5000&faqId=487>.

¹⁸⁸ AT&T, <http://www.att.com/gen/general?pid=11624&source=EENT042114500147N>.

¹⁸⁹ XO, <http://www.xo.com/solutions/business/wholesale/>.

¹⁹⁰ Level 3, <http://www.level3.com/en/solutions/wholesale/>; <http://www.level3.com/en/solutions/wholesale/wholesale-wireless/>.

¹⁹¹ TWC, <https://business.timewarnercable.com/solutions/carrier-services.html>.

operating within their study areas and cable companies within their franchise areas are less likely to purchase BDS. Looking at the 2013 expenditures from the ten largest purchasers responding to question II.F.2 in the *2015 Collection* provides further insight into the wholesale market. All top ten purchasers were carriers, and none of the carriers were cable companies. In addition, the overwhelming majority of the expenditures were for services provided by incumbent LECs.

Table 2. Reported 2013 Expenditures on Dedicated Services (billions)¹⁹²

	ILECs	CPs	Total
Top 10 Purchasers Money Spent with Provider Type	\$9	\$1	\$10

76. The Bureau separately collected information from mobile wireless providers. The 15 responding wireless carriers reported having more than 237,000 cell sites in 2013 and spending more than \$5.6 billion on backhaul.¹⁹³ This compares with the total cell sites reported by the wireless industry association for 2013 and 2014 of about 304,000 and 298,000, respectively.¹⁹⁴ Not surprisingly almost 90 percent of the cell sites reported in response to the data collection belonged to the four national providers, AT&T, Sprint, T-Mobile and Verizon.

E. Increasing Data Demands

77. The increasing demand for bandwidth-rich applications, such as VoIP, video conferencing, cloud-based services, machine-to-machine communications, and the Internet of things, places an ever increasing demand on the data transmission capabilities of the underlying BDS network infrastructure. According to USTelecom's analysis of the Cisco Visual Networking Index, "U.S. Business Internet Protocol (IP) traffic grew from 3 exabytes per year in 2005 to 39 exabytes per year in 2015, a multiple of 13 and a compounded annual rate of 29 percent."¹⁹⁵ And Cisco's latest Visual Networking Index data forecast estimates that in the United States, business IP traffic will grow 3-fold from 2014 to 2019, a compound annual growth rate (CAGR) of 21 percent, and will reach 7.1 exabytes per month in 2019 (about 85 exabytes for the year), which is the equivalent of 2 billion DVDs per month.¹⁹⁶

¹⁹² For this table showing total expenditures for the top 10 purchasers, the expenditures reported for tw telecom were attributed to Level 3, and the expenditures reported for Cbeyond were attributed to Birch.

¹⁹³ See *2015 Collection*, Responses to Questions II.E.2-3. Note that mobile providers purchasing less than \$5 million in dedicated services in 2013 were not required to respond to the questions in Section II.E.

¹⁹⁴ See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services, WT Docket No. 15-125, *Eighteenth Report*, DA 15-1487 at para. 64 (WTB Dec. 23, 2015).

¹⁹⁵ USTelecom Comments at 5. One exabyte equals about a billion gigabytes. See Fortrust, How Big is an Exabyte? (Oct. 7, 2015), <http://www.fortrustdatacenter.com/colocation/how-big-is-an-exabyte/>.

¹⁹⁶ Cisco, <http://www.cisco.com/c/en/us/solutions/service-provider/visual-networking-index-vni/vni-forecast.html> (filter highlights by country and by business IP traffic).

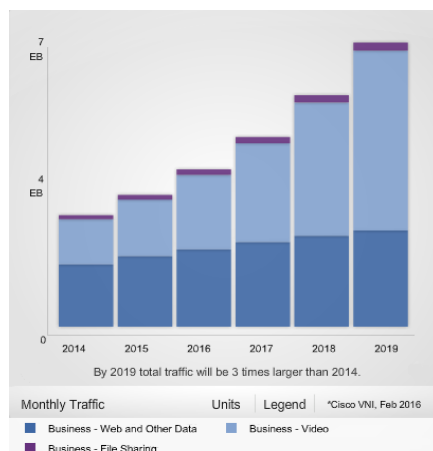


Figure 6. Cisco’s Business IP Traffic Forecast in the U.S. by Application Type.

78. The demand for mobile data services is also exploding, placing pressure on the need for higher-capacity backhaul connections to cell sites.¹⁹⁷ The United States leads the world in 4G LTE deployments with U.S. LTE subscribers making up over half of the 219 million global LTE subscribers and 99.5 percent of the U.S. population is covered by 4G LTE.¹⁹⁸ And carriers and policy makers are already planning ahead for 5G, which is expected to debut in 2020.¹⁹⁹ The latest Cisco forecast report for the United States shows:

- mobile data traffic grew 56 percent in 2015;
- mobile data traffic will grow 6-fold from 2015 to 2020, a CAGR of 42 percent;
- mobile data traffic will reach 2.9 exabytes per month by 2020;
- 96 percent of mobile connections will be smartphone connections by 2020, up from 74 percent in 2015;²⁰⁰ and
- mobile traffic per mobile-connected end-user device will reach 5,944 megabytes per month by 2020, up from 1,316 megabytes per month in 2015, a CAGR of 35 percent.²⁰¹

¹⁹⁷ See Letter from Steven Berry, President and CEO, Competitive Carriers Assoc., Chip Pickering, CEO, INCOMPAS, Vonya McCann, Senior VP, Govt. Affairs, Sprint, Kathleen O’Brian Ham, Senior VP, Govt. Affairs, T-Mobile, and Grant Spellmeyer, VP, Fed. Affairs and Public Policy, U.S. Cellular to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, RM-10593, at 1 (filed Apr. 21, 2016) (“To meet these demands, competitive carriers are developing and plan to deploy next generation mobile networks that will provide high capacity, high speed, and low latency services to data-hungry consumers. . . . These densified networks will require thousands of new cell sites . . . and an increase in dedicated wireline access . . .”) (Wireless Coalition Apr. 21, 2016 Letter).

¹⁹⁸ Tom Sawanabori, America Leads World in 4G LTE, CTIA (Mar. 4, 2016), <http://www.ctialatest.org/2016/03/04/america-leads-world-in-4g-lte-infographic/>.

¹⁹⁹ Colin Gibbs, Barclays: U.S. Carriers and Regulators Set to Lead Transition to 5G, FierceWireless (Mar. 8, 2016), <http://www.fiercewireless.com/story/barclays-us-carriers-and-regulators-set-lead-transition-5g/2016-03-08>; Joey Jackson, Report Predicts Tower, Small Cell Outlook Through 2025, RCR Wireless (July 15, 2015), <http://www.rcrwireless.com/20150715/cell-tower-news/report-predicts-tower-trends-through-2025-tag20> (SL Kagan Article).

²⁰⁰ Cisco Mobile White Paper at 2 (“smart devices” refers to mobile connections that have advanced multimedia/computing capabilities with a minimum of 3G connectivity”), <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.pdf>.

²⁰¹ Cisco, http://www.cisco.com/c/dam/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Country (filter highlights by country).

79. To keep pace with demand, carriers are not only deploying new macro cell sites but also implementing small cell site densification projects.²⁰² SNL Kagan reports that “by 2025 tower sites will grow at a CAGR of 3.9% . . . and there could be more than . . . 400,000 [macro] sites in use in the next 10 years.”²⁰³ ABI Research predicts a 43 percent CAGR for outdoor small cell deployments for the 2016-2020 period.²⁰⁴ The demand for backhaul will increase significantly based on these trend lines.²⁰⁵ One analyst forecasts the mobile backhaul transport market, accounting for small cell deployment, will “grow \$5.3 billion annually over the next five years.”²⁰⁶

F. Increasing Demand for Ethernet Services

80. As the demand for high-bandwidth services rises, users need increasing amounts of bandwidth for BDS. Ethernet services, especially over fiber, scale bandwidth to meet these demands more cost effectively than legacy TDM services.²⁰⁷ Providers must bond multiple DS1 lines together just to reach symmetrical transmission speeds in excess of 10 Mbps.²⁰⁸ This may require the costly deployment of additional lines to the location, and if a provider is already incurring the expense of trenching streets to deploy lines, then it makes more sense to install a higher capacity fiber line using newer technology protocols than deploying a copper line or coaxial cable. Once fiber lines with packet-based technology are deployed, it is relatively easy to increase bandwidth without further physical

²⁰² See Monica Allevan, Sprint CEO Presses for Speedier Small Cell Deployment, FierceWireless (Dec. 11, 2015) (reporting that Verizon “plan[s] to devote a significant percentage of its capex budget to densification, including small cells” and Sprint plans “tens of thousands’ of small cells to its network”), <http://www.fiercewireless.com/tech/story/sprint-ceo-presses-speedier-small-cell-deployment/2015-12-11>.

²⁰³ Cell sites used here refers to the mobile provider’s transmitting antenna equipment, which is located on physical tower structures. The “definition of a cell site excludes small cells but does include co-locatable distributed antenna systems.” SL Kagan Article. A tower can host multiple cell sites.

²⁰⁴ John Naylan, Why Wireless Backhaul Holds the Key to 5G, WirelessWeek (Mar. 15, 2016), <http://www.wirelessweek.com/article/2016/03/why-wireless-backhaul-holds-key-5g>.

²⁰⁵ Cisco correctly notes: “[b]ackhaul capacity must increase so mobile broadband, data access, and video services can effectively support consumer usage trends and keep mobile infrastructure costs in check.” Cisco, <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.pdf>.

²⁰⁶ Sean Buckley, Small Cell Backhaul to Contribute 25% of Backhaul Transport Revenue by 2020, FierceTelecom (Jan. 29, 2016), <http://www.fiercetelecom.com/story/small-cell-backhaul-contribute-25-backhaul-transport-revenue-2020/2016-01-29>. This revenue growth estimate appears high given that our data shows expenditures by reporting mobile providers totaling \$5.6 billion on dedicated services for 2013.

²⁰⁷ See, e.g., Verizon Comments at 10-11 (“Businesses today require high-bandwidth applications like datacenter interconnection, disaster recovery, video services, and access to cloud services. And they are replacing traditional TDM-based special access services with Ethernet services that offer greater flexibility, ease of implementation, ability to transport multiple types of traffic, higher bandwidth, and cost effectiveness.”) (internal citations omitted); AT&T Inc., Annual Report (Form 10-K), at 12 (Feb. 18, 2016) (“Network costs decreased \$434 [million] primarily due to lower interconnect costs resulting from our ongoing network transition to more efficient Ethernet/IP-based technologies.”); USTelecom Comments at 34; Windstream Comments at 58 (“Ethernet is more cost-efficient than TDM.”); “Business Case for Carrier Ethernet Services,” Cisco Systems <http://www.cisco.com/c/en/us/products/switches/catalyst-3750-metro-series-switches/index.html>. (“Combined with MPLS, Carrier Ethernet provides the capability to simultaneously reduce service delivery cost and induce customers to move to more attractive (and more profitable) service offerings.”) Archived at Webtorials <http://www.webtorials.com/main/resource/papers/cisco/paper79/BusinessCaseCarrierEthernetServices.pdf>.

²⁰⁸ See, e.g., Deem, Derstine, Kozlowski, Nichols, Scattareggia, and Smith Decl. at para. 69 (“TDM special access services provided over legacy facilities have more rigid and often lower bandwidth levels compared to fiber-based Ethernet.”).

network modifications.²⁰⁹ The following table comparing the monthly recurring charges for Ethernet and TDM at increasingly bandwidths highlights the cost efficient scalability of Ethernet versus TDM:

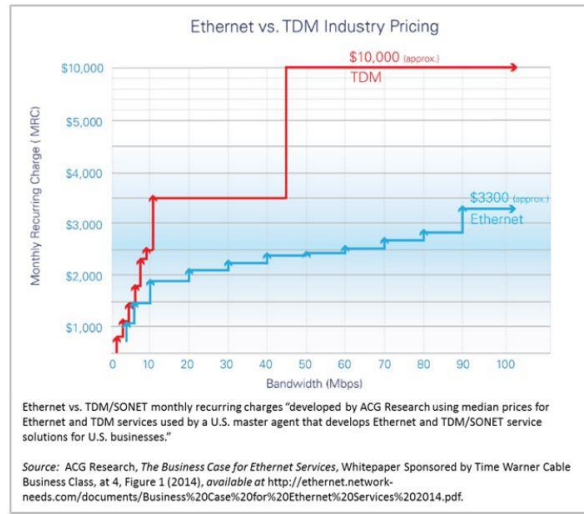


Figure 7. Chart comparing Ethernet and TDM pricing by bandwidth.²¹⁰

81. Packet-based services, which include Ethernet services, already make up a large part of the BDS marketplace. More than 40 percent of the approximately \$45 billion in dedicated service revenues reported for 2013 were for packet-based BDS services. And according to providers and analysts, the demand for packet-based services will only increase while legacy service sales shrink. Comparing January 2013 to December 2013 billing information from the *2015 Collection*, the bandwidth of Ethernet circuits provisioned by incumbent LECs grew by 5.3 percent, and those provisioned by competitive providers grew by 31.6 percent.²¹¹ CenturyLink reports that “[f]rom January 2012 to December 2015, the number of [its] DS1 special access circuits . . . declined by 47 percent.”²¹² XO’s new off-net Ethernet service orders now exceed their new TDM orders – “[a]lthough the decline in new orders for TDM services has historically been gradual, there are clear indications that the market for TDM services is shrinking on an accelerated basis, most markedly with DS3 channel terminations.”²¹³ AT&T’s DS1 billed revenues have “declined very sharply” since year-end 2013.²¹⁴ The Gartner Group “estimates that enterprise spending over the 2014-2019 period on [TDM] leased lines will decline by 18.6% annually so that leased lines will amount to only \$3 billion or 6% of enterprise spending by 2019. . . . Spending on Ethernet services, on the other hand, is estimated to grow by 9.1% annually and reach \$18.6 billion by

²⁰⁹ See Baker Decl. at 5; MEF Overview at 1.

²¹⁰ See USTelecom, *The FCC Should Not Pick Winners and Losers*, at 2 (Feb. 2016), <https://www.ustelecom.org/sites/default/files/files/documents/USTelecom-White-Paper-3.pdf>.

²¹¹ IRW White Paper at 24.

²¹² CenturyLink Comments, Brown & Williams Decl. at 2.

²¹³ XO Reply at 25; XO Comments, Chambless Decl. at 10.

²¹⁴ AT&T Comments at 16.

2019.”²¹⁵ ATLANTIC-ACM estimates that “Ethernet’s share of private transport will grow . . . to 66% in 2019 as every sales conversation now starts with Ethernet.”²¹⁶

82. Collected information on expenditures from mobile providers further illustrates the transition to newer technology in mobile backhaul services. About \$3 billion (or almost 54 percent) of the approximately \$5.6 billion that mobile providers spent on BDS in 2013 (which includes reported expenditures for the top four national mobile wireless providers) were for packet-based services.²¹⁷ Reports from the national mobile providers in recent years also show the migration from TDM backhaul with the increased penetration of 4G LTE. For example, after the announcement of its Velocity IP project in late 2012, more than 90 percent of the mobile data traffic carried on the AT&T Wireless network travels over Ethernet backhaul.²¹⁸ T-Mobile reported converting 95 percent of its 4G LTE cell sites to fiber backhaul and upgrading about 32,000 sites to fiber backhaul.²¹⁹ Sprint completed a modernization program in mid-2015, modifying its “existing backhaul architecture to enable increased capacity to [its] network at a lower cost by utilizing Ethernet as opposed to [TDM] technology.”²²⁰

83. The Vertical Systems Group carrier Ethernet leaderboard in recent years also shows rising levels of billable retail Ethernet port installations in the United States, e.g., Ethernet ports grew 26 percent in 2013, 24 percent in 2014, and by more than 20 percent in 2015.²²¹ Ethernet access to IP/MPLS VPNs was the “fastest growing application” for 2013 and “[f]or Gigabit speed Ethernet services, the top applications were connectivity to Data Centers and Cloud services.”²²² Cable companies and non-cable competitive LECs are ranked among the top Ethernet providers with incumbent LECs:

²¹⁵ See Anna-Maria Kovacs, Regulation in Translation, Business Broadband: Assessing the Case for Reregulation at 10 (Mar. 2016), <http://cbpp.georgetown.edu/sites/cbpp.georgetown.edu/files/Regulation%20in%20Financial%20Transaction%20Business%20Broadband%20Assessing%20the%20Case%20for%20Reregulation%20Kovacs%203.14.16.pdf>.

²¹⁶ Charlie Reed, Top Business Telecom Networking Trends in 2015, Telecom Ramblings (Feb. 12, 2015), <http://www.telecomramblings.com/2015/02/top-business-telecom-networking-trends-2015/>.

²¹⁷ The percentage of those expenditures that went to incumbent and competitive LECs was about 60 percent and 40 percent, respectively.

²¹⁸ AT&T, Network Reliability, <http://about.att.com/content/csr/home/issue-brief-builder/technology/network-reliability.html>.

²¹⁹ See David Beren, *T-Mobile Says “Backhaul Strategy Key to A Competitive 4G Experience,”* TmoNews: The Unofficial T-Mobile Blog (Aug. 1, 2012), <http://www.tmonews.com/2012/08/t-mobile-says-backhaul-strategy-key-to-a-competitive-4g-experience/>; Wayne Rash, *T-Mobile LTE Backhaul Nearly Complete*, FierceMobileIT (Aug. 7, 2012), <http://www.fiercemobileit.com/story/t-mobile-lte-backhaul-nearly-complete/2012-08-07> (“T-Mobile is eliminating the old T1 lines from its system, and that all but a handful have already been replaced with fast network connections.”).

²²⁰ See Sprint Corp., Form 10-K, at 27 (SEC filed May 26, 2015), <http://www.sec.gov/Archives/edgar/data/101830/000010183015000012/sprintcorp201410-k.htm>.

²²¹ Vertical Systems Group, 2013 U.S. Carrier Ethernet Leaderboard (Feb. 12, 2014), <http://www.verticalsystems.com/vsglb/2013-u-s-carrier-ethernet-leaderboard/>; Vertical Systems Group, 2014 U.S. Carrier Ethernet Leaderboard (Feb. 19, 2015), <http://www.verticalsystems.com/vsglb/2014-u-s-carrier-ethernet-leaderboard/>; Vertical Systems Group, 2015 U.S. Carrier Ethernet Leaderboard (Feb. 25, 2016), <http://www.verticalsystems.com/vsglb/2015-u-s-carrier-ethernet-leaderboard/>.

²²² Vertical Systems Group, 2013 U.S. Carrier Ethernet Leaderboard (Feb. 12, 2014), <http://www.verticalsystems.com/vsglb/2013-u-s-carrier-ethernet-leaderboard/>.

Chart 1. U.S. Carrier Ethernet Services Year-End 2015 Leaderboard²²³

Rank	Ethernet Provider
1	AT&T
2	Level 3
3	Verizon
4	CenturyLink
5	Time Warner Cable
6	Comcast
7	Cox
8	XO
9	Windstream
<i>Challenger Tier (alphabetical order):</i> Bright House, Charter, Cogent, Lightpath, Zayo	

84. Our society is clearly in the midst of a series of technology transitions, and the question in many cases is “when” and not “if” providers will wish to cease to provide TDM services. This technology change would affect residential as well as business services, including BDS. For example, Verizon is engaged in an extensive copper-to-fiber migration project in several states with a goal in 2015 alone of converting 200,000 customers from “copper-based legacy voice and data services to fiber services, including IP and Ethernet.”²²⁴

85. That said, TDM services remain relevant to retail and wholesale customers today and will remain so for many years to come. Almost 60 percent, \$25.8 billion, of the revenues reported for 2013 were for legacy, circuit-switched dedicated services. And surprisingly more than 45 percent, \$2.6 billion, of the expenditures reported by mobile providers for 2013 were for circuit-switched dedicated services. As one wholesale customer notes, “the volume of TDM circuits XO continues to use – as well as new orders for these circuits – remains substantial.”²²⁵

IV. TARIFF INVESTIGATION ORDER

86. The *Designation Order* released on October 16, 2015 by the Wireline Competition Bureau initiated an investigation into a wide range of terms and conditions in 18 business data (or special access) services tariff pricing plans offered by AT&T, CenturyLink, Frontier and Verizon.²²⁶ The

²²³ 2015 U.S. Carrier Ethernet Leaderboard, Vertical Systems Group, <http://www.verticalsystems.com/vsglb/2015-u-s-carrier-ethernet-leaderboard/>.

²²⁴ Verizon, Annual Report (Form 10-K) at 10 (Feb. 23, 2016); Sean Buckley, Verizon Furthers Copper-to-Fiber Replacement Strategy in 4 States, FierceTelecom (Oct. 13, 2015), <http://www.fiercetelecom.com/story/verizon-furthers-copper-fiber-replacement-strategy-four-states/2015-10-13>.

²²⁵ XO Comments, Chambless Decl. at 12; *see also* Sprint Reply Comments at 57 (“Special access services provisioned using TDM technologies are, and continue to be, a large and critical part of the special access market.”).

²²⁶ *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247, Order Initiating Investigation and Designating Issues for Investigation, 30 FCC Rcd 11417 (Wireline Comp. Bur. 2015) (*Designation Order*). The tariff pricing plans that are the subject of this investigation are listed in Appendix A. On March 31, 2016, the Commission released an Order that suspended for one day and

(continued...)

investigation was initiated in response to allegations by competitive LECs that these terms and conditions represented a complicated web of tariff provisions that constrained their ability to compete in the business data services marketplace and inhibited their transition to IP technologies.

87. The Bureau sought and obtained data and information from the four incumbent price cap LECs regarding tariff pricing plans identified in the *Designation Order*. In this Order, we take a targeted approach to addressing the allegations made by the competitive LECs as supported by the record. We identify specific terms and conditions that we find unreasonable practices under section 201(b) and direct the relevant incumbent price cap LECs to remove these provisions from the tariffs under investigation. The measured approach we take today to targeting and eliminating certain unreasonable tariff provisions will give tariff customers a greater degree of flexibility to control their purchases while at the same time minimize dislocation of current tariff arrangements in the business data services market. We believe the actions we take will enhance competitive LECs' ability to respond to the changing nature of the business data services market, minimize disruption of incumbent LEC's tariffs, and accelerate the adoption of IP technologies to the benefit of consumers.

88. By this Order, the Commission takes the following actions pursuant to the investigation into certain terms and conditions of the incumbent LEC tariff pricing plans offered by AT&T, CenturyLink, Frontier, and Verizon for business data services. We conclude that "all-or-nothing" provisions that are included in certain of the pricing plans under investigation are unjust and unreasonable practices. We direct the incumbent LECs to remove those provisions from the relevant pricing plans and submit tariff revisions consistent with this Order. We further conclude that certain of the shortfall and early termination penalties contained in the pricing plans are unjust and unreasonable practices to the extent that the penalties exceed expectation damages and direct their removal from the relevant pricing plans under investigation and the submission of tariff revisions consistent with this Order. We do not take action on certain of the issues designated for investigation, including percentage commitments, upper percentage commitments and term commitments. Instead, we seek further comment in the accompanying Further Notice in the BDS rulemaking on these and other issues related to the terms and conditions of all price cap incumbent LEC tariff pricing plans and of commercial agreements to sell Ethernet business data services by parties generally.²²⁷ Finally, by this Order we terminate the Bureau's investigation into the terms and conditions of the incumbent LEC tariff pricing plans, with the exception of the question of how to implement the elimination of the all-or-nothing provisions for existing agreements under these plans.

A. Additional Background

89. TDM business data services such as DS1 and DS3 channel terminations and other related services have traditionally been the mainstay telecommunications services for businesses and other institutions which typically require the guaranteed service parameters available only through a dedicated connection. Unlike consumer broadband services, incumbent LEC-provided TDM business data services have been regulated and subject to tariff filing requirements since their inception until the present. Incumbent LECs have traditionally been the principal providers of TDM business data services.

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incorporated new Frontier Tariff F.C.C. Nos. 13 and 14 into this proceeding. The tariffs were filed to effectuate Frontier's April 1, 2016 purchase of certain Verizon properties in California, Florida and Texas, and contain the same terms and conditions that are designated for investigation in this proceeding for Verizon's Tariff F.C.C. Nos. 14 and 16. The Frontier tariffs contain four additional pricing plans that are now included in the tariff investigation, expanding the investigation to a total of 22 plans. Frontier is the successor incumbent local exchange carrier for the areas formerly served by Verizon tariffs and will be responsible for implementing the Commission actions taken in this Order with respect to these tariffs. See *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247, Order, DA 16-339 (Pricing Pol. Div. rel. Mar. 31, 2016).

²²⁷ See *infra* Part V.F.4.

90. While sales of IP Ethernet services have grown dramatically in recent years, many business and other institutional users continue to rely on TDM DS1 and DS3 circuits to meet their communications needs. Data from the Commission’s mandatory data collection show that as of 2013, sales of TDM services represent about \$25.8 billion of the approximately \$45 billion business data services market, or almost 60 percent. Incumbent LEC sales of TDM business data services occur predominantly through pricing plans offered through incumbent LEC tariffs. Data from the direct cases submitted by the four incumbent LECs show that about 70 percent of sales under the tariffs under investigation occur through the pricing plans under investigation. Additionally, the plans account for about 30 percent of all TDM revenues for the four incumbent LECs subject to the tariff investigation.

91. While non-incumbent LEC affiliated competitive LECs – including, importantly, cable providers – are making great strides in competing to sell Ethernet services, data from the Commission’s business data services mandatory data collection show that these carriers serve no more than 25 percent of buildings with business data services demand over their own networks. Further, the data show that the vast majority of off-net services provided by competitive LECs is provided through either incumbent LEC leased facilities or incumbent LEC UNEs.²²⁸

92. The Commission has expressed concerns on numerous occasions prior to this proceeding with the potential anticompetitive nature of the terms and conditions of incumbent LECs’ business data services tariff term and volume pricing plans. In 1992, the Commission stated that “[t]he existence of certain long-term access arrangements also raises potential anticompetitive concerns since they tend to ‘lock up’ the access market”²²⁹ In 1993, the Commission stated that “[i]t appears that . . . long term special access arrangements have the potential to ‘lock up’ both special and switched access traffic”²³⁰ In 1996, the Commission expressed concern that “[b]y ‘locking in’ customers . . . even a relatively inefficient incumbent LEC may be able to forestall the day when the more efficient entrant is able to provide customers with better prices.”²³¹ In 1999, the Commission allowed incumbent LECs to offer term and volume discounts without a cost showing based on the predictive judgment that “irreversible, sunk investment by competitors” would make it “less likely that an incumbent will try to use volume and term discounts to lock in customers,”²³² a judgment that it subsequently found not to be borne out by market place developments.²³³

²²⁸ See, e.g., XO Comments, Anderson Decl. at 3 [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]
[REDACTED]
[REDACTED] [END
HIGHLY CONFIDENTIAL]; Windstream Comments, Deem et al. Decl. at para. 80 [BEGIN HIGHLY
CONFIDENTIAL] [REDACTED]
[REDACTED]
[REDACTED] [END HIGHLY CONFIDENTIAL]

²²⁹ *Expanded Interconnection with Local Telephone Company Facilities; Amendment of the Part 69 Allocation of General Support Facility Costs*, CC Docket Nos. 91-141 and 92-222, Report and Order and Notice of Proposed Rulemaking, 7 FCC Rcd 7369, 7463, para. 201 (1992).

²³⁰ *Expanded Interconnection with Local Telephone Company Facilities; Amendment of Part 36 of the Commission’s Rules and Establishment of a Joint Board*, CC Docket Nos. 01-141 and 80-286, Second Report and Order and Third Notice of Proposed Rulemaking, 8 FCC Rcd 7374, 7437, para. 125 (1993).

²³¹ *Access Charge Reform et al.*, CC Docket No. 96-262 et al., Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, 11 FCC Rcd 21354 at 21437, para. 190 (1996).

²³² *Pricing Flexibility Order*, 14 FCC Rcd at 14290, para. 125.

²³³ See generally *Suspension Order*, 27 FCC Rcd 10557.

93. Since 2005, the Commission has sought and received comment regarding the terms and conditions of incumbent LEC business data services pricing plans in WC Docket Nos. 05-25 and 15-247. The Commission stated in the *2005 Special Access NPRM* that it “has long been concerned about dominant carriers offering their services on terms and conditions that weaken or harm the competitive process sufficiently to reduce consumer welfare.”²³⁴ The Commission accordingly sought comment on a variety of issues regarding the terms and conditions of incumbent LEC pricing plans.²³⁵ In 2009, the Commission again sought comment on the impact of terms and conditions in business data services tariffs and contracts in its *Analytical Framework Public Notice*.²³⁶ In 2011, the Commission sought data on these issues as part of its *Competition Data Public Notice*.²³⁷ In 2012, the Commission released an Order that sought both data and information on the terms and conditions of carriers’ pricing plans²³⁸ and a Further Notice seeking additional comment on terms and conditions issues.²³⁹ In response to these various notices, competitive LECs have repeatedly submitted allegations that the incumbent LECs’ tariff pricing plans contain terms and conditions that they claim are unjust and unreasonable.²⁴⁰ Incumbent LECs have repeatedly disputed the competitive LECs’ allegations.²⁴¹

94. In response to these competing allegations and in light of the Commission’s long-standing concerns, the Bureau released the *Designation Order* in October 2015, initiating this investigation and designating issues for investigation into terms and conditions of certain tariff pricing plans offered by AT&T, CenturyLink, Frontier, and Verizon. The *Designation Order* identified a number of issues for investigation, identified concerns expressed in the record for each, and set a timetable for submissions by the incumbent LECs and other commenters.²⁴² On the basis of the data and information submitted in response to the investigation, we address certain of the issues designated for investigation as follows and otherwise terminate the investigation, with the exception of the question of how to implement the elimination of the “all-or-nothing” provisions for existing agreements. The tariff investigation remains open solely for the purpose of addressing this discrete issue.

B. All-or-Nothing Requirements

95. *Introduction.* The Bureau designated for investigation a number of tariff pricing plans that contain provisions that we describe generally as “all-or-nothing” provisions. These require customers to commit all their relevant in-service purchases, such as DS1 or DS3 channel terminations, to a single pricing plan, which limits the ability of customers to allocate their purchases across different plans.²⁴³ All-or-nothing requirements generally work in conjunction with circuit portability plans or options, which enable customers to avoid early termination fees when disconnecting individual circuits before their term commitments expire, provided they commit to maintaining a high percentage of their initial volume commitment over the duration of a plan. The fact that competitive LECs typically require portability for

²³⁴ *2005 Special Access NPRM*, 20 FCC Rcd at 2031, para. 115.

²³⁵ *Id.* at 2030-34, paras. 114-25.

²³⁶ *Analytical Framework Public Notice*, 24 FCC Rcd at 13642-43.

²³⁷ *See generally Competition Data Public Notice*, 26 FCC Rcd 14000.

²³⁸ *See Data Collection Order*, 27 FCC Rcd 16318.

²³⁹ *Data Collection FNPRM*, 27 FCC Rcd at 16355-57, paras. 91-93.

²⁴⁰ *See Designation Order*, 30 FCC Rcd at 11420-24, paras. 6-14.

²⁴¹ *See id.* at 11424-25, paras. 15-18.

²⁴² *See generally id.* The Bureau extended deadlines for submissions by incumbent LECs and other parties on December 14, 2015. *See Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247, Order, 30 FCC Rcd 14157 (WCB 2015).

²⁴³ *Designation Order*, 30 FCC Rcd at 11448-49, paras. 61-62.

some significant portion of their purchases means that they usually must commit all their purchases to a portability plan regardless of their overall portability needs. Competitive LECs that make this choice are precluded from selecting tariff purchase options generally available to all customers. All-or-nothing requirements thus “lock up” all of a customer’s purchases, limiting its ability to minimize the amount of its purchases subject to high percentage and longer term commitments and restricting its ability to migrate its purchases to alternative providers or to self-provision using its own facilities.

96. Two types of all-or-nothing provisions, as we explain below, are included in certain of the incumbent LEC pricing plans under investigation. Some, such as Verizon’s Commitment Discount Plans (CDP) and Verizon’s and Frontier’s National Discount Plans (NDP), require that customers subscribing to one of these plans include all purchases of a specific service type, such as DS1 or DS3, in that one plan for the duration of that plan.²⁴⁴ Others, such as certain AT&T, CenturyLink, and Frontier pricing plans, contain all-or-nothing requirements that work by requiring customers to commit all of the customer’s relevant type of in-service circuits only at the inception of a portability plan or option. In either case, customers are unable to choose to keep their purchases out of the initial commitment associated with the portability plan by making a portion of their purchases on a month-to-month basis or through a term only plan or another generally available pricing plan. This limitation precludes customers from managing their business data services purchases in an economically efficient manner, restricting how they purchase services from the incumbent LEC plans and restricting their ability to consider competitive alternatives. We determine that these tariff provisions are anti-competitive and unreasonable because they restrict a customer’s purchase option without a corresponding reasonable business concern. Thus we find that these provisions are unjust and unreasonable practices under section 201(b) of the Act.²⁴⁵ We direct the carriers to amend their tariffs by removing in each case the relevant language

²⁴⁴ See, e.g., Verizon Telephone Companies Tariff F.C.C. No. 11 § 25.1.(B) (“If a customer subscribes to a CDP, all eligible service types must be included in CDP with the exception of IEF [Intelligent Entrance Facility, which is not a special access service].”); Verizon Telephone Companies Tariff F.C.C. No. 11 § 25.2.1.(D)(1) (“At any time during the Term of the NDP, the NDP Customer may not simultaneously subscribe the Discounted Rate Elements to other existing or new tariff arrangements . . . or other discount plan, such as Service Discount Plans . . . and Commitment Discount Plans . . .”). Frontier Telephone Companies Tariff F.C.C. No. 13 § 22.1.1(D)(1) (“At any time during the Term of the NDP, the NDP Customer may not simultaneously subscribe the Discounted Rate Elements to other existing or new tariff arrangements . . . or other discount plan, such as DS1 Term Pricing Plans . . .”). Frontier Telephone Companies Tariff F.C.C. No. 14 § 23.1.1(D)(1) (“At any time during the Term of the NDP, the NDP Customer may not simultaneously subscribe the Discounted Rate Elements to other existing or new tariff arrangements . . . or other discount plan, such as Term Volume Plans and Eight and Ten Year Term Volume Plans . . .”). Frontier Tariffs No. 13 and No. 14 do not offer a CDP.

²⁴⁵ We note that the DS1 Term Volume Plans (TVP) for Frontier Tariff F.C.C. No. 14 and Verizon Tariff No. 14 contain the following provision both in the One-, Two-, Three-, and Five-Year section of the plans and the Eight- and Ten-Year section of the plans: During the TVP term, “a customer may not concurrently subscribe its DS1 SALs [Special Access Lines] to the National Discount Plan.” Frontier Telephone Companies Tariff F.C.C. No. 14 § 5.6.14(A) and Verizon Telephone Companies Tariff F.C.C. No. 14 § 5.6.14(A). Frontier Tariff F.C.C. No. 5 contains this provision only under the One-, Two-, Three-, and Five-Year plan section. Frontier Telephone Companies Tariff F.C.C. No. 5 § 5.6.14 (A). The Frontier Tariff No. 14 and Verizon Tariff No. 14 DS3 TVP contains a similar provision that does not allow DS3 TVP customers to concurrently subscribe to the NDP. Frontier Telephone Companies Tariff F.C.C. No. 14 § 5.6.19(A)(5) and Verizon Telephone Companies Tariff F.C.C. No. 14 § 5.6.19(A)(5). (This provision is not in Frontier Tariff No. 5.) In addition, the DS1 TPP in Frontier Tariff No. 6 contains a similar provision. Frontier Telephone Companies Tariff F.C.C. No. 6 § 7.2.1(G)(1). The Verizon and the Frontier Tariff Nos. 14 and Frontier Nos. 5 and 6 do not offer a CDP. In its direct case, Verizon references these plans, along with the CDP and NDP, in its discussion of all-or-nothing provisions. See Direct Case of Verizon at 48 (responding to the all-or-nothing rule narrative question in para. 63 of the *Designation Order*) (“Verizon prepared no formal cost justifications for the requirement that customers commit all of their eligible purchases from Verizon to the CDP, NDP, TVP, or ETTVP.”). While these provisions restrict customers from participating in just one other plan, we find their effect on customers’ options is of a similar nature. We find therefore that even though the

(continued...)

requiring customers to aggregate all their purchases under a single plan and to submit appropriate tariff revisions within sixty (60) days from the release date of this Order to become effective on not less than one day's but not more than fifteen (15) days' notice. We direct their removal from the relevant tariffs prospectively, and in order to balance the concerns and interests of all parties involved, we seek further comment on how the finding that these provisions are unlawful should be implemented for existing agreements under these plans.

97. *Background.* Verizon's CDP and the NDP offered by Frontier and Verizon provide discounted rates and circuit portability, and as noted above, require that customers electing to participate in one of these plans make all of their DS1 or DS3 purchases from the incumbent LEC solely through that plan.²⁴⁶ Under these all-or-nothing requirements, when a customer subscribes to the CDP or NDP, it must typically terminate any purchases for that type of service under any other plan offered by the incumbent LEC in the region and aggregate those purchases under the one pricing plan chosen.²⁴⁷ It must also incorporate any subsequent purchases into that plan.

98. Other incumbent LEC portability plans subject to our investigation contain similar all-or-nothing provisions. The Ameritech DCP requires that, at the inception of the plan,²⁴⁸ a customer purchase all of its DS1s from the DCP.²⁴⁹ Similarly, the CenturyLink RCP requires that when a customer initially subscribes to the RCP, it must include all of its in-service DS1 channel terminations in the RCP.²⁵⁰ The

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provisions of these plans are not identical to those in the CDPs and NDPs, they are nonetheless sufficiently similar in structure and effect for us to analyze them collectively and to apply common remedies.

²⁴⁶ Verizon Direct Case at 50 ("At the time a customer subscribes to the CDP or NDP, it must include within the plan all of the special access it then purchases from Verizon for the service types included in the plan."). Although the CDP appears in two Verizon tariffs under investigation, Verizon Telephone Companies Tariff F.C.C. Nos. 1 and 11, Verizon explains that the plans are substantially identical. We therefore address them together, as Verizon did in its direct case. Similarly, although the NDP appears in four Verizon and two Frontier tariffs, Verizon treats them as a single, national plan, as do we. Verizon Direct Case at 54 n.155.

²⁴⁷ See, e.g., Verizon Telephone Companies F.C.C. No. 1 § 25.1.2(C)(2) ("For Switched Access or Special Access Services which are eligible for inclusion under the CDP, the TPPs [Term Payment Plans] will be cancelled in order to include the service(s) in the CDP.").

²⁴⁸ Unlike the Verizon plans discussed above, once a customer subscribes to the DCP, it can subsequently move circuits or make purchases out of other non-portability discount plans and receive corresponding reductions in the DCP commitment levels during the term of the plan on certain conditions. See Letter from James P. Young, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 15-247, at 2 (filed Mar. 30, 2016) (AT&T March 30, 2016 *Ex Parte*) ("For example, if the number of in-service LDCs [channel terminations] under the DCP falls below the Commitment Level, the customer has the option of reducing its Commitment Level for no charge by migrating circuits from the DCP to the Optional Payment Plan (the term-only plan in the Ameritech region); each circuit migrated to the OPP plan will result in a corresponding reduction to the DCP Commitment Level."). "The customer would be required to sign up for an OPP term plan with an available term length equal to or greater than the term length remaining on the old agreement." *Id.* at n.7 (citing Ameritech Operating Companies Tariff F.C.C. No. 2 § 7.4.13(G)). Additionally, services converted from an OPP to a new DCP may not be converted back to an OPP. Ameritech Operating Companies Tariff F.C.C. No. 2 § 7.4.10(J). Discounts under a DCP are a little less than the OPP offers. In addition, DCP customers must agree to a three- or five-year term. AT&T Direct Case Attach. 1, Exh. A Declaration of Paul Reid at 2.

²⁴⁹ AT&T March 30, 2016 *Ex Parte* at 2. "Enrollment in the DCP requires the customer to convert all of its in-service DS1s to the DCP." *Id.* (citing Ameritech Operating Companies Tariff F.C.C. No. 2 § 7.4.13(B) ("Only rate elements not purchased under an Optional Payment Plan . . . will be eligible for inclusion in the commitment level and for DCP rates.")). Ameritech does not offer a portability option for DS3 service.

²⁵⁰ CenturyLink Operating Companies Tariff F.C.C. No. 11 § 7.1.3.B.1. ("At the time a DS1 Services RCP is first established for a new DS1 RCP customer, all of the customer's Variable Term Pricing Plans (VTPP) and month-to-month DS1 Services must be converted to RCP."). A similar all-or-nothing provision applies for DS3 purchases.

(continued...)

Pacific Bell and Southwestern Bell DS1 TPPs, and the Frontier DS1 OPP are term discount plans that offer a circuit portability option that also initially imposes an all-or-nothing requirement.²⁵¹ In all of the plans containing all-or-nothing provisions, the amount purchased at the time the customer signs up for the plan sets the initial commitment level of DS1 or DS3 services for the term of the plan.²⁵²

99. Verizon asserts that the all-or-nothing provision does not prevent a customer from controlling and reducing its purchase commitment under a CDP or NDP.²⁵³ Verizon also argues that requiring customers to include all of their purchases from Verizon for each type of service, such as DS1 or DS3, in the CDP and NDP helps establish the commitment level that “generates efficiencies that make possible the discounts and portability” under the plans.²⁵⁴ In making this overall argument, Verizon contends that this requirement: (1) “[R]educes uncertainty concerning circuit demand, which facilitates network planning” and enables Verizon to “reasonably expect to be able to recover its non-recurring costs over an average circuit life that is multiple years long,”²⁵⁵ and (2) “[R]educes the significant cost, associated with standard term-discount plans, of keeping track of the individual commitment term associated with each circuit included in the discount plan.”²⁵⁶ Neither Verizon nor AT&T, CenturyLink, and Frontier provided more detailed business justifications for their all-or-nothing requirements other than general business arguments that their terms and conditions are necessary to reduce cost or ensure predictability, certainty, or efficiency.²⁵⁷

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CenturyLink Operating Companies Tariff F.C.C. No. 11 § 7.1.3.B.1. Once the RCP has been initiated, customers may subsequently choose to move qualifying DS1 circuits to a VTPP.

²⁵¹ AT&T March 30, 2016 *Ex Parte* at 1-2. The initial commitment level consists of “all Channel Terminations including those on month-to-month terms and other term pricing plans” based on the “total of DS1 channel terminations in service for the month previous to the month . . . of the commitment.” *Id.* (citing Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(E)(1); Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(E)(1)). Frontier Telephone Companies Tariff F.C.C. No. 11 § 2.11.1.1(D)(1) is similar. “[W]hen a customer chooses portability, the customer ‘commits to a 3-year Commitment Level’ (which is separate from its circuit-by-circuit term commitment).” AT&T March 30, 2016 *Ex Parte* at 1 (citing Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(E)(1) and Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(E)(1)); *see also* Frontier Telephone Companies Tariff FCC No. 11 § 2.11.1.1(D)(1).

²⁵² *See, e.g.*, Verizon Direct Case at 50 (citing Verizon Telephone Companies Tariffs for the CDP and NDP).

²⁵³ Verizon Direct Case at 9 (“Although the CDP and NDP require customers to include in the plan all their purchases from Verizon of discounted services, they do not require customers to commit to buy any percentage of their *total* special access purchases from Verizon, and a customer can choose to subscribe to the CDP only for Verizon’s former NYNEX or Bell Atlantic regions (or both). . . . [W]hen a customer first enters into the CDP or NDP, it exercises control over its commitment level, because it can reduce its total purchases from Verizon before entering into the CDP or NDP. And once that initial, customer-chosen commitment period expires, the customer can revise its commitment level before entering into a new CDP or NDP, depending on its needs at that time. Thus, assuming the customer planned ahead, it may use Verizon’s special access services for an initial period and migrate to competitive suppliers when that initial period expires.”) (emphasis in original).

²⁵⁴ *Id.* at 50.

²⁵⁵ *Id.* at 50, 52 (“Without this requirement, a customer could include in the plan only those circuits that it expects to disconnect shortly after the one-year minimum period.”).

²⁵⁶ *Id.* at 52; Verizon contends that its administrative costs would be “far higher” if its billing process required managing individual DS1 or DS3 circuits across different plans and rates, and that the CDP and NDP are efficient because compliance can be measured based on *average* purchases during a semiannual (CDP) or annual review (NDP) true-up process rather than year-round. Verizon Direct Case at 50 (emphasis in original).

²⁵⁷ *See, e.g.*, AT&T Direct Case at 33 (“AT&T assumes greater risks and costs for a customer that has a large number of circuits in a portability plan than for one that has a small number of circuits.”); CenturyLink White Paper at 33 (“Revenue predictability is especially important for CenturyLink under these plans because they offer customers the flexibility of circuit portability.”).

100. In contrast, competitive LECs assert that the all-or-nothing provisions decrease their ability to manage their special access purchases in an efficient manner, which would otherwise enable them to reduce their minimum commitments with Verizon and consider competitive alternatives. XO, for example, asserts that, because Verizon CDPs require XO to purchase all DSn services under that plan, XO was prevented from anticipating falling demand by “replac[ing] special access circuits with UNEs at the end of its CDP term to lower the minimum commitment upon renewal.”²⁵⁸ XO states that it also could not move some DS1 or DS3 circuits to a circuit-based term only plan or month-to-month rates as a prelude to transitioning services to competitive providers or its own facilities if it were economical to build them.²⁵⁹ XO asserts that it was “impractical to lower its minimum commitment upon renewal” and therefore was “locked . . . into commitment levels of maintaining 90% of XO’s inventory of DS1s and DS3s . . . or face shortfall penalties.”²⁶⁰ In addition, the Joint CLECs argue that Verizon has not justified its claim that the all-or-nothing rule or its related high percentage commitment level leads to efficiencies that make possible the discounts and portability available under the CDP and NDP.²⁶¹

101. The data submitted by the incumbent LECs as part of their direct cases illustrate the degree to which all-or-nothing plans impact customers’ inability to choose options under the pricing plans and the likelihood that they will continue to make their purchases under a plan. For example, purchases under the Verizon Tariffs F.C.C. Nos. 1 and 11 consist in large part of purchases under pricing plans that have an all-or-nothing requirement. Those all-or-nothing plans account for **[BEGIN HIGHLY CONFIDENTIAL]** [REDACTED] **[END HIGHLY CONFIDENTIAL]** respectively, of all DS1 channel terminations purchased under the two tariffs from 2012 through 2104.²⁶²

102. *Discussion.* The concerns raised by the all-or-nothing provisions are best understood in the context of how they combine to operate with other plan provisions. First, most if not all competitive LECs assert that they subscribe to business data services pricing plans like the Verizon CDP and NDP because these plans provide crucially needed circuit portability in addition to DS1 and DS3 discounts.²⁶³ Second, these plans require high percentage-based commitments, with penalties assessed if the purchaser falls short of those commitments. For example, Verizon’ CDP requires that customers pay shortfall penalties if they do not meet 90 percent of their DS1 (or DS3) purchase commitment level.²⁶⁴ With the NDP, Frontier and Verizon customers face penalties if they fall below 85-92 percent of their purchase commitment.²⁶⁵ Similarly, in the AT&T plans, the Ameritech commitment is set at 90 percent and the

²⁵⁸ XO Comments at 24 at 10.

²⁵⁹ XO Comments at 25.

²⁶⁰ XO Comments Declaration of Michael Chambless (XO Chambless Decl.) at 10.

²⁶¹ See Joint CLEC Opposition at 77 (citing Verizon Direct Case at 50).

²⁶² Staff analysis of sales data submitted by the incumbent LECs in Tables IIA and IIB of the tariff investigation data template.

²⁶³ *Designation Order*, 30 FCC Rcd at 11433, para. 34. Circuit portability provides customers, particularly competitive LEC customers, flexibility to disconnect circuits and replace them with others to meet their commitments and thereby not incur early termination penalties. *Id.* By most accounts, circuit portability is crucial for competitive LECs serving retail customers whose terms of service rarely coincide with the competitive LECs’ underlying pricing plan term commitments with incumbent LECs. *Id.*

²⁶⁴ Verizon Telephone Companies Tariff F.C.C. No. 1 § 25.1.3(A)(5) and Verizon Telephone Companies Tariff F.C.C. No. 11 § 25.1.3(A)(5).

²⁶⁵ See, e.g., Frontier Telephone Companies Tariff F.C.C. No. 13 § 22.1.4(C)(1)-(3); Frontier Telephone Companies Tariff F.C.C. No. 14 § 23.1.4(C)(1)-(3); Verizon Telephone Companies Tariff F.C.C. No. 14 § 23.1.4(C)(1)-(3); Verizon Telephone Companies Tariff F.C.C. No. 16 § 22.1.4(C)(1)-(3).

Pacific Bell and Southwestern Bell commitment levels are 80 percent, like Frontier's DS1 OPP plan.²⁶⁶ The CenturyLink RCP commitment is 95 percent of monthly recurring revenue.²⁶⁷ Penalties are assessed for failure to meet these high commitment levels, despite the inability of competitive LECs to utilize circuit portability for such a high percentage of the circuits they purchase.²⁶⁸

103. The all-or-nothing provisions in all of these portability plans or options prevent the customer from splitting its purchases between two or more plans when a customer subscribes to the portability plan or option. All of these also prevent the customer from keeping any of its purchases of the relevant type of circuit out of the calculation of the initial volume or revenue commitment required by the plan. For example, in the case of the Verizon CDP and Verizon's and Frontier's NDP, a customer cannot, for the duration of the CDP or NDP, simultaneously purchase from a circuit portability plan (which contains a high percentage commitment) and a term only plan, and thereby is unable to choose the quantity of business data services to allocate in each plan.²⁶⁹ Nor can an AT&T, CenturyLink or Frontier customer of the other plans or options at issue choose to keep any circuits out of the initial calculation, through making a separate term commitment, and thereby choose the quantity of business data services to allocate to portability and its requisite commitment. As a result, the all-or-nothing requirements preclude customers from electing to lower the amount of DS1 or DS3 services purchased at the inception of a high percentage commitment plan or option and thereby reduce the risk of paying considerable shortfall and early termination penalties.

104. While it is true that customers are not required to purchase a particular percentage of the customer's total business data services purchases, as Verizon asserts, moving purchases to alternative providers and building replacement network facilities requires long term planning and happens over an extended period of time.²⁷⁰ The terms of the tariffed offerings at issue require that customers moving circuits off the network prior to the end of the terms will either incur early termination fees or shortfall penalties or pay for services they are not using. A customer planning to move purchases to other options following the end of a term plan, because of the all-or-nothing provisions, must either pay month to

²⁶⁶ When a customer signs up for a DCP, which is a term-plus-portability plan, the customer is required "to maintain a 'Commitment Level' equal to 90 percent of the customer's total in-service local distribution channels ('LDCs') (i.e., channel terminations for Direct Analog, Based Rate and DS1 services)." AT&T March 30, 2016 Ex Parte Letter at 2 (citing Ameritech Operating Companies Tariff F.C.C. No. 2 § 7.4.13(B)). A separate commitment level is set for each service and state in the Ameritech region. Ameritech Operating Companies Tariff F.C.C. No. 2 § 7.4.13(A). For Pacific Bell and Southwestern Bell, the "[c]ustomer must have a minimum of 40 Channel Terminations in-service each month and at least 80% of the CL [Commitment Level] under a 2, 3, 5, or 7 year DS1 TPP each month." Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(E)(2); Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(E)(2); Frontier requires "a minimum of 40 DS1 Channel Terminations in-service each month and at least 80% of the CL [Commitment Level] under a 3 or 5 year DS1 OPP each month." Frontier Telephone Companies Tariff F.C.C. No. 11 § 2.11.1.1(D)(2).

²⁶⁷ The RCP requires purchasers to commit to a minimum of 95% of the monthly recurring revenue of their total company-provided in-service DS1 circuits within the region. CenturyLink Operating Companies Tariff F.C.C. No. 11 § 7.1.3.B.1. The RCP has a similar commitment requirement for DS3 service purchases. *Id.*

²⁶⁸ See Joint CLEC Opposition at 74 ("For example, AT&T's plans require that customers maintain a high percentage of their original volume (80 percent under the TPPs, 90 percent under the DCP . . .) in order to receive the benefit of circuit portability. But customers do not of course utilize circuit portability for such a high percentage of the circuits they purchase.").

²⁶⁹ Unlike the CDP and NDP, some incumbent plans allow their customers after inception of the plan to move existing circuits to or purchase new circuits from another plan. We note that when customers fall below the commitment level, as is the case with competitive LEC customers here because of a declining TDM market, the impact of shortfall charges becomes a threat and liability that can limit the benefit of migrating circuits.

²⁷⁰ See Verizon Direct Case at 9 ("Although the CDP and NDP require customers to include in the plan all their purchases from Verizon of discounted services, they do not require customers to commit to buy any percentage of their *total* special access purchases from Verizon") (emphasis in original).

month rates for all of its purchases while it transitions its circuits, or commit to a portability plan with a high commitment level that limits the amount of circuits it can remove from the incumbent LEC's network without penalty through the next term or (2) choose term commitments for all its circuits and forgo circuit portability for those circuits where it would be the most cost effective plan. Accordingly, customers are constrained in controlling and reducing their purchase commitments under the all-or-nothing plans.

105. XO provides accounts based on its operating experience demonstrating that the all-or-nothing provision in the CDP unreasonably restricts its options to control or lower its purchase commitment levels and to transition its services to possible competitors.²⁷¹ XO explains it considered transferring circuits to another provider to reduce the purchase level that would be subject to the high percentage commitment in a new subscription agreement under the CDP.²⁷² According to XO, changing to another provider, however, would require circuits to be disconnected before the end of the agreement term and would thus subject XO to considerable shortfall fees.²⁷³ XO explained this was not a viable option because the shortfall penalties were so large.²⁷⁴ But even at renewal time, the all-or-nothing rule would prevent XO from purchasing a portion of its circuits under one of the portability plans, and its corresponding volume and terms commitments, and simultaneously purchasing a separate, temporary quantity of DS1 or DS3 circuits at month-to-month rates for the time period XO needed to complete a customer cutover to competitive providers or its own facilities.²⁷⁵

106. Finally, the record does not contain cost data from AT&T, CenturyLink, Frontier, or Verizon in support of their use of all-or-nothing provisions, which would be necessary to make a finding that these provisions are just and reasonable. In that regard, the *Designation Order* directed that the incumbent LECs subject to this investigation provide *both* cost and efficiency justifications related to the all-or-nothing rule.²⁷⁶ Specifically, the Bureau required:

²⁷¹ Verizon cites one customer's experience to support its position that the all-or-nothing rule does not prevent customers from reducing their commitment levels at the time of entering into a new CDP. Verizon Direct Case at 9-10. We find, however, that the account XO provides evidencing the constraints all-or-nothing provisions impose on balance outweighs the description of a particular customer's experience. See XO Comments at 21-26.

²⁷² XO Comments at 24.

²⁷³ See *id.* ("XO looked into moving circuits to other providers through assumption agreements or grooms, but it did not prove practical to do this before renewal, in part because of general lack of ability to reduce its commitment and the increased potential for shortfall penalties resulting from moving customers off underlying circuits purchased under the Discount Plans as DSN demand continues to decline.") ("In XO's experience, assumption agreements take approximately [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] from start to finish. Had XO opted to disconnect circuits before the end of the prior agreements, it would have resulted in more substantial shortfall penalties than those it suffered because of changing market conditions.").

²⁷⁴ *Id.* at 24-25. ("Indeed, XO was assessed over [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] in shortfall penalties under its Verizon North and South CDPs between January 2013 and June 2014. An additional [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] in penalties was assessed for the three-month period of [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL].").

²⁷⁵ See *id.* at 25.

²⁷⁶ *Designation Order*, 30 FCC Rcd at 11449, para. 63 (emphasis added). Verizon contends that "there was no cost-justification requirement when Verizon introduced its pricing plans, and Verizon prepared no formal cost justifications for the requirement that customers commit all of their eligible purchases from Verizon to the CDP, NDP, TVP, or ETTVP." Verizon Direct Case at 47-48. We find this response lacks merit. In a 2013 Commission decision, which was upheld upon appeal by Verizon, the Commission pointed out that it has always recognized the "possible future need for cost data" even under price cap regulation. *Petition of USTelecom for Forbearance Under 47 U.S.C. § 160(c) from Enforcement of Certain Legacy Telecommunications Regulations*, WC Docket No. 12-61,

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[A] narrative description of any business reason for a percentage commitment in the context of (i) cost justification in cases where all purchases are required to be made within that plan only, i.e., there is an “all-or-nothing” provision, (ii) efficiency justification when there is an all-or-nothing provision, (iii) cost justification when circuit portability is offered as part of the plan or as an additional option, (iv) efficiency justification when circuit portability is offered as part of the plan or as an additional option, and (v) for tariff pricing plans that require a percentage commitment or offer a percentage commitment as an option, require all purchases to be made within that plan only, and that offer circuit portability as part of the plan or as an additional option, the business purpose, if any, of predicating the availability of circuit portability on purchasers making a percentage commitment in the context of an all-or-nothing provision.²⁷⁷

107. The Bureau required this information and analysis because it sought data that would provide an objective measure by which to assess the reasonableness of such provisions and how they relate to any economies of scale efficiencies, the percentage commitments in the carriers’ tariff plans, and the costs of provisioning circuit portability. The incumbent LECs did not relate the costs of all-or-nothing provisions to the revenues from these plans.²⁷⁸ Without this information and analysis in the record, we are unable to conclude that there is a rational relationship between asserted efficiencies related to the all-or-nothing provision and the costs the providers claim they must recover to offer their relevant discounts and circuit portability.

108. We also are not in agreement with the efficiency justifications alleged with respect to the provisions in question. First, Verizon states that the all-or-nothing requirement “reduces uncertainty concerning circuit demand, which facilitates network planning” and enables it to “reasonably expect to be able to recover its non-recurring costs over an average circuit life that is multiple years long.”²⁷⁹ To the extent that a customer elects to commit to a specific length of time and associated early termination enforcement mechanisms for a particular circuit, however, Verizon is provided with absolute certainty for the revenues associated with that circuit. Verizon has not established, nor have we found, a rationale that would support a finding that including that circuit in a portability plan would provide Verizon with increased certainty for that circuit. For the same reasons, we find the general assertions by AT&T, CenturyLink, and Frontier that such requirements are necessary to ensure predictability, certainty, or efficiency are insufficient to establish the reasonableness of the constraints these provisions impose on their customers.

109. Verizon also argues that the requirement “reduces the significant cost, associated with standard term-discount plans, of keeping track of the individual commitment term associated with each circuit included in the discount plan.”²⁸⁰ We find the claim unsupported for two reasons. First, Verizon’s rates are set to recover the costs associated with the provision of service within each plan. Verizon has provided no basis, and we have found no independent basis, to find that the reasonableness of cost recovery under the rates for the CDP and NDP depends on how many circuits are or are not purchased through other plans. Second, the all-or-nothing provisions essentially prohibit a single company from purchasing exactly what could be purchased by two independent entities without any cost justification for

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Memorandum Opinion and Order, 28 FCC Rcd 7627, 7649, para. 38 (2013) (*USTelecom Forbearance Long Order*),
pet. for rev. denied sub nom. Verizon v. FCC, 770 F.3d 961 (D.C. Cir. 2014).

²⁷⁷ *Designation Order*, 30 FCC Rcd at 11449, para. 63.

²⁷⁸ We note that Verizon asserts that shortfall penalties made up a small percentage of revenues from the NDP and CDP plans. *See infra* “Shortfall Penalties” section. The incumbent LECs did not provide information that quantifies the impact of all-or-nothing provisions or plans on revenues.

²⁷⁹ Verizon Direct Case at 50, 52.

²⁸⁰ *Id.* at 52.

this discrimination. That is, identical circuit amounts that a single carrier could elect to purchase across different plans in the absence of the all-or-nothing rule (e.g., 1000 circuits with 500 circuits in the Verizon CDP and 500 circuits in Verizon's TPP could be individually purchased by two independent purchasers (purchaser X purchases 500 circuits in the CDP and purchaser Y purchases 500 circuits in the TPP), and there is no reason to think that the cost of administering or the certainty risks of offering two plans for a single customer is higher than the cost of administering or certainty risks of offering the same number of circuits in the same two plans for two customers. Notably, these plans are unlike volume discount plans in which the provider establishes a minimum volume for purchases under a particular plan because there would be greater efficiencies arising from a purchase of such minimum volume. Here, even where a customer could meet any requirements to qualify for a plan, the all-or-nothing provision prohibits the customer from so doing.

110. We find that the all-or-nothing provisions in the AT&T, CenturyLink, Frontier, and Verizon pricing plans, although varying somewhat in nature, all encompass similar harms to customers because they unreasonably restrict purchase options and have not otherwise been justified by reasonable business concerns. These provisions preclude customers from managing their business data services purchases in an economically efficient manner, restricting how they purchase services from the incumbent LEC plans and restricting their ability to consider competitive alternatives. Accordingly, we determine that the all-or-nothing tariff provisions in the Verizon CDPs, NDPs, and TVPs, the Ameritech DCP, the Southwestern Bell DS1 TPP and Pacific Bell DS1 TPP, the CenturyLink RCP, and the Frontier DS1 OPP and TPP, TVPs and NDPs are unjust and unreasonable practices in violation of section 201(b). Accordingly, we direct these carriers to amend their tariffs by removing in each case the relevant language requiring customers to aggregate all their purchases under a single plan and to submit appropriate tariff revisions within sixty (60) days from the release date of this Order to become effective on not less than one day's but not more than fifteen (15) days' notice.²⁸¹

111. As described above, we conclude the all-or-nothing provisions in these pricing plans are unlawful and direct their removal from the relevant tariffs prospectively. In light of the record, we decline to apply corrective action to existing agreements under these plans. Instead, we hold the investigation open with regard to this issue, and seek further comment on how the finding that these provisions are unlawful should be implemented for existing agreements while at the same time avoiding unnecessary disruption of the market for these services.²⁸²

112. The record reflects a lack of consensus on the question of the steps the Commission should take with respect to a finding of unlawfulness.²⁸³ Some parties to these provisions have suggested the Commission should act with caution to avoid adopting a remedy that has potential to cause further harm and disruption to their interests. Level 3, for example, encourages the Commission to provide a "fresh look" in which we would provide "BDS customers with the right to adjust their volume commitments under a lock-up plan without terminating the plan."²⁸⁴ In contrast, Verizon opposes a fresh look, suggesting that in this case it would not be "carefully limited in order to ensure that it does not 'unduly interfer[e] with business arrangements between LECs and their customers.'"²⁸⁵ While vigorously

²⁸¹ We waive section 61.58 of our rules to the extent necessary to allow the carriers to make the required tariff modifications. 47 CFR § 61.58.

²⁸² We do not seek further comment on implementation of the other actions we take in this order which involve the modification, not elimination, of certain pricing plan penalties. In all cases, the incumbent LECs will continue to be able to assess reasonable penalties to enforce agreements with their customers.

²⁸³ See Sprint Opposition at 51-52; Joint CLEC Opposition at 90-92; AT&T Rebuttal at 41; Verizon Rebuttal at 20-21.

²⁸⁴ Letter from Thomas Jones, Counsel for Level 3 Communications, to Marlene H. Dortch, Secretary, FCC, WC Docket Nos. 15-247, 05-25, RM-10593, at 1-2 (filed Apr. 21, 2016).

²⁸⁵ Verizon Rebuttal at 22.

supporting a fresh look, Level 3 also adds that “it would likely be harmful if the Commission were, for example, either to nullify purchasers’ existing plans or to require purchasers to remain in their current plans subject to existing volume commitment levels while making other changes prospectively that may make it difficult or impossible to count new purchases toward those commitments.”²⁸⁶ We believe Level 3’s approach warrants serious consideration but in light of conflicting views in the record as to the effect a fresh look would have on business arrangements, we wish to proceed cautiously and seek further comment. We are cognizant of the interrelated nature of agreements that parties have entered into for purchasing BDS and wish to avoid unintended consequences with respect to existing agreements.²⁸⁷

113. In seeking comment, we aim to implement this prohibition in existing agreements in a way that addresses the impact of the unlawful provisions, particularly their impact on the technology transitions, while minimizing unnecessary market disruptions. We seek parties’ recommendations and proposals to this end. We invite the incumbent LECs and their customers jointly to explore a reasonable approach to implementing the prohibition on all-or-nothing provisions in existing agreements and to include any such approach in the record of this proceeding. We set the deadlines for comment and reply on this question in tandem with the deadlines set for comment and reply on the accompanying Further Notice.

114. Our action should not be interpreted as an encouragement of the status quo but simply to avoid market disruption. Therefore, while the Further Notice is pending, we strongly encourage parties to negotiate and agree to alternative arrangements that address the unlawfulness of the tariffs and meet the concerns of both parties.

C. Shortfall Penalties

115. The Bureau designated for investigation the question of whether the use of shortfall penalties or fees in the incumbent LEC tariff pricing plans at issue, either by themselves or in conjunction with other plan provisions, is a just and reasonable practice under section 201(b) of the Act.²⁸⁸ We find that a reasonable shortfall penalty allows the seller to recover from the purchaser an amount no greater than the amount the purchaser would have paid had it met its minimum commitment level for the service. We further find that AT&T’s Southwestern Bell and Pacific Bell DS1 TPP, Frontier’s OPP, and Verizon’s CDP and NDP contain shortfall provisions that are in excess of this measure of damages and are therefore unjust and unreasonable practices under section 201(b). We direct Southwestern Bell, Pacific Bell, Frontier and Verizon to remove such tariff provisions within sixty (60) days from the release date of this Order to become effective on not less than one day’s but not more than fifteen (15) days’ notice. On or after the effective date of the removal of these tariff provisions, Southwestern Bell, Pacific Bell, Frontier and Verizon may elect to include in their tariffs shortfall penalties or fees that are no greater than the amount of revenue that a customer would have paid had it met its minimum commitment. The revised tariffs will apply to both existing and future customers.

116. Shortfall fees are charges assessed on a purchaser under special access tariff pricing plans if its purchases fall below a percentage-based or other volume commitment specified in a tariff pricing plan as a precondition for obtaining the pricing plan’s discount or circuit portability benefit.²⁸⁹ The

²⁸⁶ Level 3 Apr. 22, 2016 *Ex Parte* Letter at 2 (“The Commission should be wary of adopting a remedy that has a potential to cause further harm and disruption for the very purchasers who have already been subject to the harms caused by the unlawful tariff provisions the Commission aims to eliminate.”).

²⁸⁷ *Id.* at 2.

²⁸⁸ *Designation Order*, 30 FCC Rcd at 11453, para. 72.

²⁸⁹ See generally Sprint Feb. 11, 2013 Comments at 30-32; Verizon Mar. 19, 2010 Reply Comments, Attach. B (Declaration of Quintin Lew and Anthony Recine) at 13-15, paras. 29-32. Termination fees, as distinguished from shortfall fees, are assessed when a customer exits a term commitment prior to the expiration of the applicable service term. *Id.*

incumbent LEC special access pricing plans under investigation assess such shortfall fees when a customer fails to meet its TDM DS1 and DS3 purchase commitments.²⁹⁰ Based on data provided by incumbent LECs, the shortfall penalties they assessed from 2012 through 2014 under the tariff pricing plans we are investigating totaled more than \$200 million.²⁹¹ These penalties grew from \$47.5 million in 2012 to about \$94 million in 2014, nearly doubling during this period. Virtually all of these penalties were assessed against competitive LECs and mobile wireless carriers, thereby affecting competition and growth of future IP-based services and the deployment of wireless 4G LTE service.²⁹²

117. The issue of whether shortfall penalties are reasonable is increasingly significant today in light of national trends showing rapid growth in IP-based business data services and the related decline of TDM services. While customer demand for TDM services remains substantial, competitive LECs face escalating shortfall fees as TDM business data services decline and they weigh the costs of maintaining their TDM commitments against the benefits of transitioning to IP services.²⁹³ To the extent such fees impose costs on the customer beyond the provider's opportunity cost, such costs will unreasonably limit the customer's ability to make efficient choices and impede technology transitions. Thus, in combination with the percentage commitments they enforce, these terms have the effect of locking competitive LECs into purchasing TDM business data services from incumbent LECs, preventing them from moving to competitors or growing their own networks when it would be efficient to do so.

118. *Incumbent LEC Pricing Plan Shortfall Provisions.* A review of shortfall provisions in the incumbent pricing plans under investigation reveals a wide disparity in the amounts of these fees and the methodologies used to calculate them. Regarding AT&T's plans, the Ameritech DCP shortfall penalty is calculated monthly based on the number of shortfall circuits, which is the difference between the customer's volume commitment and its actual purchases, multiplied by the DCP (discounted) monthly recurring rate.²⁹⁴ The customer is also given a 90-day grace period to make up any shortfall.²⁹⁵ Shortfall penalties for the BellSouth ACP are computed monthly based on the shortfall (the difference between the customer's volume commitment and its actual purchases), multiplied by 50 percent of the ACP monthly recurring rate.²⁹⁶ In the Southwestern Bell and Pacific Bell TPPs, the fee is assessed monthly based on the number of shortfall circuits multiplied by the non-recurring charge for DS1 channel terminations.²⁹⁷

²⁹⁰ *Designation Order*, 30 FCC Rcd at 11453, para. 72 (citing the various tariff shortfall provisions).

²⁹¹ *Id.* at 11456, para. 77; Tariff Investigation Data and Information Request Template at Table VI.

²⁹² Tariff Investigation Data and Information Request Template at Table VI.

²⁹³ The Joint CLECs state that revenues from TDM-based services comprise approximately 60 percent of the roughly \$40 billion annual market for special access dedicated services. Joint CLECs Opposition at 50. The Joint CLECs claim that "the incumbent LECs have exploited the combined effects of declining purchases of TDM-based dedicated services and large shortfall penalties under their lock-up plans as a means of extending their lock-up strategy to Ethernet." Joint CLECs Opposition at 51. These data also show that competitive LEC purchases of TDM-based DS1 and DS3 under term discounts in the plans under investigation declined about 11 percent between 2012 and 2014. Joint CLECs Opposition at 25 (citing Appendix E).

²⁹⁴ Ameritech Tariff F.C.C. No. 2 § 7.4.13(B) ("If a customer's actual in service level falls below the commitment level, the customer will be billed for the commitment level of LDCs [Local Distribution Channels also known as channel terminations] at DCP rates. For example, a customer that commits 90 LDCs but only has 70 LDCs in service will be billed the DCP rates for 90 LDCs.").

²⁹⁵ *Id.* § 7.4.13(C) ("No adjustments, for being above or below commitment level (as described in (B) above), in monthly billing for a DCP will take place until 90 days after Telephone Company notification to the customer that the commitment level has been exceeded or not been met. This will insure that customers will not be penalized for aberrations in Local Distribution Channel counts caused by timing differentials in disconnection and installation.").

²⁹⁶ BellSouth Tariff F.C.C. No. 1 § 2.4.8(B).

²⁹⁷ Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(E)(4) (For example, "Customer A has a CL [Commitment Level] = 1,000 Channel Terminations for the month of June. Customer A must have at least 800 DS1

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119. For CenturyLink, for each month that the customer falls short under the RCP, the customer is charged a shortfall amount that is the difference between the purchase revenue commitment and the actual monthly recurring revenue paid (less the discount applied to the shortfall amount because the customer receives the RCP discount on the full amount of the purchase commitment).²⁹⁸ Meanwhile, TDP customers that purchase less than their agreed-to number of circuits for more than 90 days are assessed a termination fee for the unused circuits and have their commitment levels reduced.²⁹⁹

120. In Frontier's case, the One-, Two-, Three-, and Five-Year DS1 TVP shortfall penalty in Tariff F.C.C. No. 5 is calculated annually based on the lowest TVP monthly recurring charge multiplied by the shortfall quantity at the time of the annual review and this is multiplied by four months.³⁰⁰ For the Eight- and Ten-Year DS1 TVP in this tariff, the penalty is calculated annually based on the average TVP monthly recurring charge per circuit multiplied by the shortfall at the time of the annual review, which is multiplied by six months.³⁰¹ Meanwhile, for the DS3 TVP, "[w]hen the average number of in-service DS3 SALs [special access lines] at the Annual Review is less than the Minimum DS3 Commitment Quantity, a shortfall penalty applies."³⁰² The minimum commitment quantity is reduced by three percent

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Channel Terminations in-service to meet the 80% target. In July, the monthly review calculated 795 DS1 Channel Terminations in-service for the month of June. The difference between 80% of the CL (800) and the actual in-service total (795) is 5 Channel Terminations. Therefore, the customer will be billed an amount equal to 5 Channel Terminations multiplied by the current Nonrecurring Channel Termination rate. For subsequent months, Customer A will continue to be billed an amount equal to the difference between 80% of the CL and the actual in-service number of Channel Terminations that are below 80% of the CL (multiplied) by the current nonrecurring Channel Termination rate, until 80% of the CL is met." SWBT Bell Tariff F.C.C. No. 73 § 7.2.22(E) (same provisions as Pacific Bell).

²⁹⁸ CenturyLink Tariff F.C.C. No. 11 § 7.1.3(B)(3)(c) ("For each month the eligible monthly recurring revenue falls below the commitment level, the customer will be charged a shortfall on their next month's billing. The shortfall amount will be the difference between the commitment amount and the actual monthly recurring revenue. The applicable shortfall charge(s) appears on the next month's billing. For example, a customer who commits to \$28,500 for DS1 circuits but only has \$25,000 is charged a shortfall level of \$3,500. Further the RCP credit is determined by multiplying the monthly recurring revenue commitment level of \$28,500 times 22% which equals the RCP credit of \$6,270. Even though there is a shortfall, the bill will show the full RCP credit. The shortfall charge of \$3,500 and the RCP credit of \$6,270 will appear on the RCP customer's next month's billing.")

²⁹⁹ CenturyLink Tariff F.C.C. No. 9 § 7.4.11(B) ("If the customer's in-service level falls below the minimum commitment threshold, the customer will be billed termination liability charges for the number of circuits below the minimum commitment threshold, and the customer's commitment level will be decreased to 110 percent of the customer's current in-service level. For example, a customer whose minimum commitment threshold is 135 circuits (90% of 150), but only has 125 in-service, will be billed termination liability charges for 10 circuits, and the customer's commitment level will be decreased to 138 (110% of 125)"). CenturyLink allows a 90-day grace period. "[T]he customer will be billed 50% of the monthly TDP charges for the remaining portion of the committed term." CenturyLink Tariff F.C.C. No. 9 § 7.4.11(E) and (G).

³⁰⁰ Frontier Tariff F.C.C. No. 5 § 5.6.14(I). For the One, Two-, Three-, and Five-Year DS1 TVP, "[w]hen the number of TVP DS1 SALs [special access lines] at the annual review is less than the commitment quantity minus 3%, the penalty will be the lowest TVP rate for the current threshold in the states where the service is located, multiplied by the shortfall multiplied by 4 months." *Id.* Unlike some other plans, the shortfall quantity is determined at time of review rather than by using a monthly average. Frontier Direct Case at 9. In contrast, Frontier's Eight- and Ten-Year DS1 TVP is calculated on an annual basis on the average monthly recurring charge (MRC) per circuit, multiplied by the shortfall amount, multiplied by six months. *Id.*

³⁰¹ Frontier Tariff F.C.C. No. 5 § 5.6.14(I). For the Eight- and Ten-Year DS1 TVP, "[w]hen the number of ETTVP DS1 SALs [special access lines] at the annual review is less than the commitment quantity, the penalty will be the average ETTVP MRC [monthly recurring charge] per circuit, multiplied by the shortfall multiplied by 6 months." *Id.*; Frontier Direct Case at 9.

³⁰² *Id.* § 5.6.19(F).

for purposes of the shortfall calculation.³⁰³ The shortfall then is multiplied by the “TVP rate for the predominant service type purchased by the customer” multiplied by 12 months.³⁰⁴ Regarding Frontier Tariff F.C.C. No. 6, the shortfall penalty in the first year for the DS1 TPP is calculated using “the full MRC [monthly recurring charge] for 4 months plus 10% of the MRC for the remaining number of months. The penalties charged during the subsequent years of the TPP will be 10% of the MRC for 4 months plus 10% of the MRC for the remaining number of months.”³⁰⁵ Further, in Tariff F.C.C. No. 11, the shortfall penalty for the OPP is the non-recurring charge for channel terminations applied each month a customer does not meet its commitment.³⁰⁶

121. Under Verizon’s tariff pricing plans, when a customer fails to meet its commitment level under the CDP, the amount of the shortfall for the given service type is calculated every six months; the shortfall is multiplied by an average monthly rate that includes several rate elements.³⁰⁷ For example, in the case of a shortfall in channel terminations, the shortfall amount is multiplied by a rate that includes charges based on channel terminations, channel mileage, and multiplexing arrangements.³⁰⁸ Verizon calculates the shortfall penalty under the NDP in a similar manner, but it is based on an annual average.³⁰⁹

122. Finally, the shortfall provisions in the Frontier Tariffs for the NDP, DS1 TVP and DS3 TVP are the same as those found in the present Frontier tariff.³¹⁰ The NDP shortfall penalty in the Tariff F.C.C. No. 13, is the same as the Verizon NDP and is based on an annual average and is multiplied by an average monthly rate.³¹¹ The One-, Two-, Three-, and Five-Year DS1 TVP shortfall penalty in Tariff F.C.C. No. 5 is calculated annually based on the lowest TVP monthly recurring charge multiplied by the shortfall quantity at the time of the annual review and this is multiplied by four months.³¹² For the Eight-

³⁰³ *Id.* § 5.6.19(E)(2) (“The DS3 Commitment Quantity less the three percent (3%) allowance shall be defined as the Minimum DS3 Commitment Quantity.”).

³⁰⁴ *Id.* § 5.6.19(F). “The shortfall penalty is calculated by multiplying the following: (i) TVP rate for the predominant service type purchased by the customer (for example, if sixty percent (60%) of the customer’s DS3 SALs [special access lines] included in the DS3 TVP are End User DS3 SALs with Company Electronics, then the rate for End User DS3 SALs with Company Electronics shall apply) by (ii) The minimum DS3 Commitment Quantity minus the average in-service quantity of DS3 SALs by (iii) twelve (12) months.” *Id.*; Frontier Direct Case at 10.

³⁰⁵ Frontier Tariff F.C.C. No. 6 § 7.2.1(G)(8).

³⁰⁶ Frontier Tariff F.C.C. No. 11 § 2.11.1.1(D)(3)(b) (“If the total number of Channel Terminations . . . is less than 80% of the CL [Commitment Level], the customer will be billed an adjustment factor equal to the lowest prevailing Zone 1 Month-to-Month Nonrecurring Channel Termination charge, shown in Section 7.16.4 or Section 24.5.2.6, multiplied by the difference between the actual number of Channel Terminations in-service and 80% of the CL.”).

³⁰⁷ Verizon Tariff F.C.C. No. 1 § 25.1.7(B); Verizon Tariff F.C.C. No. 11 § 25.1.7(B).

³⁰⁸ *Id.* § 25.1.7(B); Verizon Tariff F.C.C. No. 11 § 25.1.7(B).

³⁰⁹ *Id.* § 25.3.7(C); Verizon Tariff F.C.C. No. 11 § 25.2.7(C); Verizon Tariff F.C.C. No. 14 § 23.1.7(C); Verizon Tariff F.C.C. No. 16 § 22.1.7(C). Unlike the CDP, where the commitment level is expressed in channel terminations, the customer is required to make separate commitments for channel termination and channel mileage under the NDP. *See, e.g.,* Verizon Tariff F.C.C. No. 1 § 25.3.

³¹⁰ Verizon Tariff F.C.C. No. 14 §§ 5.6.14(I) (DS1 TVP); 5.6.19(F) (DS3 TVP). This reflects that Frontier assumed the pricing plans for California, Florida and Texas when it acquired the Verizon territories in those states governed by the tariff. *See also* Frontier Direct Case at 2.

³¹¹ Frontier Tariff F.C.C. No. 13 § 22.1.7 (C).

³¹² Frontier Tariff F.C.C. No. 5 § 5.6.14(I). For the One-, Two-, Three-, and Five-Year DS1 TVP, “[w]hen the number of TVP DS1 SALs [special access lines] at the annual review is less than the commitment quantity minus 3%, the penalty will be the lowest TVP rate for the current threshold in the states where the service is located, multiplied by the shortfall multiplied by 4 months.” *Id.* Frontier Direct Case at 9.

and Ten-Year DS1 TVP in this tariff, the penalty is calculated annually based on the average TVP monthly recurring charge per circuit multiplied by the shortfall at the time of the annual review, which is multiplied by six months.³¹³ Meanwhile, for the DS3 TVP, “[w]hen the average number of in-service DS3 SALs [special access lines] at the Annual Review is less than the Minimum DS3 Commitment Quantity, a shortfall penalty applies.”³¹⁴ The minimum commitment quantity is reduced by three percent for purposes of the shortfall calculation.³¹⁵ The shortfall then is multiplied by the “TVP rate for the predominant service type purchased by the customer” multiplied by 12 months.³¹⁶ Verizon’s methodology for these shortfall penalties is different than the calculation it uses in the CDP and NDP; in addition, the Verizon TVP shortfall penalty provision for DS1 service is different than for DS3 service.

123. Incumbent LECs argue that, although the tariff pricing plans shortfall provisions may vary, they are nevertheless reasonable. AT&T asserts that its shortfall penalties for circuit portability plans are “the consideration AT&T obtains in exchange for foregoing [sic] ETLs [Early Termination Liabilities] and incurring additional expense when the customer prematurely moves or disconnects circuits.”³¹⁷ It notes generally that competitive LECs’ “shortfall liability provisions are similar to AT&T’s,” whereby the customer must pay “the Total Revenue Commitment even if . . . purchases under the contract are less than the Total Revenue Commitment.”³¹⁸

124. Verizon states shortfall penalties ensure that it “receives the benefit of the bargain it struck with its customer”³¹⁹ and are necessary to justify the discounts and enforce a purchaser’s commitment given the added risks and costs Verizon incurs in providing circuit portability.³²⁰ Verizon

³¹³ Frontier Tariff F.C.C. No. 5 § 5.6.14(I). For the Eight- and Ten-Year DS1 TVP, “[w]hen the number of ETTVP DS1 SALs [special access lines] at the annual review is less than the commitment quantity, the penalty will be the average ETTVP MRC [monthly recurring charge] per circuit, multiplied by the shortfall multiplied by 6 months.” *Id.* Frontier Direct Case at 9.

³¹⁴ Frontier Tariff F.C.C. No. 5 § 5.6.19(F).

³¹⁵ *Id.* § 5.6.19(E)(2) (“The DS3 Commitment Quantity less the three percent (3%) allowance shall be defined as the Minimum DS3 Commitment Quantity.”).

³¹⁶ *Id.* § 5.6.19(F). “The shortfall penalty is calculated by multiplying the following: (i) TVP rate for the predominant service type purchased by the customer (for example, if sixty percent (60%) of the customer’s DS3 SALs [special access lines] included in the DS3 TVP are End User DS3 SALs with Company Electronics, then the rate for End User DS3 SALs with Company Electronics shall apply) by (ii) The minimum DS3 Commitment Quantity minus the average in-service quantity of DS3 SALs by (iii) twelve (12) months.” *Id.*; Frontier Direct Case at 10.

³¹⁷ *See, e.g.*, AT&T Direct Case Brief at 32. AT&T states its portability plans “assume that the customer has made term commitments for the circuits it has chosen to purchase,” and the plans offer the customer the option to cancel and move these DS1 circuits without having to pay the Early Termination Liability that would be applicable for circuits that were purchased without a portability plan. AT&T Rebuttal at 4, 17; AT&T Direct Case at 16. The customer can avoid circuit connection and disconnection liability under portability plans “so long as the CLEC continues to purchase an established amount of the CLEC’s existing term-plan circuits,” known as the commitment level. AT&T Direct Case at 17 (explaining the various Ameritech, BellSouth, Southwestern Bell, and Pacific Bell portability plans and the commitment levels required by each).

³¹⁸ AT&T Direct Case Brief at 47.

³¹⁹ Verizon Direct Case at 30. Verizon offers term discount plans with circuit portability that allow customers to disconnect and move circuits to suit their needs without facing early termination liability for doing so, and require the customer to meet established commitment levels.

³²⁰ *Id.* at 107-08 (responding to *Designation Order* narrative question in para. 78 and citing, for example, Verizon Tariff F.C.C. No. 1 §§ 25.1.7(B) (CDP) and 25.3.7(C)(1) (NDP)). Verizon also cites recent litigation with XO in a \$4.9 million dispute over the shortfall provision in the CDP where a federal court granted summary judgment to Verizon. *See Verizon Virginia v. XO*, No. 3:25-CV-171, 2015 WL 6759473 (4th Cir. Nov. 4, 2015), *appeal filed*, Dec. 15, 2015. In that case, the issue before the court was whether Verizon’s shortfall provision was ambiguous.

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also asserts that “shortfall payments assessed on customers have been small compared to the total purchases under these plans, equaling less than 3% of Verizon’s revenue under the CDP and 1% of Verizon’s revenue under the NDP.”³²¹ CenturyLink argues that its shortfall provisions are particularly important in recovering the costs of providing circuit portability because its “costs must be recovered over a group of circuits, rather than on a circuit-by-circuit basis” that also includes a portion of shared network costs.³²²

125. Competitive LECs argue that the amounts of various incumbent LEC shortfall fees are excessive, inconsistent, and unreasonable.³²³ For example, they assert that the calculation of certain incumbent LEC tariff shortfall provisions, including the Southwestern Bell and Pacific Bell TPPs and Verizon CDPs, “results in a windfall considerably above expectation damages.”³²⁴ XO generally defines “expectation damages” as the amount the customer would have paid had it fulfilled its DS1 or DS3 commitment, citing as examples of this the shortfall provisions in the Ameritech DS1 DCP, the Verizon DS3 TVP, and the Frontier DS3 TVP.³²⁵ XO also notes that some shortfall penalties, like the DS1 shortfall penalty for Frontier’s and Verizon’s TVP, are based on a “limited percentage of expectation damages . . . and liability is limited to a fraction of the amount that the customer would have paid had it met its DS1 commitment.”³²⁶ The Joint Competitive LECs contend that basing shortfall penalties on the full measure of expectation damages overcompensates the incumbent LEC for a customer’s failure to meet a purchase commitment because the incumbent incurs less cost when customers order fewer circuits.³²⁷

126. In addition, competitive LECs assert that excessive and unreasonable shortfall fees stunt the development of an addressable market and thus have an anti-competitive effect, and harm the ability of competitive LECs to transition their TDM networks (and DS1 and DS3 services) to IP technology in order to serve their own customers’ increasing demands for Ethernet services. Competitive LECs argue that, based on their experiences, shortfall penalties, which are triggered if competitive LECs transition their services to other providers or their own networks – since this requires preparation in advance of the

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Id. The court noted that, in agreeing to an expedited ruling on summary judgment, the parties withdrew the issue of whether the CDP shortfall provision was just and reasonable based on the Telecommunications Act. *Id.* at 9. This issue is now before the Commission in this proceeding. As the court explained, “A court cannot reform the terms of a tariff because that power is reserved for the FCC,” also citing authority stating that based on the filed tariff doctrine, only the relevant administrative agency has the authority to set rates. *Id.* at 12. Below, we explain why the shortfall provision – and the rate that Verizon used to calculate the shortfall – is not reasonable.

³²¹ Verizon Direct Case at 30.

³²² CenturyLink Direct Case White Paper at 25.

³²³ Joint CLECs Opposition at 80-83.

³²⁴ XO Comments at 50. *See* Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(E); Southwestern Bell Tariff F.C.C. No. 73 § 7.2.22(E)(4)(b); Verizon Telephone Companies Telephone Companies Tariff F.C.C. No. 1 § 25.1.7(B) and 25.3.7(C); Verizon Telephone Companies Tariff F.C.C. No. 11 § 25.1.7(B) and 25.2.7(C).

³²⁵ XO Comments at 50 (stating the “Ameritech DS1 shortfall penalties and the Verizon West [TVP in Tariff No. 14] and Frontier [TVP in Tariff No. 5] penalties for DS3 shortfall penalties are based on a full measure of expectation damages” and the “DS1 shortfall penalty in the Verizon West Discount Plan is based solely on a limited percentage of expectation damages”).

³²⁶ *Id.* XO notes that the DS1 TVP shortfall penalties for Frontier F.C.C. Tariff No. 5 and Verizon (West) F.C.C. Tariff No. 14, which are the same, are “limited to a fraction of the amount that the customer would have paid had it met its DS1 commitment,” and the penalties in these tariffs “for DS3 shortfall penalties are based on a full measure of expectation damages.” XO Opposition at 50.

³²⁷ Joint CLEC Opposition at 82.

expiration date – make it impractical to consider competitive alternatives.³²⁸ For example, XO asserts that it was “impractical to lower its minimum commitment upon renewal” and therefore was “locked . . . into commitment levels of maintaining 90% of XO’s inventory of DS1s and DS3s . . . or face shortfall penalties.”³²⁹ XO further states its view that these fees have “a chilling effect on XO’s plans to deploy new fiber to buildings.”³³⁰

127. Windstream also reiterates that incumbent LEC shortfall penalties operate in a punitive manner by “effectively rais[ing] rival carriers’ costs to provide competitive services” for carrier customers migrating from TDM to Ethernet circuits.³³¹ Furthermore, competitive LECs assert that they face increasing exposure to paying shortfall fees because of an inability to meet TDM DS1 and DS3 commitments under incumbent LEC pricing plans as their customers transition to IP-based Ethernet services. As a result, competitive LECs assert they are entering into overlay commercial agreements with incumbent LECs for purchasing large volumes of Ethernet to meet IP transition needs, as well as TDM services, as a means of seeking relief from shortfall penalties under the tariff pricing plans, even though they may face increased risk of incurring shortfall penalties in the future.³³²

128. Incumbent LECs deny competitive LECs’ claims about shortfall fee issues by also dismissing their arguments that these penalties result in harms to competition and the ability of competitive LECs to transition to IP services. For instance, whereas competitive LECs claim they are “forced to enter” into the incumbent LEC tariff pricing plans or overlay agreements, the incumbent LECs’ position is that the special access market is highly competitive – including growing competition from cable providers – and competitive LECs enter into the agreements by choice.³³³ AT&T also asserts that its DS1 sales and pricing plans with circuit portability account for a small amount of special access revenues that is declining rapidly.³³⁴ Incumbent LECs also dispute assertions that competitive LECs are unable to shift special access purchases to non-incumbent LEC providers.³³⁵ In that regard, AT&T argues that certain data in response to the Bureau’s request show that competitive LECs, when their plans came up for renewal, were able to move a substantial percentage of circuits away from incumbent LECs from 2012-14.³³⁶ AT&T further asserts that customers have “headroom” under its plans that “permits substantial demand to be moved to AT&T’s rivals without penalty.”³³⁷ Verizon adds that competitive LECs have not provided sufficient evidence to support their claims of suffering harm from any incumbent LEC tariff pricing plans.³³⁸

³²⁸ XO Chambless Decl. at 10; XO Opposition at 27-28 (A “long conversion period highlights the difficulties of moving circuits serving customers out from under Discount Plans in a timely fashion so to avoid shortfall penalties by starting too early or getting locked in at an unreasonably high minimum commitment at the time of transition if not completed.”). XO often has no practical choice but to purchase special access from the ILEC under Discount Plans, not only where the ILEC is the only provider in the building, but also when there are one or more alternative providers which offer a better rate. If it were to purchase from a competitive provider and suffer a shortfall penalty as a result, XO’s costs of service would increase unacceptably.” XO Chambless Decl. at para. 11.

³²⁹ *Id.* at 10 (referencing XO’s agreement under the Verizon CDP plan).

³³⁰ XO Sept. 23, 2015 *Ex Parte* at 8.

³³¹ Windstream Mar. 14, 2016 *Ex Parte* at 9.

³³² Joint CLEC Opposition at 10, 14, 23-24, 27-28 (citing highly confidential data); XO Opposition at 23.

³³³ *See, e.g.*, CenturyLink Rebuttal at 4-17; Verizon Rebuttal at 3-4; XO Opposition at 45.

³³⁴ *See, e.g.*, AT&T Mar. 15, 2016 *Ex Parte* Letter, Attach. at 2, 5.

³³⁵ *Id.* at 6; Verizon Rebuttal at 13-16.

³³⁶ AT&T Rebuttal at 20-21; AT&T Mar. 15, 2016 *Ex Parte* Letter, Attach. at 6.

³³⁷ AT&T Mar. 15, 2016 *Ex Parte* Letter, Attach. at 2.

³³⁸ Verizon Rebuttal at 12-13.

129. We conclude that the record in this investigation demonstrates the need to set a reasonable limit on shortfall fees for the tariff pricing plans before us in this investigation for several reasons. Excessive penalties combined with high minimum purchase requirements harm competition by preventing competitive LECs from making cost-based choices about whether and when to transition their TDM purchases to Ethernet services, whether through purchases or construction.³³⁹ Although competitive carriers today continue to rely substantially on incumbent LEC TDM DS1 and DS3 special access services to serve their customers, as discussed extensively above, the telecommunications market is shifting to more efficient IP technology based services, such as Ethernet.³⁴⁰ With this shift comes a decline in demand for DS1 and DS3 services, and competitive LECs will face choices regarding whether and how to best to meet their commitments, including when it is cost effective to shift their purchases to different services or providers and/or construct new facilities.³⁴¹ The reasonableness of these tariffed penalties, therefore, take on increasing significance as the technology transition accelerates. Accordingly, we scrutinize these fees in light of the competitive and IP-transition harms that have been raised.

130. The competitive LECs do not dispute that shortfall fees are appropriate but contend that some of the penalties in the tariffs under investigation are excessive. Our analysis and comparison of the various shortfall provisions in the incumbent LEC pricing plans under investigation, as noted above, demonstrate the breadth of differences across these penalties, both in the amounts and the methodologies used to calculate them. Not only do the shortfall provisions vary between incumbent LECs, but the same carrier often uses substantially different shortfall provisions from one pricing plan to another. In addition, the incumbent LECs have failed to provide any concrete cost or economic justification for these fees in response to our requirement that they provide for such support to justify the fees. They do not provide any basis to counter competitive LECs' criticism that some of these penalties are arbitrarily set, are unreasonably high, and result in a windfall for the incumbent LECs.

131. Incumbent LECs have asserted that shortfall penalties are necessary to compensate the carriers for the additional risks and costs they incur in providing circuit portability. The Bureau instructed the incumbent LECs to provide specific explanations of how their shortfall penalties were derived, including quantifying these costs.³⁴² For instance, the Bureau sought data to demonstrate the amount of those costs and how they relate to the shortfall penalties they charge in order to study whether or not they were reasonable. Although incumbent LECs continue to assert that shortfall penalties are necessary to compensate the carrier for "substantial" network and labor force costs they incur to provide circuit portability,³⁴³ no cost study or other financial justification was provided, leaving us without a reasoned basis upon which to justify the disparate shortfall penalties incumbents use in their tariffs.³⁴⁴

³³⁹ See, e.g., Joint CLEC Opposition at 19.

³⁴⁰ Joint CLEC Opposition at 50.

³⁴¹ See, e.g., Joint CLEC Opposition at 32.

³⁴² The Bureau instructed the incumbent LECs to provide the following: "a detailed description and quantification of such costs that are incurred by the incumbent LEC in a shortfall situation, including any relevant calculations performed to derive such costs. The incumbent LECs subject to this investigation have asserted that these fees are at least in part designed to recover their costs. To the extent shortfall penalties are intended to recover costs that would not have been incurred but for the shortfall, the incumbent LECs must also submit in their narrative responses: (7) all cost data that explains and justifies the level of the shortfall penalties, (8) a description and quantification of the costs that incumbent LECs incur in a shortfall situation, and (9) the mathematical calculations used to derive that cost." *Designation Order*, 30 FCC Rcd at 11456-457, para. 78.

³⁴³ See, e.g., AT&T Direct Case Brief at 44-45; Verizon Direct Case at 89 (responding to narrative question in *Designation Order*, 30 FCC Rcd at 11450, para. 67).

³⁴⁴ We dismiss brief assertions by AT&T and Verizon to the extent they claim that price cap regulation eliminates their obligation to provide cost data. See AT&T Direct Case Brief at 47; Verizon Direct Case at 109-110. In a 2013 Commission decision, upheld upon appeal by Verizon, the Commission pointed out that it has always recognized the "possible future need for cost data" even under price cap regulation. *Petition of USTelecom for Forbearance Under*

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Significantly, no incumbent LEC has provided an explanation of or identified any costs it incurs when a customer fails to meet its percentage commitments that are greater than the costs it would incur in providing the service under terms of the tariff. We further find it likely that, consistent with the assertions of their competitive LEC customers, the providing incumbent LEC avoids certain costs when it does not provide a service.

132. Accordingly, we find that a reasonable shortfall fee should be set at a level no greater than the amount of revenue a customer would have paid had it met its minimum commitment. This measure of shortfall damages permits what some commenters have termed “expectation damages” or damages as measured by the seller’s revenue expectations under the agreement. From an economic standpoint, we find that penalties under the tariffs in question that amount to more than the opportunity cost the incumbent LEC would incur as a result of the breach are unjust and unreasonable. We find that the harms an incumbent LEC is likely to incur from breach are on the whole reasonably predictable, objectively measurable, and unlikely to vary significantly from one circumstance to the next. In particular, when a breach occurs, the incumbent LEC may lose some revenues that it would otherwise have gained, may additionally incur other costs (for example, if some kind of processing or disposal is required), and may save certain operating costs. At the same time, the incumbent LEC is unlikely to experience any material harms or benefits beyond what has just been outlined.

133. This suggests penalties assessed by an incumbent LEC should reflect expectation damages rather than be punitive. Such costs (the opportunity cost of breach) can readily be estimated in a relatively objective fashion, and when penalties for breach reflect these, a party will choose breach only when the benefits of doing so exceed the costs breach will impose on the other contracting party. The result is to allow economically efficient breach. In short, we find penalties for breach that exceed the expected impact on the harmed contracting party’s net revenue stream are unreasonable.³⁴⁵

134. When reviewing these tariff penalty provisions to determine whether they are just and reasonable, we find that such penalties should be set a level to allow economically efficient breaches and should not be punitive. We therefore use expectation damages to benchmark a limit above which we would find shortfall penalties unreasonable. The decision to use an expectation damages based standard, as opposed to a punitive damages based standard, finds support in Commission precedent. For example, the Commission has noted that courts limit their enforcement of liquidated damages clauses in contracts as long as “the amount stipulated for is not so extravagant . . . as to show that compensation was not the object aimed at or as to imply fraud, mistake, circumvention, or oppression.”³⁴⁶ For similar reasons, we determine that expectation damages allows us to make a similar distinction between reasonable penalties and those that may result in a windfall to the incumbent LEC or otherwise represent undue influence. We find this measure of damages is consistent with incumbent LECs’ stated objective that they be allowed to recover the “benefit of the bargain” if the minimum commitment is not satisfied.³⁴⁷ At the same time, it responds to legitimate arguments by competitive LECs that penalties above expectation damages in

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47 U.S.C. § 160(c) from Enforcement of Certain Legacy Telecommunications Regulations, WC Docket No. 12-61, Memorandum Opinion and Order, 28 FCC Rcd 7627, 7649, para. 38 (2013) (*USTelecom Forbearance Long Order*), *pet. for rev. denied sub nom. Verizon v. FCC*, 770 F.3d 961 (D.C. Cir. 2014).

³⁴⁵ Expectation damages provide certainty to parties to a contract, and are particularly well-suited to situations where the parties *ex ante* are in a good position to assess and agree on the extent of damages due to breach. We believe the present case is such a situation (because, as just discussed, relatively objective estimates can be made as to the likely opportunity cost of breach). Punitive penalty clauses can also provide such certainty to the extent they prevent litigation over additional harm, but are more suited to situations where the harm to a party by breach can vary significantly depending on difficult to specify circumstances, and where there may be disagreement (especially *ex post*) as to the full extent of that harm.

³⁴⁶ *In Re Bdcps, Inc.*, Order, 15 FCC Rcd 17590, 17609-11 (2000).

³⁴⁷ *See AT&T Direct Case at 45; Verizon Direct Case at 30.*

incumbent LEC tariffs are excessive and result in windfalls for the incumbent LECs.³⁴⁸ We find that our measure of expectation damages strikes the right legal and policy balance, particularly given the evidence in the record that excessive shortfall fees have imposed harms on the IP-transition.

135. Indeed, in finding that a shortfall penalty that permits a carrier to recover more than the amount of revenue that a customer would have paid had it met its minimum commitment is unreasonable, we note that some of the pricing plans at issue are reasonable under this standard. The Ameritech DCP shortfall penalty, for example, is calculated based on the difference between the customer's minimum volume commitment and its actual purchases, multiplied by the DCP (discounted) monthly recurring rate.³⁴⁹ The shortfall quantity may be expressed in terms of the number of channel terminations, as in this example, or in terms of revenue if the commitment is for a specific revenue amount. Because the customer's commitment is defined in terms of a given service type, channel terminations for example, we would expect as a general rule that the shortfall rate applied to the calculation will be no higher than the discounted or lowest rate in the plan for channel terminations, or in any event, be applied in a manner that conforms to our definition of the measure of damages. Further, although the penalty is billed monthly in the Ameritech example, other reasonable provisions may assess fees over different time frames and may include an average for administrative efficiency in the calculation. We recognize that there is a wide variety of shortfall methodologies in tariff provisions that differ in how specific terms are defined for purposes of the calculation. These are unreasonable only where a penalty is applied in a manner that results in a carrier recovering more revenue from the customer than if the customer had met its minimum commitment.³⁵⁰

136. Defining a standard of reasonableness for shortfall penalties is necessary to preclude carriers from assessing excessive fees, as discussed above. While we establish a threshold, above which we find shortfall penalty to be unreasonable, we do not at this time make a determination as to shortfall penalty provisions in incumbent LEC pricing plans that assess a lesser amount. As would be the case whenever an incumbent LEC seeks to make a material modification of its tariff, if an incumbent LEC sought to raise its tariffed shortfall penalties, it would be required to make a cost-based showing in support of any such filing, including cost studies and information requested but not provided in our investigation, justifying why any such action would be warranted.³⁵¹ Additionally, any such cost showing should account for costs savings that result from the early termination.³⁵²

³⁴⁸ See, e.g., XO Comments at 50.

³⁴⁹ Ameritech Tariff F.C.C. No. 2 § 7.4.13(B) (“If a customer’s actual in service level falls below the commitment level, the customer will be billed for the commitment level of LDCs [Local Distribution Channels also known as channel terminations] at DCP rates. For example, a customer that commits 90 LDCs but only has 70 LDCs in service will be billed the DCP rates for 90 LDCs.”). As another example, if a customer commits to \$28,500 monthly for DS1 circuits but spends \$25,000 in monthly recurring revenue, the customer would be liable for a \$3,500 shortfall charge minus any discount because the customer should receive the discount on the full commitment amount. If the discount were 22 percent in this example, the net shortfall fee would be \$2,730. See CenturyLink Response to *Designation Order* para. 78 at 25 (describing the RCP). Where a commitment level is measured in a quantity, the shortfall charge would be: shortfall number times the discount or lowest rate.

³⁵⁰ Purchasers are clearly in the best position to bring any violations of this rule to the Commission’s attention where a shortfall penalty may not appear unreasonable on its face but in practice recovers more than the permitted amount.

³⁵¹ The price cap rules and indices are designed to provide price cap carriers some pricing flexibility for the interstate services they offer while ensuring that rates for services remain just and reasonable. 47 CFR sections 61.41-49. Under the price cap rules, the actual price index or API cannot exceed the price cap index or PCI. The API is based on existing and proposed access prices and the most recent calendar-year demand for these services. Thus, the API, as specified in our rules, has nothing to do with any penalties relating to the sale of these services. The PCI is based on the gross domestic product price index, the X factor, exogenous cost adjustments, access prices at the last PCI update, and the most recent calendar-year demand for these services. Thus, the PCI, as specified in our rules, has nothing to do with any penalties relating to the sale of these services. As neither the formula used to calculate the API nor the formula used to calculate the PCI have anything to do with penalties, we cannot conclude

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137. Further, the assertion that shortfall penalties may constitute a small average percentage of a particular carrier's pricing plan revenues does not establish that such penalties are just and reasonable.³⁵³ Revenue from a penalty that is so high no customer ever risks incurring it would show up as insignificant in comparison to the revenues from the contract services it helps enforce. Such a fact would in no way establish that the high penalty is a reasonable reflection of the costs imposed on the provider by the breach. Nor does it reflect the impact of shortfall penalties in individual cases.³⁵⁴ Additionally, to the extent that our standard of expectancy damages may overcompensate any incumbent LEC, as some competitive LECs assert, we note that incumbent LECs do reflect shortfall fees in the price cap indices, and these adjustments appear to exert some degree of downward pressure on business data services rates from which purchasers, such as competitive LECs, stand to benefit.

138. In accordance with our conclusion of what would constitute the maximum shortfall penalty that could be considered just and reasonable pursuant to section 201(b) of the Act, we find that AT&T's Southwestern Bell and Pacific Bell DS1 TPP, Frontier's OPP and NDP, and Verizon's CDP and NDP contain shortfall provisions in excess of this measure of damages which we therefore find to be unjust and unreasonable. The Southwestern Bell and Pacific Bell DS1 TPP, and the Frontier OPP use an excessive, nonrecurring charge per channel termination to compute the shortfall penalty for the number of channel terminations by which a purchaser falls short of its minimum commitment under a pricing plan.³⁵⁵ The shortfall penalties in these tariffs are several times the monthly discounted rate for a channel termination, resulting in a windfall for these incumbent LECs.³⁵⁶

139. In addition, the Verizon CDP for DS1 and DS3 services bases its commitment level on channel terminations but uses a rate to compute the shortfall that includes charges for services in addition to the committed channel terminations such as charges for interoffice transport (including mileage and MUXing charges).³⁵⁷ XO provides evidence that these penalties "are grossly disproportionate to full expectation damages – two to three times higher."³⁵⁸ XO argues that this penalty is "unfair" and

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that any of the ad hoc adjustments made by price cap ILECs to account for penalties in the development of the API and PCI for special access services act as a reasonable restraint on the level of these penalties.

³⁵² The action we take here sets a boundary above which we find early termination fees unreasonable. It is not intended to define with precision in all circumstances what is reasonable. We do, however, seek comment in the accompanying Further Notice whether we should adopt a net revenues approach to evaluating the reasonableness of early termination penalties in the rulemaking. *See infra* Part V.E.2.c.

³⁵³ *See* Verizon Direct Case at 30.

³⁵⁴ XO Comments at 43 ("In XO's experience, the shortfall penalt[ies] are typically **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** or more of the revenues in Verizon territory.").

³⁵⁵ Frontier Tariff F.C.C. No. 11 sets the nonrecurring charge at \$574 per channel termination. Frontier Tariff F.C.C. No. 11 §§ 2.11.1.1(D)(3)(b); 7.16.4(A). Pacific Bell and Southwestern Bell have a \$900 nonrecurring charge per channel termination. Southwestern Bell Tariff F.C.C. § 7.3.10(F)(1); Pacific Bell Tariff F.C.C. § 7.5.9(A).

³⁵⁶ Based on our definition of reasonable shortfall penalties, a rate no higher than the discounted monthly rate for the term selected by the customer must be used in computing the shortfall penalty. For example, for a five-year term, the discounted monthly rate ranges from \$92 to \$110 under Southwestern Bell's DS1 TPP, depending on which zone the customer is located. *See* Southwestern Bell Tariff F.C.C. § 7.3.10(F)(1).

³⁵⁷ *See, e.g.,* Verizon Tariff F.C.C. No. 1 § 25.1.7(B). We note that Verizon does not specify this method of calculation in its tariffs.

³⁵⁸ XO Comments at iv; *see also id.* at 39 ("[U]nder XO's DS3 CDPs from **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** Verizon billed XO a total Shortfall Adjustment in its North and South regions of **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** . . . However, that penalty is almost **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** of an expectation damages measure of **[BEGIN HIGHLY**

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“overloaded” “because the purchase of channel terminations is independent from the purchase of transport.”³⁵⁹ We agree with XO that this underscores the unreasonableness of assessing shortfall penalties for channel terminations that exceed the incumbent LEC’s expectation damages for the committed services. In a similar manner, under both the Verizon and Frontier NDP, where the customer commitment is defined solely in terms of channel terminations, the shortfall penalty consists of charges for channel terminations and interoffice transport (mileage and MUXing charges).³⁶⁰

140. Accordingly, we find that the shortfall provisions in the AT&T Southwestern Bell and Pacific Bell DS1 TPP, Frontier’s OPP and NDP, and Verizon’s CDP and NDP are unjust and unreasonable. We direct AT&T, Frontier and Verizon to remove such provisions from their tariffs within sixty (60) days from the release date of this Order to become effective on not less than one day’s but not more than fifteen (15) days’ notice.³⁶¹ On or after the effective date of the removal of these tariff provisions, Southwestern Bell, Pacific Bell, Frontier and Verizon may elect to file tariff revisions that are no greater than the amount of revenue that a customer would have paid had it met its minimum commitment. The revised tariffs will apply to both existing and future customers.

D. Early Termination Penalties

141. The Bureau designated for investigation pursuant to section 205 of the Act the question whether the use of early termination fees (ETFs) in certain incumbent LEC tariff pricing plans, either by themselves or in conjunction with other pricing plan provisions, is a just and reasonable practice under section 201(b) of the Act.³⁶² Specifically, we designated for investigation certain incumbent LEC tariff pricing plans which include such fees.³⁶³ We find early termination fees to be unreasonable when they assess a fee that exceeds the opportunity cost the incumbent LEC would incur as a result of an early termination. We further find that AT&T’s Pacific Bell and Southwestern Bell DS1 TPPs and Frontier’s OPP contain early termination provisions that are in excess of this measure of damages and are therefore unjust and unreasonable. Accordingly, we direct AT&T and Frontier to remove such tariff provisions within sixty (60) days from the release date of this Order. On or after the effective date of the removal of these tariff provisions AT&T and Frontier may elect to file tariff revisions with an early termination fee

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CONFIDENTIAL [REDACTED] **[END HIGHLY CONFIDENTIAL]** based on the channel termination rate times the average monthly shortfall.”) (also citing XO Highly Confidential Exhibit B).

³⁵⁹ XO Comments at 42 (“XO uses those types of circuits for different reasons – transport circuits for interoffice connects and channel terminations to connect XO equipment with end users, and does not combine them to serve the same customer. Historic data confirms the trends for these two categories of circuits are not coupled.”). XO also cites highly confidential data showing a high percentage of DS3 channel terminations that it purchased “when there were shortfall assessed in 2013 and 2014, for example, are standalone or zero-mileage circuits without any mileage charges.” *Id.*

³⁶⁰ *See, e.g.*, Verizon Tariff F.C.C. No. 1 § 25.3.7(C).

³⁶¹ Accordingly, we waive section 61.58 of our rules to the extent necessary to allow the carriers to make the required tariff modifications. 47 CFR § 61.58.

³⁶² *Designation Order*, 30 FCC Rcd at 11467-68, para. 101.

³⁶³ The relevant provisions of the pricing plans under investigation include Ameritech Operating Companies Tariff F.C.C. No. 2 § 7.4.13(E); BellSouth Telecommunications, LLC Tariff F.C.C. No. 1 § 2.4.8(B); CenturyLink Operating Companies Tariff F.C.C. No. 9 § 7.4.11(B) and (G); CenturyLink Operating Companies Tariff F.C.C. No. 11 § 7.1.3.B.5; Frontier Telephone Companies Tariff F.C.C. No. 5 §§ 5.6.14(O), 5.6.19(K); Frontier Telephone Companies Tariff F.C.C. No. 6 § 7.2.1(H)(6); Frontier Telephone Companies Tariff F.C.C. No. 11 § 2.11.1.1(B); Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(G); Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(G); Verizon Telephone Companies Tariff F.C.C. No. 1 §§ 25.1.9, 25.3.13; Verizon Telephone Companies Tariff F.C.C. No. 11 §§ 25.1.11, 25.2.13; Verizon Telephone Companies Tariff F.C.C. No. 14 §§ 5.6.14, 5.6.19, 23.1.13; Verizon Telephone Companies Tariff No. 16 § 22.1.13. This list is not intended to exclude any other related tariff provisions.

provision that results in fees that are not in excess of the incumbent LEC's expectation damages and is likely to be found to be reasonable by the Commission. The revised tariffs will apply to both existing and future customers.

142. Early termination fees, as distinguished from shortfall fees, are charges assessed on a purchaser under business data services tariff pricing plans when the purchaser terminates its use of a circuit or circuits prior to the expiration of the applicable service term.³⁶⁴ The incumbent LEC business data services pricing plans under investigation include such early termination fees for failing to meet TDM DS1 and DS3 term commitments.³⁶⁵ While the amounts of fees incumbent LECs have assessed for early termination are smaller than the amounts they have assessed in shortfall fees from 2012 through 2014,³⁶⁶ the issue of whether early termination fees are reasonable is relevant today in light of the decline in TDM services and the growth in IP-based services. Declining demand for TDM services exposes purchasers to escalating early termination fees. ETFs are the primary mechanisms that enforce multi-year term commitments, and when excessive, can prevent competitive LECs from choosing to transition to IP services when it would be efficient to do so.

143. Incumbent LECs state that early termination provisions are necessary to implement term commitments. AT&T argues that early termination fees "are essential to any term agreement, because if there were no [ETFs], a customer could sign up for the longest term rate available and then cancel at any time without penalty."³⁶⁷ AT&T explains that early termination provisions in its tariffs are "lower than what the purchaser would have paid if they had held the circuit to term."³⁶⁸ It also points out that its early termination fees are "comparable to, and in some cases lower than, the CLECs' [ETFs]."³⁶⁹ CenturyLink contends that "[e]arly termination fees help ensure that at least a portion of the expected revenue stream on which CenturyLink's investment was premised will continue over the life of the customer's commitment, and to provide some compensation to CenturyLink if it does not."³⁷⁰ Verizon notes that its CDP tariff "contains two methods of calculating the amount a customer owes if it terminates the CDP early. Verizon will 'apply the method that produces the *lesser* termination liability charge."³⁷¹

144. Competitive LECs argue that early termination fees are unjust and unreasonable and that incumbent LECs have not provided any cost justification to support the fees. The Joint CLECs assert that

³⁶⁴ See generally Sprint Feb. 11, 2013 Comments at 30-32; Verizon Mar. 19, 2010 Reply Comments, Attach. B (Declaration of Quintin Lew and Anthony Recine) at 13-15, paras. 29-32.

³⁶⁵ *Designation Order*, 30 FCC Rcd at 11464, para. 91.

³⁶⁶ Data submitted by the incumbent LECs subject to the tariff investigation show that early termination penalties paid by non-affiliated customers amounted to \$60.2 million from 2012 through 2014 or approximately 0.4 percent of all revenues under the subject pricing plans.

³⁶⁷ AT&T Direct Case at 53; see also Verizon Direct Case at 35.

³⁶⁸ AT&T Direct Case at 53.

³⁶⁹ *Id.* at 53.

³⁷⁰ CenturyLink Direct Case at 47.

³⁷¹ Verizon Direct Case at 35 (quoting Verizon FCC Tariff No. 1 § 25.1.4(D) (emphasis added in Verizon Direct Case). "The first method is to calculate the average amount the customer was buying from Verizon on a monthly basis just before terminating its CDP, and to assess the customer only half of that amount for the months remaining in the CDP term. The second method is to calculate the difference between the discounted rates the customer actually paid and the higher rates it would have paid had it signed up for a shorter term that matched the actual amount of time its CDP was in effect. The first method will likely result in a lower payment for a customer that terminates early but near the end of its chosen CDP term, while the second method will likely result in a lower payment for a customer that terminates shortly after signing up for the CDP." *Id.* As a result, in the event of a breach, the purchaser pays a fee that is not greater than the opportunity cost the incumbent LEC would incur as a result of the breach.

there is “no justification for imposing early termination penalties under the plans” because “the incumbent LECs own the only connection to most commercial buildings in their respective regions. Wholesale purchasers have no choice but to sign up for new plans with the incumbent LECs.”³⁷² The Joint CLECs state that incumbent LECs do not seek to “quantify [their] fixed and incremental costs or the extent to which both have already been recovered over many years of charging customers for DS1 and DS3 services.”³⁷³ Sprint contends that incumbent LECs are “unable to explain why it is reasonable to impose penalty amounts that bear no relationship to the costs of [] early termination, and that frequently exceed even the amount the customer would pay if it met its commitment level.”³⁷⁴ It notes that “most of the facilities used by the incumbent LECs to provide TDM services have been fully depreciated for years . . . the incumbent should no longer need to protect its investment with exorbitant early termination liabilities, as it has recovered the investment upfront through the special construction charge and can sell services to others at that location.”³⁷⁵ Sprint also describes its efforts to upgrade its network and acknowledges that it was “forced to pay massive shortfall, buy down, and early termination penalties using resources that it could have devoted to increasing and improving connectivity for consumers.”³⁷⁶ With regard to the terms and conditions contained in competitive LEC agreements, XO contends that “even if [CLEC agreements] contain term commitments and early termination liability clauses, CLEC agreements would not have the same deleterious impact in the market because competitors do not have the same ubiquitous market presence as the ILECs.”³⁷⁷

145. *Incumbent LEC Pricing Plan Early Termination Provisions.* A review of early termination provisions in the incumbent pricing plans under investigation reveals a wide disparity in the amount of these fees and the formulas used to calculate them. Most fees are set below sellers’ expected revenues. For example, under AT&T’s term commitment plans, the Pacific Bell and Southwestern Bell Term Payment Plans (TPP) calculate the early termination fee by multiplying the monthly recurring rate for the service by (1) the months remaining in the DS1 TPP term at the time of termination; and (2) 40 percent.³⁷⁸ This results in an early termination fee that is a fraction of revenue expectations for the incumbent LEC. Under CenturyLink’s Term Discount Plan (TDP) plan, if a purchaser cancels its TDP agreement before the expiration of the commitment period, the purchaser will be billed 50 percent of the monthly TDP charges for the remaining portion of the committed term.³⁷⁹ Again, the resulting penalty is

³⁷² Joint CLEC Opposition at 89-90.

³⁷³ *Id.* at 89 n.222.

³⁷⁴ Sprint Opposition at v.

³⁷⁵ *Id.* at 28.

³⁷⁶ *Id.* at 4.

³⁷⁷ XO Opposition at 56-57.

³⁷⁸ Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(G); Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(G). For example, if a purchaser with a \$500 monthly rate terminates service with 10 months remaining in a 3-year DS1 TPP term, the termination liability charge would be: $(\$500/\text{month}) \times (10 \text{ months}) \times (0.40) = \$2,000$. This provision is in stark contrast to AT&T’s early termination liability for the termination of its Pacific Bell and Southwestern Bell DS1 High Capacity Service Portability Commitments. Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(E)(4)(e); Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(E)(4)(e). Instead, the termination liability is calculated “as the decreased number of Channel Terminations multiplied by the prevailing Month-to-Month recurring rate multiplied by the number of months remaining in the term of the Portability Commitment.” *Id.*

³⁷⁹ CenturyLink Operating Companies Tariff F.C.C. No. 9 § 7.4.11(G). For example, a customer disconnecting in the 12th month of a three-year plan will be charged 50% of the remaining 24 months of billing. *Id.* In its direct case, CenturyLink cites *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 231 (1st Cir. 1983) to support its claim that its termination fees are reasonable. CenturyLink Direct Case at 40. Because we do not find the early termination fee provisions under investigation for CenturyLink to be unreasonable on other grounds, we do not need to address this claim.

a fraction of what the incumbent LEC would have recovered had the purchaser not terminated its agreement.

146. Other early termination fees exceed the incumbent LECs' revenue expectations. Three early termination provisions that were designated for investigation assess early termination penalties that exceed the revenues an incumbent LEC would have received had the purchaser fulfilled its commitment. These provisions apply to the portability feature of certain term plans. In describing its circuit portability plans, AT&T states that its Pacific Bell and Southwestern Bell TPPs contain optional portability features which "do[] not include any additional discounts" in rates other than what are provided by the original TPP plans.³⁸⁰ AT&T explains that if a purchaser's TDM DS1 channel termination purchases fall below 80 percent of the commitment level, the purchaser has two options: the purchaser can "'buy down' (*i.e.* reduce)" its commitment level or it can pay a shortfall fee.³⁸¹ Under the "buy down" option, which is equivalent to terminating circuits, the purchaser must pay "to AT&T an amount equal to the number of decreased DS1 channel terminations multiplied by the month-to-month rate multiplied by the number of months remaining for the portability option."³⁸² This provision requires customers that choose to buy down their commitment levels to pay a fee based on undiscounted month-to-month rates for the terminated circuits.

147. Like the Pacific Bell and Southwestern Bell provisions, Frontier's DS1 Optional Payment Plans (OPP) portability commitment plan also assesses early termination fees that exceed the revenues an incumbent LEC would have received had the purchaser fulfilled its commitment. Under the Frontier OPP, an early termination fee applies if a purchaser "elects to terminate its Portability Commitment or decrease its CL [commitment level] prior to the end of the 3 year or 5 year period, as applicable"³⁸³ The termination fee "is the decrease in CL (the entire CL, in the case of terminating the Portability Commitment) times the lowest prevailing Zone 1 Month-to-Month DS1 Channel Termination recurring charge, multiplied by the number of months remaining in the Portability commitment."³⁸⁴ For a purchaser seeking to terminate circuits, the Frontier OPP would assess undiscounted month-to-month rates for those circuits for the balance of the purchaser's term commitment, and the incumbent LEC would receive a fee that far exceeds the revenue expectations it had for the terminated circuits.

148. Tracking our rationale for finding excessive shortfall penalties unreasonable above, we conclude that the record in this investigation demonstrates the need to set a reasonable limit on early termination fees for the tariff pricing plans before us in this investigation. Excessive penalties combined with long term commitments harm competition by preventing competitive LECs from making efficient cost-based choices about whether and when to transition their TDM purchases to Ethernet services, whether through purchases or construction.³⁸⁵ The telecommunications market is shifting to more efficient IP technology based services, such as Ethernet.³⁸⁶ With this shift comes a decline in demand for DS1 and DS3 services, and competitive LECs will face choices regarding whether and how to best to meet their commitments, including when it is cost effective to shift their purchases to different services or providers and/or construct new facilities.³⁸⁷ The reasonableness of these early termination fees, therefore,

³⁸⁰ AT&T Narrative Responses, Attachment 4.C, at 4.

³⁸¹ The shortfall fee option is discussed *supra* para. 118.

³⁸² AT&T Narrative Responses, Attachment 4.C, at 5 (emphasis added) (citing Pacific Bell Telephone Company, Tariff F.C.C. No. 1 § 7.4.18(E)(4)(e); Southwestern Bell Telephone Company, Tariff F.C.C. No. 73 § 7.2.22(E)(4)(e)).

³⁸³ Frontier Direct Case at 15.

³⁸⁴ *Id.* at 15 (emphasis added).

³⁸⁵ *See, e.g.*, Joint CLEC Opposition at 19.

³⁸⁶ *Id.* at 24-28.

³⁸⁷ *Id.* at 32.

take on increasing significance as the technology transition accelerates. Accordingly, we scrutinize these fees in light of both their reasonableness in compensating incumbent LECs for the benefit of their bargain and the potential harms unreasonable early termination penalties can have on the IP-transition.

149. Our investigation of early termination provisions shows a wide variety of provisions that lead to markedly different assessments, sometimes even by the same carrier. Certain of the early termination provisions result in assessments that are greater than what the incumbent LEC would have recovered if the purchaser had finished out the term commitment. We find early termination penalties greater than the revenues the incumbent LECs would have received had the purchaser not terminated the service to be unreasonable.

150. In the *Designation Order*, we asked the incumbent LECs to submit “a description of the methodology used to calculate the level of the early termination fee.”³⁸⁸ The incumbent LECs did not provide the requested methodology and calculations. Instead, AT&T claims that its early termination penalties “in all cases are lower than what the customer would have paid if they had held the circuit to term.”³⁸⁹ This statement is not true with respect to the Pacific Bell and Southwestern Bell portability buy-down provisions in the TPPs. AT&T’s own description of its circuit portability plans spells out how a purchaser is assessed “month-to-month” or undiscounted rates in the calculation of termination fees.³⁹⁰ As a result, the portability TPP buy down or termination fees are far in excess of revenue expectations for the terminated circuits. This is in stark contrast to the early termination provision that is contained in the Pacific Bell and Southwestern Bell term commitment TPPs. Under the term commitment provisions, the early termination fee is calculated using monthly recurring rates, which are discounted rates. Furthermore, the provision uses a 40 percent multiplier, which further decreases the assessed penalty. As a result, unlike the portability TPP, a breach of the Pacific Bell and Southwestern Bell term commitment TPP produces a fee assessment that is below the revenues AT&T would receive if the term commitment were fulfilled. AT&T has provided no justification for why its portability TPPs contain early termination penalties that far exceed expectation damages.

151. Frontier, on the other hand, states that it “assumed and adopted the tariff plan under investigation from Verizon and AT&T.”³⁹¹ Because the Frontier OPP is now Frontier’s tariff plan, however, it bears full responsibility for the excessive termination fees that are associated with it. Pursuant to our *Designation Order*,³⁹² Frontier was responsible for submitting justification for its early termination provisions, and Frontier could have explained why it maintains the Frontier OPP early termination provision that results in penalties that far exceed expectation damages, but Frontier did not do so.

152. Consistent with our findings for shortfall fees above, we find that a reasonable early termination fee should be set at a level no greater than the amount of revenue a customer would have paid had it met its minimum commitment. From an economic standpoint, we find that penalties under the tariffs in question which amount to more than the opportunity cost the incumbent LEC would incur as a result of the breach, are unjust and unreasonable. We find that the harms an incumbent LEC is likely to incur from breach are on the whole reasonably predictable, objectively measurable, and are unlikely to vary significantly from one circumstance to the next. In particular, when a breach occurs, the incumbent LEC may lose some revenues that it would otherwise have gained, may additionally incur other costs (for example, if some kind of processing or disposal is required), and may save certain operating costs. At the same time, the incumbent LEC is unlikely to experience any material harms or benefits beyond what has just been outlined.

³⁸⁸ *Designation Order*, 30 FCC Rcd at 11467-68, para. 101.

³⁸⁹ AT&T Direct Cast at 53.

³⁹⁰ See *supra* para. 118; see also AT&T Narrative Responses, Attach. 4.C, at 5.

³⁹¹ Frontier Direct Case at 16.

³⁹² *Designation Order*, 30 FCC Rcd at 11467-68, para. 101.

153. As with shortfall penalties, this suggests penalties assessed by an incumbent LEC should reflect expectation damages rather than be punitive. Such costs (the opportunity cost of breach) can readily be estimated in a relatively objective fashion, and when penalties for breach reflect these, a party will choose breach only when the benefits of doing so exceed the costs breach will impose on the other contracting party. The result is to allow economically efficient breach. In short, we find penalties for breach that exceed the expected impact on the harmed contracting party's net revenue stream are unreasonable.³⁹³

154. Finally, also consistent with our findings on shortfall penalties, we conclude this measure of damages is consistent with incumbent LECs' stated objective that they be allowed to recover the "benefit of the bargain" if the minimum commitment is not satisfied.³⁹⁴ At the same time, it responds to legitimate arguments by competitive LECs that penalties above expectation damages in incumbent LEC tariffs are excessive and result in windfalls for the incumbent LECs.³⁹⁵ We find that our measure of expectation damages strikes the right legal and policy balance, particularly given the evidence in the record that excessive shortfall fees impose harms on the IP-transition.

155. Accordingly, we find that penalties in the tariff pricing plans under investigation which amount to more than the opportunity cost the incumbent LEC would incur as a result of the breach are unjust and unreasonable.

156. As a general matter, we find at least two methods of calculating a reasonable maximum early termination fee would reflect expectation damages.³⁹⁶ The first method involves calculating the revenues the purchaser committed to purchase from the incumbent LEC on a monthly basis and assessing the purchaser that amount for the months remaining in the term commitment. The second method would be to calculate the difference between the discounted rates the purchaser actually paid and the higher rates it would have paid had it originally signed up for a shorter term that matched the actual amount of time its service term was in effect. We find it is reasonable to set the maximum early termination fee as one that ensures that the customer is charged the lesser of the termination liability charges these methods produce. Such an approach would result in an early termination fee that is no greater than the opportunity cost the incumbent LEC incurs as a result of an early termination. The result would also be more consistent with the majority of the early termination provisions that were under investigation that produced more reasonable early termination fees. For example, Verizon's Commitment Discount Plan (CDP) contains two methods of calculating the amount a customer owes if it terminates the CDP early and Verizon will "apply the method that produces the *lesser* termination liability charge."³⁹⁷ Using this approach, early termination fees under the Verizon CDP would not exceed the revenues it expected under the plan, regardless of how the fee is calculated. We endorse such an approach. Defining a standard of reasonableness for early termination penalties is necessary to preclude carriers from assessing excessive fees, as discussed above. We do not, however, intend our decision to identify what we conclude is an unreasonable early termination fee to have any effect on early termination provisions in incumbent LEC pricing plans that assess a lesser amount. Accordingly, no carrier should rely on these findings as a basis to raise its early termination fees. Any incumbent LEC seeking to raise its early termination fees will be required to make a cost-based showing in support of any such filing, including cost studies and

³⁹³ See *supra* n.345.

³⁹⁴ See AT&T Direct Case at 7; Verizon Direct Case at 30.

³⁹⁵ See, e.g., XO Comments at 50.

³⁹⁶ Calls by the competitive LECs for penalties that are reflective of costs are outside the scope of this tariff investigation. Furthermore, it is possible to provide for early termination fees that allow economically efficient breach without having to calculate "customer-specific sunk costs associated with providing a circuit." BT Americas et al. Feb. 11, 2013 Comments at 23 n.44.

³⁹⁷ Verizon Direct Case at 35 (quoting Verizon FCC Tariff No. 1 § 25.1.4(D) (emphasis added in Verizon Direct Case)).

information requested but not provided in our investigation, of why any such action would be warranted. Additionally, any such cost showing should account for costs savings that result from the early termination.³⁹⁸ To the extent that our use of revenue expectations may overcompensate any incumbent LEC, as some competitive LECs assert, we note that incumbent LEC early termination fees are reflected in the price cap indices and exert downward pressure on special access rates from which purchasers, such as competitive LECs, stand to benefit.

157. Some commenters suggest that early termination fees could be calculated on the basis of costs instead of on revenue expectations.³⁹⁹ We note that this would be a rational approach to setting early termination fee levels that would likely yield lower fees, particularly given that the incumbent LECs have been able to charge for those facilities over a number of years and are also likely to have fully depreciated them on their books. The challenges of assigning costs in a customer specific fashion, however, make implementation of a cost-based methodology unrealistic.⁴⁰⁰

158. We find therefore that the early termination provisions in the AT&T Pacific Bell and Southwestern Bell DS1 TPP, and Frontier OPP are unjust and unreasonable because, in the event of a breach, they allow incumbent LECs to recover more than the opportunity cost the incumbent LEC would incur as a result of the breach. Pursuant to this finding, we direct AT&T to remove the relevant tariff provisions from the Pacific Bell and Southwestern Bell DS1 TPP and Frontier to remove the relevant tariff provisions from the OPP within sixty (60) days from the release date of this Order, to become effective on not less than one day's and not more than fifteen (15) days' notice.⁴⁰¹ The revised tariffs will apply to both existing and future customers.

V. FURTHER NOTICE OF PROPOSED RULEMAKING

159. In this Further Notice, we provide our analysis to date of the *2015 Collection*. We then seek comment on a number of proposals to establish a new regulatory paradigm for BDS to more appropriately address the technological changes occurring today and to facilitate the continued evolution of the type of robust competition that will result in ever-improving services for American businesses and consumers. To that end, the Further Notice seeks to develop a technology-neutral framework that no longer classifies BDS through the legacy prism of traditional services and company classifications. Rather, the Commission seeks to enter a new era where regulatory determinations are made based on whether a market is competitive and the concomitant regulatory obligations apply to all providers, looking to legitimate differences in products, places, and customers. The goals of this Further Notice are supported by the joint principles recently announced by INCOMPAS and Verizon urging the Commission to “adopt a permanent framework for regulating all dedicated services in a technology neutral manner.”⁴⁰²

³⁹⁸ The action we take here sets a boundary above which we find early termination fees unreasonable. It is not intended to define with precision, in all circumstances, what is reasonable. We do, however, seek comment in the accompanying Further Notice whether we should adopt a net revenues approach to evaluating the reasonableness of early termination penalties in the rulemaking. See *infra* Part V.E.2.c.

³⁹⁹ Joint CLEC Opposition at 89 (“[t]he key issue . . . is whether the early termination penalties . . . are necessary to compensate incumbent LECs for the costs they incur to provide circuit portability.”).

⁴⁰⁰ Verizon Direct Case at 26.

⁴⁰¹ The provisions in the DS1 and DS3 TVPs restricting customer purchase options, as noted above, are similar in structure and effect as the CDP and NDP all-or-nothing provisions. We find them unjust and unreasonable and direct that these provisions be removed from the tariff within the same period of time. We waive section 61.58 of our rules to the extent necessary to allow the carriers to make the required tariff modifications. 47 CFR § 61.58.

⁴⁰² Letter from Kathleen Grillo, Senior Vice President, Public Policy and Government Affairs, Verizon, and Chip Pickering, Chief Executive Officer, INCOMPAS, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25 and RM-10593 at 2 (filed Apr. 7, 2016) (*Verizon/INCOMPAS Joint Letter*); see also Letter from Phillip Berenbroick, Counsel for Public Knowledge, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, RM-10593, at 1 (filed

That two of the entities who were once diametrically opposed have joined together urging the Commission to adopt such principles is further evidence of the evolution in the BDS market today and the need for this new paradigm to harmonize regulation with the changing technology.

A. Competition Analysis

1. Overview

160. This section presents our analysis of the extent of competition in the supply of BDS, based on our analysis of the data collection, and stakeholders' comments. This analysis is used to develop the proposals put forward in this Further Notice. We seek comment on these and a range of other matters. Our key beliefs regarding product market are as follows:

- Best Efforts services do not appear to be competitive substitutes for BDS.
- Packet-based BDS, including over HFC, is a good substitute for TDM BDS, so packet-based alternatives can place a constraint on TDM prices, though switching costs can limit that effect.
- Product markets are subdivided by both customer requirements (notably the need for multi-location services) and the performance characteristics of BDS services. Thus, an end user's competitive choices generally fall as the number of locations where it needs connectivity rises, as the number of those locations that are found in areas with less dense BDS demand rises, and as the end user's demand for higher-quality and lower-bandwidth BDS rises.

161. In analyzing geographic markets we look to the effects of supply-side substitution (as it is commonly difficult for end users to switch locations in order to obtain better terms). Our key geographic market findings are:

- Geographic concentration on any measure is high.
- Potential competition is important, that is, nearby suppliers can constrain BDS prices. For example, we find that fiber-based competitive supply within at least half a mile generally has a material effect on prices of BDS with bandwidths of 50 Mbps or less, even in the presence of nearby UNE-based and HFC-based competition.

162. Other key findings are that:

- Supply of BDS with a bandwidth in excess of 50 Mbps tends to be more competitive than supply of BDS with lower bandwidths.
- Allowing ILECs to offer contract tariffs benefits BDS purchasers and suppliers.

163. On some matters of importance to this proceeding we do not express even initial views, but seek commenters' views. Key matters on which we seek comment are:

- How many competitive choices are necessary to ensure supply is materially competitive, and does the identity of the competing suppliers matter, and does this vary by the type of BDS in question?
- How important is potential competition to this analysis? Does facility-based competitive supply beyond half a mile have a material effect on prices of BDS?

(Continued from previous page) _____
Apr. 22, 2016) (supporting the "framework for BDS regulation proposed by INCOMPAS and Verizon.") (Public Knowledge Letter).

- Do the effects of competitive facility-based supply on prices vary by the specific type of supply (for example, whether the supplier actively sells service nearby or just has a fiber network nearby, or whether the supplier uses HFC or leases dark fiber or UNEs)?

164. Finally, the Commission has engaged an outside econometrician, Dr. Marc Rysman, to conduct an independent competition analysis and produce a white paper with his conclusions. We have attached Dr. Rysman's white paper to this Further Notice and will release peer reviews of the same when they are completed in the near future. We seek comment on the validity and strength of Dr. Rysman's analysis and conclusions, and on their relevance to our analysis here, and this proceeding more generally. We also seek comments on how Dr. Rysman's and our own analyses could be extended, and on what additional analysis could reasonably be undertaken to advance this proceeding in a timely fashion.

165. The following is an abridgment of key aspects of Dr. Rysman's white paper:

I . . . examine whether . . . there is market power in this industry. . . . I . . . consider revenue market shares . . . the structure of supply in terms of the number and types of entrants . . . at the level of the census block and . . . unique location Finally, I consider determinants of price The presumption is that if price is lower in the face of local competition, then the effect of competition is important. . . . [That competition lowers prices is] evidence . . . of market power in the BDS industry. That is, if market power did not exist, for instance because the threat of entry held down prices . . . , we would not necessarily see any further decrease in price when actual entry did occur. This approach is common in antitrust settings.

. . . .

The paper studies . . . three different data sets covering revenue, locations and prices, yet evidence of ILEC market power is found in each. The revenue data point to the importance of the ILECs in this industry The location data similarly show that the ILECs provide facilities-based service to many more locations than CPs [competitive providers]. However, if we focus on buildings served by fiber, competitive providers are a robust presence, almost the size of ILECs in terms of number of buildings served.

The price data tell a similar story. Regressions of ILEC rates for DS1 and DS3 lines show that competition in the building, and the census block, consistently lowers prices in economically and statistically significant ways. . . . [W]e see some effects of competitive fiber in the census block, even if that fiber is not connected to any buildings in the block. In contrast, regressions for higher bandwidth lines show muddled and conflicting effects of competition, often at low levels of statistical significance. Thus, these results are in line with the analysis of the location data.

. . . .

To measure competition, I focus on an indicator for when a facilities-based competitor can serve a customer in the census block. This indicator is drawn from the location data used to construct the building-level analysis

. . . I also break out this indicator into whether the competitor has a customer in the same building as the ILEC customer in question, or just in the same census block. . . . I also present a regression where, rather than an indicator for facing a competitor in the census block, I include indicators for different numbers of competitors . . . [and] a regression with an indicator for competitive provision at the census tract [I]n some cases I use an indicator for whether a CLEC has a fiber optic network in the census block. . . .

... [I]f more competition reduces prices, it tells us that markets without competition exhibit market power. If the threat of entry, or alternatively highly elastic demand, eliminated the ability to raise price over competitive levels, we would not see prices decline when actual entry occurred. I do not test whether entry eliminates market power, or how much entry would be necessary to do so. The goal of this paper is to detect market power.

....

[Competition in the block:]

The first ... regression ... use[s] a single variable to measure competition ... whether a CP can serve a customer in the same census block [if it has a physical connection to the customer building even if no sale] ... With census-tract fixed effects, ... [t]he presence of competition for DS1 lines is associated with a 3.2% decline in prices [-3.2%], which is economically significant, although not especially large by the standards of competition analysis. ... [F]or DS3 lines, the effect is a 10.9% decrease in price. When we turn to county fixed effects, we find large effects for competition for DS1 and DS3 lines. ... The effect for high-bandwidth lines is statistically insignificantly different from zero for census tract fixed effects, and is actually positive for county fixed effects. ...

....

... [D]raw[ing] from the network maps provided by the CLECs ... suggest[s] that if anything, the effect of competition is stronger when there is competitive fiber in the block. ...

[Competition in the building:]

... With census tract fixed effects, we see a fairly large effect for competition in the building variable for DS1 lines, -4.7%, and a smaller but still significant effect for the block -2.7%. For DS3 lines, we see an important negative effect for the building, -6.3%, and even larger effect for the block at -11.8%. The high bandwidth results are difficult to interpret – insignificant and small for the building and actually positive for the census block. ... [T]he negative price effects for DS1 and DS3 lines are similar and perhaps larger with county fixed effects. For DS1 lines, the building effect is -6.6% and the block effect is -4.4%, and for DS3 lines, these numbers are -4.7% and -12.4%. The results for high-bandwidth lines are again inconclusive.

....

Competition might be important not just in the census block, but over some wider area. . . . [I]t is useful to consider what price regressions say about this. . . . I [run regressions that] include separate indicators for competition in the building, the census block and the census tract. Again, these variables are defined so that they indicate further competition in the block or the tract, over and above any competition in a smaller geography. . . .

The indicator for a CP in the census-tract is negative and significant for DS1 and DS3 lines, and is particularly large for DS3 lines, -21% for census tract fixed effects and -3.6% for county fixed effects. . . . These results suggest that the relevant market may be wider than a census block. . . .

....

. . . [A]t the level of the census block, it is possible to consider different effects for different numbers of competitors. . . . For census tract fixed effects, the effect of one competitor is negative and significant, and the effect of two or three is more negative and also significant. Although the parameters on four or more competitors are not larger than two or three for DS1 and DS3, the coefficients in these cases still appear reasonably sized and larger than the case of one CP.

The results for county fixed effects [are more pronounced] . . . Overall, these results draw a pattern of increasing price effects with more competition, although with this many parameters, the results do not line up perfectly.

.

[Differential impact of price cap only, PF1 and PF2:]

. . . [T]he results up to now masked important heterogeneity across markets with and without flexibility. With census tract fixed effects, DS1 lines show almost no price change in blocks with competition with no pricing flexibility, and DS3 lines show a 12.5% increase in prices in price cap markets. In contrast, DS1 lines show an effect of -3.8% in Phase 1 markets and -4.9% in Phase 2 markets. Even more striking, DS3 lines show a -0.337 effect in Phase 1 markets, and -0.265 in Phase 2 markets. . . . [T]he census tracts fixed effects columns show little or no competitive effect in price cap markets, with negative effects in pricing flexibility markets.

. . . Thus, regulatory treatment appears to have a large effect on competitive interactions.

[Conclusions:]

Overall, the various sources of data tell a consistent story. The revenue data shows that ILECs are an outsized presence in this industry, especially when counting their CLEC operations outside of their ILEC markets. Since most of that operation is over leased lines, it appears from the revenue data that ILECs dominate the market for facilities-based service in their regions.

The location data tell a similar overall story, with ILECs serving many more locations with facilities-based service than [competitive providers]. However, that overall story masks important variation by technology. When focusing on buildings served by fiber, [competitive providers] serve almost as many buildings as ILECs. The revenue data make clear that non-fiber service is still a major part of the industry, but to the extent that the future is with fiber, this finding could bode well for future competition in this industry, at least for high value BDS, such as high bandwidth services.

Price regressions tell a similar story. Whereas the effects of local competition, such as at the building level or the census blocks, are important for DS1 lines and particularly DS3 lines, they are much less clear for higher end bandwidths. This result holds up across a variety of specifications. There does appear to be some effect of transport fiber in the census block, even if it does not connect to a building, which speaks to CLEC buildout strategies.

The consistency of the results across the location and pricing data is important. In particular, in my approach to price regressions, it is impossible to completely control for unobserved cost and demand heterogeneity. So for instance, it is possible that low cost areas attract competitive entry, which leads to a spurious correlation between competition

and price. Location fixed effects should substantially mitigate this problem, and indeed, the results within census blocks suggest that cost heterogeneity is not driving the results. Still, it cannot be ruled out. Thus, it is important that the location data, which allows us to study competition levels at the building and the census block, leads to similar conclusions. Indeed, the location data also suggests that competitive providers are more robust for higher levels of service.

....

I do not directly control for the presence of competition from cable operators in my regressions. Rather, I use the location fixed effects to address this issue. It may be that the extent of cable provision differs within locations. For instance, in the same census tract, it could be that some areas have access to upgraded best efforts cable technology (i.e. best efforts DOCSIS 3.0) where others do not, depending on the cable buildout strategy. If the presence of cable differs within tracts, but is random or uncorrelated with BDS competition, then accounting for it would not affect my results. It is possible that cable provision is correlated with the presence of BDS competitor provision because both types of provision should be attracted to areas of high demand. If that correlation is high enough, then best efforts cable could be driving the competition coefficients I find rather than CLECs. However, in that case, there is still an effect of competition on price. Knowing the distribution of cable technology might affect our interpretation of whether that competition is driven by the BDS market or by cable, but it does not change the conclusion in this paper that there is evidence that local competition affects BDS prices.⁴⁰³

2. Analysis as Proposed

166. The Commission described in the *Data Collection FNPRM*, and sought comment on, its proposed analysis of competition in the provision of BDS using the data collected to perform econometric regressions to determine the extent of the impact of competition on BDS prices.⁴⁰⁴ The stated goal of the Commission's multi-faceted market analysis is to evaluate, among other things, "how the intensity of competition (or lack thereof), whether actual or potential, affects prices, controlling for all other factors that affect prices."⁴⁰⁵ The Commission planned to use the results of these regressions to determine whether market power existed and to evaluate "whether it is appropriate to make changes to its existing pricing flexibility rules to better target regulatory relief in competitive areas and evaluate whether remedies are appropriate to address any potentially unreasonable terms and conditions."⁴⁰⁶

167. Incumbent LECs argue that, pursuant to the *Data Collection FNPRM*, the Commission should focus on whether the pricing flexibility triggers are reasonably accurate predictors of where competitors have deployed alternative facilities-based networks that would justify the removal of our price cap regulations on certain legacy TDM services.⁴⁰⁷ The economic experts retained by several incumbent LECs argue that a traditional market share approach is not useful to assess the extent of competition in special access because market shares are "less informative in dynamically and rapidly

⁴⁰³ See Appx. B, Rysman White Paper at I-II, IV.C., V (internal footnotes omitted).

⁴⁰⁴ See *Data Collection FNPRM*, 27 FCC Rcd at 16346, 16349, paras. 68, 72.

⁴⁰⁵ *Id.* at 16346, para. 68.

⁴⁰⁶ *Data Collection Implementation Order*, 28 FCC Rcd at 13192, para. 5.

⁴⁰⁷ See, e.g., AT&T Reply at 1-2, 36-39; Verizon Reply at 40-41.

evolving marketplaces such as we have here.”⁴⁰⁸ They argue instead that BDS supply is characterized by “sunk investment in network facilities” and suppliers with sunk investments must be counted as rapid entrants.⁴⁰⁹

168. Incumbent LECs claim that the 2013 data collected distort the Commission’s ability to define a relevant product market because the 2013 data categorically exclude nearby fiber, best efforts cable services, and Ethernet over DOCSIS, billions of dollars of which have been sold to business customers annually since 2007 instead of DS1 and DS3 lines.⁴¹⁰ These commenters assert that the location data requested by the Commission and used by the economists retained by Sprint artificially overstate incumbent LEC market shares (producing “HHIs at or near 10,000”) because those data are limited to “dedicated” services at existing service locations.⁴¹¹ Instead of allocating market share on the basis of 2013 location or revenue data, the incumbent LECs’ economists claim that “investment in network facilities is a better measure of current and future competition than are historical market shares” that are overstated given recent and ongoing changes in market conditions.⁴¹²

169. Certain competitive LECs and other commenters argue the Commission should focus on whether incumbent LECs have market power over the physical connections to BDS end users and they argue that an historical market share approach based upon the 2013 location data collected by the Commission can be used as a primary source for assessing market power.⁴¹³ Several commenters including Sprint, argue that the Commission should employ its traditional approach of defining the relevant market and determining market concentration upheld by the Tenth Circuit in 2012.⁴¹⁴ Sprint further argues that the 2013 data collected by the Commission provides the means to aid a market analysis

⁴⁰⁸ Drs. Mark Israel, Daniel Rubinfeld and Glenn Woroch, Competitive Analysis of the FCC’s Special Access Data Collection, at 8 (filed Jan. 26, 2016) (IRW White Paper).

⁴⁰⁹ *Id.* at 8-9, 14 (citing *Horizontal Merger Guidelines, U.S. Department of Justice and the Federal Trade Commission, August 19, 2010* § 1.32 (2010 Horizontal Merger Guidelines)); see also Verizon Comments at 4-5. On rapid entrants, see generally 2010 Horizontal Merger Guidelines at § 5.1 (addressing rapid entrants, “Firms that produce the relevant product but do not sell it in the relevant geographic market may be rapid entrants. Other things equal, such firms are most likely to be rapid entrants if they are close to the geographic market.”).

⁴¹⁰ Verizon Reply at 8-12, 24-26; see also Verizon Comments at 19-28; USTelecom Reply at 2-3, 5-6; USTelecom Comments at 7, 21, 23-33; AT&T Reply at 6-7; Frontier Reply at 16-20.

⁴¹¹ Verizon Reply at 7.

⁴¹² IRW White Paper at 9; see also AT&T Comments at 6-7, 13-14 & n.25 (arguing that where competitive sunk cost facilities have been deployed, the Commission should continue its precedent of inferring that economies of scale for the significant sunk cost investments create the incentive to increase density, notwithstanding marginal cost expenditures for adding customers) (citing *Petition for Declaratory Ruling to Clarify 47 U.S.C. § 572 in the Context of Transactions Between Competitive Local Exchange Carriers and Cable Operators Conditional Petition for Forbearance from Section 652 of the Communications Act for Transactions Between Competitive Local Exchange Carriers and Cable Operators*, Order, 27 FCC Rcd 11532, 11545, para. 28 (2012); *Pricing Flexibility Order*, 14 FCC Rcd at 14234, para. 24; *WorldCom, Inc. v. FCC*, 238 F.3d 449, 458-59 (D.C. Cir. 2001)); Verizon Reply at 5-6 (explaining that in reviewing telecommunications mergers, DOJ and the Commission have rejected “a market share driven framework that generally focuses upon individual customer locations”).

⁴¹³ See, e.g., Ad Hoc Comments at 4-6; Birch et al. Comments at 1-49; INCOMPAS Comments at 12 (“The Commission’s assessment of the market should focus on the extent to which incumbent LEC has market power over the physical connection to the end-user”); Sprint Comments at 29-44 (applying the method and conclusions reported by its economists).

⁴¹⁴ Sprint Comments at 6 (This traditional framework involves “a thorough analysis, which traditionally begins with a delineation of the relevant product and geographic markets, and then considers market characteristics, including market shares, the potential for the exercise of market power, and whether potential entry would be timely, likely, and sufficient to counteract the exercise of market power.”) (quoting *Qwest Phoenix Order*, 25 FCC Rcd at 8635, para. 28).

and it relies on the collected data as part of its market concentration and market power analysis.⁴¹⁵ Other competitive LECs, including Level 3, Windstream, and XO rely on their jointly retained economist's regressions to determine whether market power is present in the dedicated services market "that excludes best efforts broadband and dedicated services provided over a fixed wireless connection."⁴¹⁶

3. Economic Analysis Submitted by Parties

170. *IRW White Paper*. On behalf of incumbent LECs, Drs. Mark Israel, Daniel Rubinfeld and Glenn Woroch submitted a *Competitive Analysis of the FCC's Special Access Data Collection*.⁴¹⁷ The IRW White Paper focuses on "investment in facilities to deliver service [as] an especially informative measure of competition."⁴¹⁸ The utility of a competitive screen based upon where investments in facilities are economically "sunk" (by even one other carrier) is determinative according to the IRW White Paper because: (1) sunk investments "represent durable commitments by suppliers to specific geographic locations [and] . . . ensures that the provider has an economic incentive to serve the market in the short term and over the longer run;" (2) "[s]unk investment thrusts rivals into intense price competition;" and (3) with sunk investments made, "providers will not find it economical to make a quick exit, but rather remain committed to supplying the market for an extended period of time."⁴¹⁹ The IRW White Paper argues that a traditional market share approach is not useful for assessing competition in the dynamic and rapidly evolving BDS industry, which is a "bidding market" (competition is measured by the number of bidders even though only one bidder counts as a sale) and it is characterized by "sunk investment in network facilities" that "provides a more accurate and complete assessment of competition."⁴²⁰

171. The IRW White Paper's analysis "shows nearly ubiquitous competitive provider coverage for business establishments with coverage areas exceeding 95 percent for MSAs nationwide for all three of the regulatory treatments (Phase II, Phase I, and Price Cap for channel terminations) using [the IRW] definition of comprehensive competition."⁴²¹ With a "narrower definition of functional competition (*i.e.*, when [IRW] exclude[s] DOCSIS 3.0 and other connections shown in the National Broadband Map data) the competitor provider coverage is still nearly ubiquitous . . . exceed[ing] 90 percent for MSAs nationwide for Phase II and Phase I areas [and] Price Cap areas have coverage rates that exceed 84 percent."⁴²² According to the IRW White Paper, the "results confirm that competitors have deployed competing facilities in preponderance of the census blocks with special access demand – averaging over 95 percent – and covering more than 97 percent of all special access locations and about 99 percent of all establishments with potential demand for special access services."⁴²³ Excluding "DOCSIS 3.0 [and] other connections contained in the National Broadband Map data," the IRW White Paper finds "competitive providers are located in more than 80 percent of census blocks, covering more than 88 percent of special

⁴¹⁵ *Id.* at 6-8.

⁴¹⁶ Baker Decl. at 3, 15-18.

⁴¹⁷ IRW White Paper; *see also* Letter from Kyle J. Fiet, Counsel to AT&T, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25 (Apr. 7, 2016) (attaching the IRW White Paper (originally filed Jan. 28, 2016) revised consistent with the protective orders and April 6, 2016 Public Notice addressing the treatment of data that is derived from Highly Confidential data in the data collection); Letter from Christopher T. Shenk, Counsel to AT&T, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25 (Apr. 20, 2016) (attaching Second Supplemental Declaration of Mark Israel, Daniel Rubinfeld and Glenn Woroch).

⁴¹⁸ IRW White Paper at 6.

⁴¹⁹ *Id.* at 7.

⁴²⁰ *Id.* at 8-9; *see also* Verizon Comments at 4-5.

⁴²¹ IRW White Paper at 15.

⁴²² *Id.*

⁴²³ *Id.* at 16.

access locations and over 92 percent of business establishments that may have demand for special access services.”⁴²⁴

172. In its approach to calculating the structure of markets, the IRW White Paper’s definition of “comprehensive competition” includes markets in which there is an incumbent LEC presence and at least one competitor – duopoly markets.⁴²⁵ Factors of the IRW analysis are limited to: “(i) all locations having a ILEC and/or competitive provider connection reported in the Special Access Data after excluding those connections provided using either UNEs or UCLs, (ii) all census blocks transected by a competitive provider’s fiber network reported to that data, and (iii) all census blocks having broadband service provided over cable using the DOCSIS 3.0 standard or over optical fiber as reported to the National Broadband Map.”⁴²⁶ Calculations based upon the IRW White Paper’s “narrower definition of functional competition (*i.e.*, when [they] exclude DOCSIS 3.0 and other connections shown in the National Broadband Map data)” also are based on the sufficiency of a duopoly market when concluding a market is “competitive.”⁴²⁷ In each calculation, the presence of a single competitive provider in markets is included as “evidence of abundant competition for special access services.”⁴²⁸ Although the IRW White Paper references how the presence of one competitor is highly relevant, the analysis is not made in conjunction with other evidence to determine likely market competitiveness.⁴²⁹

173. *Declaration of Jonathan B. Baker.* On behalf of three competitive local exchange carriers, Level 3, Windstream, and XO, Jonathan B. Baker submitted a “Declaration on Market Power in the Provision of Dedicated (Special Access) Services.”⁴³⁰ Dr. Baker concludes that “most dedicated services markets are monopolies, and most of the rest are duopolies.”⁴³¹ The approach engaged by Dr. Baker starts with determining the number of market participants and includes an analysis showing “ILEC retail prices are lower when CLECs compete with them, and that ILEC retail prices tend to decline as the number of rivals selling dedicated services increases.”⁴³² In reaching his conclusions, Dr. Baker discusses “market definition, market participants and rivalry, and entry” and “relies on methodologies standard in antitrust economics for making inferences about market power from market structure, conduct and performance.”⁴³³

174. In defining a product market, Dr. Baker’s definition “excludes, among other things, best efforts business broadband services and dedicated services provided over a fixed wireless connection.”⁴³⁴ Dr. Baker determines “each customer location served by a dedicated connection - whether a specific office suite within a building, a particular cell tower, or the location of the channel term or local transport

⁴²⁴ *Id.*

⁴²⁵ *Id.* at 19.

⁴²⁶ *Id.* at 19-20.

⁴²⁷ *Id.* at 15, 24.

⁴²⁸ *Id.* at 24.

⁴²⁹ *Cf.* 2010 Horizontal Merger Guidelines §§ 5, 5.3 (updating the 1968 Guidelines assumptions regarding the effect of concentration on competition to make clear that currently market shares are considered merely “in conjunction with” other evidence to predict likely competitive effects, and are not used as an actual “screen” to determine competitiveness).

⁴³⁰ *See generally* Baker Decl.

⁴³¹ *Id.* at 3.

⁴³² *Id.* at 4.

⁴³³ *Id.* at 12.

⁴³⁴ *Id.* at 15-19.

facility sought by a CLEC - is appropriately defined as a geographic market.”⁴³⁵ The geographic market at the building level (individual customer locations), however, “does not rule out also defining broader geographic markets.”⁴³⁶

175. Considering market competitiveness, Dr. Baker notes that a “firm currently making a sale at a customer location is a market participant, along with what the Merger Guidelines term rapid entrants: firms not presently serving that location that can do so quickly and without substantial sunk expenditures (expenditures not recoverable upon exit).”⁴³⁷ Dr. Baker distinguishes between “potential entrants” and “rapid entrants,” and concludes that “nearby fiber providers would be expected to offer less of a competitive constraint than providers already serving a building with their own facilities, and, in general, are better seen as potential entrants than as ‘rapid entrants’ (as the Merger Guidelines use the term).”⁴³⁸ Within this structural framework, Dr. Baker found that “almost all buildings (at least 95%) have no more than two providers.”⁴³⁹ He also found that in “the median metropolitan area (CBSA) nationwide, ILECs account for 82% of dedicated services bandwidth overall and 66% of dedicated services bandwidth sold at retail.”⁴⁴⁰ According to Dr. Baker, “[t]hese statistics demonstrate that usually one firm, and almost always no more than two firms, serves most locations (geographic markets) with dedicated services (a product market). Thus, the great majority of these markets are monopolies or duopolies.”⁴⁴¹

176. Dr. Baker performed an empirical, regression analysis, finding “that ILEC prices to end users tend to decline as the number of rivals selling dedicated services increase, and the price decline is generally more pronounced with multiple in-building rivals than with multiple nearby rivals.”⁴⁴² The analysis accounts for both in-building competition and nearby competition, such as nearby fiber. Dr. Baker found, “for example, that an ILEC that sells a dedicated connection to a customer in a building served by four or more in-building providers (three or more aside from it) charges on average 12.2% less than if it were served by three in-building providers, and 12.35% (0.10% + 0.05% + 12.2%) less than if the ILEC had no in-building rivals in both cases holding constant the number of nearby rivals.”⁴⁴³ Dr. Baker also concludes that the “greater cumulative effect of in-building providers, which is generally consistent across the alternative specifications discussed above, suggests that in-building providers provide a greater competitive constraint, on average, than nearby providers [and] the cumulative effect of four or more nearby providers is about the same as the 3.69% price reduction associated with a CLEC providing service by UNE.”⁴⁴⁴

177. *Declaration of Susan M. Gately.* On Behalf of the Ad Hoc Telecommunications Users Committee, Susan M. Gately submitted a declaration focusing on “the competitive conditions in the market for special access [and] data that could be used as components of a traditional market power test

⁴³⁵ *Id.* at 20.

⁴³⁶ *Id.* at 20 (citing Jonathan B. Baker, Market Definition: An Analytical Overview, 74 Antitrust L.J. 129, 149, 158 (2007)).

⁴³⁷ *Id.* at 20-21 (citing *Suspension Order*, 27 FCC Rcd at 10611, para. 99; *cf.* 2010 Horizontal Merger Guidelines § 5.1).

⁴³⁸ Baker Decl. at 24.

⁴³⁹ *Id.* at 27.

⁴⁴⁰ *Id.* at 27.

⁴⁴¹ *Id.* at 27-28.

⁴⁴² *Id.* at 30.

⁴⁴³ *Id.* at 32.

⁴⁴⁴ *Id.* at 36.

consistent with that conducted by the FCC in [the] *Qwest Phoenix [Order]*.⁴⁴⁵ Ms. Gately’s “[a]nalysis of the data collected in response to the Commission’s Data Request reveals clear and compelling evidence that claims made by the RBOCs [(Regional Bell Operating Companies)] over the past decade regarding competitive conditions in the market for special access services have been overblown and specious.”⁴⁴⁶

178. According to Ms. Gately, “[t]aking the data at face value (without performing any additional geospatial analysis), it shows that the ILEC is the only provider with a facilities-based dedicated connection (special access) at roughly 3 out of every 4 building/cell tower locations with special access demand.”⁴⁴⁷ Considering market shares, Ms. Gately calculates data showing that “the ILEC is the only service provider available at between [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of total locations nationwide.”⁴⁴⁸ Ms. Gately also finds that “[l]eased connections accounted for, in round numbers, [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of the total [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] locations reported by CLECs in response to [the data request].”⁴⁴⁹ “The bottom line,” according to Ms. Gately, “is that rather than being replaced in the market by their competitors, the ILECs are the actual providers of the dedicated access service (the underlying facility) used in more than half the competitive activity that is seen in the marketplace.”⁴⁵⁰

179. Turning to “ILEC claims about ubiquitous CLEC fiber and its importance” Ms. Gately notes, “[w]hile it is true that competitive providers, including CLECs, have invested heavily in fiber, the data does not support the ILEC’s presumption that fiber in the ground in a location indicates a CLEC’s ability – or indeed even its intent – to compete with last mile special access facilities.”⁴⁵¹ Ms. Gately therefore concludes that “[t]he data filed in this proceeding definitively supports the conclusion that the presence of fiber cannot be equated with the availability of facilities-based, price-constraining competitive services [and] clearly shows that the vast majority of Competitor fiber is not used for last-mile connections.”⁴⁵² Ms. Gately also finds, “[a]ccording to this data, competitors reported having fiber running through roughly [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] census blocks in the US, yet they report having facilities-based connections in only about [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] census blocks – less than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of the total census blocks where fiber was identified.”⁴⁵³ Ms. Gately also “provides results of a compilation of responses to questions from purchasers of special access services – specifically for the 5 largest mobile wireless providers and 5 largest interexchange carriers” and notes, among other findings, that “more than one third of all reported special access sales for 2013” are to “[a]ffiliates (wireline interexchange and wireless) of AT&T, CenturyLink and Verizon” with “purchases from other competitors account for only [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of total dollars spent.”⁴⁵⁴

⁴⁴⁵ Declaration of Susan M. Gately, On Behalf of the Ad Hoc Telecommunications Users Committee at 2 (Jan. 27, 2016) (Gately Decl.) (citing *Qwest Phoenix Order*, 25 FCC Rcd 8622).

⁴⁴⁶ *Id.* at 3.

⁴⁴⁷ *Id.* at 3-4 (footnote omitted).

⁴⁴⁸ *Id.* at 5.

⁴⁴⁹ *Id.* at 6.

⁴⁵⁰ *Id.*

⁴⁵¹ *Id.* at 9.

⁴⁵² *Id.* at 9-10.

⁴⁵³ *Id.* at 10 (internal citation omitted).

⁴⁵⁴ *Id.* at 12 (internal citation omitted).

180. *Declaration of Stanley M. Besen and Bridger M. Mitchell.* On behalf of Sprint, a wireless carrier and competitive LEC, Stanley M. Besen and Bridger M. Mitchell filed a declaration in which they “conclude that the vast majority of special access product and geographic markets are not effectively competitive.”⁴⁵⁵ Besen and Mitchell “emphasize the importance of analyzing, where possible, various separate special access product markets [and] stress the importance of analyzing geographic markets at a granular level, initially the individual building location, because use of overly broad geographic areas would significantly overestimate competition in many areas”⁴⁵⁶ Turning to product markets, Besen and Mitchell conclude “that different special access products should be treated as different relevant antitrust product markets.”⁴⁵⁷ Considering an appropriate geographic market, Besen and Mitchell discuss how “analyzing competitive conditions for special access service in MSAs can be highly misleading because these large areas often contain smaller geographic areas across which competitive conditions are widely disparate” and conclude “the appropriate geographic market for analyzing special access channel terminations is the building location.”⁴⁵⁸

181. The Besen and Mitchell “market power analysis” “measure[s] the presence of suppliers of special access services and to calculate their market shares for these services [and finds], in the vast majority of special access product and geographic markets, the incumbent LECs do not face effective competition.”⁴⁵⁹ Besen and Mitchell “find that approximately 73 percent of special access purchaser locations are served by a single ILEC with no other facilities-based supplier reported present.”⁴⁶⁰ Turning to locations “where there are only two suppliers with special access facilities – an ILEC and a competing carrier – account for about 24 percent of purchaser locations; Besen and Mitchell find that “almost all purchaser locations, 97 percent, are served by only one or two suppliers [and] [a]t only about 2 percent of all locations are there as many as three suppliers, and at about 1 percent are there four or more suppliers.”⁴⁶¹

182. Besen and Mitchell also consider a “geographic market to the census block level to account for potential competition” and conclude that “there still would be few areas in which there are four or more suppliers.”⁴⁶² Specifically, Besen and Mitchell find that “the proportion of census blocks in which the ILEC is the only supplier is approximately 67 percent [and] CLECs are the only supplier in fewer than 14 percent of census blocks [and] [s]imilarly, approximately 16 percent of census blocks are served by an ILEC and a single CLEC and fewer than 3 percent of census blocks are served by an ILEC

⁴⁵⁵ Sprint Comments, Attach. 1, Declaration of Stanley M. Besen and Bridger M. Mitchell at 6 (Besen & Mitchell Decl.). Besen and Mitchell “carried out [their] analyses in conjunction with the Brattle Group and SMG Consulting, who have filed a separate declaration that provides additional detail about the data sources that they have employed and the calculations that they have performed.” *Id.* at 6 n.19 (citing Sprint Comments, Attach. 2, Declaration of William P. Zarakas and Susan M. Gately (Zarakas & Gately Decl.)); *see also* Letter from Jennifer P. Bagg, Counsel to Sprint Corp., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25 (Apr. 11, 2016) (Sprint Apr. 11, 2016 *Ex Parte*) (attaching the Declaration of Stanley M. Besen and Bridger M. Mitchell and Declaration of William P. Zarakas and Susan M. Gately (each originally filed Jan. 27, 2016) revised consistent with the protective orders and April 6, 2016 Public Notice addressing the treatment of data that is derived from Highly Confidential data in the data collection).

⁴⁵⁶ Besen & Mitchell Decl. at 6.

⁴⁵⁷ *Id.* at 8 (discussing consistency with: (1) the *Qwest Phoenix Order*, 25 FCC Rcd 8622; (2) *AT&T Inc. and BellSouth Corp., Application for Transfer of Control*, Memorandum Opinion and Order, 22 FCC Rcd 5662, para. 30 n.94 (2007); and (3) the *GAO Report*).

⁴⁵⁸ *Id.* at 9-10.

⁴⁵⁹ *Id.* 11.

⁴⁶⁰ *Id.* at 13.

⁴⁶¹ *Id.* at 13-14.

⁴⁶² *Id.* at 14.

and two CLECs [with] [f]ewer than 2 percent of census blocks have four or more suppliers of special access services.”⁴⁶³ When considering the relevance of competitive fiber in a census block, Besen and Mitchell find “that in fewer than 7 percent of the census blocks in which the FCC reports that at least one CLEC has fiber does any CLEC actually provide service to a purchaser.”⁴⁶⁴ Besen and Mitchell also find that “in more than 95 percent of census blocks in which special access service is supplied, fewer than three facilities-based providers had any special access purchasers” and fewer than three facilities-based providers supplied service at approximately 97 percent of purchaser locations.”⁴⁶⁵

183. Measuring bandwidth concentration levels, Besen and Mitchell find “in all census blocks where special access service is provided by an ILEC, the Herfindahl-Hirschman Index (‘HHI’) is 10,000 in around 82 percent of census blocks; between 7,500 and 10,000 in around 11 percent, between 5,000 and 7,500 in around 5 percent; and between 2,500 and 5,000 in less than 1 percent.”⁴⁶⁶ Thus, Besen and Mitchell conclude, “the HHI exceeds 5,000 in approximately 99 percent of census blocks” while noting that “the Merger Guidelines characterize a market with an HHI above 2500 as ‘Highly Concentrated,’ and the HHIs in almost all (i.e., more than 99 percent of) census blocks exceed this threshold, in most by a very substantial amount.”⁴⁶⁷

184. Besen and Mitchell also “calculated revenue-based shares at the ‘footprint’ level for each of the major ILECs both for all special access services sold and for five bandwidth ‘buckets.’”⁴⁶⁸ “When disaggregated into bandwidth ‘buckets,’” Besen and Mitchell found that “ILEC revenues account for about around 82 percent of special access revenues for 0-10 Mbps service, around 80 percent for 10-50 Mbps, around 62 percent for 50-200 Mbps, around 68 percent for 200-800 Mbps, and 53 percent for bandwidths greater than 800 Mbps.”⁴⁶⁹

185. *Declaration of William P. Zarakas and Susan M. Gately.* On behalf of Sprint, a wireless carrier and competitive LEC, William P. Zarakas and Susan M. Gately also submitted a Declaration in which they report “the results of market share and market concentration analyses designed to be both illustrative of the competitive conditions extant in the market for special access service and to serve as components of a traditional market power analysis.”⁴⁷⁰ Among their findings, Zarakas and Gately report an analysis indicating “that an ILEC was the sole provider of special access services in 388,143 (or about 66.7 percent) of the total 581,704 census blocks included in the dataset [and] [a]lternatively, the ILECs were the sole providers of special access services in 388,143 (or about 77 percent) of the 503,324 census blocks where they have indicated that they are currently selling special access service.”⁴⁷¹ Zarakas and Gately also report that an “ILEC was the sole provider in 612,514 (73 percent) of the 843,184 identified building or cell tower locations [and] that no more than two providers have a special access presence in nearly 90 percent (205,690 out of 230,670) of the remaining building or cell tower locations.”⁴⁷² Considering bandwidth, Zarakas and Gately find that a “bandwidth share analysis for all 445,431 census blocks . . . indicates that an ILEC had 100 percent bandwidth share (i.e., it was the sole provider of

⁴⁶³ *Id.* at 14-15.

⁴⁶⁴ *Id.* at 15-16 (citing Zarakas & Gately Decl., Table 8).

⁴⁶⁵ *Id.* at 17-18.

⁴⁶⁶ *Id.* at 20.

⁴⁶⁷ *Id.* at 20-21.

⁴⁶⁸ *Id.* at 21.

⁴⁶⁹ *Id.* at 22-23.

⁴⁷⁰ Zarakas & Gately Decl. at 2; *see also* Sprint Apr. 11, 2016 *Ex Parte*.

⁴⁷¹ Zarakas & Gately Decl. at 13.

⁴⁷² *Id.* at 14.

facilities-based special access services) in 320,801 out of 445,431 (72 percent) of the census blocks in the dataset [and] [a]lternatively, an ILEC had a 100 percent bandwidth share in 320,801 out of 389,221 (82 percent) of the census blocks in which it had an active special access customer.”⁴⁷³ Zarakas and Gately turned to bandwidth shares to calculate Herfindahl-Hirschman Indexes (HHIs) for each census block and found the “HHI for the vast majority of census blocks where special access was sold (over a carrier’s own facilities) was [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] and that [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of census blocks have HHIs that are 5,000 or less either when looking at only census blocks where ILECs sell special access services or at all census blocks where carriers reported selling facilities-based special access [while] [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of census blocks where carriers (ILECs and CLECs) reported selling special access have HHIs of 10,000, as do [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of census blocks where ILECs provided special access.”⁴⁷⁴

4. Our Approach

186. We analyze the data collected and the evidence submitted in this proceeding to reach preliminary evaluations as to the degree of competitiveness in BDS markets. Our public interest evaluation necessarily encompasses the “broad aims of the Communications Act,”⁴⁷⁵ which include, among other things, a deeply rooted preference for preserving and enhancing competition in relevant markets⁴⁷⁶ with increased private sector deployment of advanced services.⁴⁷⁷ In conducting this analysis, we take a forward-looking view of technological and market changes.⁴⁷⁸

⁴⁷³ *Id.* at 15.

⁴⁷⁴ *Id.* at 15-16.

⁴⁷⁵ *Western Union Div., Commercial Telegrapher’s Union, A.F. of L. v. United States*, 87 F. Supp. 324, 335 (D.D.C. 1949), *aff’d*, 338 U.S. 864 (1949); *see also Applications of AT&T, Inc. and DIRECTV for Consent to Assign or Transfer Control of Licenses and Authorizations*, MB Docket No. 14-90, Memorandum Opinion and Order, 30 FCC Rcd 9131, 9140, para. 19 (2015) (*AT&T-DIRECTV Order*); *FCC v. RCA Commc’ns, Inc.*, 346 U.S. 86, 93-95 (1953).

⁴⁷⁶ 47 U.S.C. §§ 521(6), 532(a); *see Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner, Inc. and America Online, Inc. Transferors, to AOL Time Warner Inc., Transferee*, Memorandum Opinion and Order, CS Docket No. 00-30, 16 FCC Rcd 6547, 6555-56, para. 22 (2001).

⁴⁷⁷ *See* 47 U.S.C. §§ 254, 332(c)(7), 1302; 1996 Act, Preamble, Pub. L. No. 104-104, 110 Stat. 56 (1996) (explaining that one purpose of the 1996 Act is to “encourage the rapid deployment of new telecommunications technologies.”).

⁴⁷⁸ *See AT&T-DIRECTV Order*, 30 FCC Rcd at 9140, paras. 19-24; *Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses and Transfer Control of Licenses*, Memorandum Opinion and Order, 26 FCC Rcd 4238, 4248, para. 23 (2011) (*Comcast-NBCU Order*); *Applications for Consent to the Assignment and/or Transfer of Control of Licenses, Adelphia Communications Corporation (and Subsidiaries, Debtors-in-Possession), Assignors, to Time Warner Cable Inc. (Subsidiaries), Assignees; Adelphia Communications Corporation (and Subsidiaries, Debtors-in-Possession), Assignors and Transferors, to Comcast Corporation (Subsidiaries), Assignees and Transferees; Comcast Corporation, Transferor, to Time Warner Inc., Transferee; Time Warner Inc., Transferor, to Comcast Corporation, Transferee*, MB Docket No. 05-192, Memorandum Opinion and Order, 21 FCC Rcd 8203, 8218, para. 24 (2006); *Application of EchoStar Communications Corp., General Motors Corp. and Hughes Electronics Corp., Transferors, and EchoStar Communications Corp., Transferee*, CS Docket No. 01-348, Hearing Designation Order, 17 FCC Rcd 20559, 20575, para. 26 (2002). Our competition analysis, which forms an important part of the public interest evaluation, is informed by, but not limited to, traditional antitrust principles that are designed to protect competition. *See Satellite Business Systems*, 62 FCC 2d 997, 1068-73, 1088, paras. 200-216 (1977), *aff’d sub nom United States v. FCC*, 652 F.2d 72 (D.C. Cir. 1980) (*en banc*); *see also Northeast Utils. Serv. Co. v. FERC*, 993 F.2d 937, 947 (1st Cir. 1993)

(continued...)

187. We examine the effectiveness (and likely effectiveness) of competitive restraints, to identify where market power exists in BDS markets.⁴⁷⁹ We focus our analysis on BDS prices, and terms and conditions, and consider the effectiveness of current competitive restraints and whether market power, where it exists, has enabled unreasonable pricing or other practices or an ability to unlawfully exclude competition.

188. To distinguish product markets, we generally look to include products in the same market if they are reasonably interchangeable, with differences in price, quality, and service capability being relevant.⁴⁸⁰ In the case of geographic markets, we look to supply, rather than demand substitution.⁴⁸¹ For both product and geographic markets, we do not believe it is necessarily required to engage a formal hypothetical monopolist test considering likely consumer substitution if a hypothetical monopolist imposed at least a small but significant and non-transitory increase in price (SSNIP), taking a more direct approach to demonstrate the use of market power.

5. Product Markets

189. In our data collection we defined BDS as a dedicated end-to-end telecommunications service.⁴⁸² Leading technologies of this type are DS1s and DS3s, typically carried over copper pairs, which account for the majority of the BDS revenue in 2013 according to these data. DS3 lines carry about 30 times the bandwidth of a DS1 line, which is a symmetric 1.5 Mbps service. It is also possible to achieve higher bandwidth levels over other circuit-based technologies. An alternative to circuit-based technology is packet-based service, more commonly delivered over fiber optic cable or HFC cable using a standard called DOCSIS. Fiber can deliver higher bandwidth and service levels, and most new investment is in fiber optic and coaxial cable, and in next generation DOCSIS 3.1 electronics. Cable companies also provide BDS at competitive rates over the coaxial-fiber hybrid technology, commonly referred to as “Ethernet over DOCSIS,” that have characteristics of BDS carried over fiber: it can be used to provide access to the Internet and point-to-point communications (such as a virtual private network); it

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(explaining that the public interest standard does not require agencies “to analyze proposed mergers under the same standards that the Department of Justice . . . must apply”); *AT&T-DIRECTV Order*, 29 FCC Rcd at 9140, para. 20; *Comcast-NBCU Order*, 26 FCC Rcd at 4248, para. 24.

⁴⁷⁹ See *Verizon Commc'ns v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 415, 124 S.Ct. 872, 883 (2004) (“The 1996 Act is, in an important respect, much more ambitious than the antitrust laws. It attempts ‘to eliminate the monopolies enjoyed by the inheritors of AT & T’s local franchises.’ Section 2 of the Sherman Act, by contrast, seeks merely to prevent *unlawful monopolization*.”) (quoting *Verizon Commc'ns Inc. v. FCC*, 535 U.S. 467, 476, 122 S.Ct. 1646, 1654) (2002) (emphasis in original)). The antitrust enforcement agencies and courts generally define market power as “the power to control prices or exclude competition.” See *U.S. v. E. I. du Pont De Nemours & Co.*, 351 U.S. 377, 391, 76 S.Ct. 994, 1005 (1956).

⁴⁸⁰ See generally *Brown Shoe Co. v. United States*, 370 U.S. 294, 336 (1962) (“The outer boundaries of a product market are determined by reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it.”).

⁴⁸¹ See generally *United States v. Philadelphia Nat’l Bank*, 374 U.S. 321, 359 (1963) (finding the relevant geographic market to be “the ‘area of effective competition . . . in which the seller operates, and to which the purchaser can practicably turn for supplies’”) (quoting *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 327 (1961)).

⁴⁸² *Data Collection Order*, 27 FCC Rcd at 16325, para. 15. The Department of Justice, in its complaint to enjoin the proposed SBC/AT&T merger, similarly defined the special access product market. DOJ Complaint, *U.S. v. SBC Commc'ns, Inc. and AT&T*, Civil Action No. 1:05CV02102 at paras. 19, 23 (filed D.D.C. Oct. 27, 2005) (finding “[t]he relevant product markets affected by this transaction are the markets for: (a) Local Private Lines, and (b) voice and data telecommunications services that rely on Local Private Lines. . . . Competing carriers often rely on Local Private Line (special access) circuits to connect an end-user customer’s location to their networks, enabling the competitor to supply value-added data networking, Internet access, local voice and long distance services to the customer.”), available at <https://www.justice.gov/atr/case-document/complaint-200>.

is generally available at symmetric bandwidths up to 10 Mbps;⁴⁸³ and is often supplied with service reliability guarantees, even if not at the same level as what is typically offered over fiber.⁴⁸⁴ We agree with several commenters recognizing that since this proceeding began in 2005, there has been significant innovation, investment and deployment of IP-based technologies, and DOCSIS relied on by cable companies, and that increasingly business customers purchase these technologies instead of TDM services.⁴⁸⁵ However, many business customers continue to rely on TDM services.

a. Best Efforts and Business Data Services Are Not in the Same Product Market

190. We described best efforts services above.⁴⁸⁶ Several commenters, including certain competitive LECs, claim that best efforts Ethernet over DOCSIS provided by cable companies does not provide the requisite dedicated access needed by certain, notably mid-sized and larger business customers and carriers, even if it meets other demands.⁴⁸⁷ Other commenters contend the Commission should include best efforts DOCSIS cable service within a broader product market definition.⁴⁸⁸

⁴⁸³ Comcast *Ex Parte* Mar. 25, 2016 at 3.

⁴⁸⁴ See, e.g., Comcast Mar. 25, 2016 *Ex Parte* at 3; see also Verizon Mar. 1, 2016 *Ex Parte* at 3 (“Customers have told Verizon that cable providers are individually negotiating Service Level Agreements (SLAs) that guarantee specified repair intervals and availability.”) (citing Gunn-Higgins Decl. at 8).

⁴⁸⁵ See, e.g., Baker Decl. at 17 (“In recent years, as its price has declined and available bandwidth has increased in many locations, best efforts broadband has often become the preferred option for retail customers . . . who do not plan to purchase managed services”); NCTA Reply at 4 n.3, 14 (stating “cable providers have made substantial investments to serve business customers and will continue to compete aggressively with ILECs and CLECs” and today “[v]irtually any area with special access demand will contain cable company facilities that serve, or are capable of serving, business customers.”).

⁴⁸⁶ See *supra* Part III.B.

⁴⁸⁷ See, e.g., Windstream Comments at 12, 22-23 (“[C]able providers have focused on providing best effort services to those business customers that do not need the additional functionalities of, and are not willing to pay the premium for, dedicated services.”); XO Comments at 18 (“XO does not consider Best Efforts Internet service a substitute to Ethernet services for its customers.”); Level 3 Comments at 18 (“Best efforts broadband also lacks the availability, reliability, security, and dedicated bandwidth demanded by wholesale customers of dedicated services.”) (citing Declaration of Gary Black Jr. at paras. 16-17); Sprint Mar. 24, 2016 *Ex Parte* at 7 (citing attached Second Carey Decl. paras. 9-11).

⁴⁸⁸ See, e.g., IRW White Paper at 3 n.4 (“We use the term ‘special access’ to refer to business data services that include conventional TDM and Ethernet dedicated lines as well as best efforts internet access.”); USTelecom Comments at 21 (stating “cable companies also are thriving in providing ‘best efforts’ business class Internet access services as a competitive alternative to traditional high-capacity dedicated services like traditional special access”); AT&T Reply Comments at 16-17 (“[N]o party has argued (or could argue) that cable fiber and Ethernet services do not compete directly against ILEC and CLEC special access services.”); cf AT&T, White Paper, “Enterprise Broadband Access: What’s your choice?” 2-5 (contrasting in its advertising material traditional best efforts technologies such as DSL (sold by AT&T) and cable with Ethernet, noting Ethernet’s advantages in bandwidth scalability, applications supported, reliability, and capacity to network internationally), <https://www.business.att.com/content/productbrochures/broadband-services-selection-guide.pdf>); Verizon Comments at 20 (stating “the record demonstrates the Commission’s analysis should include all forms of high-capacity services that customers are using to meet their needs, which includes not just legacy TDM-based special access services but also Ethernet services and best-efforts broadband services offered by cable”); Verizon Mar. 1, 2016 *Ex Parte* at 3-4 (“Verizon’s wholesale and retail customers are choosing cable’s Ethernet over HFC or broadband Internet access service instead of legacy TDM-based special access and instead of the more robust Ethernet over Fiber services Verizon and others offer.”); USTelecom Reply at 5 (“A product market definition based on a blanket exclusion of cable modem is flawed in several respects.”); NCTA Reply at 4 (“[T]he cable industry plays a significant and growing - but far from dominant - role in the special access marketplace.”)

191. We believe it is likely that best effort services may not be in the same product market or markets as BDS. The prices of best efforts services are considerably lower than the prices of roughly comparable BDS. Compared with BDS, best effort services are less reliable, notably in terms of guaranteed uptime, and other service level guarantees; in some cases do not offer higher bandwidths; and characteristically lack upload/down symmetry. Although fit for many customer purposes, best efforts services do not meet the requirements of all BDS purchasers, nor is it offered by sellers as a product intended for all customers. Sellers generally distinguish best effort services from other BDS products to meet customer needs at the right price point, and organize sales efforts accordingly. Finally, underlying characteristics of the way best efforts services are supplied can make it hard for certain higher quality BDS to be supplied on the same network as best efforts services. We seek comment on this view.

192. If two readily available services have substantially different prices, then they are likely dissimilar (otherwise buyers would prefer the cheaper service which would constrain the price of the other service). Best efforts services are uniformly the least cost alternative offered by carriers, with the lowest functionality. Prices for best efforts services typically start at levels consistent with residential broadband service, increasing as service speed, capacity and reliability increase. For example, “Comcast’s Business Internet service is available for purchase online starting at \$69 per month for its 16/3 Mbps service.”⁴⁸⁹ Verizon similarly offers a variety of best efforts services under \$100, beginning with a “Starter” package with speeds up to: 1 Mbps download/ 384 Kbps upload (“Best for: Single - person business, Light Internet use”) to the “Fastest” with speeds up to 10-15 Mbps download/ 1 Mbps upload (“Best for: Multiple employees, Online-based business eCommerce with orders”), with prices ranging from \$39.99 to 94.99 per month.⁴⁹⁰ Verizon’s Fios ranges from 50/50 Mbps to 500/500 Mbps, with prices from \$49.99 to 269.99 per month.⁴⁹¹ TWC offers six best efforts products online, ranging from \$14.99 for (“up to”) 2 Mbps download / 1 Mbps upload to \$64.99 for (“up to”) 50 Mbps download / 5 Mbps upload.⁴⁹² In contrast to these best efforts services, TWC’s average monthly BDS pricing ranges from [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] to [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL].⁴⁹³

193. That demand exists for symmetric [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] BDS at prices in the range of [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL], and customers do not switch to available best efforts services with at least as much bandwidth in both directions that are priced at approximately one tenth of that level (compare with the FiOS 50/50 price of \$49.99), implies some customers must value certain characteristics of BDS highly relative to best efforts service.⁴⁹⁴ This

⁴⁸⁹ Comcast Mar. 25, 2016 *Ex Parte* at 3 (contrasting “Comcast Business Internet (best efforts),” “Comcast Ethernet Dedicated Internet over HFC,” and “Comcast Ethernet Dedicated Internet over fiber”).

⁴⁹⁰ Verizon, High Speed Internet: Packages, <http://www.verizon.com/smallbusiness/products/business-internet/broadband-packages/> (noting, as part of the “Offer and Pricing Details,” that the service level is not guaranteed, as “service availability & actual speeds vary”).

⁴⁹¹ Verizon Fios, Pick your internet plan , <http://www.verizon.com/home/fios-fastest-internet/> (noting the lack of a service level guarantee, “Download and upload time estimates based on maximum connection speeds. Actual speeds will vary”).

⁴⁹² Time Warner Cable, High-Speed Internet Plans and Packages, <http://www.timewarnercable.com/en/plans-packages/internet/internet-service-plans.html> (noting that service levels are not guaranteed, “Actual speeds may vary.”).

⁴⁹³ TWC *Ex Parte* at 2.

⁴⁹⁴ The [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] price of TWC’s asymmetric 10 Mbps download/1 Mbps upload BDS is closer to the \$64.99 of its lowest priced best efforts service

suggests such customers would be unlikely to be tempted to switch to a best efforts service even if its price were to fall by a significant amount. It also suggests a customer currently purchasing a best efforts service would not switch to a BDS with a price of several multiples of the best efforts service, even if the BDS price were to fall significantly.

194. In fact, the characteristics of best efforts service and BDS appear to be very different. BDS comes with substantial reliability guarantees and functionality that do not accompany best efforts services,⁴⁹⁵ leading us to the view that the two services do not play important roles in constraining the quality-adjusted prices of each other.⁴⁹⁶ Consistent with the observed price differences between the different types of services, some end users do not require “mission critical” connectivity, and prefer best efforts services to BDS, prioritizing cost savings over reliability and specific functionality.⁴⁹⁷ Other end users are willing to pay considerably more for services that include greater (particularly upload) speeds, are more reliable, and come with more rigorous guarantees. Sprint, for example, [BEGIN HIGHLY CONFIDENTIAL]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] [END HIGHLY

CONFIDENTIAL]⁴⁹⁸ Best efforts services do not satisfy these requirements.⁴⁹⁹

195. BDS uptime reliability is also generally higher than with best efforts services. For example, Windstream on its website contrasts an Ethernet Internet service with a 99.99% uptime guarantee with cable (presumably) best efforts services,⁵⁰⁰ while best efforts services do not typically

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which offers five times the speed at 50 Mbps down and 5 Mbps up. *Id.* But the question remains, if the two services were relatively similar, surely purchasers would not be willing to pay [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] more to get a service with one fifth the bandwidth.

⁴⁹⁵ See, e.g., Birch et al. Comments at 16, 18 (stating that “while the cable companies’ Ethernet-over-fiber and DSn-over-fiber services are competitive with Level 3’s dedicated services, the cable companies’ best efforts broadband Internet access and their Ethernet-over-HFC services generally are not competitive with Level 3’s dedicated services’ [because] ‘most of Level 3’s customers do not view these services as sufficient to meet their needs’”) (quoting McReynolds Decl. at para. 18).

⁴⁹⁶ See, e.g., Birch et al., Appendix A (McReynolds Decl.) at 3 (“Level 3 does not seek to monitor or respond to the rates, terms and conditions on which other services, such as the standard, best-efforts broadband Internet access services, are offered.”).

⁴⁹⁷ Windstream Comments at 11-12, 22-23 (noting that “[b]est efforts services can be offered at lower or higher bandwidths and can use a broader set of facilities, but lack the functionality to meet the higher performance requirements that make dedicated services valuable to the customers who buy them” and that “cable providers have focused on providing best effort services to those business customers that do not need the additional functionalities of, and are not willing to pay the premium for, dedicated services”); Birch et al. Comments at 14-15 n.25 (“Commenters also note that businesses that do require DS1 loops are willing to pay significantly more for them than the cost of a cable modem connection, which also indicates that the two are not interchangeable.”).

⁴⁹⁸ Sprint Mar. 24, 2016 *Ex Parte*, Attach B (Second Carey Decl.) at 3-4(quoting *Triennial Remand Order*, 20 FCC Rcd at 2638-39, para. 193).

⁴⁹⁹ See, e.g., Birch et al. Comments at 16-17 (stating that “even where cable companies offer best efforts broadband services subject to service level agreements . . . those services ‘have technological limitations that prevent them from meeting the needs of customers that demand services beyond basic voice and Internet access’”) (quoting McReynolds Decl. at para. 21; *supra* paras. 188-93).

⁵⁰⁰ Windstream, Ethernet Internet, <http://www.windstreambusiness.com/products/enterprise-network-services/dedicated-internet-services/ethernet-internet>. A service with 99.99% uptime (a “four nines” service) is

(continued...)

come with such guarantees. AT&T's best efforts Broadband SLA applicable to its High Speed Internet Business Edition family of services (AT&T U-verse® HSI-Business Edition; AT&T High Speed Internet Business Edition; and FastAccess® Business DSL) comes with a guarantee of 99.9% uptime.⁵⁰¹ The AT&T "three nines" service (99.9%) service permits approximately 8.76 hours of downtime a year, plus disclosed allowances for many other downtime events,⁵⁰² which are material to the offering and, as discussed immediately above, would not be acceptable for many users. "Comcast best efforts Business Internet service is sold without SLAs or contractual performance objectives."⁵⁰³ Comcast best effort offers include seven Internet packages online ranging from a 3 Mbps, "Economy Plus" service to a 2000 Mbps, "Xfinity Gigabit Pro" service; each of the seven Comcast services include a disclaimer, "Actual speeds vary and are not guaranteed."⁵⁰⁴ And in contrast Comcast BDS, like those of Windstream and AT&T, come with considerably greater reliability guarantees. Comcast "business class data services come with a variety of performance metrics and assurances," which for Ethernet transport services include an SLA "committing to [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] for fiber-based service and [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] for HFC-based service, with penalties for failure to meet those service levels."⁵⁰⁵ Similarly, without a guaranteed throughput speed, "Time Warner Cable offers six Internet speed options, up to 50 Mbps in most locations and up to 300 Mbps in select areas."⁵⁰⁶ Time Warner Cable guarantees for its Business Internet Access (BIA) service vary slightly from Comcast, "[w]hile TWC's BIA service may be just as [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL], leading certain customers to choose one service over the other."⁵⁰⁷

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allotted approximately 50 minutes of downtime a year, and even that is not acceptable for many applications that require less downtime, such as secure enterprise applications (4 nines = $(365 \times 24) - .9999(365 \times 24) = 8760 - 8759.124 = 0.876$ hours = 52 minutes and 30 seconds).

⁵⁰¹ These services are found under AT&T's general offerings to "Small Businesses." AT&T, Shop, <https://www.att.com/smallbusiness/shop/index.html>. For example, service with Internet access ("up to 75 Mbps") plus VoIP is priced at \$95-\$110 per month. AT&T, U-verse Voice, <https://www.att.com/smallbusiness/content/shop/internet-phone-tv/phone/voip.page>. In contrast, AT&T's VPN, Ethernet and Remote Access Services are found under "Enterprise Business." AT&T, Enterprise Business Services, <https://www.business.att.com/>.

⁵⁰² "Any calculation of Network Availability shall not include any unavailability resulting from: (a) scheduled Network maintenance, (b) the occurrence of a Force Majeure event, (c) unavailability of an AT&T Virtual POP or (d) the failure of non-service impacting equipment or systems responsible for network measurements." AT&T, Business Edition - AT&T U-verse Voice and TV - Terms of Service (TOS) and AT&T Broadband - Service Level Agreement (SLA), <http://www.att.com/gen/general?pid=6622>.

⁵⁰³ Comcast Mar. 25, 2016 *Ex Parte* at 3.

⁵⁰⁴ Comcast, What are you shopping for?, <http://www.xfinity.com/corporate/shop/productoverview.html>.

⁵⁰⁵ Comcast Mar. 25, 2016 *Ex Parte* at 3.

⁵⁰⁶ Time Warner Cable's Residential Services Subscriber Agreement notes it "do[es] not guarantee that you will obtain the Maximum Throughput Rate for the level of HSD Service to which you subscribe at any given time or on a continuous basis. The Throughput Rate you experience at any time will be affected by a number of factors, including the nature of the Internet and its protocols, our facilities, the bandwidth we devote to carriage of protocol and network information . . ." Time Warner Cable Residential Services Subscriber Agreement, Section 5(c), http://help.twcable.com/twc_sub_agreement.html#section10.

⁵⁰⁷ TWC Mar. 3, 2016 *Ex Parte* at 2.

Moreover, as discussed above, the price differences for these services are large, suggesting customers highly value the product differential BDS has over best effort services.⁵⁰⁸

196. We seek comment on these analyses. We ask whether the Commission should consider alternative factors or aspects of the market and invite parties to submit alternative evidence in the record.

b. Packet and TDM Business Data Services Are in the Same Market

197. Some commenters argue that packet BDS place competitive pressure on TDM BDS.⁵⁰⁹ TDM BDS offers point-to-point connectivity in essentially the same way that packet BDS does.⁵¹⁰ Since each technology can be used for the same purposes, this suggests that they are in the same product market. This is not to say that there are no differences between packet and TDM services. For example, while both perform similar roles, Ethernet is more easily scaled.⁵¹¹

198. *But Existing Customers Can Face High Switching Costs.* Record evidence suggests that once a customer has installed a business data service, it faces high costs in switching.⁵¹² Consequently, switching most commonly occurs when a customer outgrows its service, for example, requiring a demand not available on their current service, or because they need the functionality of a different technology (most usually leading to a switch from TDM to packet BDS).⁵¹³ In particular, high switching costs can both slow the transition from TDM to packet BDS and limit the potential market for packet BDS which could in turn limit investment.

⁵⁰⁸ As Comcast puts it, a customer seeking “reliable, high capacity Internet access, availability and the ability to scale up as needed” (a characteristic of Comcast’s Ethernet provided over dedicated fiber) will not purchase BDS with “low to medium” bandwidth (a characteristic of Comcast’s best efforts service). Comcast Mar. 25, 2016 *Ex Parte* at 3 (describing service features and the customer the service is “Designed For”).

⁵⁰⁹ See, e.g., Windstream Sept. 24, 2015 *Ex Parte* at 2 (noting, “[a]ccording to TeleGeography, T-1s, smaller legacy circuits, remain the most prominent access circuit type in the United States . . . [which is] . . . consistent with Windstream’s own experience and data showing that many small, medium-sized, and multi-location businesses with more modest bandwidth needs continue to use TDM-based inputs”).

⁵¹⁰ For example, Verizon’s Metro Private Line, TDM Service provides “dedicated point-to-point and point-to-multipoint (hub/end link) private line service with digital handoffs that are capable of supporting voice and digital data” that allows customers to choose their service, including DS1 Service providing “a full duplex, digital signal operating at 1.544 Mbps” and DS3 Service fulfilling “high-speed, digital requirements, operating at 44.736 Mbps”). Verizon MPL TDM Service, <https://www2.verizon.com/wholesale/solutions/solution/Mpl+Tdm+Service.html>. Verizon’s comparable Ethernet service “enables both point-to-point and point-to-multipoint connections” with “speeds ranging from 1 Mbps to 1 Gbps, along with 10 Gbps EA [Ethernet Access] connectivity for some configurations.” Verizon, Ethernet Virtual Private Line (EVPL), <https://www2.verizon.com/wholesale/solutions/solution/EVPL.html>.

⁵¹¹ See, e.g., MegaPath, Ethernet vs T1 Comparison Table, (noting similarities and differences between TDM and Ethernet services), <https://www.megapath.com/data/ethernet/comparison/>; see also XO, Wholesale Ethernet Access Benefits (comparing its Ethernet Access service to DS-1 or DS-3 private lines, Frame Relay, or ATM networking), <http://www.xo.com/wholesale/transport/ethernet/>.

⁵¹² XO Comments at 11 (noting that the “costs for a customer to transition [from TDM] to Ethernet service are much greater than the costs to upgrade to higher Ethernet speeds once it has Ethernet” with “the primary cost is the need for the customer to change out its legacy equipment” that can be “enough for customers to postpone a transition”).

⁵¹³ MegaPath, for example, notes that “Business Ethernet is also easier, faster, and less expensive to scale than a T1 line – usually without the need to change equipment.” MegaPath, Why Businesses Choose Ethernet Over T1, <https://www.megapath.com/data/ethernet/comparison/>.

6. Customer Markets

199. Carriers organize how they market around distinct fairly similar customer groups.⁵¹⁴ These customer groups also have their own distinct characteristics, and hence distinct service requirements. As Comcast explains, “although all of Comcast’s business class data services may be used by various types of customers, the unique needs of certain customers may make one service more appropriate than others.”⁵¹⁵ Put together these facts suggest the possibility of separate customer markets. In particular, if supply to a first customer group cannot be readily extended to supply to a second, then supply to the first customer group may not place material competitive constraints on supply to the second. We seek comment on whether such customer markets are possible in the supply of business data services, and if so, what these are. We are particularly interested in the extent that multisite customers may fall into such a category as we propose below.

200. At a high level, possible customer categories are retail purchasers of business data services and carrier purchasers.⁵¹⁶ These groups, in turn, could be further subdivided. Retail purchasers of business data services come in all shapes and sizes, and include retail businesses, governmental and educational institutions, and other enterprises that require dedicated enterprise services.⁵¹⁷ Their needs vary depending on, among other factors, the number of employees and locations they have, the volume of their traffic, and the technological sophistication of the services they require.⁵¹⁸ Many call for a competitive wholesale BDS access market.⁵¹⁹ Large businesses are especially likely to require “high quality phone and Internet services”⁵²⁰ that “depend upon special access services as the building blocks of their corporate networks, from workhorse DS1s to the growing number of Ethernet connections to the

⁵¹⁴ See *supra* Part III.D (Business Data Services Purchasers). Additionally, Time Warner Cable, for example, explains that its sales teams are focused on customer segments, “rather than being organized around distinct services,” and notes “[i]n general, small businesses (1 to 24 employees) typically buy TWC’s [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] . . . slightly large enterprise-level customers [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] TWC *Ex Parte* at 3.

⁵¹⁵ Comcast Mar. 25, 2016 *Ex Parte* at 2. Similarly, TDS notes, for example, that “75% of its market consists of customers with 10 or fewer employees and these companies sometimes ‘compromise on their preference for reliable and secure service by downgrading to best efforts broadband Internet access service for cost savings.’” TDS Mar. 24, 2016 *Ex Parte* at 10 (quoting Letter from Thomas Jones, Counsel for TDS, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, Attach, Decl. of James Butman at paras. 5, 15 (filed Mar. 26, 2015) (Mar. 26, 2015 Butman Decl.)); see also TWC Mar. 3, 2016 *Ex Parte* at 3-4. *But see* Verizon Mar. 1, 2016 *Ex Parte* at 4.

⁵¹⁶ See *supra* Part III.D.

⁵¹⁷ Windstream Comments at 25 (“Customers of dedicated services represent a diverse range of entities, all of whom require the enhanced performance and other features that are not available in best efforts services, and are thus willing to pay the premium for dedicated services.”).

⁵¹⁸ *Id.* (“Dedicated services customers vary based on business size, number of locations, and monthly expenditures on communications services.”).

⁵¹⁹ See, e.g., Letter from Martin De Witt, Century 21 MarketLink Realty, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 2 (filed June 26, 2015) (noting reliance on “reliable technology, but also at the level of quality and flexibility we require” and asking the FCC to “focus its efforts on maintaining a healthy level of competition”); Letter from Andrea Nelson, Unisource Insurance Associates, LLC, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 2 (filed June 26, 2015) (stating, “[i]f robust competition is restricted in the marketplace, [their] ability to serve [their] customers could be harmed by the lack of individualized solutions and value based pricing”).

⁵²⁰ Letter from Thomas Hodgkiss, Senior Vice President and Chief Financial Officer, Prest & Associates, Inc., to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 1 (filed June 26, 2015).

highest capacity OCns.”⁵²¹ Medium-sized and small businesses also require “advanced IP and fiber connections,”⁵²² which are “mission critical.”⁵²³ Retail banks, for example, “rely heavily on broadband service” to enable “financial transactions and provide [customer] support in a timely fashion.”⁵²⁴ Reliable broadband connections also allow brick and mortar companies to meet customer needs “as efficiently and effectively as possible” and to “enhance the customer shopping and buying experience.”⁵²⁵

201. Most larger, sometimes called enterprise, customers require connections to more than one site, and some, such as retail banks, and large retail sales outlets, may require many sites in diverse locations, often in areas with limited business density.⁵²⁶ Moreover, at many of these locations such large customers may only have low bandwidth requirements, even if each connection must have a high degree of reliability (for example, in the case of a retailing outlet, to ensure rapid credit card processing) and/or be highly secure (in the case of a retail bank).⁵²⁷ Larger customers are typical users of dedicated fiber-

⁵²¹ Paperwork Reduction Act Comments of the Ad Hoc Telecommunications Users Committee, WC Docket No. 05-25 at 1 (Apr. 19, 2013).

⁵²² Letter from Ken Breyer, Jim Beam, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 2 (filed June 26, 2015).

⁵²³ See, e.g., Letter from Tony Isaacs, VP – Business Development, PLW Modelworks, LLC, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 (June 25, 2015) (stating as “a small high-tech business that creates industry leading digital 3D city models from high-resolution aerial imagery . . . [for] clients across the globe,” they “want affordable broadband options (more than one or two choices) that provide the individualized services”); Letter from Mike G. Goff, CEO, TCB Management Group, Inc., to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 (filed June 22, 2015); see also Letter from Oron Strauss, Chairman, Pantheon, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 1 (filed June 26, 2015) (“Broadband is mission critical to our business. Everything we do is online.”).

⁵²⁴ See, e.g., Letter from Wade Carlson, IT Manager, Monona State Bank, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 2 (filed June 26, 2015) (stating “[i]f robust competition is restricted in the marketplace, my ability to serve my own customers could be harmed by the lack of individualized solutions and value based pricing”); Letter from Bryan Barger, Head of IT Operations, 1st Trust Bank, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 1 (filed June 29, 2015); Letter from Michaelleana Brown, Cumberland Valley National Bank & Trust, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25, at 1 (filed June 30, 2015) (stating the “bank relies heavily on broadband service to maintain [its] network of 14 bank branches in addition to nine full-service ATMs and numerous cash-dispensing ATMs [and] [s]hould competitors be prevented from accessing high capacity broadband lines and last-mile circuits, businesses like [theirs] would be hurt by a lack of choice, and higher prices that result from a lack of competition”).

⁵²⁵ See, e.g., Letter from Charles MacDonald, IT Director, Everglades Farm Equipment to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 1 (filed June 23, 2015) (stating, as a business with 12 locations relying on broadband connectivity, the Commission should “uphold and protect competition policy so that businesses like [theirs] can continue to meet the individual needs of our customers”).

⁵²⁶ See, e.g., Letter from John Santarpia, Magnify Credit Union, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 2 (filed June 23, 2015) (stating the importance of competition for broadband services to connect its “global network for the Liner Division and its 200+ locations around the world”).

⁵²⁷ See, e.g., Letter from Eric C. Johnson, Director, MOL-IT America, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 2 (filed Feb. 16, 2016) (stating that BDS “help[s] customers manage their accounts include Internet banking and bill pay, mobile banking, remote deposit capture, direct deposit, surcharge-free ATMs, and more” while “ask[ing] that the Commission uphold and protect competition policy”); Letter from David L. Zitur, Chief Operating Officer, Travel Leaders Group, to Tom Wheeler, Chairman, FCC, GN Docket Nos. 13-5; 12-353, WC Docket No. 05-25 at 1 (filed Mar. 2, 2016) (stating, as the “largest traditional travel agency group in North America comprised of more than 6,500 travel agencies and over 40,000 travel agents,” that its “agencies are completely reliant on competition among broadband services and telecommunications to not only keep [its] costs in check, but also to maintain a high level of communications [its] clients expect in the event the unexpected occurs”).

based, symmetric services; some have service demands for a limited geographic area while others require service for any number of locations within the country. Multi-location customers are often provisioned by BDS providers that “have a broad regional footprint without significant gaps in coverage to serve large enterprises with multiple sites across given geographic regions effectively.”⁵²⁸ Such providers may be relatively rare.⁵²⁹ We seek comment on our implicit finding below that such “spread-out” multi-site customers may be sufficiently distinct from other customers to constitute a separate market (below we find that competitive supply to other customers may not place a competitive constraint on supply to these “spread-out” multi-site customers), especially to the extent that such customers require lower bandwidth, highly reliable, services in areas with lower business densities, may not face the same competitive choices as other customers.

202. Carrier purchasers are different again. They are typically large and sophisticated buyers, with substantial capacity to leverage scale, for example, in seeking tenders to supply. Wireless carriers rely on business data services to connect their radio towers to their mobile switching centers. Mobile carriers purchase business data services often with bandwidths of around 50 Mbps and greater, but small cell demands, which look set to grow, may generally require lower bandwidths, and may require backhaul to many locations with low levels of business density. Sprint, a purchaser of wireless backhaul transit services, explains that it requires a specific BDS capable of more than traditional copper twisted pair and coaxial cable can support.⁵³⁰ Even where next-generation HFC is available, it is more suitable for mid-range demands. Sprint, for example, describes Ethernet over HFC as a poor substitute for fiber-based services because [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED]
[REDACTED] [END HIGHLY CONFIDENTIAL].⁵³¹

Sprint specifically notes that its macrocell sites [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] and a service level guarantee not available for generally best efforts or mid-tiered products.⁵³²

203. Competitive LECs purchase BDS wholesale to sell retail services to end users. They do this where the purchasing competitive LEC does not currently have network and where extending their networks would not be profitable. While competitive LEC demand reflects end-user demand and so is highly diverse, competitive LECs again have the ability to leverage scale. We seek comment on whether carrier purchasers have countervailing power even when dealing with an entity that may otherwise have market power, and whether they need different protections than end users.

7. Geographic Markets

204. In this section, we express the view that the likely BDS geographic market, even for lower bandwidth services, likely extends beyond the area of the average Census block in which there is BDS demand. We come to this assessment by focusing on supply-side substitution, and seek comment on how we might refine this definition.

⁵²⁸ Public Interest Statement of Charter Communications, Inc., Time Warner Cable Inc., and Advance/Newhouse Partnership at 35, MB Docket No. 15-149 (filed June 25, 2015).

⁵²⁹ “Because larger businesses and enterprise customers have locations spanning multiple areas and cable footprints, Comcast, TWC, and other cable companies have been unable to offer a seamless business service option,” and, some contend, cannot provide “meaningful competition against incumbent providers.” Opposition to Petitions to Deny and Responses to Comments of Comcast Corp. and Time Warner Cable Inc. at 70-71, MB Docket No 14-57, at 70-71 (filed Sept. 23, 2014).

⁵³⁰ Sprint Mar. 24, 2016 *Ex Parte* at 2.

⁵³¹ *Id.*

⁵³² *Id.* at 7.

a. Commenters' Views and Our Approach

205. The Commission's pricing flexibility rules and triggers were premised on measuring competition at the MSA level, partially for logistical manageability. Many commenters and interested parties have argued that the MSA level is not the proper area within which to measure competition for special access for BDS customers. For example, several competitive LECs and their jointly retained economic expert claim that the relevant geographic market for business data services is an individual customer location,⁵³³ and that this view also is supported by Commission precedent.⁵³⁴

206. Incumbent LECs claim that existing customer locations approach for defining the business data services relevant market is a too narrow because it fails to account for competition from nearby competitors. For example, AT&T claims that Census block level data are relevant given that the average size of census blocks in MSAs with demand for special access services is only about 1/7th of a square mile and most census blocks are actually much smaller (.08 sq. miles).⁵³⁵ According to the economic experts retained by incumbent LECs, "the geographic range of the competition posed by a service provider is not limited to the specific locations of active circuits sold at a particular point in time. This is why current shares or even current locations of facilities (without accounting for potential expansion of those locations) do not tell the full story of competition"⁵³⁶ The incumbent LECs further argue that if the MSA level of analysis is considered to be too large and the Commission defines the relevant geographic market more narrowly, such by census block, the Commission should also use such a geographic measure for imposing price cap regulation and pricing flexibility.⁵³⁷

207. Relevant geographic markets are often determined by estimating demand side response if a hypothetical monopolist in a specified region, facing competition from beyond that region, tried to set prices above competitive levels.⁵³⁸ In this industry, given that most BDS customers would not shift their location to purchase special access from a different carrier, we focus on the supply response, that is – under what circumstances, if any, will nearby suppliers geographically extend their existing facilities distances to obtain new consumers.⁵³⁹ If suppliers were generally willing to extend their networks to meet nearby demand, then they would place a degree of competitive pressure on the prices nearby customers would face.

⁵³³ See Baker Decl. at 20 (defining the relevant geographic area as "service to each customer location served by a dedicated service [because] it is difficult to imagine [a retail or wholesale customer] responding to a small increase in the price of dedicated services at one location by moving their business to another location where prices are lower").

⁵³⁴ Birch et al. Comments at 19 (quoting *Verizon Communications Inc. and MCI, Inc. Applications for Approval of Transfer of Control*, WC Docket No. 05-75, Memorandum Opinion and Order, 20 FCC Rcd 18433, 18449, para. 28 (2005) ("Consistent with Commission precedent and the record before us, we conclude that the relevant geographic market for wholesale special access services is a particular customer's location, since it would be prohibitively expensive for an enterprise customer to move its office location in order to avoid a 'small but significant and nontransitory' increase in the price of special access service.")).

⁵³⁵ AT&T Comments at 16 (citing IRW White Paper at Section II. B. and .01 mile standard used by DOJ's economic expert and the Commission to include nearby competition in the relevant geographic market in the SBC/AT&T and Verizon/MCI 2006 Consent Decrees).

⁵³⁶ IRW White Paper at 9.

⁵³⁷ See AT&T Comments at 4-5.

⁵³⁸ "A firm may be considered to be a market participant even if it does not currently earn revenues, but it is 'committed to entering the market in the near future,' or if the firm is not a current producer in the relevant market, but 'would very likely provide rapid supply responses with direct competitive impact in the event of a [small but significant and non-transitory increase in price (SSNIP)], without incurring significant sunk costs.'" *Suspension Order*, 27 FCC Rcd at 10611, para. 99 (internal citation omitted); 2010 Horizontal Merger Guidelines § 4.

⁵³⁹ 2010 Horizontal Merger Guidelines at § 9.1 (discussing rapid and uncommitted entry).

208. Geography also impacts product substitution. In certain areas, higher bandwidth services are not available due to the lack of technical capability. Available service could be limited in speed and capability to best efforts and similar, lower-level service levels that are provisioned over copper and coaxial lines. Increased service speeds, capacity, and guarantees are not available unless and until a BDS provider builds or extends new facilities (such as fiber or a hybrid technology) in a range close enough to the customer to readily extend a service that replaces best effort.⁵⁴⁰ Sprint points out, for example, that Ethernet over HFC “is not yet available in all business locations served by ILEC special access – nor at most cellular tower sites.”⁵⁴¹

b. The Geographic Market is Likely Larger than the Average Census Block in which there is BDS Demand, but Considerably Smaller than the MSA

209. We consider it unlikely that BDS supply in one part of an MSA would constrain the provision of BDS where it is demanded everywhere in the MSA. However, we also see good evidence that the presence of fiber competition not only could be expected to impact, but actually can impact, supply of lower bandwidth services over the whole Census block in which that fiber is located.⁵⁴² This suggests a geographic market definition for lower bandwidth BDS lies somewhere above the average area of the Census block with BDS demand and below the MSA. We seek comment on these assessments and how to refine them. We seek this information for the purpose of developing an administratively feasible test for determining where we can replace regulation with market forces.⁵⁴³

210. In the *Suspension Order*, the Commission explained that “demand varies significantly within any MSA, with highly concentrated demand in areas far smaller than the MSA” and some areas with little or no demand.⁵⁴⁴ Our record reinforces that view.⁵⁴⁵ The Commission stated that competitive entry is considerably less likely to occur in areas of low demand, regardless of whether other areas within the MSA contain sufficient demand to warrant competitive entry.⁵⁴⁶ The Commission also observed that “competitors have a strong tendency to enter in concentrated areas of high business demand, and have not expanded beyond those areas despite the passage of more than a decade since the grant of Phase II relief.”⁵⁴⁷

211. The distances competitive LECs are generally willing to extend their facilities to reach potential customers beyond the locations they currently reach are quite short. These distances, which vary among competitive LECs and business opportunities, typically range from **[BEGIN HIGHLY**

⁵⁴⁰ For cable operators, for example, cable headends must be Ethernet capable. See Comcast Mar. 25, 2016 *Ex Parte* at 1-2. Fiber must be built or capacity purchased from another carrier.

⁵⁴¹ Sprint Mar. 24, 2016 *Ex Parte* at 2 and Attachment B (citing the attached Second Declaration of Ed Carey at para. 7 (Mar. 24, 2016)).

⁵⁴² This is true at least for Census blocks with up to approximately the average square area of Census blocks in which there is BDS demand.

⁵⁴³ We are less concerned to use market definitions as a first step in estimating market power (for example, that could be necessary if concentration measures were to be used) because we believe regression analysis such as that presented in the Rysman White Paper and the Baker Declaration, can directly show the presence or absence of market power. As discussed below, such analysis may also help in market definition.

⁵⁴⁴ See *Suspension Order*, 27 FCC Rcd at 10574, para. 36.

⁵⁴⁵ Sprint Comments at 17 (citing Declaration of Bridger M. Mitchell at para. 33, Attach. A to Sprint 2010 Comments, WC Docket No. 05-25 (filed Jan. 19, 2010) (noting the “competitive alternatives available to customers in an MSA will rarely be uniform across the MSA”)).

⁵⁴⁶ See *Suspension Order*, 27 FCC Rcd at 10574, para. 36.

⁵⁴⁷ *Id.* at 10582, para. 48.

CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] to [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL].⁵⁴⁸ In fact, the distance Comcast will generally build within [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL].⁵⁴⁹ Similarly, TDS Metrocom estimates the average length of its competitive LEC’s fiber laterals is [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL].⁵⁵⁰ Most “[BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL] If an end point of a “transport facility is outside a [central business district], and perhaps the first ring of suburbs . . . the competitive presence is far less. . . . As a result, these non-[central business district] areas are largely served only by ILEC facilities.”⁵⁵²

Buildouts of [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] and farther occur, but variables, including cost and demand factors, entailing traditional return-on-investment calculations, become increasingly determinative as the distance from a cost-effective and viable fiber junction point increases,⁵⁵³ which “are often collocated at or housed near ILEC central offices.”⁵⁵⁴

Incumbent LECs have similar buildout criteria. AT&T, for example, “engineering guidelines demonstrate that AT&T engineers its network to maintain lateral distances at or below about [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL].⁵⁵⁵

⁵⁴⁸ See generally narrative responses to question II.A.8 in the *2015 Collection*. Baker Decl. at 26, para. 43 n.40. More generally, “competitors make last-mile buildout decisions on a location-by-location basis.” Windstream Comments at 101 (internal citation omitted).

⁵⁴⁹ Comcast Mar. 25, 2016 *Ex Parte* at 2, 4 (describing Comcast’s coverage of businesses within footprint and how “Comcast responds to requests for business class data services from potential customers”).

⁵⁵⁰ TDS Mar. 24, 2016 *Ex Parte* at 9 (noting the average distance it constructs laterals “in the market in which TDS CLEC has most aggressively constructed laterals to reach customers (Madison)”). TDS also explains that “a typical CLEC fiber build contains splice points spaced 10,000 feet apart and access points about 1,200 feet apart.” TDS Reply at 14.

⁵⁵¹ Baker Decl. at 26, para. 43 n.40. XO reports it “has found that in major metropolitan areas where it operates, there often are competitive fiber facilities close (within 0.5 miles) to multiple large [multi-tenant environments] in close proximity,” but “outside these relatively compact and dense sectors of [multi-tenant environments], the presence of competitive fiber is limited.” See XO Comments at 33.

⁵⁵² *Id.*

⁵⁵³ See generally narrative responses to question II.A.8 in the *2015 Collection*. The distance to a fiber splice point, as opposed to fiber in general, is an important determining factor in build/buy decisions. TDS CLEC notes that “in the market in which TDS CLEC has most aggressively constructed laterals to reach customers (Madison) . . . [t]he “vast majority of TDS CLEC’s on-net builds are shorter than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] from the splice point” while approximately 95% of it[s] on-net builds are less than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] from the splice point.” TDS Mar. 24, 2016 *Ex Parte* at 9.

⁵⁵⁴ XO Comments at 33; see also Baker Decl. at 24-25, para. 40 n.37; Windstream Comments, Deem et al. Decl. at para. 51; Kuzmanovski Decl. at 11, para. 24; Mar. 26, 2015 Butman Decl. at para. 16 ([BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] [END HIGHLY CONFIDENTIAL]).

⁵⁵⁵ Letter from Christopher T. Shenk, Counsel for AT&T, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, at 11 n.36 (filed Mar. 21, 2016) ([BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED]

(continued...)

212. Responses to the data request indicate that competitive buildout to customers becomes increasingly less likely with a potential customer at a location [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] or farther away. Narrative descriptions of how far competitive carriers will buildout broadly align with observations of data submitted. For example, Cbeyond reported its “maximum build distance” is a “distance of [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] from existing lit fiber of a competitive fiber provider.”⁵⁵⁶ TDS METROCOM explained, “If the location is beyond [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] experience has shown us that customers are not willing to pay the extra monthly cost that would be required to pay for such an expensive build.”⁵⁵⁷ Cablevision Lightpath reported [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] buildout parameters, requiring a potential customer “be within [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] of a splice point in [its] core network,” excluding certain areas of density, and “[i]f [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] from splice point, no business case is required [while] [b]uild[ing] [BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] from splice point involves ROI [analysis].”⁵⁵⁸ XO similarly notes that “[BEGIN HIGHLY CONFIDENTIAL] [END HIGHLY CONFIDENTIAL] or less from its existing fiber infrastructure” is most attractive, while “buildings that are 200 feet or less from exiting fiber assets are of particular interest.”⁵⁵⁹ The distances and build criteria reported by Submitting Parties

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[REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED] [END HIGHLY CONFIDENTIAL]

⁵⁵⁶ Narrative Response to Question II.A.8. from Cbeyond.

⁵⁵⁷ *Id.* from TDS Metrocom.

⁵⁵⁸ *Id.* from Cablevision. Fiber splice points are critical. As TDS explains, “although a fiber optic cable may run through many census blocks, the determining factor for serving a business customer location is how close is the nearest splice point (exit ramp)? If a business is 100 feet from a fiber optic cable but the nearest splice point where a lateral can be run is 1,200 feet away, the proximity of the fiber (100 feet) to the business does not accurately represent the potential to build a lateral economically to serve that customer.” TDS Reply, Third Declaration of Matthew J. Loch at para. 6. According to Sprint, “construction costs to reach a single customer located 500 feet from an available node or splice point can, in some cases, exceed \$400,000 [and] the provider must install electronics at the customer’s location, which can cost between \$20,000 and \$50,000 or more depending on the services needed at the location.” Sprint Reply at 25 (citing Carey Decl. at para. 9(c)).

⁵⁵⁹ Narrative Response to Question II.A.8. by XO. Although [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [REDACTED] [END HIGHLY CONFIDENTIAL] . . . as a rule of thumb, in Tier I cities, XO is extremely unlikely to build if the building is more than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] linear feet from a splice point on XO fiber, and the overwhelming number of builds XO undertakes have been within [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] linear feet. Of the [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] builds that XO undertook and completed in 2014 and 2015 as part of its On-Net Initiative, [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] were less than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] aerial feet (as the bird flies), and total of [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] were less than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] aerial feet.” Kuzmanovski Decl. at 11, para. 24; XO Reply 10-11 (explaining that “multiple competitors need to be in-building or, in combination with in-building competitors, nearby – within 1,000 feet or less – to have competition for Ethernet channel terminations”)

(continued...)

are generally in-line with that the Department of Justice in 2006.⁵⁶⁰ Beyond these general distances (and to a lesser extent within these distances), carriers typically rely on long-term loyalty agreement to guarantee a return-of-investment.⁵⁶¹

213. These buildout distances, which rarely exceed [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] are orders of magnitude less than those encountered in an MSA. For example, the smallest MSA, Carson City, Nevada has a land area of 144.7 square miles.⁵⁶² If competitive fiber is deployed in the center of Carson City, it will be 6.9 miles from Mound House, Nevada,⁵⁶³ or 5.8 miles from Indian Hills, Nevada.⁵⁶⁴ Moreover, the Carson City MSA is quite small. The land area of the average MSA, 2,494.5 square miles, is 17.2 times larger than the Carson City MSA. In fact, the largest MSA, Riverside-San Bernardino-Ontario, California, has a land area of 27,263.4 square miles. If competitive fiber is deployed in the center of Riverside, it would be 20.6 miles from Chino, California.⁵⁶⁵ Indeed, MSAs are large geographic areas that “often contain smaller geographic areas across which competitive conditions are widely disparate.”⁵⁶⁶ As the Commission has observed, “MSAs are comprised of communities that share a locus of commerce, but not necessarily common economic characteristics as they relate to telecommunications facilities deployment . . . Due to the wide

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(footnote omitted); *id.* at 10-11 n.21 (“[N]early all of the builds XO undertook in 2014 and 2015 as part of its On-Net Initiative were less than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] aerial feet”).

⁵⁶⁰ See *AT&T Inc. and BellSouth Corp., Application for Transfer of Control*, Memorandum Opinion and Order, 22 FCC Rcd 5662, 5682-86, paras. 42-49 (2007) (quoting Decl. of W. Robert Majure at 14 n.17, *U.S. v. SBC Commc 'ns, Inc. and AT&T*, Civil Action No. 1:05CV02103 (D.D.C. 2006) (referring to a “demand/distance screen” of 0.1 mile with a minimum demand of two DS3s) (Majure Decl.), public redacted version, available at <https://www.justice.gov/atr/case-document/declaration-w-robert-majure>; see also *Data Collection Order*, 27 FCC at 16351, para. 78 n.173.

⁵⁶¹ See, e.g., Majure Decl. at para. 14 (assessing the likelihood of entry by “examining the criteria CLECs use in deciding whether to make such investments, i.e., whether the potential revenue to be earned will be sufficiently greater than the cost of building a lateral [to identify] the relationship between cost (primarily the distance of the building from the provider’s network) and the revenue the CLEC was likely to receive from customers in the building”) (internal citations omitted); Narrative Response to Question II.A.8. by competitive LEC Keystone Broadband (“For optical fiber, if the location is [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] or less), chances increase; if the distance is greater than [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] consider ROI, including term commitments (typically [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] months).” XO, for example, “seeks to recover its capital expenses within [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of a build.” XO Comments at 14, Anderson Decl. at 5, para. 11; Kuzmanovski Decl. at 4-13, paras. 10-26; see also *TWC Ex Parte* at 3 (describing TWC’s response to service requests “[f]or its fiber products, for locations where TWC does not already exist”).

⁵⁶² U.S. Census Bur., CBSA Report Chapter 3 Data
<https://www.census.gov/population/metro/files/CBSA%20Report%20Chapter%203%20Data.xls>.

⁵⁶³ Google Maps, Carson City, NV to Mound House, NV,
<https://www.google.com/maps/dir/Carson+City,+NV/Mound+House,+NV/@39.1817815,-119.7566798,13z/>.

⁵⁶⁴ Google Maps Carson City, NV to Indian Hills, NV,
<https://www.google.com/maps/dir/Carson+City,+NV/Indian+Hills,+NV/@39.1249699,-119.8105526,13z/>.

⁵⁶⁵ Google Maps, Riverside, CA to Chino, CA,
<https://www.google.com/maps/dir/Riverside,+CA/Chino,+CA/@34.0240195,-117.6671734,11z/>.

⁵⁶⁶ Sprint Comments at 17 (citing Besen & Mitchell Decl. at para. 17).

variability in market characteristics within an MSA, MSA-wide conclusions would substantially over-predict the presence of actual deployment, as well as the potential ability to deploy.”⁵⁶⁷

214. Census tracts are large relative to the deployment distances discussed immediately above. If the median Census tract in which we observe BDS demand were a circle, it would be approximately 1.5 miles across.⁵⁶⁸ Moreover, the geography of Census tracts vary significantly. A circular tract at the 75th percentile would be around 2.6 miles across. In contrast, if the median Census block were a circle, then it would be approximately 0.2 miles across. Again Census blocks can be significantly larger than the median. If the Census block at the 75th percentile were circular, then it would be around 0.4 miles across. This analysis suggests that a supplier’s presence anywhere in most, if not all, Census blocks could have a material competitive effect on other suppliers. It also suggests that a supplier’s presence anywhere in smaller Census tracts could have a material competitive effect on other suppliers. This is consistent with the analysis contained in the Rysman White Paper, and in the Baker Declaration, which suggests that the presence of a fiber competitor can have material competitive effects on lower bandwidth services in Census blocks in which we see BDS demand.⁵⁶⁹

215. We seek comment on how close competition must be to place material competitive pressure on supply at a given location, and whether this distance might vary with the nature, most notably the bandwidth, of the BDS in question. We also seek comment on how such analysis might be developed, and call for that analysis to be undertaken. For example, recognizing that Census tracts and Census blocks vary in size, we recently placed in the secure data enclave information on the distance from all locations with BDS demand to the nearest competitive providers’ fiber networks. Consequently, regression analysis might be used to identify the range over which distant networks no longer have material competitive effects.

8. Concentration by Any Measure Appears High in This Industry

216. In this section, we report several measures of geographic concentration, including at the national level. What these measures show are uniformly high levels of concentration. While we remain agnostic as to what the right unit or units of geography are for measuring concentration (noting these might also vary for different services and customer groups), we expressly reject the idea that many, if any, BDS markets are national in scope (it is unlikely that a supplier’s presence in Miami constrains prices in Seattle). To the extent that markets are not national, national measures of concentration likely understate both market concentration measures and the shares of incumbent LECs. While national revenue shares make sense from the perspective of incumbent LECs, whose territories do not overlap, and which, in aggregate, cover all price cap territories, national shares greatly exaggerate competitive LEC presence, since there are many geographically diverse, and in some cases very small, competitive LECs, none of which competes across all the incumbent price cap LECs’ footprints.⁵⁷⁰

⁵⁶⁷ *Triennial Remand Order*, 20 FCC Rcd at 2583, para. 82.

⁵⁶⁸ The median census tract in which we observe BDS demand has a land area of 1.71 square miles (Diameter = $\sqrt{(4/\pi \times \text{Area})}$).

⁵⁶⁹ See Appx. B, Rysman White Paper at II, IV.C., Tables 14-16. In contrast, Dr. Baker’s regressions for higher bandwidth lines show muddled and conflicting effects of competition, often at low levels of statistical significance. See Baker Decl. at 38, para. 67 (summarizing [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL]).

⁵⁷⁰ The median firm by size serves 35 unique locations. The 90th percentile firm by size serves 1,148 unique locations.

217. As part of our data collection, carriers reported their aggregate BDS revenues. These provide an approximate indication of the revenue shares of different provider types supplying sophisticated services to end users, that is, of revenue shares in the supply of BDS and more complex managed services.⁵⁷¹ As the pie chart below shows independent competitive LECs, that is, competitive LECs not affiliated with incumbent LECs, only capture 18% of BDS revenues. However, this estimate is subject to three biases, which in aggregate overstate the shares of independent LECs. First, a greater proportion of incumbent LECs' sales of BDS and managed services are BDS as compared with competitive LECs,⁵⁷² a bias that likely overstates incumbent LEC revenue shares. Second, because a valid measure of concentration would measure facilities-based revenues, rather than resale revenues, and because a substantial proportion of incumbent LEC BDS sales are to competitive LECs who then resell those services, the preceding bias is likely to be more than offset (managed service revenues earned on the resale of incumbent LEC BDS will be greater than the LEC BDS sales to the resellers). Third, there is the bias identified immediately above from measuring national shares.⁵⁷³

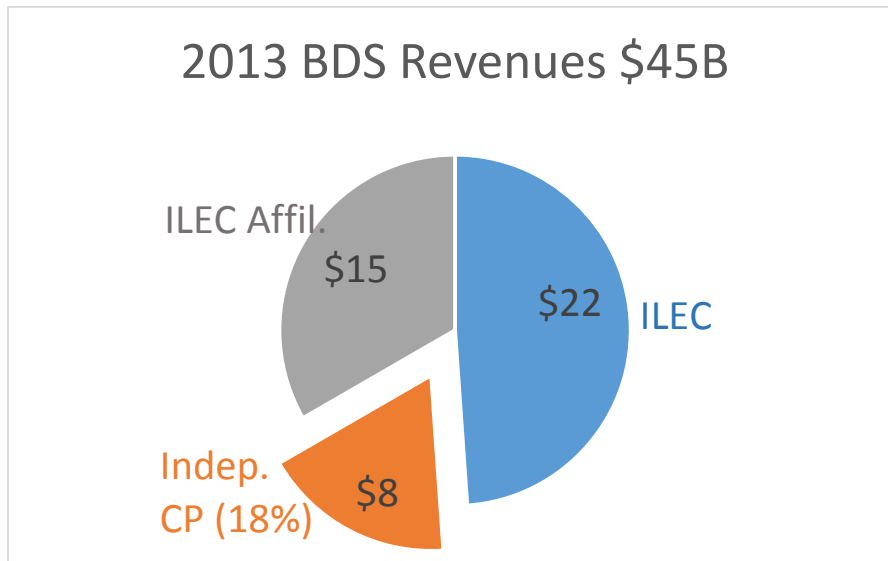


Figure 9. Chart of business data services revenues from 2015 data collection.

218. In 2013, cable companies reported nearly two billion in BDS sales (or less than 5% of all sales).⁵⁷⁴ However, because cable BDS revenues have been growing at around 20 percent per year, by the end of 2016 cable BDS revenues will be close to \$3.5 billion (likely still less than eight percent of BDS revenues).⁵⁷⁵

⁵⁷¹ While we did not collect data on all business sales beyond mass market services, staff obtained from public sources rough estimates of such revenues. See *supra* paras. 12-15, 39-43.

⁵⁷² This is because incumbent LECs are required to tariff DS1s and DS3s, and generally have an obligation to sell on a nondiscriminatory basis.

⁵⁷³ This bias also applies to competitive LECs affiliated with incumbent LECs.

⁵⁷⁴ The percentage of sales is based on the aggregated revenues reported by cable providers in response to questions II.A.15-16 as compared to the total aggregated revenues reported by all providers in response to questions II.A.15-16 and II.B.10-11 in the *2015 Collection*.

⁵⁷⁵ \$3.5 billion = \$2 billion*(1.2)³. If BDS revenues showed no growth through to the end of 2016, cable's share would be 7.7% (= \$3.5/\$45). However, growth will likely be positive over that period, and hence cable's share, assuming a 20% annual growth rate will be lower than this. Mari Silbey, Moffett: Business Services Critical to Cable Growth, LightReading (Dec. 1, 2015) (reporting 20% compound annual growth in cable BDS revenues),

(continued...)

a. Geographic Concentration

(i) Description of Underlying Data

219. This section considers the extent to which in 2013 there was competition, as indicated by various measures of the number of rivals (for example, by counting or excluding competition based on UNEs and/or HFC with DOCSIS 3.0) at the level of the unique location, Census block and ZIP code. We take this broad approach because, as discussed above, we are agnostic as to the exact geographic range of BDS markets. In particular, we do not yet know is how much competitive pressure different forms of supply place on other suppliers, or how many suppliers, accounting for their differences, are sufficient to make prices effectively competitive (matters we have sought comment on above). Moreover, the Rysman White Paper suggests that competitive effects may occur at the level of the building, even when there are additional competitive effects from more distant competition.⁵⁷⁶ Under all these measures, market concentration is large. For example, when counting fiber, and DOCSIS 3.0 over HFC and UNE supply as forms of competition, we find more than ten percent of unique locations with BDS demand are supplied by one provider, and that slightly over half of such locations are only supplied by two providers (so 2/3rds of such locations have only a choice of one or two suppliers).⁵⁷⁷

220. Table 3 considers how many unique locations have one through six suppliers in the location, under two measures of competition. In both cases, the incumbent LEC is considered ubiquitous, and ILEC-affiliated supply is counted as competitive, but in the first case (the left side of the table), only competitors with fiber in the building are counted,⁵⁷⁸ while in the second, competition over UNEs is also counted. Under both cases, more than half of all unique locations only have one supplier, and less than five percent have three or more.

Table 3. Suppliers per Unique Location assuming ILECs are Ubiquitous

Number of providers	ILECs assumed everywhere Competition over fiber only		ILECs assumed everywhere Competition over fiber and UNEs	
	Number of buildings	Percentage of buildings	Number of buildings	Percentage of buildings
1	939,638	77.2	694,982	57.1
2	265,708	21.8	479,615	39.4
3	9,482	0.8	33,693	2.8
4	1,335	0.1	5,564	0.5
5	495	0	1,709	0.1

(Continued from previous page) <http://www.lightreading.com/cable/cable-business-services/moffett-business-services-critical-to-cable-growth/d/d-id/719612>.

⁵⁷⁶ For example, it is likely that supply at any location in most Census blocks, and perhaps even mere physical presence, such as the existence of a node on a supplier’s fiber network, or just the presence of a fiber network, in the Census block, would place some competitive pressure on any other suppliers also in the Census block.

⁵⁷⁷ See *infra* Table 4.

⁵⁷⁸ Strictly, competitors are counted when they own their own fiber, or lease it under a long-term IRU. With regard to the fiber data reported by cable CLECs, Table 3 includes all locations where cable CLECs were providing BDS over fiber in 2013.

Number of providers	ILECs assumed everywhere Competition over fiber only		ILECs assumed everywhere Competition over fiber and UNEs	
	Number of buildings	Percentage of buildings	Number of buildings	Percentage of buildings
6	318	0	1,413	0.1

221. In 2013, cable companies reported being able to serve something just over 150,000 unique locations (or less than 15 percent of unique locations with BDS demand), almost entirely on their own facilities (cable companies make limited use of UNEs). Looking forward, if cable adds 20 percent more lines every year (in line with historic BDS revenue growth), then at the end of 2016 cable would be able to serve over 260,000 unique locations. However, in 2013, cable provision of BDS was much more limited than it is today. In particular, BDS was not typically supplied over HFC.⁵⁷⁹ Looking forward, it may already be or soon will be the case that cable companies are able to supply BDS everywhere they have deployed DOCSIS 3.0. We seek comment on this. Counting cable supply as being capable of reaching every unique location with BDS demand in every Census block that cable reports as being able to serve greatly increases the extent of competition at the level of unique location. Table 4 shows the resulting number of providers that can supply one through six buildings. More than half of unique locations are only supplied by one or two providers, and more than ten percent have only one supplier.

Table 4. Suppliers per Unique Location assuming ILECs and DOCSIS 3.0 are Ubiquitous⁵⁸⁰

Number of Providers	ILECs assumed everywhere Competition over fiber and HFC (DOCSIS 3.0)		ILECs assumed everywhere Competition over fiber, HFC (DOCSIS 3.0) and UNEs	
	Number of Buildings	Percentage of Buildings	Number of Buildings	Percentage of Buildings
1	172,552	14.2	144,440	11.9
2	885,230	72.7	698,693	57.4
3	145,651	12.0	327,067	26.9
4	11,438	0.9	38,175	3.1
5	1,486	0.1	5,923	0.5
6 or more	619	0.1	2,678	0.2

222. Firm concentration falls as the square areas of the geographic region under examination increases. Table 5 provides the number of Census blocks with BDS demand that have one through six fiber suppliers (so is similar to the left half of Table 3 in that it excludes UNE competition). It shows that around 16 percent of Census blocks with BDS demand are only served by an incumbent LEC⁵⁸¹

⁵⁷⁹ See *supra* Part III.B.; TWC Mar. 3, 2016, *Ex Parte* at 2-3 (stating, in 2013, TWC's Internet access service and Ethernet service was offered within a percentage of TWC's footprint and "[a]t the end of 2015, in response to customer demands, TWC introduced SLAs for its Ethernet-over-DOCSIS service").

⁵⁸⁰ Sources and notes: Special Access Mandatory Data Collection and National Broadband Map / State Broadband Initiative (December 2013, accessible at <http://www2.ntia.doc.gov/broadband-data>). As part of the State Broadband Initiative, providers report a Census Block if they are capable of supplying DOCSIS 3.0 Internet access service to at least one building in that block at relatively short notice. In constructing the table, we have assumed that the provider was able to serve all buildings in the block. This would overstate the extent of cable competition in the cases that the cable company was not connected to some businesses in the block, and/or was unwilling to meet demand from those businesses.

⁵⁸¹ The first row of column 5 in Table 5 indicates that approximately 16% of Census blocks are not served by a competitive provider, and we assume incumbent LECs are ubiquitous.

(compared with more than 75 percent in Table 3), while more half of such Census blocks have a choice of two suppliers (compared with more than 20 percent in Table 3). It remains true that nearly 70 percent of Census blocks with BDS demand have two or fewer competitors capable of serving a unique location in the block.

223. Table 5 also gives an indication of the strength of different classes of providers. For example, incumbent-affiliated competitive LECs have very few facilities indeed. This is true even if competition over UNEs is added in (not shown in the table) and is indicative of the extent to which incumbent-affiliated competitive LECs rely on other incumbent LECs' BDS.

Table 5. Percentage of Census blocks with BDS Demand that Have One through Six Facilities-Based Providers counting DOCSIS 3.0⁵⁸²

Number of Providers	1. ILEC	2. Cable	3. ILEC CP	4. Other CLEC	5. CPs (2+3+4)	6. Total (1+5)
0	0.00	18.47	98.46	87.15	16.26	0.00
1	98.95	55.75	1.39	11.49	53.45	16.08
2	1.04	16.95	0.14	1.03	18.30	53.60
3	0.01	5.17	0.01	0.23	6.37	17.93
4	0.00	1.91	0.00	0.08	2.61	6.60
5 or more	0.00	1.75	0.00	0.03	3.01	5.78
Mean	1.01	1.24	0.02	0.15	1.40	2.41

9. Entry and Entry Barriers

224. Similar to the antitrust enforcement agencies, we consider entry by competitors to be an important part of our analysis of competition.⁵⁸³ The viability of potential competition is significantly affected by barriers to entry, which are “cost[s] of production that must be borne by competitors entering a market that is not borne by an incumbent already operating in the market,” as well as conditions that impact entry.⁵⁸⁴ Both costs and conditions exist in the BDS market with enough significance in any measure of a geographic market to deter rapid competitive entry or expansion, including “high capital expenditures, large sunk costs, long lead times, scale economies, and cost disadvantages.”⁵⁸⁵ High barriers to entry at local levels may particularly affect competitive entry or expansion to service customers with national and multi-region demand that requires “an extensive network footprint to be able offer services widely.”⁵⁸⁶ The competitive provider’s footprint most often includes a combination of

⁵⁸² ILEC = In Region ILEC; ILEC CP = ILEC Affiliated Competitive Provider; CP = Competitive Provider. Sources and notes: Same as provided for Table 4.

⁵⁸³ See *Suspension Order*, 27 FCC Rcd at 10573-74, para. 36 & n.104 (citing 2010 Horizontal Merger Guidelines at 2, available at <http://www.justice.gov/atr/public/guidelines/hmg-2010>; *SBC/AT&T Merger Order*, 20 FCC Rcd at 18310-11, paras. 39-40).

⁵⁸⁴ *2005 Special Access NPRM*, 20 FCC Rcd at 2029, para. 107 (citing Daniel F. Spulber, Regulation and Markets 40 (1989)); Herbert Hovenkamp, Federal Antitrust Policy—The Law of Competition and Its Practice § 3.7d.

⁵⁸⁵ Birch et. al. Comments at 32 (citing U.S. Department of Justice & Federal Trade Commission, Commentary on the Horizontal Merger Guidelines, at 38 (Mar. 2006), available at <http://www.usdoj.gov/atr/public/guidelines/215247.pdf>; ABA Section of Antitrust Law, Antitrust Law Developments 351 (6th ed. 2007)).

⁵⁸⁶ INCOMPAS Comments at 10 (suggesting “the footprint-barrier can only be overcome though wholesale access policies that enable providers (including incumbents attempting to compete outside their incumbent territories) to extend the geographic reach of their networks to off-net locations to create the multi-location service packages that this customer segment demands”). See generally *Graco Inc., Illinois Tool Works Inc., and ITW Finishing LLC*, Complaint, Docket No. 9350, File No. 111-0169, Administrative Complaint at 2, available at <https://www.ftc.gov/sites/default/files/documents/cases/2011/12/111215gracoadmincmpt.pdf> (FTC Dec. 15, 2011)

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locally-based facilities owned by the competitor and network access purchased from the regional incumbent or other competitors, which may be available at a regulated UNE- (by the incumbent LEC) or unregulated wholesale-basis (by a LEC or, in some instances, a cable company or other competitive LEC).⁵⁸⁷ Although there is evidence of potential competitors becoming increasingly relevant, commenters assert substantial barriers limit the timelines,⁵⁸⁸ likelihood, and sufficiency of entry to counteract anticompetitive effects in BDS markets.⁵⁸⁹

225. The passage of the 1996 Act increased the Commission's focus on how barriers to entry impact competitive buildout.⁵⁹⁰ Like incumbent LECs, competitive LECs build facilities to meet consumer demand. Deploying facilities requires incurring costs that vary, "among other things, on the length of the laterals and fiber rings built, the nature of the electronics added, whether the lines are buried, and local regulations (e.g., a city may require replacement of cobblestones on scenic streets)."⁵⁹¹ In

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 ("Effective expansion or entry into the manufacture and sale in each industrial liquid finishing equipment market in North America is unlikely in response to an anticompetitive price increase, due to significant barriers to entry [because] expansion by existing smaller competitors is unlikely without access to capable local distributors to sell and service finishing equipment for industrial end users."); 2010 Horizontal Merger Guidelines at § 5.1 ("Sunk costs are entry or exit costs that cannot be recovered outside the relevant market.").

⁵⁸⁷ XO Comments, Anderson Decl. at para. 14 (explaining that **[BEGIN HIGHLY CONFIDENTIAL]** _____ **[END HIGHLY CONFIDENTIAL]**).

⁵⁸⁸ Sprint explains that, "[i]n the best case scenario, construction will take two to three months," but more likely, "four to nine months, and it can take as long as eighteen months or more, depending on uncontrollable factors such as severe weather," while customers look for service within 30 days. Sprint Reply Comments at 26 (citing Carey Decl. para. 11(c)); *see also* Comcast Mar. 25, 2016 *Ex Parte* at 4 (building generally takes **[BEGIN HIGHLY CONFIDENTIAL]** _____ **[END HIGHLY CONFIDENTIAL]**).

⁵⁸⁹ *See Qwest Phoenix Order*, 25 FCC Rcd at 8642-43, para. 37; Sprint explains that "the combination of construction expenses, transaction costs, and suppressed demand stemming from incumbent loyalty agreements means that 'potential competitors' cannot easily, quickly, or sufficiently enter a specific special access product market at a specific building location in a way that would effectively discipline incumbent behavior." Sprint Reply Comments at 23; *see generally* 2010 Horizontal Merger Guidelines, § 9; TDS Mar. 24, 2016 *Ex Parte* at 7-10; XO Comments at 1 ("stating that building networks, especially laterals to buildings, is very expensive, and despite engaging in network builds for over 15 years, its facilities reach only a fraction of even the most desirable buildings in the markets it covers").

⁵⁹⁰ *Qwest Phoenix Order*, 25 FCC Rcd at 8666, para. 84 ("[T]he Commission, in the Triennial Review Order, found that competitive carriers face extensive economic barriers to the construction of last-mile facilities. We see nothing in the record to indicate that, in the years since the passage of the 1996 Act, these barriers have been lowered for competitive LECs that do not already have an extensive local network used to provide other services today."); *Triennial Remand Order*, 20 FCC Rcd at 2616-19, paras. 72-77, 150-54 & n.419. Competitors also face "difficulties and sometimes outright prohibitions in gaining building access." *Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, et al.*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, 17161, para. 305 (2003) (*Triennial Review Order*), *vacated in part on other grounds sub nom. USTA v. FCC*, 359 F.3d 554 (D.C. Cir. 2004) (finding "if the entity or individual controlling access to the premises does not allow a competitor to reach its customer residing therein (or places unreasonable burdens on the competitive LEC as a condition of entry), the competitive LEC may be unable to serve its customer via its own facilities, even where a competitive carrier may be ready, willing, and otherwise able to self-deploy the loop" (internal citations omitted)); *see also* 47 U.S.C. § 1302(a) (directing, pursuant to section 706 of the 1996 Act, the Commission to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability" by adopting a policies and measures to "remove barriers to infrastructure investment").

⁵⁹¹ Baker Decl. at 53, para. 97; *see also* Windstream Comments Decl. at para. 51 (describing a number of cost factors relevant to accessing Windstream's ability to connect additional buildings to its fiber network); Birch et al. Reply Comments, Decl of J. Merriman on behalf of Level 3 at 3, para. 5 ("[t]he cost of deploying a fiber ring varies significantly by geographic location due to differences in both the length of the rings and the cost-per-foot of

(continued...)

addition to deploying facilities, a provider frequently needs to obtain building access and/or rights of way to reach the building.⁵⁹²

226. The barriers to entry do not materially differ whether the technology being deployed is TDM- or Ethernet-based. As Ad Hoc notes, “[t]he underlying transport facilities for Ethernet services are the same as the underlying transport facilities for TDM services,” which is consistent with AT&T’s observation that “Ethernet is simply a service that can be provided over many different types of transport facilities, including copper, fiber, coaxial, and wireless facilities.”⁵⁹³ BT adds that it is reasonable to conclude that the main Ethernet access cost elements – duct, fiber, and electronics – do not vary much across service speeds up to 1 Gbps.⁵⁹⁴ Legacy TDM services require the same transport facilities and, in most geographic areas, the incumbent already provides TDM service and therefore has an advantage over a new entrant. That historical incumbent advantage allows the incumbent LEC to lower its costs through its “initial control of all customers”⁵⁹⁵ and “us[ing] the same rights of way, trenches, conduit, wires, poles, building access, riser, truck rolls, employees, outside plant, central office equipment, administrative expenses, and other legacy inputs that they use when the provision TDM-based special access services.”⁵⁹⁶

227. One recent study asserts that current barriers are sufficient to deter new construction in most business locations.⁵⁹⁷ Certain issues cannot be easily overcome, such as “when the building owner refuses to grant the CLEC access or charges a high access fee, or when it is difficult or costly to obtain

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deployment. A typical Level 3 fiber ring in a central business district is [BEGIN HIGHLY CONFIDENTIAL]

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(explaining that “the cost of constructing a lateral, even if a competitor has facilities close to a building, is still very expensive, and is frequently the determining factor for a CLEC when deciding whether to undertake a requested build [because] [u]nlike ILECs, which have nearly ubiquitous access to buildings and potential customers, CLECs must be cautious” due to “very limited resources”) (citing XO Comments at 14-15, Kuzmanovski Decl. at 11, para. 24). AT&T “claims that [competitive LEC’s] ability to extend fiber laterals to buildings can be costly due to the need to acquire rights of way, access to conduit, and other costs of deploying fiber applies to *both* ILECs and CLECs.” AT&T Reply at 23.

⁵⁹² Baker Decl. at 24, para. 40 (“Unlike firms already serving customers in the same building, firms with nearby connections must undertake sunk facilities expenditures (on constructing the last-mile connection to a given building) and may require permission of the building owner and a local construction permit to do so (which may not be forthcoming or require additional sunk expenditures).”).

⁵⁹³ Ad Hoc Comments at 15; Reply Comments of AT&T Inc., WC Docket No. 05-25, RM-1 0593, at 75 (Feb. 24, 2010); *see also* Reply Comments of BT Americas, Inc. at 8 (“As the [WIK-Consult Report, Ethernet Leased Lines: An International Benchmark] Study explains, the costs of providing Ethernet business access services do not increase significantly as bandwidths increase.”) (BT Reply Comments).

⁵⁹⁴ BT Reply Comments at 9.

⁵⁹⁵ XO Comments, Chambless Decl. at 3, para. 4.

⁵⁹⁶ Ad Hoc Comments at 16.

⁵⁹⁷ Baker Decl. at 54-55, para. 100 (citing CostQuest, Analysis of Fiber Deployment Economics for Efficient Provision of Competitive Service to Business Locations, Attachment A to Letter from Jennie Chandra, Windstream Corp., to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 13-5 & 12-353, WC Docket Nos. 05-25 and 15-1, and RM-10593 (filed June 8, 2015) (finding a competitive LEC would not find it profitable to build out its own last-mile facilities unless it can attain substantial end user density and penetration)). Indeed, in some geographies, competitive build-out not possible due to prohibitive costs. Alaska Communications Comments at 8 (noting “there are some locations where Alaska Communications has not been able to enter the market as a competitor due to the prohibitive costs and the lack of available infrastructure”).

rights of way to a specific building (e.g., pole access or costs of burying lines).⁵⁹⁸ Also, competitive carriers can connect their networks to “customer locations that are near to their fiber transport facilities, where the customer at the location is suitable for the competitive carrier’s service offerings, and where the revenues associated with the location are sufficient to make loop deployment profitable.”⁵⁹⁹ Areas of low BDS demand, which would include most suburban and rural areas, present additional issues for those considering an extension of facilities, principally a lack of a timely potential for a positive return on investment. Charter, for example, notes how in its [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[END HIGHLY CONFIDENTIAL] Cablevision Lightpath also faced issues outside of its traditional, denser, region because [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL] Many simply avoid higher-cost areas, such as, [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL].⁶⁰¹

228. In addition to deploying their own facilities, competitive LECs extend their network reach by purchasing incumbent LEC facilities at a regulated price on an unbundled basis or at non-regulated wholesale prices. Obtaining UNEs often is the most economical way to reach a new customer for a competitive LEC,⁶⁰² and it is important to account for the effects of UNE competition. However, UNE competition has its limits. UNEs are not always available “because of insufficient or insufficiently-conditioned facilities, regulatory or contractual constraints.”⁶⁰³ And even with significant investment in facilities in an area, competitors “must depend heavily access to on the incumbent LECs’ facilities and services to serve its customers.”⁶⁰⁴ When purchasing from the incumbent LEC, proximity to a collocation point near the customer lowers cost, meaning costs increase the farther the competitor’s facilities are

⁵⁹⁸ Baker Decl. at 43, para. 79 (noting “[t]hese costs can vary substantially from building to building, even on the same block”); Birch et al. Comments at 34-35; see also [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

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⁵⁹⁹ Birch et al. Comments at 7.

⁶⁰⁰ *Id.* at 35 (quoting [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL]).

⁶⁰¹ Alpheus Communications Response to Question II.A.8.

⁶⁰² Baker Decl. at 21, para. 37 (“CLECs often find it more economical to provide service to a new retail customer location through a UNE than by building facilities.”) (citing Windstream Decl. paras. 1156-57 (noting, when available, UNES are usually priced lower than other forms of dedicated last-mile connections offering comparable capacity)).

⁶⁰³ *Id.* (citations omitted).

⁶⁰⁴ XO Comments, Chambless Decl. at 3, para. 4. XO, for example, “uses Dedicated Services purchased from ILECs and other providers for two basic functions: channel terminations and transport between two locations on the wholesale provider’s network, with XO typically collocated at one end of the transport circuit.” *Id.* at 3, para. 5.

located from the potential customer.⁶⁰⁵ UNE reliance, therefore, is successful “only in some locations, only for some customers, and only to some extent.”⁶⁰⁶

229. Competitive LECs also lease dedicated, non-regulated, wholesale services to connect to commercial buildings over non-UNE facilities from incumbent LECs or other competitive LECs.⁶⁰⁷ Even competitive LECs with well-developed regional fiber rings rely on an incumbent or competitive LEC wholesale inputs for last-mile connections. Leasing last-mile dedicated services from the ubiquitous incumbent LEC oftentimes is the only option due to a lack of competitive build-out.⁶⁰⁸ Level 3, for example, explains that it “usually has no choice but to lease dedicated services from the incumbent LEC in order to reach locations that Level 3 cannot reach with its own network.”⁶⁰⁹

230. While wholesale access can be a cost effective means for a competitive LEC to expand its reach, such a wholesale purchaser cannot place competitive pressure on supply of the underlying facility that it purchases, but rather can only compete by being more efficient at retailing. Thus, we do not consider competition over resold lines as a material competitive restraint on any facility-based supplier with market power. Moreover, we are told that in some cases an incumbent LEC’s wholesale prices can be near or above retail levels (sometimes referred to as a “price squeeze”).⁶¹⁰ Similarly, we are told that rates below retail, available through many incumbent LEC purchase agreements, also can create barriers to entry when they include “penalty clauses and loyalty discount provisions in their wholesale

⁶⁰⁵ *Id.* at 5, paras. 8-9.

⁶⁰⁶ Baker Decl. at 22, para. 37; *see also* Birch et al. Comments at 5 (noting “the technical, legal, and economic limitations associated with leasing incumbent LECs’ loops are substantial”).

⁶⁰⁷ Windstream Comments Decl. paras. 73-81; *see id.* at para. 81 (stating ILECs are the predominant source of all forms of dedicated services); Black Lock-Up Decl. para. 6 (stating ILECs are the only facilities-based provider of dedicated services to the vast majority of commercial buildings nationwide); XO Comments, Anderson Decl. para. 19.

⁶⁰⁸ *See, e.g., U.S. v. SBC Commc’ns, Inc. & AT&T Corp.*, 489 F. Supp. 2d 1, 5 (D.D.C. 2007) (“For the vast majority of commercial buildings in its respective territory, either SBC or Verizon is the only carrier that owns a last-mile connection to the building.”). Level 3 complains of having a limited ability to switch purchases away from the incumbents, “because competitive LECs do not serve many locations, and because Level 3 is bound by the terms and conditions in incumbent LEC lock-up plans, Level 3 has no choice but to purchase a significant majority of its dedicated services requirements from incumbent LECs.” Black Lock-Up Decl. para. 3; *see also* United States Government Accountability Office, FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services, GAO 07-80, at 19-20 (rel. Nov. 2006) (finding that competitors had deployed loop facilities to, on average, less than 6 percent of the buildings with demand of a DS1 or greater in 16 sample markets); *id.* at 2 (“Limited competitive build out in these MSAs could be caused by a variety of entry barriers, including zoning restrictions, or difficulties in obtaining access to buildings from building owners that discourage competitors from extending their networks.”).

⁶⁰⁹ Birch et al. Comments at 23-24 (citing Black Buy-Side Decl. para. 6). The Appendix to Mr. Black’s declaration indicates [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL] *See* Black Buy-Side Decl., Appendix. XO, for example, explains that it “may purchase from either ILECs or alternative providers (i) unbundled copper loops (including enhanced extended loops (‘EELs’)) which it uses to provide Ethernet over Copper (‘EoC’), (ii) copper or fiber-based Dedicated Service at a DSn level (DS 1 or DS3 circuits) over which XO may provide TDM service or Ethernet service (i.e., Ethernet over Serial (‘EoS’)), or (iii) Ethernet Dedicated Service.” XO Comments, Chambless Decl. at 4, para. 6.

⁶¹⁰ Baker Decl. at 22, para. 38 (“Entry through leasing from an ILEC may be expensive, because the ILEC may have an incentive to raise wholesale prices[and] charge a high price for wholesale connections relative to the retail price they charge for similar connections.”) (citing Windstream Decl. paras. 91-95). TDS explains that a “CLEC cannot pay a wholesale price equal to the ILEC’s retail price, incur these additional costs, and compete with the ILEC’s retail price offering.” TDS Reply at 3.

contracts” that are not related to a competitive efficiency and simply have the effect of raising the rival’s cost.⁶¹¹ XO, for example, generally declines to build facilities when doing so will increase its risk of falling short of a minimum purchase requirement under an incumbent LEC commitment plan.⁶¹² Level 3 similarly reports added costs due to incumbent LEC loyalty agreements, which forecloses an opportunity to purchase from other lower-priced wholesale inputs.⁶¹³ In the end, competition is constrained. A motivated and efficient competitive LEC, such as Level 3 – the largest competitive LEC and the third largest provider of fiber optic internet access (based on coverage area) in the United States – only “deploy[s] new loops to approximately 3,000 to 4,000 commercial buildings in the U.S. each year.”⁶¹⁴

231. Cable providers encounter similar barriers to entry, even within their incumbent franchise areas, although their in-region networks present economies of scale, similar to incumbent LECs, and present lower barriers for in-region expansion, compared to other competitive LECs. Nevertheless, for traditional competitive LECs and cable companies alike, “loop deployment costs are distance-sensitive,” limiting competitive reach, even if cable companies would likely have “lower loop deployment costs in areas where they have deployed extensive transport networks.”⁶¹⁵ As CenturyLink notes, even cable companies must incur significant investment costs and rely on the networks of others to expand their footprints.⁶¹⁶

232. Efforts to enter and expand in markets are being made with success, however, which has required investment and new networking initiatives to address barriers to entry. Comcast, for example, has recently established a new business unit to target Fortune 1000 businesses.⁶¹⁷ But to reach Fortune 1000 companies, and satisfy their varying and broad geographic requirements, Comcast could not rely on its own facilities alone. To compete, “[i]t struck wholesale agreements with other cable companies including Charter, Time Warner Cable, Cox, Cablevision, and Mediacom, and it acquired Contingent Network Services—a managed services firm with “aggregation or wholesale relationships with many other CLECs, ILECs, [and] small cable providers.”⁶¹⁸ Some companies are more risk-adverse or sensitive to

⁶¹¹ Baker Decl. at 55, para. 101.

⁶¹² Kuzmanovski Decl. at 8-9, para. 19.

⁶¹³ [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]
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[REDACTED] [END HIGHLY CONFIDENTIAL] Birch et al. Comments at 43 (citing Black Lock-Up Decl. at paras. 16-17).

⁶¹⁴ Birch et al. Comments at 34. Interestingly, that rate of fiber deployment means Level 3 adds as many fiber connections to end-user locations in less than two years as each of the [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] had fiber connections in total in 2013.

⁶¹⁵ Birch et al. Comments at 36; *see also* TDS Comments at 18-19 (explaining that “deployment cost is highly distance-sensitive” and that by comparison, an incumbent LEC, such as AT&T, has significant cost advantages as its territory tends to be “much more urban with greater business density” and its network is already built closer to more customers than competitive LECs’ networks).

⁶¹⁶ CenturyLink Reply at 40.

⁶¹⁷ Press Release, Comcast Business, “Comcast Business Announces New Unit Targeting Fortune 1000 Enterprises” (Sept. 16, 2015), <http://corporate.comcast.com/news-information/news-feed/comcast-business-announces-new-unit-targeting-fortune-1000-enterprises> .

⁶¹⁸ Birch et. al Comments at 28-29 (quoting Sean Buckley, Comcast’s Contingent Purchase Enhances Its Multi-Site Enterprise Business Installation Process, Fierce Installer (Sept. 28, 2015), <http://www.fierceinstaller.com/story/comcasts-contingent-purchase-enhances-its-multj-sjteenterprise-business-in12015-09-28>).

barriers than others, however. Charter, for example, notes that a “partner model creates high transaction costs, as multiple networks and personnel must be coordinated, and these costs impact the price at which these services can be offered.”⁶¹⁹

233. Incumbent LECs face lower overall barriers within region and barriers similar to independent competitive LECs out-of-region. Within region, the Commission has recognized that incumbents can “increase capacity on many special access routes at a relatively low incremental cost (relative to the total cost of trenching and placing poles, manholes, conduit, fiber, and copper, and securing rights and access) by adding or upgrading terminating electronics.”⁶²⁰ Carriers with incumbent LEC and competitive LEC affiliated entities confirm the lower incumbent LEC barriers to entry.⁶²¹ For example, TDS, which operates both incumbent LEC and competitive LEC subsidiaries, has explained that “it is generally far less expensive and more efficient for TDS ILEC to deploy new fiber to business customer locations than is the case for TDS CLEC.”⁶²² Windstream, which also operates both incumbent LEC and competitive LEC businesses, has found that “ILECs continue to enjoy a dramatic advantage over CLECs in the average cost per building of new last-mile fiber deployment - an advantage that is largely attributable to the incumbents’ much larger market shares, which is a direct result of the ILEC first mover advantage rooted in the monopoly era.”⁶²³ As TDS explains, this is because (1) “business customer locations are, on average, located much closer to TDS ILEC’s existing fiber plant than TDS CLEC’s”; (2) “TDS ILEC possesses many advantages due [to] its operation of a preexisting network along potential fiber routes”; and (3) “TDS CLEC must incur much higher equipment and fiber splicing costs than TDS ILEC when deploying new fiber.”⁶²⁴

234. High barriers to entry and carrier agreements that have the effect of preventing switching over an extended time create “low elasticities of demand for the incumbent and low elasticities of supply for competitors.”⁶²⁵ Such low elasticities respectively mean few customers switch away from a supplier due to an increase in price, and few suppliers are able to switch away from resale to reliance on new

⁶¹⁹ Charter Communications Response to FCC’s Information and Data Request, MB Docket No. 15-149 (Oct. 16, 2015).

⁶²⁰ 2005 *Special Access NPRM*, 22 FCC Rcd at 2005, para. 26.

⁶²¹ See Joint CLEC Comments at 38 n.107 (“To support a build-out, CLECs must recover the costs for new infrastructure, including buried conduit, rights of way and pole access, and building entry portals and equipment rooms’ (which the incumbents already possess) and ‘also may be charged for building entries in instances where the ILEC is not.’”) (quoting Mar. 26, 2015 Butman Decl. at para. 7, and Letter from Jennie B. Chandra, Vice President - Public Policy and Strategy, Windstream Corp., to Marlene H. Dortch, Secretary, FCC, at 2, 6, WC Docket No. 05-25 (filed June 8, 2015)).

⁶²² Birch et al. Comments at 38 (citing Mar. 26, 2015 Butman Decl. at para. 7).

⁶²³ Letter from Jennie B. Chandra, Vice President - Public Policy and Strategy, Windstream Corporation, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 13-5, 12-353, WC Docket Nos. 05-25, 15-1, RM-10593, at 2 (June 8, 2015); see also *id.* at 6 (“To support a build-out, CLECs must recover the costs for new infrastructure, including buried conduit, rights of way and pole access, and building entry portals and equipment rooms” (which the incumbents already possess) and “also may be charged for building entries in instances where the ILEC is not”).

⁶²⁴ Birch et al. Comments at 38 (citing Mar. 26, 2015 Butman Decl. at paras. 8-12).

⁶²⁵ *Id.* at 42. The Commission recognizes that “supply and demand elasticities are properly considered in assessing whether a firm has market power in the relevant product and geographic markets.” *Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, Order, 11 FCC Rcd 3271, 3302, para. 57 (1995) (subsequent history omitted); see also *Competition in the Interstate Interexchange Marketplace*, Report and Order, 6 FCC Rcd 5880, 5888, para. 43 (1991) (“There are two factors that determine supply elasticities in a marketplace. One is the supply capacity of existing competitors: if existing competitors have or can relatively easily acquire significant additional capacity, then supply elasticities tend to be high. The other factor is low entry barriers: even if existing suppliers lack excess capacity, supply elasticities tend to be high if new suppliers can enter the market relatively easily and add to existing capacity.”).

network deployment. If the service had lower barriers of entry, customers would be more able to switch carriers when faced with higher prices or unfavorable or inefficient supply agreement terms and conditions.⁶²⁶ Level 3, for example, reports that it must purchase “a large percentage of its overall dedicated services requirements” under what it terms “lock-in” agreements, which mean it cannot switch to purchasing from a lower-priced competitive providers when a lower rate is available. The resulting higher downstream prices, therefore, offset any claimed efficiencies brought by the so-called lock-in requirements.

235. It would be a mistake to assume, however, that all barriers to entry are insurmountable, or that they exist to the same degree everywhere. The record and our data collection support the view that competition is growing, and that potential competition, appropriately defined, is important. When investments are made to self-provision facilities to customers, competitors typically first look to a region, such as a metropolitan region, and then focus on deploying facilities, such as fiber construction, to reach specific buildings.⁶²⁷ “[U]rban centers where costs are low (e.g., zero or low mileage) and demand is significant” are attractive to competitive LECs.⁶²⁸ For many competitive LECs, “the reach of an embedded network can extend beyond the location of its current connections to serve additional customers in the surrounding region.”⁶²⁹ XO, for example, “entered initially by building metro rings in dense areas of major cities, since these could aggregate traffic from more users and hence were more economical.”⁶³⁰ Many competitor carriers prefer to provide services over their own network facilities because it allows greater efficiency and permits flexibility to control the type and quality of the competitor’s service offerings.⁶³¹ After deploying a “core fiber network . . . extending laterals requires significantly smaller capital expenditure per unit of bandwidth” resulting in a lower-cost expansion.⁶³² Relying solely on independent lateral facilities without a core fiber presence, in contrast (by carrying traffic from a single location), limits scale of economies and requires significant customer spend to justify investing in facilities.⁶³³ Other advantages with a region-first approach include familiarity with local marketplace, which can be useful for a local sales force.⁶³⁴

236. The great entry success story has been that of cable. Less than a decade ago cable largely provided no businesses services of any kind that were materially different from the services marketed to

⁶²⁶ See generally William Landes & Richard Posner, Market Power in Antitrust Cases, 94 Harv. L. Rev. 937, 940-45 (1981).

⁶²⁷ Chambless Decl. at 9, para. 16.

⁶²⁸ AT&T Reply, Attach. A., at 17.

⁶²⁹ IRW White Paper at 10.

⁶³⁰ Kuzmanovski Decl. at 2, para. 4.

⁶³¹ Chambless Decl. at 3, para. 4.

⁶³² IRW White Paper at 10 (“A provider’s ability to serve additional customers depends, in part, on the proximity of its network facilities to those customers.”).

⁶³³ Kuzmanovski Decl. at 2, para. 4. AT&T notes that “evidence submitted by the competitive providers indicates that the revenues required to justify the cost of extending fiber to a nearby building are modest [and] competitive providers can and do extend fiber to even buildings with relatively low demand.” AT&T Reply at 23 (citing Kuzmanovski Decl. at 7, para. 16 (highlighting XO’s statement that it extends to locations with expected revenues in the range of [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] per month, with ability to recover its “capital expenditure” within [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL])); see Baker Decl. at para. 100.

⁶³⁴ Kuzmanovski Decl. at 3, para. 7; XO Reply at 20 (“Deploying competitive networks and laterals to commercial customers, particularly those requiring service in multiple locations, is a very costly and time-consuming process, and therefore, rapid entry is a potential prospect only in select instances in buildings within [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] feet of existing fiber rings.”)

residential customers. Yet, for more than half a decade cable business revenues have experienced compound annual growth rate of 20 percent,⁶³⁵ starting with the smallest business customers and working their way up to the largest.⁶³⁶ More recently, cable began offering BDS services over HFC, as well as fiber, and has forced even the largest incumbent LECs to focus on maintaining market share.⁶³⁷ In addition, Israel *et al.*, estimate, based on our data collection, that over the course of 2013, competitive LECs' "bandwidth grew at six times the growth of the rate of the ILECs".⁶³⁸

10. Evidence of Market Power in the Delivery of DS1 and DS3 Services and Lack Thereof for Higher Bandwidth Services

237. Our own analysis, the Rysman White Paper, and the Baker Declaration,⁶³⁹ provide direct evidence of market power in the supply of various services. We seek comment on validity of these analyses, on how they might be extended, or tested. At the same time, we recognize that no analysis is ever perfect, and look for comments on what the broad evidence available to us ultimately says about competition and market power, even if alternative theories cannot be entirely ruled out. Key pieces of evidence before us are regression analyses that show price effects due to the presence of competition, which imply that in the absence of competition prices are higher than they otherwise would be; the fact the price capped incumbent LECs have no headroom under our price caps, and have been in that situation for at least several years; that competition in areas with pricing flexibility lowers prices more than in price cap areas; and that incumbent-affiliated competitive LECs do not appear to be focused on facility-based or UNE competition (with some interesting exceptions). We also note that the Rysman White Paper concludes that there may not be market power in the supply BDS at bandwidths in excess of approximately 50 Mbps and seek comment on this analysis.

238. *Competition Where it Exists Lowers Prices, as Compared with Where it Does Not.* A central finding in the Rysman White Paper is that, in regressions controlling for a range of other factors, competitive supply in a unique location is correlated in both statistically and economically significant ways with lower ILEC prices for DS1s and DS3s at that location. Similarly, the Rysman White Paper finds that competitive supply in a unique location anywhere in a Census block, and competitive supply anywhere in the Census tract, is correlated in both statistically and economically significant ways with lower prices within the Census block.⁶⁴⁰ Analysis in the Baker Declaration comes to similar conclusions, though others have criticized the Baker Declaration.⁶⁴¹ We seek comment on these analyses, on how such analyses might be extended, further verified or disproved, and indeed for additional analysis from interested parties.

239. *Pricing Under the Price Caps Suggests Price Caps are Constraining Market Power.* As a result of the *CALLS Order*, the price cap indices for BDS services have been frozen (outside of exogenous cost adjustments) since 2004. Over the period since then, there has been no evidence that the price caps have been a source of any kind of financial stress to the incumbent LECs. Yet, at the same

⁶³⁵ See *supra* n.575.

⁶³⁶ See *supra* n.143.

⁶³⁷ See Sean Buckley, *Cable Becomes Emerging Special Access Source for CLECs, But Trails AT&T and CenturyLink's Ubiquity*, FierceTelecom (Mar. 26, 2015), <http://www.fiercetelecom.com/story/cable-becomes-emerging-special-access-source-clecs-trails-att-and-centuryli/2015-03-26>.

⁶³⁸ IRW White Paper at 23.

⁶³⁹ See generally Baker Decl.

⁶⁴⁰ Appx. B, Rysman White Paper at IV.C., Tables 14-16.

⁶⁴¹ See, e.g., Baker Decl. at 41. In an attachment to AT&T's Reply Comments, Drs. Israel, Rubinfeld, and Woroch submitted a white paper that criticized Dr. Baker's statistical analysis. See AT&T Feb. 19, 2016 Reply, Attach. at A.

time, the price capped incumbent LECs have essentially raised prices up to the maximum allowed by the price caps. In our view, this does not suggest that over the last decade or more our caps were too harsh, and rates as constrained by the caps were too low, and this was the reason the price capped incumbent LECs kept their prices at the top of the cap. Consequently, it is our view that the fact that the price capped incumbent LECs have kept their prices at the top of the cap is additional evidence of market power.

240. Price cap incumbent LECs file their respective annual access charge tariff filings to become effective on or around July 1st of each year.⁶⁴² In that filing, price cap incumbent LECs file Tariff Review Plans (TRPs) to demonstrate that the carrier's Actual Price Index (API) does not exceed its Price Cap Index (PCI). To the extent that a carrier's API is less than its PCI, the difference, often referred to as "head room," is a measure of the extent to which such a carrier is able to increase its rates under the price cap rules. By calculating the average ratio of the API to the PCI, based on the APIs and PCIs in each carrier's TRPs, we can determine how close each carrier is to the maximum prices it is permitted to charge overall. The ratios, based on the TRPs, demonstrate that the six largest price cap incumbent LECs have been charging close to maximum prices for the last four tariff years. This also implies that if the price capped carrier had any headroom in previous years, then in or prior to 2012 took advantage of that headroom and raised its prices effectively eliminating that headroom.

Table 6. Comparing API/PCI for Price Cap LECs

Incumbent LEC	2012 Average API/PCI	2013 Average API/PCI	2014 Average API/PCI	2015 Average API/PCI
AT&T	0.999518094	0.99642072	0.998228494	0.996778627
Century Link	0.99942347	0.99882015	0.99881636	0.997894457
FairPoint	0.999991195	0.99999779	0.9999986	0.999998429
Frontier	0.999094746	0.99858459	0.999141247	0.997029827
Verizon	0.999877554	0.9999991	0.999972796	0.999986422
Windstream	0.999976723	0.9994147	0.999803908	0.999677479
Overall Average for Each Year	0.999646964	0.99887284	0.999326901	0.998560874
Overall Average Over 4 Years	0.99910189			

241. As demonstrated from the table above, the APIs of the six largest price cap incumbent LECs are more than 99 percent of their PCIs. Therefore, the largest carriers have almost zero headroom under the price caps; even a small rate increase would likely cause the carriers' APIs to exceed their PCIs.

242. *Price Declines Associated with Competition are Greater in Pricing Flexibility Areas.* The Rysman White Paper finds evidence that prices in areas granted pricing flexibility respond more to competition than prices in pure price capped areas. We seek comment on the validity of this finding, and

⁶⁴² 47 CFR § 61.43.

whether it might be evidence that granting incumbent LECs the ability to offer contract tariffs allows them to respond more effectively to competitive pressures in pricing flexibility areas, and if so, does this support allowing contract tariffs throughout areas we might designate in a future order as non-competitive. We also seek comment on the Rysman White Paper finding that in price cap only areas competitive effects are smaller than in pricing flexibility I and II areas. Is that a valid finding, and if so does it indicate less competition in pricing flexibility areas, or something else?

243. *The Approach to Competition of Competitive LECs Affiliated with Incumbent LECs.* Competitive LECs affiliated with incumbent LECs have engaged in limited facilities-based investment relative to certain other competitive LECs and in some cases have avoided the use of UNEs. In particular, the [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL].

244. *Supply of Higher Bandwidth Services May be Effectively Competitive, at Least Generally.* The Rysman White Paper finds little statistical relationship between the presence of local fiber-based competition and lower incumbent LEC prices for BDS above 45 Mbps. At least three possibilities could account for this observation: (1) competition broadly exists for these services, (2) to the extent any competition existed, it was too little competition to produce material competitive effects, or (3) there are too little data and/or too many uncontrolled for variables for a statistical relationship to emerge. However, given limited complaints in the record about higher bandwidth services, and evidence that competitive LEC market share of fibered buildings is much higher than its general share, we recognize that supply of higher bandwidth services may often be more competitive than supply of lower bandwidth services.⁶⁴³ We, however, seek comment on this assessment. Is it correct generally? If so, could it be incorrect in particular cases that are sufficiently important that the Commission should consider action specific to those cases? How should any conclusion reached in the future about the nature of higher bandwidth services be applied, given the data on geographic areas, different categories of customers, and other factors?

a. 2015 Collection Concerns

245. Commenters, mainly those representing incumbent LECs, expressed concerns about the utility of the *2015 Collection*.⁶⁴⁴ First and foremost, no data set is perfect. The *2015 Collection*, however, provides an unprecedented amount of information and gives the Commission its most comprehensive insight into the capabilities of suppliers and the demands of purchasers to date. The data set is of immense value to the Commission and stakeholders. It allows disaggregated analysis that prior to now simply was beyond the reach of any commenter, and provides the kind of details the Government Accounting Office recommended the Commission collect and analyze.⁶⁴⁵ For example, up until now it was simply impossible to produce virtually all of the geographic measures of share that are reported above, let alone the capacity to regress price on measures of competition, or consider the impacts of our regulatory regime on prices and investments. Nonetheless, commenters have raised data concerns, and we address them categorically below.

246. *Data Staleness.* Incumbent LECs state the data collected for 2013 does not account recent competitive developments in the market.⁶⁴⁶ These commenters specifically point to recent

⁶⁴³ See Appx. B, Rysman White Paper at IV.C.

⁶⁴⁴ See, e.g., AT&T Mar. 12, 2013 Comments at 2.

⁶⁴⁵ See *GAO Report* at 15.

⁶⁴⁶ See Frontier Comments at 19 (“Moreover, the data are now well more than two years old, making their use even more problematic.”); Verizon Comments at 2 (“Because they are from 2013, the data do not permit the Commission to analyze the ‘state of competition *today*,’ which was the goal of the original December 2012 *Notice*.”); USTelecom

competitive developments in the offerings and customers now targeted by cable companies. For example, USTelecom argues that “[c]able annual business services revenue has grown from \$10 billion per year in 2013 to \$14 billion per year in 2015, an increase of \$4 billion in just the last two years,” but that this is not reflected in the data.⁶⁴⁷ According to these commenters, the Commission cannot fully measure the level of actual or potential competition in the BDS market based on the 2013 data.⁶⁴⁸

247. Significant effort and time goes into an agency collection of this magnitude. The *2015 Collection*, the first of its kind, took more than two years to implement. There is typically a time lag of two to three years for agencies between collecting and providing data analysis results.⁶⁴⁹ To capture data from 2015, the Commission would have had to initiate a collection long before it received and was able to analyze the data for 2013 obtained through the *2015 Collection*. The Commission would need additional time to process and analyze the data, which would further delay an already protracted rulemaking proceeding.

248. We have the flexibility of making findings based on the available data.⁶⁵⁰ And the 2013 data provides the Commission with valuable information on the capabilities of suppliers and a solid basis for making findings as to the state of competition and the drivers of competition. Yes, there is always a basis for claiming the data from a snapshot in time does not capture the events immediately following a data collection. The Commission, however, is not limited in its ability to account for trends since the collection in providing an assessment as to the state of the industry. Moreover, the proposal to periodically collect data going forward from providers as discussed in Part V.J. addresses concerns about the Commission’s ability to update its analysis to reflect competitive changes in the dynamic BDS industry.

249. *Accounting for DOCSIS*. Incumbent LECs and their economists argue the data “does not capture facilities that can be used to provide special access services that compete with incumbent LEC special access offerings such as last-mile broadband service over DOCSIS 3.0 or over optical fiber.”⁶⁵¹ Incumbent LECs point to the “best efforts” services businesses sometimes purchase in lieu of, or to supplement their, business data services, which cable companies deliver using DOCSIS over their ubiquitously deployed HFC infrastructure.⁶⁵² These commenters also highlight the provision of Ethernet over DOCSIS 3.0 technology by cable companies on a “best efforts” basis and, in the last two-to-three

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Comments at 2 (“New competition from cable and other providers is not captured in the 2013 data collection, which provides a snapshot of a single point in time.”).

⁶⁴⁷ See USTelecom Comments at 24-25. Additionally, USTelecom argues that “[a]s business revenues and market share grow from the cable industry’s provision of service to small business customers, cable also has increasingly expanded its presence by moving up-market to serve medium-sized business customers, ‘large locals’ such as schools and hospitals, and now the largest enterprises in the nation. Cable’s up-market migration, including its latest efforts in the largest enterprise markets, is not adequately reflected in the 2013 data collection.” *Id.* at 25.

⁶⁴⁸ See Frontier Comments at 19; Verizon Comments at 2; USTelecom Comments at 2.

⁶⁴⁹ For example, U.S. Census Bureau data on business establishments is current as of 2013. United States Census Bur., Statistics of U.S. Businesses (Feb. 29, 2016), <http://www.census.gov/econ/sub/>. The Commission’s 2016 Broadband Progress Report evaluates data from 2014. *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, 2016 Broadband Progress Report, FCC 16-6 (2016).

⁶⁵⁰ See *Motor Vehicle Mfrs. Ass’n v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 52 (1983) (recognizing that “[i]t is not infrequent that the available data do not settle a regulatory issue, and the agency must then exercise its judgment in moving from the facts and probabilities on the record to a policy conclusion”).

⁶⁵¹ IRW White Paper at 7, para. 13.

⁶⁵² *Id.* at 16.

years, with certain service level guarantees using its HFC infrastructure.⁶⁵³ Commenters state that by not collecting all locations connected to the cable companies' HFC network the Commission is unable to accurately assess potential competition from cable companies.⁶⁵⁴

250. In the *Data Collection Implementation Order*, the Bureau defined when connections should be considered capable of providing a dedicated service for data reporting purposes. Within their franchise areas, cable operators were required “to report all *Locations* with *Connections* owned or leased as an *IRU* that are connected to a *Node* (i.e., headend) that has been upgraded or was built to provide Metro Ethernet (or its equivalent) service, . . . regardless of the service provided over the *Connection* or whether the *Connection* is idle or in-service.”⁶⁵⁵ For connections not linked to a MetroE-capable node, cable system operators were only required in-service connections used “to provide a *Dedicated Service* or a service that incorporates a *Dedicated Service* within the offering as part of a managed solution or bundle of services sold to the customer.”⁶⁵⁶ The Bureau explained that because “cable companies deployed facilities widely in their franchise areas to serve primarily residential customers and other community needs” it did not want to include in the collection “those locations with facilities used to provide a service that is substantially similar to the services provided to residential customers, e.g., one or two line telephone service or best efforts Internet access and subscription television services.”⁶⁵⁷

We exclude these facilities because they were most likely built to provide residential-type services instead of high-capacity services to non-residential customers based on the historical deployment of cable systems; their inclusion could thus skew our assessment of demand for special access service. We can still account for the potential competition from these facilities by referencing data provided elsewhere in the collection, e.g., we can refer to the fiber maps filed by cable system operators, the location of *Nodes* upgraded to provide Metro Ethernet (or its equivalent), and the information provided showing those census blocks within the [franchise areas] where the cable system operator reports making broadband service available with a bandwidth rate of at least 1.5 Mbps in both directions (upstream/downstream).⁶⁵⁸

Also in the *2014 Order on Reconsideration*, the Bureau pursuant to the conditional grant from the Office of Management and Budget pursuant to the Paperwork Reduction Act, modified the collection to only provide fiber routes showing their interoffice transport network and not their feeder links to locations.⁶⁵⁹

251. Like the incumbent LECs, the Commission has analyzed the presence of competitors, including cable, using information on the fiber of competitive providers in census blocks. And like the incumbent LECs, the Commission has utilized data from the National Broadband Map on the DOCSIS 3.0 coverage and fiber-to-the-location coverage to supplement the data collected for analysis.⁶⁶⁰ With this information, the Commission is able to account for the presence DOCSIS in both its price regressions and other analyses. If anything, the National Broadband Map data used by the Commission may overstate, and not undercount, the capabilities of cable. For example, notwithstanding their extensive deployments,

⁶⁵³ See CenturyLink Comments at 17-24; AT&T Comments at 13-15; USTelecom Comments at 14-23; Verizon Comments at 28-40.

⁶⁵⁴ See *id.*

⁶⁵⁵ *Data Collection Implementation Order*, 28 FCC Rcd at 13200, para. 26 (internal footnote omitted).

⁶⁵⁶ *Id.* at 13201, para. 27.

⁶⁵⁷ *Id.* at 13200, para. 26.

⁶⁵⁸ *Id.* at 13201, para. 27 (internal citations omitted).

⁶⁵⁹ *Id.* at 10903, para. 8.

⁶⁶⁰ See *supra* Part V.A., Table 4..

two of the largest cable companies reported that their HFC network covered less than 100 percent of the businesses in their service areas.⁶⁶¹

252. *Data from Only One Year.* Verizon states that “[b]ecause the Commission did not collect any historical data, however, it is unable to do . . . panel regressions or to perform a formal product market definition.”⁶⁶² The Commission originally intended to collect data from two years, 2010 and 2012.⁶⁶³ The conditional PRA approval received from OMB limited the collection to data from one year, 2013.⁶⁶⁴ Even with data from only 2013, the Commission is able to conduct price regressions using the information. An economist representing non-cable competitive LECs has also performed a similar analysis. The data also provide valuable insights into the market structure. This is the data available to the agency, and it will greatly inform the Commission as to the level of competition in the marketplace even if it does not allow for all forms of analyses. Moreover, in this Further Notice, the Commission proposes to collect data in subsequent years from providers periodically, which would give the Commission data from multiple years for panel regressions.⁶⁶⁵

253. *Mapping Facilities to Available Demand.* AT&T states “[t]he Commission’s approach does not permit the parties to determine how much demand is served at each connection location, because any connection that is more than one Gigabit is masked in the Data Enclave. . . . Similarly, the data set lacks the information necessary to determine total revenues from special access services at the census block level.”⁶⁶⁶

254. The Bureau informed parties in the *Modified Protective Order* that it would “simply denote sales and purchases of bandwidth in excess of 1 gigabit per second (Gbps) and not provide the specific bandwidth amount in excess of this threshold.”⁶⁶⁷ This action was necessary to address concerns raised “about the potential risks of the collected data on critical communications infrastructure.”⁶⁶⁸ That said, only about 3.5 percent of the 104 million monthly billing observations collected were for bandwidth capacities in excess of 1 Gbps, so the value of knowing the exact bandwidth in excess of this threshold is limited.

255. Providers were required to report revenues in the aggregate in addition to providing monthly billing information. Requiring the reporting of revenues by census block would have significantly increased the burden of the collection on filers as they typically do not keep or track revenue information in that manner. We recognize the data set may pose challenges for certain forms of analysis but the limits noted above are unavoidable in this instance. Economists have correctly looked to

⁶⁶¹ See Comcast Mar. 25, 2016 *Ex Parte* at 1 (“Ethernet services delivered over Comcast’s HFC network require access to the HFC network as well as service from an Ethernet-capable headend. Across Comcast’s footprint, approximately [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of headends are Ethernet-capable today...”); TWC *Ex Parte* at 1, (“TWC’s Internet access service and Ethernet service are available across all TWC markets and currently reach, without further construction, [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] of business locations within TWC’s footprint . . .”).

⁶⁶² Verizon Comments at 19-20 n.48.

⁶⁶³ *Data Collection Order*, 27 FCC Rcd at 16330, para. 27.

⁶⁶⁴ Notice of Office of Management and Budget Action, OMB Control No. 3060-1197 (Aug. 15, 2014), available at http://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201311-3060-001# (last visited Apr. 27, 2016).

⁶⁶⁵ See *supra* Part V.J.

⁶⁶⁶ AT&T Comments at 12-13 n.22 (stating the Commission’s approach “has the effect of making it look like there is far less demand in the urban areas where competitive deployment exists than there really is”).

⁶⁶⁷ *Modified Protective Order*, 30 FCC Rcd at 10027, para. 24.

⁶⁶⁸ *Id.*

alternative measures to map facilities to demand such as using business density data provided by the U.S. Census Bureau and Dun & Bradstreet.

B. New Technology Neutral Regulatory Framework for Business Data Services

256. The BDS market has changed substantially since this proceeding was initiated, both in terms of technology and providers. While the price cap LECs maintain substantial market power in some areas for some services, it is clear the market will continue to evolve and that market power and market positions are likely to shift over the next ten to fifteen years and beyond. The Commission's prior adoption of bright line rules based on what turned out to be a poor measure of the presence of competition led to some of the problems we start to solve today.

257. Some parties to the proceeding have raised objections to being fully included in the new framework.⁶⁶⁹ We note that business data services are telecommunications services, regardless of the provider supplying the service.⁶⁷⁰ BDS providers are therefore common carriers.⁶⁷¹ And as such, with the unique exception of Verizon's forbearance, the providers are subject to Title II in the provision of their services, including packet-based BDS services such as Ethernet.⁶⁷² Sections 201 and 202 of the Act

⁶⁶⁹ See, e.g., Letter from Steven F. Morris, VP and Associate General Counsel, NCTA to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 05-25, at 1-2 (Apr. 20, 2016) (noting that "the current regulatory regime has enabled cable operators to invest billions of dollars in new facilities to serve business customers, thereby enabling thousands of businesses to receive improved services and lower prices than they were able to obtain from other providers. Significant changes in that regulatory regime jeopardize the progress that cable is making in this marketplace and the substantial benefits that progress has delivered to consumers."); Letter from Kathryn A. Zachem, SVP, Regulatory and State Legislative Affairs, Comcast Corp., to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 05-25, at 1 (Apr. 21, 2016) (referencing "deep concerns over the prospect of exposing nondominant, facilities-based providers of Ethernet services to . . . requirements traditionally applied only to dominant providers, as part of the Commission's reexamination of its special access regulatory regime").

⁶⁷⁰ See 47 U.S.C. § 153(53); *AT&T Forbearance Order*, 22 FCC Rcd at 18711, para. 9 ("The Commission's actions [in the *Wireline Broadband Internet Access Services Order*] did not encompass other wireline broadband services, such as stand-alone Asynchronous Transfer Mode service (ATM), Frame Relay service, Gigabit Ethernet service, and other high-capacity special access services. The Commission stated that carriers and end users traditionally have used these services for basic transmission purposes and that these services . . . are telecommunications services under the statutory definitions and thus subject to Title II."); *Wireline Broadband Internet Access Services Order*, 20 FCC Rcd 14853, 14860-61 (2005) (stating that such special access services "do not inextricably intertwine transmission with information-processing capabilities" and thus are telecommunications services under the Communications Act); *Computer II*, Final Decision, 77 FCC 2d 384, 420 (1980) (finding that the use of packet switching and error control techniques "that facilitate economical, reliable movement of information does not alter the nature of the basic service.").

⁶⁷¹ The only assertions in the record that these dedicated access services are not offered on a common carrier basis are related to Verizon's request for forbearance from all Title II requirements for non-TDM services, which was deemed granted in 2006. (See *infra* Part V.I.1) (discussing the Verizon deemed grant). See, e.g., Verizon and Verizon Wireless Comments, April 16, 2013, at 6-7 ("In the time since it obtained forbearance, Verizon has entered into approximately 3,300 private carriage contracts with unaffiliated carriers for non-TDM based services, valued at more than \$3.7 billion over their lifetime."); Letter from Steven P. Golden, Vice President, External Affairs, Hawaiian Telcom, Inc. to Marlene Dortch, Secretary, Federal Communications Commission, WC Docket No. 05-25 & RM-10593, at 4 (Mar. 6, 2015) ("For Wholesale Markets, Circuit Based Dedicated Services above a DS3 bandwidth and all Packet Based Dedicated Services are provided via Private Carriage Contracts that are not publicly available and are conveyed to customers both orally and in written contracts.").

⁶⁷² Price-cap incumbent LECs (other than Verizon and several successors in interest as a result of Verizon asset sales since 2006) provide non-TDM BDS pursuant to tailored forbearance that permits detariffing, but does not forbear from basic common carrier requirements. See, e.g., *AT&T Forbearance Order*, 22 FCC Rcd at 18705 & n.5. Likewise, competitive providers offer BDS as common carrier services under the forbearance from tariffing that was granted for carriers other than an incumbent LEC. See *Hyperion Order*, 12 FCC Rcd 8596, 8596-97 (1997); see

(continued...)

require that the rates, terms, and conditions under which common carriers provide telecommunications services, such as the broadband data services we address herein, must be just, reasonable, and not unjustly or unreasonably discriminatory.⁶⁷³ These requirements are enforced through section 208 of the Act, which permits any person to file a complaint against any common carrier for acts or omissions in violation of the Act or a Commission rule or order.⁶⁷⁴

258. The presence, and use, of market power can inhibit the evolution of a competitive market, both through prices and terms and conditions. For example, we examine certain terms and conditions in the Tariff Investigation Order and prescribe changes to address terms we found to be unreasonable and, in some cases, anticompetitive. This Order and its findings in this and other areas will provide substantial precedent to guide the Commission in its consideration of any section 208 complaints challenging the reasonableness of conduct in the provision of business data services. Likewise, the Commission seeks comment in this Further Notice on significant issues such as the basis for determining the presence of material competitive effects that would support the removal of direct rate regulation in some areas for some services. Such analysis will provide further guidance for resolving the threshold question whether the services are offered in a non-competitive area, in any complaint asserting unreasonable conduct under sections 201 and 202.

259. While a case-by-case adjudication under section 208 is one option to provide guidance for what is reasonable conduct in light of the market analysis conducted in this proceeding, we find clear rules of the road will be valuable to all broadband data service providers as the market evolves. Accordingly, in this Further Notice, we propose a new regulatory framework for broadband data service that distinguishes between broadband data service providers based on market circumstances, rather than technology or the happenstance of prior Commission action and inaction.

260. The proposed technology-neutral framework will apply depending on the classification of a specific market as either competitive or non-competitive. This framework will depend on the adoption of a new Competitive Market Test to then determine whether market power is present and we additionally seek comment on such test below. As another significant piece of the technology neutral framework, we additionally propose actions to change the regulatory structure for the historically dominant price cap LECs. These proposed rules will establish a path towards technology-neutral regulation for broadband data services, while protecting against harm from lack of competition where it continues to exist.

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also Application for Consent to the Assignment of Certain Customers and Assets of Authorized Domestic Carriers Pursuant to Section 214 of the Communications Act of 1934, as Amended, from Comcast Corporation to Midwest Cable, Inc., MB Docket No., 14-57, at 1-2, 10-12 (filed June 4, 2014) (noting that “certain customers of high-capacity transmission services and the associated network assets will be assigned from Comcast Business Communications, LLC to Midwest Cable Phone, LLC,” listing various telecommunications carrier entities of both companies, and noting that “[t]he customers being assigned currently subscribe solely to high-capacity transmission services (i.e., Metro Ethernet, private line, and cell backhaul), and any associated network assets being assigned also relate to the provision of such services.”); Applications of Comcast Corp. and Time Warner Cable Inc. for Consent Pursuant to Section 214 of the Communications Act of 1934, as Amended, to Transfer Control of Subsidiaries of Time Warner Cable Inc., MB Docket No. 14-57, at 5 (filed Apr. 8, 2014) (“Time Warner Cable Business LLC is an interstate telecommunications carrier that provides point-to-point, special access, and backhaul services to business customers; it provides no voice services.”). Whether providing services on a tariffed or non-tariffed basis, BDS providers (with the exception noted for Verizon forbearance), offer these services openly to the public — meeting the definition of a “telecommunications service”, *see* 47 U.S.C. § 153(53) (“the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used”) — and subject to Title II. *See NARUC I*, 525 F.2d 630, 641 (D.C. Cir. 1976) (“It is not necessary that a carrier be required to serve all indiscriminately; it is enough that its practice is, in fact, to do so.”).

⁶⁷³ 47 U.S.C. §§ 201, 202.

⁶⁷⁴ *Id.* § 208.

C. Statutory Authority for New Regulatory Framework

261. Sections 201 and 202 of the Communications Act are foundational requirements for all telecommunications services, designed to ensure that such services are offered to the public on just and reasonable rates, terms and conditions, and that services are not offered on an unreasonably discriminatory basis.⁶⁷⁵

262. These sections have served as the statutory basis for a wide range of rules and other actions over the years.⁶⁷⁶ In addition to providing the substantive authority for various rules and requirements, section 201(b) states that the Commission “may prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this Act.”⁶⁷⁷

263. We propose that sections 201 and 202 of the Act serve as an adequate basis of statutory authority for actions that the Commission would take to create and implement the Technology-Neutral Framework that we propose to apply to BDS going forward. We have forbore from tariffing provisions for many BDS providers over the years.⁶⁷⁸ In this Further Notice, the Commission proposes to transition away from tariffing requirements for the last portion of BDS (incumbent LEC TDM), and to establish benchmarked prices for non-TDM services. We note that the *Verizon/INCOMPAS Joint Letter* urges that the Commission should make clear “that all providers offering dedicated services are subject to Title II of the Communications Act, including Sections 201 and 202 of the Communications Act.”⁶⁷⁹ The Commission seeks comment on whether its authority to ensure just and reasonable prices, terms and conditions under sections 201 and 202, and its explicit rulemaking authority in section 201(b), is adequate to require price cap filings for TDM services and benchmarked prices for non-TDM services.

264. Commenters have noted that the Commission’s existing price cap regime was adopted with reference to section 204.⁶⁸⁰ If the Commission were to forbear from tariffing provisions for incumbent LEC TDM services, as it has with respect to the incumbent LECs’ non-TDM services and all BDS telecommunications services of competitive providers, could it continue to require price cap filings for incumbent LEC TDM services in non-competitive markets based solely on the statutory authority in

⁶⁷⁵ See 47 U.S.C. § 201(b) (“All charges, practices, classifications, and regulations for and in connection with [interstate or international telecommunications service] shall be just and reasonable, and any such charge, practice, classification, or regulation that is unjust or unreasonable is hereby declared to be unlawful”); 47 U.S.C. § 202(a) (“It shall be unlawful for any common carrier to make any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services for or in connection with like communication service, directly or indirectly, by any means or device”).

⁶⁷⁶ See, e.g., *Core Commc’ns, Inc. v. FCC*, 592 F.3d 139, 140-41 (D.C. Cir. 2010) (finding Commission had statutory authority under section 201 to adopt rate cap limiting intercarrier compensation for ISP-bound dial-up traffic); *Verizon Tel. Comps. v. FCC*, 292 F.3d 903, 907, 911-12 (D.C. Cir. 2002) (concluding that Commission had statutory authority under section 201(b) to adopt rules requiring incumbent LECs to provide cross-connects for competitive LECs upon request, to be owned and maintained by incumbent LECs).

⁶⁷⁷ 47 U.S.C. § 201(b); see also *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 377-78 (1999) (recognizing the Commission’s rulemaking authority under section 201(b)).

⁶⁷⁸ See, e.g., *AT&T Enterprise Broadband Forbearance Order*, 22 FCC Rcd at 18706 & n.5 (forbearing from section 203 of the Act and other dominant carrier requirements for certain of AT&T’s then existing packet-switched and optical transmission services); *Hyperion Order*, 12 FCC Rcd 8596, 8596-97 (1997) (granting nondominant carriers forbearance from tariffing requirements for interstate access services, including TDM).

⁶⁷⁹ *Verizon/INCOMPAS Joint Letter* at 2; see also Public Knowledge Letter at 1 (supporting framework proposed by Verizon/INCOMPAS).

⁶⁸⁰ See, e.g., Sprint Comments at 81 (stating that price caps reflect only the Commission’s “tentative opinion’ about the dividing line between reasonable and unreasonable rates for the limited purpose of exercising [its] suspension power” under section 204 of the Act) (quoting *Policy and Rules Concerning Rates for Dominant Carriers*, Report and Order and Second Further Notice of Proposed Rulemaking, 4 FCC Rcd 2873, 3306, para. 895 (1989)).

section 201(b)? Likewise, could the Commission use benchmarked prices to ensure that non-TDM services in non-competitive markets are offered on just and reasonable prices, as required by section 201?⁶⁸¹ If not, why not, and what additional authority or action would be needed?

265. The Commission's proposed Technology-Neutral Framework also would place certain limits on terms and conditions of BDS to ensure that they are offered on just, reasonable, and not unreasonably discriminatory terms, especially in non-competitive markets.⁶⁸² We seek comment on whether sections 201 and 202 provide the Commission with the statutory authority to take such actions.⁶⁸³ If not, why not, and what additional authority or action would be needed?

266. A fundamental aspect of the new Technology-Neutral Framework for BDS would be the adoption of new triggers to determine whether markets are competitive or non-competitive. We seek comment on whether sections 201 and 202 are themselves sufficient to support the adoption of such triggers, which could be used to determine whether (and if so, where) regulations are required to ensure that rates, terms and conditions of BDS services are just and reasonable. We note that such triggers have been tied in the past to the Commission's authority under sections 201-205, and we seek comment on whether the Commission should rely on additional sources of authority.⁶⁸⁴

267. Some entities have suggested that the Commission address certain issues such as wholesale pricing under section 251, where Congress has imposed specific resale requirements.⁶⁸⁵ However, section 251 has an explicit savings clause, which states: "Nothing in this section shall be construed to limit or otherwise affect the Commission's authority under section 201."⁶⁸⁶ Does the savings clause indicate that the Commission has ample statutory authority to address resale issues for BDS under section 201 authority, notwithstanding that the statute imposes particular resale requirements on certain types of providers in sections 251(b) (local exchange carriers) and 251(c)(4) (incumbent local exchange carriers)?⁶⁸⁷ If not, why not, and what additional authority or action would be needed?

268. Are there any other statutory provisions that the Commission should consider invoking to support a Technology-Neutral Framework for BDS? For example, section 706 of the 1996 Act provides that the Commission "shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary

⁶⁸¹ See *Cable & Wireless, P.L.C. v. FCC*, 166 F.3d 1224, 1231-32 (D.C. Cir. 1999) (finding Commission Order adopting benchmark rates for international settlements was within the Commission's statutory authority under sections 201, 205(a), and 211(a)).

⁶⁸² See, e.g., *Global Crossing Telecomms., Inc. v. Metrophones Telecomms., Inc.*, 550 U.S. 45, 47-48 (2007) (affirming Commission's determination that a carrier's failure to pay payphone compensation is a practice that is unjust or unreasonable under section 201(b)). The Court noted that "[s]tatutory changes enhancing the role of competition have radically reduced the role that tariffs play in regulatory supervision of what is now a mixed communications system—a system that relies in part upon competition and in part upon more traditional regulation. Yet when Congress rewrote the law to bring about these changes, it nonetheless left § 201(b) in place. That fact indicates that the statute permits, indeed it suggests that Congress likely expected, the FCC to pour new substantive wine into its old regulatory bottles." *Id.* at 57.

⁶⁸³ See *Ambassador, Inc. v. United States*, 325 U.S. 317, 323 (1945) ("The supervisory power of the Commission is not limited to rates and to services, but the formula oft repeated in the Act to describe the Commission's range of power over the regulated companies is 'charges, practices, classifications, and regulations for and in connection with such communication service.'").

⁶⁸⁴ See *Pricing Flexibility Order*, 14 FCC Rcd at 14357, para. 284 (adopting Phase I/Phase II pricing flexibility triggers).

⁶⁸⁵ See, e.g., Windstream Comments at 60-68.

⁶⁸⁶ 47 U.S.C. § 251(i).

⁶⁸⁷ *Id.* §§ 251(b)(1), 251(c)(4).

schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.”⁶⁸⁸ Does that section have any particular applicability to the actions proposed in this Further Notice, such as promoting competition for BDS and removing obstacles to technology transitions?

269. Finally, we seek comment on whether any transitional or incremental policy actions are appropriate as the Commission considers and moves to comprehensively reform the BDS regulatory framework. Are there incremental changes the Commission could take as it evaluates broader reforms and a Competitive Market Test that furthers our goals? Should we adopt any transition to a new Competitive Market Test and, if so, how should we structure the transition?

D. Competitive Market Test

270. We propose to replace the 1999 pricing flexibility regime with a new regulatory framework for BDS. The new framework, as proposed, builds on the analysis of the *2015 Collection* to establish a comprehensive Competitive Market Test to determine whether a relevant market is competitive or non-competitive. Where competition is sufficient in a relevant market, based on objective criteria to measure competitive effects, the Commission is proposing to rely upon market forces to constrain rates, terms, and conditions. That is, we propose to subject markets determined competitive to minimal regulation to protect consumers as proposed in Part V.E. The Commission would subject relevant markets, determined non-competitive, to specific rules as proposed in Part V.F on the ground that customers in those markets are being harmed. A separate question concerns the scope of regulation in a non-competitive market, and whether it should apply to all or some providers and, if some, which ones and on what basis (such as market power) – and we seek comment on these questions below. The ultimate goal going forward is to apply regulatory obligations on a technology and provider neutral basis where it is necessary to protect and promote competition.⁶⁸⁹

271. On the criteria for the Competitive Market Test, we invite comment. Initially, we are proposing a test, which focuses on multiple factors, including bandwidth, different customer classes, business density, and the number of providers in areas consisting of census blocks where each block in the relevant market meets the specified criteria. As described above, the data and our analysis suggests that competition is lacking in BDS at or below 50 Mbps in many circumstances, and that competition is present in BDS above 50 Mbps in many circumstances.⁶⁹⁰ Such evidence will guide how the Commission uses product market characteristics in applying the Competitive Market Test to a relevant market. We seek comment on the appropriate factors to include in the test and, in particular, the appropriate weight to attribute to the various factors in application of the test. With any test criteria and for application of the test as a whole, we seek comment on how to create a test that is simple to administer and, to this end, ask about the commercial practicalities and administrative feasibility of any particular approach. We also seek comment on how any approach would further our goals of promoting competition and investment.

272. We propose to apply the Competitive Market Test across all geographic areas served by price cap carriers. The Commission would use publicly available information, the *2015 Collection*, and other information in the record to apply the test to create a list of geographic areas that are deemed competitive and non-competitive by relevant product market. To provide certainty but also ensure accuracy of the data, we seek comment on whether the Commission should reapply the test every three years for example, with updated data to reflect changes in business density or the number of providers in

⁶⁸⁸ *Id.* § 1302(a).

⁶⁸⁹ The application of a technology-neutral framework going forward may require specific treatment of TDM BDS, in certain instances, based on past experience and historical practice.

⁶⁹⁰ *See supra* Part V.A.10.

a geographic area.⁶⁹¹ Once the initial competitive/non-competitive determination is made, we seek comment on a process to address instances where a provider or purchaser disagrees with the determination finding and suggestions for the appropriate standards and procedures to govern that process.

273. *Background.* The pricing flexibility framework adopted in 1999 based regulatory relief on the presence of third-party collocations in the incumbent LEC's wire centers, which were considered proxies for competition in the marketplace. The Commission considered collocation "a reliable indication" that "competitors have made irreversible, sunk investments in the facilities needed to provide the services at issue."⁶⁹² The Commission said, "we are confident that, in the past, the presence of an operational collocation arrangement in a wire center almost always implied a competitor has installed transmission facilities to compete with the incumbent."⁶⁹³ The Commission recognized that the "correlation between operational collocation arrangements and competitive transport facilities is somewhat attenuated" and therefore required the incumbent LEC "to show that at least one competitor relies on transport facilities provided by a transport provider other than the incumbent at each wire center" for which relief was sought.⁶⁹⁴

274. To obtain regulatory relief under the pricing flexibility rules, incumbent LECs were required to file petitions making competitive showings based on the bright-line collocation triggers.⁶⁹⁵ Geographically the review focuses on MSAs and non-MSA areas.⁶⁹⁶ Services for evaluating regulatory relief were separated into only two categories, last-mile channel terminations and other dedicated transport services.⁶⁹⁷ There were no further service distinctions, e.g., retail versus wholesale services. The Commission required a higher collocation showing to obtain relief for channel terminations than for other dedicated transport services because a lower per unit of traffic investment is required for transport services that carry traffic from one point of traffic concentration to another than for channel terminations.⁶⁹⁸ The Commission thus found that competitors are more likely to enter the market for transport facilities than for last-mile access facilities.⁶⁹⁹ Under the framework, incumbent LECs could obtain regulatory relief for areas even where no competitors collocated in the serving wire centers based on collocations in other wire centers within the MSA that accounted for a certain percentage of the incumbent LEC's revenues in the MSA.⁷⁰⁰ Once the Commission granted regulatory relief, there was no process for re-assessing whether the relief granted was warranted over time.

⁶⁹¹ As discussed in Part V.F.2, the Commission proposes to conduct a periodic collection of the BDS industry going forward that the Commission could use to update its analysis and the data used for applying the Competitive Market Test criteria.

⁶⁹² *Pricing Flexibility Order*, 14 FCC Rcd at 14234, 14265, paras. 24, 81.

⁶⁹³ *Id.* at 14266, para. 82.

⁶⁹⁴ *Id.* at 14226-67, para. 82; 47 CFR §§ 69.709, 69.711.

⁶⁹⁵ 47 CFR §§ 1.774, 69.705, 69.709, 69.711.

⁶⁹⁶ Non-MSA areas include "those parts of a study area that fall outside of any MSA." 47 CFR § 69.709. A study area generally corresponds to an incumbent LEC's entire service territory within a state. *See Petition for Waiver Filed by the Florida Telephone Company et al. Concerning the Definition of "Study Area" Contained in the Part 36 Appendix-Glossary of the Commission's Rules*, AAD 97-81, Memorandum Opinion and Order, 12 FCC Rcd 20177, 20178, para. 3 (CCB 1997).

⁶⁹⁷ *See* 47 CFR §§ 69.709, 69.711.

⁶⁹⁸ *Pricing Flexibility Order*, 14 FCC Rcd at 14279, para. 102.

⁶⁹⁹ *Id.* at 14278-79, para. 102.

⁷⁰⁰ *See* 47 CFR §§ 69.709, 69.711.

275. In 2012 the Commission concluded after a substantial review that, despite the many administrative benefits to reliance on the triggers, collocations are a poor proxy for predicting the entry of facilities-based competition and suspended, on an interim basis, further automatic grants of pricing flexibility.⁷⁰¹ The Commission found the 1999 regime retained unnecessary regulation in areas that were very likely to be very competitive and deregulated over large areas where competition was unlikely to occur.⁷⁰²

276. Our review of the *2015 Collection* supports the Commission's earlier findings that the existing triggers do not reflect the existing competitive nature of the market. Specifically, in 97.9 percent of the wire center territories where a cable competitive LEC has reported locations – where the connection to the location is not a UNE obtained from an incumbent LEC, a cable company has not collocated in the wire center. Of these wire centers, 62 percent remain subject to price cap regulation without pricing flexibility for channel terminations. If we include census blocks where a cable company reported having DOCSIS 3.0 coverage for 2013 for the National Broadband Map, the percentage of wire center territories without any collocations from the cable company increases to 98.4 percent. Of these wire centers, 66 percent remain subject to price cap regulation without pricing flexibility for channel terminations. This strongly shows the collocation triggers are substantially underestimating the entry of facilities-based competition from cable companies for last-mile facilities and hindering deregulation.

277. When we look at all competitive providers and remove locations with UNEs, in 32.3 percent of the wire center territories where the Commission has granted the incumbent LEC pricing flexibility for channel terminations, competitive providers have reported no locations where they own or lease, pursuant to an indefeasible right of use (IRU), a connection to a location. If we expand the inquiry to include census blocks where a cable company reported having DOCSIS 3.0 coverage for 2013 for the National Broadband Map, this percentage decreases to 24.7 percent. This shows that collocations at a substantial percentage of wire centers do not accurately predict the entry of facilities-based competition for last-mile connections.

278. We now believe it is appropriate to modernize our triggers to ensure we capture all competitive entrants. Therefore, we propose to abandon the collocation-based competition showings for channel terminations and other dedicated transport services for determining regulatory relief for incumbent LECs. Instead, we propose to apply a new Competitive Market Test. Our intent, discussed in more detail below, is to create a framework that is provider and technology neutral. Our goal is also to create a framework that is simple and minimizes regulation only to the extent necessary to ensure rates are just and reasonable.

1. Business Data Service Definition

279. A definition for BDS is critical to any new regulatory framework. We suggest below a definition similar to the definition used for dedicated services in the *2015 Collection*. Specifically, we would define BDS as a telecommunications service that:

transports data between two or more designated points at a rate of at least 1.5 Mbps in both directions (upstream/downstream) with prescribed performance requirements that typically include bandwidth, reliability, latency, jitter, and/or packet loss. BDS does not include “best effort” services, e.g., mass market BIAS such as DSL and cable modem broadband access.

⁷⁰¹ *Suspension Order*, 27 FCC Rcd at 10558-59, para. 1.

⁷⁰² *Id.* at 10572-88, 10598, paras. 32-55, 72.

We seek comment on this definition and ask whether the definition should include minimum performance guarantees, such as 99.99 percent reliability. Also we seek comment on whether we should reduce the minimum symmetrical speed to 1 Mbps to account for dedicated service offerings below 1.5 Mbps.⁷⁰³

2. Multi-Factor Competitive Market Test – Relevant Market(s) and Test Criteria

280. We are guided by traditional economic principles in identifying relevant market(s) and the competition criteria for a Competitive Market Test. We also consider, and seek comment on, the administrative feasibility and commercial practicalities of any particular approach both for providers as well as the Commission. A proposal under consideration, as discussed in more detail below, is to define the relevant market for applying a test along customer classes and varying bandwidths in geographic areas consisting of census blocks, including groupings of census blocks. The proposed criteria for the test would focus on business density and the number of providers in the relevant market area.

a. Relevant Products for Evaluating Competition, including Customer Classes

281. The Commission has traditionally applied the pricing flexibility competitive showings to two different BDS segments, channel terminations and other dedicated transport services.⁷⁰⁴ There is little discussion in the *Pricing Flexibility Order* as to why the Commission chose these two particular service categories. Historically, incumbent LECs tariffed these services separately, and the charges reflected different traffic sensitivities. The Commission explained in the *Pricing Flexibility Order* that a lower competitive showing was required for other dedicated transport services because these services, which move traffic from one point of concentration to another, require “less investment per unit of traffic,” than channel terminations.⁷⁰⁵ The Commission found that competitors were more likely to enter the market to provide other dedicated transport services than channel terminations.⁷⁰⁶ Looking at how non-cable competitive LECs have deployed their networks, we find this approach holds true today for those types of providers (and as discussed above, appears as much driven by bandwidth demand as it does by the channel termination/transport distinction).

282. Developing a new framework, however, gives us the opportunity to re-evaluate the triggers and product markets used in the application of a competitive test to ensure that they reflect technology transitions and the current market. Today, competitors, and even incumbent LECs with their forborne services, do not typically offer consumers BDS by charging a customer separately for transport, last-mile access, and channel mileage. They instead offer connectivity at certain bandwidth levels and performance guarantees and packaged communications solutions that include a transmission component to meet the demands of different types of customers. Our framework should reflect how the market operates today.

283. Moreover, the needs of the customer dictate the service offerings. As discussed in our competition analysis and as providers have told us, different types of customers have different needs. A small business with less than 20 employees at one location is unlikely to need the multi-office networking connectivity, or even the same level of bandwidth capacity, as would a large enterprise customer.⁷⁰⁷ The needs of a mobile operator to backhaul aggregated traffic from cell sites are different than the needs of a

⁷⁰³ Comcast Ex Parte Mar. 25, 2016 at 3 (stating that Comcast offers Ethernet dedicate Internet over fiber and HFC at symmetrical speeds as low as 1 Mbps).

⁷⁰⁴ See 47 CFR §§ 69.709, 69.711.

⁷⁰⁵ *Pricing Flexibility Order*, 14 FCC Rcd at 14279, para. 102.

⁷⁰⁶ *Id.*

⁷⁰⁷ See, e.g., Windstream Comments at 21-22 (providing charts showing varying monthly wireline communications expenditure amounts for single and multiple location customers of different employee sizes).

retail chain wanting to securely process credit transactions.⁷⁰⁸ The needs of competitive LECs, as wholesale customers, for last mile access as an input for their own service offerings differ from the needs of retail end users. And as the needs change by customer class so do the service substitutes, the economics of providing service, and the likelihood of facilities-based entry by competitors.

284. We therefore seek comment on whether to apply our Competitive Market Test based on different BDS customer classes at varying bandwidths and ask for comment on whether, and if so how, the Commission should separate the product market by customer type and bandwidth.⁷⁰⁹ For example, should the customer classes consist of the following categories: small business with less than 20 employees, mid-sized businesses with 20-500 employees, national/enterprise businesses with 500+ employees that typically require service at multiple locations? And should we adopt a separate product market to address the cell site backhaul needs of mobile providers and another one for sales to wholesale customers? We seek comment on the benefits of segmenting product markets by customer class and whether the data supports such an approach. In lieu of customer classes by size of retail customers, should we instead have fewer customer classes, such as just wholesale, mobile backhaul, and retail? Or are the benefits of using customer classes outweighed by the burdens due to the complexity and practicality of implementing such a framework?

285. To the extent the Commission adopts such an approach, we seek comment on whether we should also subdivide the relevant product markets by bandwidth to capture the varying demand and competition levels within each customer class. For example, we could divide the wholesale segment into BDS ≤ 50 Mbps and >50 Mbps. In developing the appropriate bandwidth overlay, we can look to evidence in the record and our own analysis of the *2015 Collection* as to the level of competition at different bandwidth levels.⁷¹⁰ To what extent, should evidence indicating that the supply of BDS above 50 Mbps tends to be more competitive than the supply of BDS at lower bandwidths factor into this overlay? We seek comment on whether 100 Mbps or some other bandwidth level is better supported by the evidence in particular market segments?⁷¹¹ Should we recognize different tiers of products (or distinct product markets) based on differences in speed? Should the bandwidth overlay levels vary depending on a particular customer class? Should the relevant bandwidth level(s) be static or evolve over time? For example, should product market re-evaluation be made part of the review conducted in light of future data collections?

286. We seek comment on these issues and encourage commenters to suggest other alternatives for consideration. Commenters should address whether a customer class/bandwidth approach would appropriately capture the nature of competition in these markets, whether the approach is administratively feasible, the appropriate bandwidth and/or product-feature categories, and whether we should include additional customer classes or make other modifications to the classes identified. For example, is it correct to base a product market identification on speed or do we need to factor in as well

⁷⁰⁸ As a group of wireless providers notes, “densified [5G] networks will require thousands of new cell sites . . . and an increase in dedicated wireline access, including access to large bandwidth Ethernet services of 100 Mbps or more.” Wireless Coalition Apr. 21, 2016 Letter at 1.

⁷⁰⁹ In the United Kingdom, Ofcom divides the product market into a retail and wholesale segment, which is further subdivided by technology type and bandwidth levels. Ofcom, Business Connectivity Market Review-Final Statement (Mar. 28, 2013), <http://stakeholders.ofcom.org.uk/consultations/business-connectivity-mr/final-statement/>.

⁷¹⁰ See *supra* Part V.A.

⁷¹¹ See Letter from John Nakahata, Counsel for Windstream, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, RM-10593, at 2 (filed Apr. 21, 2016) (“[C]able providers’ fiber networks remain limited in scope, and their Ethernet over Hybrid-Fiber Coaxial Cable only reaches speeds of 10 Mbps, well below the level of greater than 50 Mbps dedicated services. Windstream itself does not generally build out to serve 100 Mbps capacity to a single location, as it is generally not economically feasible to do so.”) (internal citation omitted).

additional performance features and, if so, which ones should be used and how should multiple product features be used to identify different product markets? We also seek comment on how various approaches would further our goal of promoting competition and investment for BDS services.

b. Relevant Geographic Area for Evaluating Competition

287. In 1999, the Commission chose to grant pricing flexibility on an MSA and non-MSA basis with the intent of defining “geographic areas narrowly enough so that the competitive conditions within each area are reasonably similar, yet broadly enough to be administratively workable.”⁷¹² The Commission in the *Suspension Order* concluded “MSAs have generally failed to reflect the scope of competitive entry.”⁷¹³ In reaching this conclusion, the Commission found “that business demand can vary significantly across an MSA” and that competitive entry tends to occur in smaller areas with the highest density of business establishments.⁷¹⁴ The GAO reached a similar conclusion in 2006.⁷¹⁵

288. Our analysis of the *2015 Collection* further confirms these findings.⁷¹⁶ According to our analysis, the price regressions of incumbent LEC rates for DS1 and DS3 lines show consistent negative effects for the presence of competition in the building, and the census block, much of which is both economically and statistically significant.⁷¹⁷ In addition, the regressions show some effects for the presence of competitive fiber in the census block, even if that fiber is not connected to any buildings in the block.⁷¹⁸

289. Given our analysis, we seek comment on using census blocks as the geographic area for applying the Competitive Market Test. We also ask whether using a more granular area, e.g., the building or cell site location as the relevant geographic market, or whether a larger geographic area is appropriate. For example, if the geographic area were the building location, the provider’s regulatory obligations could change building-by-building, which could make it difficult not only for regulators but also for providers trying to offer services to customers at multiple locations. Could a building approach reduce the challenges to determining the necessary proximity to fiber, thereby simplifying administration? A census block or even census tract approach would create a similar patchwork of geographic areas with different regulatory treatment. Census blocks in metropolitan areas are also often very small in size. For example, according to AT&T, “[t]he average size of census blocks in MSAs with demand for special access services is only about one-seventh of a square mile.”⁷¹⁹ However, we anticipate that areas adjacent to a census block will often have similar business density and facilities-based competitor characteristics resulting in a similar determination as to the level of competition.

290. Our goal is to learn from past experiences and to not repeat the errors of the 1999 pricing flexibility regime by granting relief too broadly to cover areas where competition is not present or unlikely to occur.

291. We seek comment on these proposals. Commenters should address the administrative feasibility of the proposals and how each option would impact the goal of promoting competition and

⁷¹² *Pricing Flexibility Order*, 14 FCC Rcd at 14260, para. 71.

⁷¹³ *Suspension Order*, 27 FCC Rcd at 10573, para. 35.

⁷¹⁴ *Id.* at 10574, 10583-84, paras. 37, 50.

⁷¹⁵ *GAO Report* at 19.

⁷¹⁶ *See supra* Part V.A.10.

⁷¹⁷ *See* Appx. B, Rysman White Paper at V, Table 16.

⁷¹⁸ Because the BDS revenue does not include DOCSIS business Internet access sales, the regressions do not measure the extent of the effect of DOCSIS competition on prices for DS1 and DS3 lines.

⁷¹⁹ AT&T Comments at 16.

investment in the BDS market. We also invite commenters to suggest alternative geographic units and ask commenters to explain how any alternative is supported by the data and furthers our goals.

c. Competitive Market Test Criteria

292. Our intent, as with any of the proposals under consideration, is to focus regulation on areas where actual or potential competition is insufficient to ensure rates, terms and conditions are at just and reasonable levels. We believe that bright-line criteria are best suited to meet these goals. Based on our review, we have identified two possible criteria for determining whether or not a market is competitive, i.e., business density and the number of providers in the relevant geographic area. We seek comment on these criteria below and whether alternative or additional criteria should be incorporated into the test.

(i) Business Density

293. Our analysis shows there is a significant correlation between business density and the presence, or likelihood, of competition.⁷²⁰ We therefore seek comment on the appropriate business density metric for the Competitive Market Test. Should we use the number of businesses establishments in a defined geographic area, the number employees, the level of payroll, or some other variable that is readily available and shown to be a good proxy for business demand? For example, should we look to any census block with more than some number of businesses establishments per square mile? Also to what extent should a different density standard apply when evaluating mobile backhaul? The deployment of cell sites may not necessarily correspond to business density and may more likely relate to population density or public travel areas. Should the Commission instead focus on the density of existing cell sites in a census block area when evaluating a mobile backhaul market? If so, what is the appropriate cell site density metric?

(ii) Number of Competitors in the Relevant Geographic Area

294. Our analysis further shows that the competitive effect on pricing increases as the number of competitors in the area increases. How should we incorporate this into a bright-line trigger? The Commission in the *Qwest Phoenix Order* found a market with only two competitors, a duopoly, not sufficiently competitive.⁷²¹ Should we require more than two facilities-based competitors in any area for a competitive trigger? Are there instances where having just one or two competitors is sufficient given the bandwidth level and business density in a given area? There is also the question of whether the type of competitor in the market makes a difference? Should we weight competition from a cable company differently than a non-cable competitive LEC or vice versa? If so, should this different weighting vary with bandwidth levels? There is also the question of how we identify the presence of a competitor in the area. Is it enough for a competitor to have one served location in the area? Is it enough for a cable company to just have DOCSIS 3.0 coverage over their HFC network in the area or should we weight an HFC network differently based on the presence of Metro-E capable nodes in the area? Should we also base the presence of a competitor on the presence of their fiber in the area or is it the presence of a competitor's fiber node in the area? For each customer class and bandwidth level, should we only count competitors in the area that are currently offering such services to that customer class within the stated bandwidth level?

295. We seek comment on the administratively feasibility of using the above test criteria, and encourage commenters to suggest alternative test metrics.

3. Competitive Market Test in Application

296. Our goal in creating the Competitive Market Test is to adopt a formula using available data, e.g., publicly available business density information and information provided in the 2015

⁷²⁰ See, e.g., *supra* paras. 54-55.

⁷²¹ *Qwest Phoenix Order*, 25 FCC Rcd at 8636-37, paras. 29-30.

Collection, and information from the National Broadband Map on the presence of facilities-based providers in a given geographic area, to determine whether or not a relevant market in areas served by price cap carriers is competitive.

297. The Competitive Market Test matrix would generate lists of census blocks or whatever geographic area the Commission adopts for each relevant market determined competitive and non-competitive. The corresponding regulatory obligations would then apply to markets within the relevant geographic area going forward, e.g., census block areas. We seek comment on how to ensure that this information is disclosed in a transparent, easily accessible format. For example, should the Commission create a central repository for information on its website that could contain an interactive map, which reviewers could filter by product class like the National Broadband Map? Or alternatively or in addition to a map, should the Commission simply create a publicly available database, which simply contains lists of relevant geographic areas by product market as competitive and non-competitive? Commenters should address which approach would be the easiest to administer and simplest for providers.

298. To provide certainty but also ensure that data are accurate and updated, we seek comment on re-applying the Competitive Market Test across all areas served by price cap carriers every three years to account for example, for changes in business density and the presence of facilities-based providers in geographic areas. This periodic reassessment could coincide with our separate proposal discussed in Part V.J to collect data from providers on their supply capabilities every three years starting in 2018. The re-application of the Competitive Market Test matrix using updated data would likely result in changes to the market delineation established by its prior application. For example, the Commission could subsequently determine a relevant market area, previously considered non-competitive, as competitive based on the updated data. And the opposite might also be true.

299. A periodic reassessment reduces burdens on providers as well as the Commission and balances the need to ensure accurate data. We generally seek comment on the administrative feasibility of this approach, both as a whole and as to its individual parts.⁷²² We also welcome suggestions for alternative approaches. We additionally seek comment on whether we should provide some implementation period to allow providers to conform operations following the application of the Competitive Market Test before any new regulatory obligations resulting from the determination of a relevant market as competitive or non-competitive are effective? If so, how long of a period should we provide? Commenters should also address the commercial practicalities of changing the regulatory treatment of a relevant market area every few years? For example, how could this impact contractual obligations with customers and to what extent could commercial providers adjust or account for a potentially changing regulatory environment every few years? Should the Commission re-apply the Competitive Market Test less frequently, like every five years?

4. Post-Determination Process

300. We ask to what extent and how the Commission should give providers and purchasers an opportunity to challenge the determinations rendered. We seek comment on how best to structure such a process to minimize administrative burdens on providers, purchasers, and the Commission.

301. We seek comment on the timing and frequency of such post-determination challenges. Should the Commission open a window to permit challenges within a specified period of time after the Competitive Market Test determinations are rendered, e.g., 30 or 60 days? If commenters believe that challenges should be permitted on a rolling basis, how would that impact market certainty and the transactions between providers and purchasers of BDS services?

302. We also seek comment on how to build upon lessons learned from the Connect America Fund challenge process. Based on the Connect America Fund experience, we believe a specific, bright-line test is appropriate to ensure that the Commission has data necessary to evaluate the merits of any

⁷²² See *supra* Part V.D.2.

challenges. We propose that parties seeking to challenge an area determined non-competitive to be designated as competitive should have the burden of proof to provide data demonstrating that the given area satisfies the Competitive Market Test. Should the same hold true of a challenge that a competitive market is non-competitive? What standards or showing should the challenger have to make to overcome a Competitive Market Test determination? For example, should challengers be required to submit new maps of fiber? In addition to providing challengers with access to data collection results subject to confidentiality restrictions, should the Commission give challengers a limited right of discovery to obtain information from providers to help make their requisite showing? If so, should the petitioner be required to meet a threshold evidentiary burden to initiate discovery and what should that be?

303. Should there be a different process if a provider challenges that an area determined competitive is non-competitive? What standard should apply? Is pricing data relevant or just the number of providers? Should the burden shift upon a *prima facie* showing? If so, what should constitute a *prima facie* case?

304. To the extent the Commission adopts product markets, how should such product markets factor into a challenge process? For example, what evidence would be necessary to show that a certain class of business customers face competition but smaller businesses do not?

305. In evaluating any challenges, should we limit filings to an affirmative case and a response? Should all challengers be required to submit certifications from officers attesting to the accuracy? We seek comment on how the Commission could build upon lessons from the Connect America Fund challenge processes to improve the implementation and reduce burdens for providers and the Commission.

306. We also seek comment on the how the Commission should implement the results of a post-determination challenge. If a challenge were successful, we propose that any determination for the relevant market changed from competitive to non-competitive as a result of the challenge (thereby changing the regulatory treatment of the relevant market area) would apply prospectively. If a successful challenge resulted in the change of a determination in 2017 to competitive, hypothetically, how should the Commission treat this relevant market area when it comes time to reapply the Competitive Market Test in a later year, like 2018? Should the Commission just reapply the test at that time, which could then trigger another round of challenges for that relevant market depending on the outcome of the determination?

307. Any post-determination process that allows for challenges or even a request for waiver raises serious administrative feasibility and burden concerns for the agency. The Commission must weigh the equitable benefits of allowing such a process to prevent undue harm to providers and customers in the relevant markets against these concerns. We seek comment on the above questions and invite commenters to suggest alternatives balancing benefit and burden.

5. Regulation for Provider(s) in Areas Determined Non-Competitive

308. Once the Competitive Market Test is applied, we ask which provider(s) should be subject to the specific rules that apply to markets determined non-competitive. Should such rules only apply to the largest BDS provider in the non-competitive market as measured by network coverage, locations served, revenues or some other metric or metric combinations? If so, how would we define the appropriate measure of “largest” (e.g., share of customers, share of revenue)? If we borrow upon antitrust principles and Commission precedent that focused on dominance, should we focus on the provider with the largest market share and therefore market power? Should we focus on the provider with the largest market share? If so, what is the appropriate measure of market share?

309. Alternatively, should we apply specific rules to any firm in the non-competitive market that has a near ubiquitous network in the local territory and rights of way?⁷²³ This could result in specific

⁷²³ For example, we could consider a provider to have a near ubiquitous network and subject to heightened regulation based on its BDS-capable connections to businesses in a specified geographic area, e.g., like 75 percent of

rules applying to more than one firm in the non-competitive area. Another approach is to apply this framework to all BDS providers in the non-competitive area. However, such an approach could apply additional regulation to new entrants with little or no market share. Given our desire to promote new competitive entry, should new entrants or providers with market share below a certain threshold not be subject to all or some of the proposed rules applicable to non-competitive markets? If so, what is the appropriate market share where providers should be exempt from such framework and why? Is there a better way to encourage new entrants?

310. We seek comment on these questions. Commenters should consider the regulation that would apply, as proposed in Part V.F where the Competitive Market Test resulted in a finding of a non-competitive service area. For example, if it were merely that our proposed benchmarks would apply to disputes about whether a price is just and reasonable, this may not impact providers that currently price below the benchmark. Other proposals, such as limitations on terms and conditions, may be more onerous.

311. Commenters should specifically address the potential impacts on infrastructure investment, innovation, administrative feasibility, and commercial practicalities of any particular approach. We also ask commenters to explain how each approach minimizes regulation to where necessary to ensure that rates, terms and conditions are just and reasonable in the absence of competitive pressures to do so. Commenters should also address the Commission's ability to implement any particular approach given the previous grants of forbearance authority to incumbent LECs for packet-based and optical carrier transmission services.

E. Rules Applying to All Markets

312. We first propose limited requirements that would apply to the provision of BDS in all markets, both competitive and non-competitive. All BDS providers are common carriers and, are subject to sections 201 and 202 of the Act.⁷²⁴ The Commission has long relied on these provisions to ensure just, reasonable and non-discriminatory conduct by competitive telecommunications service providers and we do so here. We have, however, identified an area for which a general prohibition could be valuable in our effort to facilitate the evolution of competitive markets. The proposed rule would limit the use of NDAs to block providers from sharing, subject to appropriate protective orders, the terms of business data services commercial agreements with the Commission and other government entities with oversight responsibilities. Such agreements have restricted competitive LECs from providing information that we believe would have been useful in the course of this proceeding and we find that they could inhibit the Commission's oversight of the business data services market going forward. We additionally seek comment on certain terms and conditions we found unlawful in the Tariff Investigation Order and whether such provisions should be prohibited in connection with the provision of BDS either generally or more narrowly in non-competitive markets. These proposed requirements would be technology neutral in nature and would form a part of our proposed overarching framework for the regulation of BDS generally.

1. Non-Disclosure Agreements

313. We seek comment on prohibiting the use of NDAs or their functional equivalents in business data service commercial agreements that restrict providers' and purchasers' ability to disclose information to the Commission or other government entities with oversight responsibilities. Competitive LECs have asserted that such requirements preclude them from sharing information with the Commission that would inform the Commission's oversight of the business data services market. We recognize that such agreements contain commercially sensitive information and underscore our continuing commitment

(Continued from previous page) _____
businesses connected in a metropolitan area, or some other measure. The geographic area used would likely depend on the relevant geographic market chosen by the Commission for evaluating competition. See *supra* Part V.D.2.b.

⁷²⁴ See *supra* Part V.C.

to ensure the protection of confidential information submitted to the Commission through our protective orders.

314. NDAs are a common legal instrument used to protect the confidentiality of sensitive information in a wide variety of agreements. Business data services commercial agreements commonly include NDAs to protect the confidentiality of the terms of those agreements.⁷²⁵ Such agreements include so-called “overlay” agreements that are also commonly subject to restrictive NDAs.⁷²⁶ Commenters, however, raise the concern that NDAs in some commercial agreements may be overly broad and may unreasonably restrict parties’ ability to share confidential information about commercial agreements with the Commission or other regulatory bodies. Commenters specifically raise concerns about NDAs that prohibit parties from submitting information to the Commission absent legal compulsion to provide it. For example, TDS states that the “wholesale Ethernet rates being offered to TDS CLEC by the RBOCs in the period 2014-2016 are subject to confidentiality provisions in the contract that prevent TDS CLEC from revealing them in this docket, even under Highly Confidential treatment, unless required by law, governmental authority or legal process.”⁷²⁷ Similarly, BT states that “[o]ne or more of the supply agreements BTA has entered into contain non-disclosure obligations that may not be avoided unless BTA is under legal compulsion to provide the requested data.”⁷²⁸ We note that other providers were also likely precluded by NDAs from fully responding to voluntary data requests issued by the Bureau in 2010 and 2011, rendering those data collections incomplete and contributing to the need for a subsequent mandatory data collection. Commenters also raise concerns with NDAs that prohibit them from voluntarily submitting information to the Commission.⁷²⁹ Other commenters describe commercial agreement NDAs that they assert are overly broad.⁷³⁰

315. We acknowledge the important role NDAs play in ensuring the protection of confidential information in commercial agreements. Parties to a commercial agreement have the right to seek protection of their confidential information and would be unlikely to enter into such commercial agreements without reasonable assurance that their sensitive business information would not be compromised. The Commission is fully cognizant of this need and ensures confidential data submitted by parties is accorded all necessary protections, principally through the use of protective orders. Protective orders have almost universally fulfilled their purpose. In the rare cases that confidential information has

⁷²⁵ See, e.g., Joint CLEC Comments, App. C (Black Decl.), Exh. 3 at 8 (sample NDA from an existing commercial agreement); Letter from Sheba Chacko, Senior Counsel, BT Americas Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, at 1 (filed Dec. 5, 2011) (BT Dec. 5, 2011 *Ex Parte* Letter); Response of CALTEL to Public Notice from Sarah DeYoung, Executive Director, California Association of Competitive Telecommunications Companies, , WC Docket No. 05-25, at 12 (Dec. 5, 2011) (CALTEL Dec. 5, 2011 *Ex Parte* Letter) (“T-Mobile, like all other large purchasers of special access services that enter into similar agreements, was bound by the terms of its master agreement with AT&T to keep **the entire agreement confidential.**”) (emphasis in original).

⁷²⁶ See Letter from Thomas Jones, Counsel, Level 3 Communications, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25 and RM-10593, at 4 (filed Sept. 23, 2015) (defining overlay agreements as “additional commercial agreements that are the subject of non-disclosure provisions”).

⁷²⁷ TDS Metrocom Opposition, Loch Second Decl. at para. 15.

⁷²⁸ BT Dec. 5, 2011 *Ex Parte* Letter at 1. NDAs have also allegedly prevented other government agencies, including the Government Accountability Office (GAO), from accessing business data services data from commercial agreements. See Letter from Robert W. Quinn, Jr., Senior Vice President, AT&T Services, Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, Attach. 3 (Kovacs Economic Policy Vignette 2012-6-4) at 10 (filed June 7, 2012) (“The U.S. Government Accountability Office (GAO) assessed the market in 2006, but was able to get very little data from either customers or competitors of the incumbents. . . . It could not get data on the specific mix of components within commercial agreements, which are usually covered by non-disclosure.”).

⁷²⁹ See, e.g., TDS Metrocom Opposition at 30.

⁷³⁰ CALTEL Dec. 5, 2011 *Ex Parte* Letter at 10.

been misused by a party, the Commission has undertaken appropriate steps to ensure the protective orders are enforced.⁷³¹

316. While we respect the importance of protecting parties' confidential information, the Commission must also ensure its access to the information necessary to discharge its core statutory duties. NDAs that obstruct this access may unreasonably interfere with the core oversight functions of the Commission and undermine the public interest in a full and complete record on which the Commission can base its decisions. We therefore propose several alternative prohibitions and restrictions on NDAs for business data service commercial agreements. First, we seek comment on adopting a prohibition on NDAs for commercial agreements that bar the provision to the Commission of any information regarding a commercial agreement. While such NDAs may be uncommon, should any such NDAs be permitted? We seek comment on the effect allowing such NDAs would have on the Commission's fact finding efforts and on its ability to base its decisions on all relevant information. We also seek comment on whether there are any circumstances which would justify precluding parties' ability to share any information in such a blanket fashion.

317. Second, we seek comment on whether the Commission should prohibit NDAs that effectively require the Commission's legal compulsion before parties are able to produce information from a business data service commercial agreement. Do NDAs that require parties to disclose confidential information only when required to do so by the Commission unduly restrict the Commission's access to information necessary to discharge its statutory functions? To what extent does this kind of constraint in practice restrict the Commission's ability to access information to the small number of cases where it is both aware of the existence of a commercial agreement and can devote the time and resources necessary for issuing an express direction for the production of information from the agreement? To what extent do such NDAs place the Commission in a quandary where it can only access information it specifically seeks, the existence and substance of which the parties are bound not to disclose?

318. Finally, we seek comment on whether we should prohibit NDAs that limit parties to disclosing information subject to an NDA only in response to a request by the Commission (in a notice of proposed rulemaking, a public notice or otherwise). Such a prohibition would allow parties to disclose information to the Commission on a voluntary basis at their own initiative and apart from any express request by the Commission. We note that the Commission has previously imposed rules effectively requiring a prior request from the Commission before parties could disclose information subject to an NDA. Section 51.301(c)(1) of the Commission's rules states that "a nondisclosure agreement that precludes [a] party from providing information requested by the Commission" is a violation of the section 251 duty to negotiate in good faith.⁷³² Should the Commission adopt similar restrictions on NDAs in business data services commercial agreements? Would such an approach to NDAs impact parties' advocacy before the Commission? Would it still constrain the Commission's access to important information from commercial agreements? As with NDAs that require legal compulsion prior to disclosure, how would the Commission know to request disclosure of information in commercial agreements that it may have no way of knowing existed?

319. Eliminating the requirement of a prior request for information would effectively enable parties to disclose information from a commercial agreement on a voluntary basis. We seek comment on whether this is an appropriate approach for the Commission to take. TDS Metrocom notes that NDAs impact parties' ability to fully participate in the rulemaking process. It states that the "practice of subjecting the rates, terms, and conditions of commercial Ethernet agreements to confidentiality restrictions impedes TDS CLEC's ability to advocate in support of new rules and detect unreasonable and

⁷³¹ See, e.g., *Rates for Interstate Inmate Calling Services*, WC Docket No. 12-375, Memorandum Opinion and Order, 30 FCC Rcd 13668 (WCB 2015).

⁷³² 47 CFR § 51.301(c)(1).

discriminatory rates.”⁷³³ Would allowing parties to disclose voluntarily information from a commercial agreement enable fuller and freer advocacy by those parties? Would it also assist the Commission in identifying issues that it otherwise would be unaware of? We also seek comment on how the Commission would ensure the confidentiality of such information once disclosed to the Commission. To the extent the information was related to an existing proceeding, the Commission would presumably either have already adopted a suitable protective order or would be able to do so in response to such a submission. What steps should the Commission take to ensure the protection of such information if the information was not related to an existing proceeding? Are there any other steps the Commission should take to ensure the protection of confidential information voluntarily submitted by a party?

320. Additionally, we seek comment on whether there are other types of NDAs or confidentiality provisions that may inhibit the Commission’s discharge of its core oversight and fact finding functions. If so, we seek comment on whether the Commission should also prohibit these or take some other action to modify them. We seek comment on how any rules the Commission adopts related to NDAs or other confidentiality provisions should affect existing contracts? Finally, how would the Commission implement a prohibition on NDAs that restrict its access to information contained in commercial agreements?

2. Scope of Application of Terms and Conditions Requirements Adopted in the Tariff Investigation Order

321. In this section of the Further Notice, we seek comment on the scope of application of the three requirements we adopt in the accompanying Tariff Investigation Order to other tariff pricing plans not subject to the tariff investigation and to commercial agreements for IP based business data services such as Ethernet. We also seek comment on whether such requirements should be applied in non-competitive markets or more generally in all markets.

a. Prohibition of All-or-Nothing Provisions

322. In the *Designation Order*, the Bureau designated for investigation “all-or-nothing” provisions in certain incumbent LEC tariff pricing plans that required customers that participate in one of the plans to make all of their TDM purchases out of that single plan.⁷³⁴ In the Tariff Investigation Order, we determined that all-or-nothing provisions are unreasonable and anti-competitive because they restrict a customer’s purchase options from both incumbent LECs and other providers.⁷³⁵ The incumbent LECs asserted that cost savings and higher levels of certainty for network planning purposes justified these requirements. We found, however, that the arguments were contrary to the facts and otherwise unsupported in the record. Accordingly, we found that these provisions were unjust and unreasonable practices under section 201(b) of the Act and we directed the relevant incumbent LECs to remove them from their tariffs.⁷³⁶ We seek comment on extending this restriction to the offering of all TDM and packet-based business data services, either solely to noncompetitive markets or to all markets.

323. Incumbent and competitive LECs presented arguments for and against all-or-nothing provisions in response to the Bureau’s *Designation Order*. These arguments are summarized in the accompanying Tariff Investigation Order.⁷³⁷ We agreed with competitive LECs that the incumbent LECs’ all-or-nothing provisions harmed customers by impeding their planning ability and reducing their ability to avoid paying considerable shortfall fees by lowering the amount of DSn services they purchase.⁷³⁸ We

⁷³³ TDS Metrocom Opposition at 30.

⁷³⁴ *Designation Order*, 30 FCC Rcd at 11448, para. 61.

⁷³⁵ See *supra* Part V.F.2.

⁷³⁶ See *supra* para. 110.

⁷³⁷ See *supra* paras. 99-100.

⁷³⁸ See *supra* para. 103-05.

also found that all-or-nothing provisions interfered with a customer's ability to purchase services from other competitive options.⁷³⁹ We further found that, contrary to the incumbent LECs' assertions, allowing customers to spread their purchases across both term only plans and term plans with portability or a portability option would increase a provider's certainty of circuit demand. Finally, we found the claims of costs savings unsupported on two grounds. First, the incumbent LECs provided no cost support data to support their claims. Second, the incumbent LECs provided no basis to conclude that the reasonableness of their costs under one plan were dependent on the number of circuits they sold under a separate and unrelated plan when the customer met the requirements for each plan independently.

324. We seek comment on whether we should extend the Tariff Investigation Order's prohibition on all-or-nothing provisions in the plans under investigation to a general prohibition on all-or-nothing provisions in all business data services, including both tariffed offerings and commercial agreements, and whether such a prohibition should be imposed in noncompetitive markets or in all markets. We seek comment on whether other pricing plans or other providers use all-or-nothing provisions or provisions that have materially similar effects for purchasers of TDM or packet business data services. How common are such provisions in TDM tariffs or Ethernet commercial agreements? If all-or-nothing provisions are used in other tariffs or in commercial agreements, what is the business justification for using them? What impact do all-or-nothing restrictions have on the transition to IP business data services? How, if at all, are such requirements different for Ethernet than TDM business data services? Do Ethernet commercial agreements raise any special considerations that would merit unique consideration? Do these provisions help providers lower costs or create efficiencies? If so, we seek quantification of these costs and whether there is any rational relationship between these costs and efficiencies generated by all-or-nothing provisions? Additionally, we seek comment on whether we should impose such a prohibition on noncompetitive markets or all markets.

325. We also seek comment on potential issues regarding the implementation of a prohibition on all-or-nothing requirements. To the extent there are other tariffed incumbent LEC pricing plans or contract tariffs that contain all-or-nothing provisions, how should the Commission implement this proposed prohibition? Should such a prohibition be effective immediately upon publication in the Federal Register? Should it consider a transition period to allow parties to implement this rule? If so, what would be an appropriate transition period for phasing out these provisions? Should the Commission institute a fresh look opportunity to enable customers of existing pricing plans with all-or-nothing restrictions to remedy the effects of these restrictions prior to the expiration of their current, often long term, pricing plans.

326. *Multiple purchases under a single plan.* We also seek comment on whether we should find unreasonable restrictions on customers' ability to participate in an incumbent tariff pricing plan more than one time concurrently. In other words, should customers be restricted from splitting their purchases under one pricing plan into two or more separate agreements and managing those separately? Some incumbent LEC tariff pricing plans address this issue and expressly restrict customers to participating in a single version of a pricing plan at any one point in time. For example, the RCP in the CenturyLink Tariff F.C.C. No. 11 states: "A customer can have only one RCP in effect at a time."⁷⁴⁰ We seek comment on whether other pricing plans impose a similar requirement in this or other ways.

⁷³⁹ See *supra* para. 110.

⁷⁴⁰ See, e.g., CenturyLink Tariff F.C.C. No. 11 § 7.1.3(B)(1). See also, e.g., Ameritech Tariff F.C.C. No. 2 § 7.4.13(A) ("A customer may have only one DCP per service per state in effect at one time."); CenturyLink Tariff F.C.C. No. 9 § 7.4.11(C) ("[A] customer that has a state specific or nationwide 3 year plan in effect for DS1 service may not establish a second 3 year DS1 TDP for that area until the current TDP expires."); Frontier Tariff F.C.C. No. 6 § 7.2.1 (G) (7) ("A customer may subscribe to only one plan for each term period within a given state."); Verizon Telephone Companies Tariff F.C.C. No. 11 § 25.2.1(D)(1)(NDP).

327. We seek comment on whether these restrictions on customers are reasonable. Should incumbent LECs effectively force customers to aggregate all their purchases into a single purchase under a pricing plan? Would eliminating such restrictions and allowing customers to split their overall purchases under a pricing plan into separate purchases under that plan provide them with greater flexibility in managing their purchases? Would it allow competitive LECs to better manage increasing shortfall penalty liability in a declining TDM market that is transitioning to packet business data services? We also seek comment on the business rationale for such a requirement. What additional management or tracking burdens would this impose on incumbent LECs and how significant would they be? Can such costs or burdens be quantified? How would any such administrative burdens compare with the benefits of added flexibility for customers in the business data services market?

328. We also seek comment on whether such restrictions are used in Ethernet commercial agreements. If so, commenters should cite examples and discuss the impact they have on customers' flexibility in managing their Ethernet purchases. Would allowing customers to treat their purchases under one Ethernet commercial agreement as separate purchases impose any burdens on providers of business data services? Would the benefits of increased flexibility outweigh any such burdens? Should the Commission prohibit such restrictions solely in noncompetitive markets or should it prohibit them in all markets?

b. Shortfall Penalties

329. In the *Designation Order*, the Bureau designated for investigation the question whether the use of shortfall fees in certain AT&T, CenturyLink, Frontier, and Verizon tariff pricing plans for TDM DS1 and DS3 business data services, either by themselves or in conjunction with other plan provisions, is a just and reasonable practice under section 201(b) of the Act.⁷⁴¹ Shortfall penalties are fees that are imposed for violations of percentage-based commitments, which competitive LECs assert require them to maintain a large proportion of their total spend with an incumbent LEC provider to obtain discounts and circuit portability typically necessary for wholesale providers. In the Tariff Investigation Order, we found shortfall penalties that provided compensation beyond a price cap LEC's expectation damages were unreasonable and directed certain price cap LECs to remove such provisions from their tariffs under investigation and directed them to make tariff revisions consistent with the terms of the order. We seek comment in this Further Notice on whether we should prohibit the assessment of shortfall penalties that provide compensation beyond expectation damages. Should we prohibit such penalties both in tariff pricing plans and in commercial agreements and should any such prohibition be imposed only on noncompetitive markets or also on competitive markets?

330. As we explain in the accompanying Tariff Investigation Order, shortfall fees have become increasingly significant in light of the decline in TDM services and the related growth in IP-based services.⁷⁴² While customer demand for TDM services remains substantial, providers face declining demand for these services, which translates into increased potential shortfall fee liability for competitive LECs that purchase TDM services through incumbent LEC tariff pricing plans that are typically long term and have high percentage commitments. These dynamics are further evidence of the technology transition and reflect the same broader industry trends that the Commission is responding to in the Emerging Wireline Networks proceeding.⁷⁴³ Competitive LECs allege that to the extent shortfall fees are excessive, they tend to lock competitive LECs into purchasing TDM business data services, inhibiting their ability to respond to demand for IP-based services and thereby prolonging the IP transition. To the extent these fees impose costs on a customer beyond the provider's opportunity cost, we seek comment

⁷⁴¹ *Designation Order*, 30 FCC Rcd at 11453, para. 72.

⁷⁴² *See supra* paras. 116-117.

⁷⁴³ *See generally, Technology Transitions et al.*, Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, 30 FCC Rcd 9372 (2015) (*Emerging Wireline Order*).

on whether we should find that such costs would unreasonably limit customers' ability to make efficient choices and impede technology transitions.

331. In the Tariff Investigation Order, our analysis and comparison of the various shortfall provisions in the incumbent LEC pricing plans under investigation demonstrated the variability of these penalties, both in their amounts and the methodologies used to calculate them.⁷⁴⁴ In addition, the incumbent LECs did not support their penalties with any concrete cost or economic justification in response to the Bureau's instructions and therefore did not provide an objective basis to demonstrate these penalties were reasonable.⁷⁴⁵ We found that a shortfall penalty for TDM services in the tariff pricing plans at issue that allowed the incumbent LEC to recover from the purchaser an amount greater than what the purchaser would have paid had it met its minimum commitment level was unreasonable.⁷⁴⁶ We explained that when penalties for breach reflect the opportunity cost of breach, a party will choose breach only when it is economically efficient, i.e., when the benefits of doing so exceed the costs breach will impose on the other contracting party.⁷⁴⁷ We determined that the shortfall provisions in the AT&T Southwestern Bell and Pacific Bell DS1 TPP, Frontier's OPP and NDPs, and Verizon's CDPs and NDPs exceeded this measure of damages and directed the incumbent LECs to revise their tariffs accordingly.⁷⁴⁸

332. We now seek further comment on the reasonableness of shortfall penalties that are contained either in tariff pricing plans that were not the subject of the Bureau's tariff investigation or are contained in commercial agreements for the sale of IP-based business data services. We seek comment on whether shortfall penalties should reflect the economic costs of breaching an agreement or whether they should be set at some other level. Would unreasonable and excessive penalties impair providers' ability to transition to IP based business data services?⁷⁴⁹ Could such penalties negatively affect wholesale competition and end-user customers in the form of higher prices, reduced innovation, and reduced investment in broadband services?

333. We seek comment on whether the standard for assessing the reasonableness of shortfall penalties that we adopted in the Tariff Investigation Order should be applied more broadly to all providers of TDM and packet-based BDS through either tariff pricing plans or commercial agreements and either in noncompetitive markets or in all markets.⁷⁵⁰ We propose that any action we take in this regard should be applied on a technology neutral manner. Would such a standard allow providers to recover from their customers in the event of a breach sufficient, insufficient or excessive damages? We seek comment on the wide variety of methodologies for calculating shortfall penalties both in tariff provisions and commercial agreements. Commenters advocating for other measures of reasonableness for shortfall penalties should explain their concerns with the proposed standard and identify an alternative standard and provide examples.

334. We seek comment on what approach would best ensure that both parties to a contract, whether through a tariff or a commercial agreement, receive the benefit of their bargain. Would a higher ceiling on reasonable penalties distort market incentives and lead to a windfall for providers? Would a lower ceiling be sufficient to compensate providers? We note that some incumbent LEC plans assess shortfall penalties that are a fraction of full expectation damages for DS1 and DS3 services.⁷⁵¹ Would it

⁷⁴⁴ See *supra* paras. 118-22.

⁷⁴⁵ See *supra* para. 131.

⁷⁴⁶ See *supra* paras. 132-4.

⁷⁴⁷ See *supra* para. 133.

⁷⁴⁸ See *supra* para. 140.

⁷⁴⁹ See *supra* para. 126.

⁷⁵⁰ See *supra* para. 132-34.

⁷⁵¹ See *supra* para. 125.

be reasonable to require incumbent LECs to apply these lower penalty calculation methods to all plans? If providers currently have shortfall penalties that are a fraction of expectation damages in some of their plans or agreements, should they be allowed to adopt higher penalties without first substantiating a reasonable basis for an increase? What showing should such providers have to make? For example, if carriers claim shortfall penalties are necessary to recover their risks and costs, should they be required to make a cost showing or some other financial demonstration to justify the level of the shortfall penalty?

335. We also seek comment on the impact of shortfall provisions in tariff pricing plans on customers' Ethernet purchase and construction decisions. The record shows that, if these penalties are not set equitably and reasonably, they can provide incumbent LECs with economic leverage that may cause competitive LEC customers to forgo purchasing IP-based business data services and other services from potential competitors or self-provisioning these services over their own networks.⁷⁵² For example, competitive LECs have provided evidence that the decline in TDM sales has exposed wholesale buyers to ever-increasing shortfall penalties, which in concert with high purchase commitments and the need for circuit portability, have "left them no choice but to commit to purchasing large volumes of Ethernet from incumbent LECs in return for relief from the penalties."⁷⁵³ Would ensuring the reasonableness of shortfall penalties provide relief for competitive LECs that claim to experience pressure to make most if not all Ethernet purchases from price cap LECs where a shortfall liability is present?

336. Finally, we seek more specific comment on the framework that should be applied to ensure the reasonableness of shortfall penalties in commercial agreements for the provision of IP-based business data services both in noncompetitive and competitive markets. Competitive LECs have provided evidence of the use of shortfall fees in Ethernet commercial agreements.⁷⁵⁴ We seek comment on the use of shortfall fees in commercial agreements generally. How common is the use of shortfall fees in commercial agreements, overlay agreements, and other agreements for the provision of Ethernet service? How are such fees calculated and by what methodology are they set? How do they impact the dynamics of the market for Ethernet services? What are the economic costs that providers and purchasers face in the event of a breach? What is the best way to structure shortfall penalties in Ethernet commercial agreements so that they reasonably compensate providers while not excessively penalizing purchasers?

c. Early Termination Fees

337. In the *Designation Order*, the Bureau designated for investigation whether the use of early termination fees (ETFs) in certain AT&T, CenturyLink, Frontier, and Verizon tariff pricing plans for DS1 and DS3 special access services, either by themselves or in conjunction with other pricing plan provisions, is a just and reasonable practice under section 201(b) of the Act. Early termination fees, as distinguished from shortfall or other fees, are charges assessed on a purchaser under business data services tariff pricing plans if a purchaser exits the plan prior to the expiration of the purchaser's term commitment. In the *Tariff Investigation Order*, we found early termination fees to be unreasonable when they allow the incumbent LEC seller to recover damages that exceed the lesser of either: 1) the revenues the incumbent LEC would have received if the purchaser had retained the circuit or circuits through the end of the term commitment; or 2) the revenues the incumbent LEC would have received if the purchaser had paid the lesser discount corresponding to the shorter term the purchaser actually used the circuit or circuits.⁷⁵⁵ We also found that certain tariffs at issue contained early termination provisions in excess of

⁷⁵² See, e.g., Joint CLEC Opposition at 32.

⁷⁵³ Joint CLEC Opposition at 14, 23-24. Competitive LECs assert that "[i]f [incumbent LECs] are allowed to continue to [take control of the wholesale Ethernet market], the incumbent LECs, rather than market forces, will dictate the pace of innovation and investment in the deployment of packet-based dedicated services for American businesses for years to come." Joint CLECs Opposition at 28.

⁷⁵⁴ Joint CLEC opposition at 33, 35, 39-40; Appx. A at 19-20; Appx. B at 8-9.

⁷⁵⁵ See *supra* para. 156.

this measure of damage, concluded such provisions are unjust and unreasonable practices under section 201(b), and directed the incumbent LECs to revise their tariffs accordingly.⁷⁵⁶ We now seek comment on whether and how the Commission should consider imposing constraints on early termination fees beyond the plans subject to the tariff investigation and what the scope of such constraints should be.

338. We first seek comment on imposing limits on early termination fees in other price cap LEC tariff pricing plans and contract tariffs for the provision of TDM based services. Competitive LECs assert that incumbent LECs failed to provide cost justification or other support for the early termination fees they charge. For example, in the tariff investigation, the Joint CLECs argue that incumbent LECs did not attempt to “quantify [their] fixed and incremental costs or the extent to which both have already been recovered over many years of charging customers for DS1 and DS3 services.”⁷⁵⁷ Sprint also asserts that incumbent LECs are “unable to explain why it is reasonable to impose penalty amounts that bear no relationship to the costs of [] early termination, and that frequently exceed even the amount the customer would pay if it met its commitment level.”⁷⁵⁸ On the other hand, incumbent LECs assert that early termination provisions are necessary to enforce term commitments and that they are calculated reasonably. For example, AT&T argues that early termination provisions in its tariffs are “lower than what the customer would have paid if they had held the circuit to term.”⁷⁵⁹ CenturyLink contends that “[e]arly termination fees help ensure that at least a portion of the expected revenue stream on which CenturyLink’s investment was premised will continue over the life of the customer’s commitment, and to provide some compensation to CenturyLink if it does not.”⁷⁶⁰

339. We seek comment on the use of early termination fees more generally and on their potential impact on the development of competition and the technology transitions. Are early termination fees that penalize customers beyond the full cost of the term plan they agreed to reasonable? We seek comment on whether we should extend and apply the framework we adopted in the Tariff Investigation Order to other providers of TDM and Ethernet-based business data services either solely in noncompetitive markets or in all markets. That framework entailed capping early termination fees at the lesser of either: 1) the revenues the incumbent LEC would have received if the purchaser had retained the circuit or circuits through the end of the term commitment; or 2) the revenues the incumbent LEC would have received if the purchaser had paid the lesser discount corresponding to the shorter term the purchaser actually used the circuit or circuits.⁷⁶¹

340. In commenting on this proposal, commenters should address the following questions. Do these two measures adequately compensate providers without excessively penalizing customers? Are there other ways to calculate a reasonable early termination penalty? Would a cost-based calculation be appropriate? Are there any circumstances where a penalty that compensates providers beyond their opportunity cost is reasonable? If so, please describe such circumstances and what evidence a provider could use to establish that such a penalty is reasonable? What showing should the Commission require if a provider seeks to raise its existing early termination fees? Commenters are invited to discuss factors that the Commission might take into consideration in calculating reasonable early termination penalties, such as cost studies, revenue expectations, avoided maintenance and administrative costs, and any alternative means of valuing parties’ expectations.

⁷⁵⁶ See *supra* para. 158.

⁷⁵⁷ Joint CLEC Opposition at 89 n.222.

⁷⁵⁸ Sprint Opposition at v.

⁷⁵⁹ AT&T Direct Case at 53.

⁷⁶⁰ CenturyLink Direct Case at 47.

⁷⁶¹ See *supra* para. 156.

341. A number of existing tariff pricing plans set early termination fees lower than this proposed standard.⁷⁶² Some assess fees that represent only a fraction of the incumbent LEC's revenue expectations under the plan.⁷⁶³ These penalty amounts were filed as part of the incumbent LECs' tariffs and therefore presumably provide reasonable compensation to the incumbent LEC in the case of a customer's breach of its term commitment. We therefore seek comment on whether we should impose an upper bound on what we would consider a reasonable early termination fee that is lower than the incumbent LEC's revenue expectations under its plan. To the extent commenters suggest lower limits for early termination fees, they should provide business and cost justification for their recommendations.

342. Further, we seek comment on whether, in the case of the retirement of a copper network, to require providers to eliminate any early termination fee liability where the termination is caused by the provider electing to discontinue the plan or service that is the subject of the term commitment. In such cases, where it is the provider's decision to cancel the service, is eliminating early termination fees appropriate so as not to penalize the customer? Are there any circumstances under which providers could reasonably assess early termination fees in this situation?

343. We also seek comment on any unique issues that would arise in applying this prohibition on early termination fees in commercial agreements for Ethernet-based business data services, either solely in noncompetitive markets or in all markets. Do overlay or other commercial agreements for the provision of Ethernet-based service assess early termination penalties? At what level are these penalties set? How are early termination penalties calculated in these commercial agreements? What are the economic costs that providers and purchasers face in the event of a breach? What is the best way to structure early termination fees in Ethernet commercial agreements to ensure that such fees reasonably compensate providers while not excessively penalizing purchasers?

F. Rules Applying to Non-Competitive Markets

344. We next propose requirements that would apply to the provision of business data services only in those markets that are characterized as non-competitive. These rules are intended to provide clear guidance as to what conduct is just and reasonable in a non-competitive market and thereby facilitate the resolution of disputes through commercial negotiations and we seek comment generally on what actions should be taken to ensure that conduct is just and reasonable in a non-competitive market. Providers with market power are able to exercise such market power to the detriment of their customers. Recognizing that the market is evolving and competition may develop in many markets not currently subject to material competitive effects, these rules are intended to constrain potentially anti-competitive conduct while also providing the flexibility to allow all providers to respond to competition. Like the limited rules that would be applicable in all markets, these proposed requirements would be technology neutral in nature and would form a part of our proposed overarching framework for the regulation of BDS generally.

⁷⁶² Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(G) (calculating the early termination fee by multiplying the monthly recurring rate for the service by (1) the months remaining in the DS1 TPP term at the time of termination; and (2) 40 percent); Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(G) (calculating the early termination fee by multiplying the monthly recurring rate for the service by (1) the months remaining in the DS1 TPP term at the time of termination; and (2) 40 percent); CenturyLink Operating Companies Tariff F.C.C. No. 9 § 7.4.11(G) (billing 50 percent of the monthly TDP charges for the remaining portion of the committed term).

⁷⁶³ Under AT&T's term commitment plans, the Pacific Bell and Southwestern Bell TPPs, if a purchaser with a \$500 monthly rate terminates service with 10 months remaining in a 3-year DS1 TPP term, the termination liability charge would be 40 percent of the monthly TPP charges for the remaining portion of the committed term: $(\$500/\text{month}) \times (10 \text{ months}) \times (0.40) = \$2,000$. Pacific Bell Telephone Company Tariff F.C.C. No. 1 § 7.4.18(G); Southwestern Bell Telephone Company Tariff F.C.C. No. 73 § 7.2.22(G).

1. Price Cap Regulation

345. We believe that Commission action on price caps is over a decade overdue. The CALLS plan ended on June 30, 2005.⁷⁶⁴ With that deadline in mind, the Commission initiated the *Special Access* rulemaking in January 2005 and sought comment on, among other matters, whether to apply and how to calculate a productivity-based X-factor.⁷⁶⁵ In June 2009, the D.C. Circuit observed that this rulemaking “seem[ed] to be moving at a slow pace.”⁷⁶⁶ Now, over six years since that observation and over ten years since the start of this rulemaking, we plan to move expeditiously to ensure that rates for business data services are just and reasonable.

346. In the 2005 *Special Access NPRM*, the Commission proposed to continue to regulate business data services rates under a price cap system and sought comment on the specific details of that system.⁷⁶⁷ Given the passage of time since that request for comment, we ask the parties to address all aspects of our price cap system for business data services and, in particular, how we should modify that system in view of the technology transitions and our other proposals in this Further Notice. We highlight below certain areas where additional comment might be most helpful.

347. Historically, the Commission has used price cap regulation to ensure that the largest incumbent LECs’ business data services rates are constrained to just and reasonable levels.⁷⁶⁸ In 1991, the Commission implemented a system of price cap regulation by price cap LECs to establish their interstate access charges.⁷⁶⁹ Price cap regulation seeks to replicate in a market where providers have market power the beneficial incentives of competition in the provision of interstate access services, while balancing ratepayer and stockholder interests.⁷⁷⁰ Price cap regulation is a form of incentive regulation that seeks to “harness the profit-making incentives common to all businesses to produce a set of outcomes that advance the public interest goals of just, reasonable, and nondiscriminatory rates, as well as a communications system that offers innovative, high quality services.”⁷⁷¹ In contrast to rate-of-return regulation, which preceded price cap regulation and focuses on an incumbent LEC’s costs and fixes the profits an incumbent LEC may earn based on those costs, price cap regulation focuses primarily on the prices that an incumbent LEC may charge. The access charges of price cap LECs originally were set at levels based on the rates – and thus carrier costs – that existed at the time the price cap LECs entered the

⁷⁶⁴ See *Data Collection Order*, 27 FCC Rcd at 16321-22, para. 6.

⁷⁶⁵ 2005 *Special Access NPRM*, 22 FCC Rcd at 2007-09, paras. 31-37.

⁷⁶⁶ *Ad Hoc v. FCC*, 572 F.3d at 911.

⁷⁶⁷ 2005 *Special Access NPRM*, 20 FCC Rcd at 2004-18, paras. 24-68 (inviting comment on, among other matters, various issues relating to inflation and exogenous cost adjustments, adoption of a productivity-based X-factor, adoption of a growth factor, earnings sharing, low-end adjustments, rate structure, and initial post-CALLS price cap rates).

⁷⁶⁸ See, e.g., 2005 *Special Access NPRM*, 20 FCC Rcd at 1998, para. 10.

⁷⁶⁹ *Id.* The Commission required price cap regulation for the Bell Operating Companies (BOCs) and GTE, and permitted other incumbent LECs to elect price cap regulation voluntarily, provided that all their affiliates also convert to price cap regulation and that they withdraw from the pools administered by the National Exchange Carrier Association (NECA). *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, Second Report and Order, 5 FCC Rcd 6786, 6818, paras. 257-59 (1990) (*1990 Price Cap Order*), *aff’d*, *Nat’l Rural Telecom Ass’n v. FCC*, 988 F.2d 174 (D.C. Cir. 1993). Most small incumbent LECs elected to remain subject to rate-of-return regulation.

⁷⁷⁰ See *Price Cap Performance Review for Local Exchange Carriers; Access Charge Reform*, CC Docket Nos. 94-1, 96-262, Fourth Report and Order in CC Docket No. 94-1 and Second Report and Order in CC Docket No. 96-262, 12 FCC Rcd 16642, 16645, para. 2 (1997) (*1997 Price Cap Review Order*), *aff’d in part, rev’d in part and remanded by USTA v. FCC*, 188 F.3d 521 (D.C. Cir. 1999).

⁷⁷¹ *1990 Price Cap Order*, 5 FCC Rcd at 6787, para. 2.

price cap system. Price cap regulation sets a ceiling on rates based on price indices that are adjusted annually pursuant to formulas set forth in Part 61 of our rules.⁷⁷²

348. In 1999, in response to the pro-competitive, deregulatory mandates of the 1996 Act, the Commission, based on its predictive judgment of how competition would evolve for business data services, adopted a framework for granting price cap LECs pricing flexibility that provided relief based on whether and to what extent competitive LECs had collocated in incumbent LEC wire centers.⁷⁷³ Under the rules, the Commission granted pricing relief in two phases – Phase I relief subject to the price cap and Phase II relief not subject to the price cap. Phase I relief, which required lower levels of collocation, gave price cap carriers the ability to lower their rates through contract tariffs, offered on one day’s notice, and through volume and term discounts, but required that they maintain their generally available price cap-constrained tariff rates to “protect[] those customers that lack competitive alternatives.”⁷⁷⁴ Phase II relief, which required higher levels of collocation, permitted price cap LECs to raise or lower their rates throughout an area, unconstrained by price cap regulations included in the Commission’s part 61 and part 69 rules.⁷⁷⁵ The price cap LEC, however, is required to file, on one day’s notice, generally available tariffs for services subject to Phase II relief.⁷⁷⁶

349. Subsequently, the Commission adopted the CALLS plan in 2000, a five-year interim, industry-proposed regime designed to move towards a more market-based approach to rate setting.⁷⁷⁷ All price cap incumbent LECs opted for the CALLS plan.⁷⁷⁸ Among other measures, the CALLS plan separated business data services into a single price cap basket and applied a separate X-factor to that basket.⁷⁷⁹ Instead of reflecting productivity increases in the telecommunications industry, this X-factor was designed to lower price cap carriers’ business data services rates by 3.0 percent in 2000 and 6.5 percent in each of 2001, 2002, and 2003.⁷⁸⁰ Since 2004, the X-factor has been set equal to the change in the gross domestic product price index (GDP-PI), an action that effectively froze price cap rate indices at 2003 levels absent any necessary exogenous cost adjustments, because those indices are reduced by the X-factor and increased by the inflation rate.⁷⁸¹ Although the Commission intended the CALLS plan to run only until June 30, 2005,⁷⁸² the Commission has not acted to remove this freeze despite changes in overall economic and telecommunications productivity since that time.

⁷⁷² *Id.*; see 47 CFR § 61.45.

⁷⁷³ See *Pricing Flexibility Order*, 14 FCC Rcd at 14225, para. 4. Pricing flexibility relief was also dependent on at least one collocator in each relevant wire center relying on a transport provider other than the incumbent LEC. *Id.* at 14261-62, 14294, paras. 77, 149.

⁷⁷⁴ *Pricing Flexibility Order*, 14 FCC Rcd at 14258, para. 69; 47 CFR §§ 69.711(b), 69.727(a).

⁷⁷⁵ *Pricing Flexibility Order*, 14 FCC Rcd at 14301, para. 153; 47 CFR §§ 69.711(c), 69.727(b). Price cap LECs granted Phase II relief must continue to maintain generally available tariffs, but may file such tariffs on one day’s notice. See *id.*

⁷⁷⁶ *Pricing Flexibility Order*, 14 FCC Rcd at 14299-14301; 47 CFR § 69.727(b)(3).

⁷⁷⁷ See *CALLS Order*, 15 FCC Rcd at 12965, 12977-79, paras. 4, 36-42.

⁷⁷⁸ *Suspension Order*, 27 FCC Rcd at 10564, para. 12.

⁷⁷⁹ *CALLS Order*, 15 FCC Rcd at 12974-75, 13033-34, paras. 30, 172.

⁷⁸⁰ *Id.* at 13038-39, paras. 183-84.

⁷⁸¹ See *Suspension Order*, 27 FCC Rcd at 10564-65, para. 13 (“For the final year of the CALLS plan (July 1, 2004 — June 30, 2005), the business data services X-factor was set equal to inflation, thereby freezing rate levels.”). Because rates are both reduced by and increased by the inflation rate, they are effectively frozen. See *CALLS Order*, 15 FCC Rcd at 13024, para. 149.

⁷⁸² See *Data Collection Order*, 27 FCC Rcd at 16321-22, para. 6.

350. In January 2005, the Commission initiated a broad examination of what regulatory framework to apply to price cap LECs' interstate business data services following the expiration of the CALLS plan on June 30, 2005.⁷⁸³ The Commission sought comment on, among other matters: (1) the type of rate regulation that should apply; (2) whether to apply and how to calculate a productivity-based X-factor; and (3) "whether to maintain or modify the pricing flexibility rules" based on an examination of the "available marketplace data."⁷⁸⁴ The Commission suspended the pricing flexibility rules in 2012 because the collocation triggers, which served as a predictive judgement for the presence competition, were not working as intended given market developments.⁷⁸⁵ The *Suspension Order*, however, left open the question of what to do about the 204 price cap MSAs in which eight price cap incumbent LECs operate that had been granted Phase I or II pricing flexibility.⁷⁸⁶

a. Retention of Price Cap Regulation

351. We believe that we should continue to apply price caps to business data services now subject to price cap regulation to the extent an application of our proposed Competitive Market Test determines that such price regulation is necessary or such services are not otherwise made subject to an alternative pricing mechanism.⁷⁸⁷ The principal price cap services are TDM business data services (i.e., DS1 and DS3 services). Elsewhere in this order, we propose a number of actions that will impact how and to which services price caps will continue to apply. As described above, we propose to adopt a Competitive Market Test as a basis for determining which broadband data services are competitive or non-competitive.⁷⁸⁸ And, as described below, we propose to remove competitive TDM services from price cap regulation.⁷⁸⁹ We further propose to subject non-competitive TDM services to price cap regulation and allow for providers to enter into individually negotiated agreements for such services.⁷⁹⁰ Finally, we propose and seek comment on maintaining price caps for non-competitive TDM services consistent with these proposals on a non-tariffed basis.⁷⁹¹ While we seek comment on our view and each of these proposals individually, we ask commenters to keep all these proposed actions in mind and address advantages or concerns with their collective impact as appropriate in their comments.

352. We also seek comment on the scope of the application of rate regulation in non-competitive markets to packet-based BDS (and, as well, to TDM BDS). At some point in the future, there may be non-competitive BDS markets in which TDM is no longer available. In such a case, how would we regulate the non-competitive business data services? How do we ensure the regulation we adopt here is technology-neutral and sufficient to permit it to be applied to such a non-competitive BDS market?

353. As discussed above, the record makes clear that the market for lower-bandwidth TDM business data services such as those currently subject to price caps is non-competitive in significant measure.⁷⁹² Firms with market power do not have incentives to price services at just and reasonable levels consistent with section 201 of the Act.⁷⁹³ We believe that the price cap system, as modified by any

⁷⁸³ 2005 *Special Access NPRM*, 20 FCC Rcd at 1955, para. 1.

⁷⁸⁴ *Id.* at 14227, 14236-27, 14260, 14287-88, paras. 11, 30, 72, 122.

⁷⁸⁵ *Suspension Order*, 27 FCC Rcd at 10560, para. 4.

⁷⁸⁶ *Id.* at 10580, 10624-33, para. 44 & Appx. D.

⁷⁸⁷ *See infra* Part V.F.2.e

⁷⁸⁸ *See supra* Part V.D.

⁷⁸⁹ *See infra* Part V.H.1.

⁷⁹⁰ *See infra* Part V.H.1.

⁷⁹¹ *See infra* Part V.H.2.

⁷⁹² *See supra* Parts V.A.10, V.D.2.b.

⁷⁹³ *See, e.g., Qwest Phoenix Order*, 25 FCC Rcd at 8639, para. 34.

measures we adopt in this proceeding, will limit the extent to which price cap LECs can exercise their market power over non-competitive TDM BDS rates. When properly applied, price cap regulation replicates the beneficial incentives of competition in the provision of business data services while balancing ratepayer and stockholder interests.⁷⁹⁴ The price cap indices provide benchmarks of price cap LEC cost changes that encourage them to become more productive and innovative by permitting them to retain reasonably higher earnings.⁷⁹⁵ Those indices are designed to limit the prices price cap LECs charge for service to just and reasonable levels.⁷⁹⁶ By establishing limits on prices carriers can charge for business data services, and placing downward pressure on those limits or “caps,” price caps creates a regulatory environment that incentivizes carriers to become more productive and forces them to pass a portion of their cost savings to ratepayers.⁷⁹⁷

354. We are not aware of any other presently available alternative to price cap regulation that more effectively balances the interests of ratepayers and carriers. For instance, extending Phase II pricing flexibility relief to services presently under price caps would be inconsistent with our findings that these services are provided in non-competitive areas. Applying rate of return regulation, in contrast, would entail overcoming daunting administrative challenges and would dampen firms’ incentives to become more productive.⁷⁹⁸ And consistent with our proposal below to apply a technology-neutral anchor or benchmark pricing system to all business data services, we also propose to use TDM BDS rates as the benchmark for establishing reasonable packet-based BDS rates.⁷⁹⁹ Accordingly, we believe we should continue applying price cap regulation to BDS, including TDM DS1 or DS3 services, to the extent an application of our proposed Competitive Market Test determines such services are non-competitive. We invite comment on the above analysis and on these views.

355. We invite comment on extending price cap regulation to business data services presently subject to Phase II pricing flexibility to the extent an application of our proposed Competitive Market Test determines such services are non-competitive consistent with our proposal below.⁸⁰⁰ We believe that we should not take that step — or indeed apply any sort of ex ante pricing regulation — where our analysis shows that the market is competitive. We invite comment on this approach.

⁷⁹⁴ *1990 Price Cap Order*, 5 FCC Rcd at 6787, para. 2.

⁷⁹⁵ *Suspension Order*, 27 FCC Rcd at 10562-63, para. 10; *1990 Price Cap Order*, 5 FCC Rcd at 6787, 6792, paras. 2-3, 47.

⁷⁹⁶ *See Suspension Order*, 27 FCC Rcd at 10559, para. 3; *1990 Price Cap Order*, 5 FCC Rcd at 6792, para. 47. A price cap basket is a broad grouping of services, such as “special access” services (i.e. business data services). Prices for services within a basket are limited by the price cap index for the basket, which limits the LEC’s pricing flexibility and its incentives to shift costs. *See id.* at 6810-11, paras. 198-203. To ascertain compliance with the price cap index, LEC rate levels within each basket are measured through the use of an Annual Price Index (API). The API is the weighted sum of the percentage change in LEC prices. The API weights the rate for each rate element in the basket based on the quantity of each element sold in a historical base year. The historical base year is the calendar year that immediately precedes the annual tariff filing on July 1. A price cap LEC’s rates are in compliance with the cap for a basket if the API is less than or equal to the price cap index. *See* 47 CFR § 61.46.

⁷⁹⁷ *1990 Price Cap Order*, 5 FCC Rcd at 6789, para. 22.

⁷⁹⁸ *Id.* at 6790, paras. 29-30.

⁷⁹⁹ *See infra* Part V.F.2.e.

⁸⁰⁰ *See infra* para. 181.

b. Price Cap Structure**(i) Productivity-based X-factor and Inflation Measure**

356. The core component of the Commission's price cap system is the price cap index, which is designed to limit the prices LECs charge for service.⁸⁰¹ The price cap index has three basic components: (a) a measure of inflation (currently GDP-PI);⁸⁰² (b) a productivity factor or "X-factor," which represents the amount by which LECs can be expected to outperform economy-wide productivity gains;⁸⁰³ and (c) adjustments to account for "exogenous" cost changes that are outside the LEC's control and not otherwise reflected in the price cap index.⁸⁰⁴ Collectively, these combine to limit the prices LECs may charge for business data services.⁸⁰⁵

357. The X-factor represents the amount by which LECs can be expected to outperform economy-wide productivity gains.⁸⁰⁶ In the *1990 LEC Price Cap Order*, the Commission reasoned that "setting a reasonable target and requirement for LEC productivity is one of the critical tasks in ensuring that the price cap plan works as intended."⁸⁰⁷ The Commission recognized that the telecommunications industry has historically been more productive than the U.S. economy as a whole.⁸⁰⁸ Generally, the marginal cost of additional output is low in telecommunications relative to the U.S. economy, therefore the effects of a cost change on productivity may be large.⁸⁰⁹ The X-factor serves as an adjustment to the price cap index to account for these productivity gains, and is subtracted from GDP-PI in the Commission's price cap index formula.⁸¹⁰

358. Price cap LECs file X-factor and inflation-based (GDP-PI) adjustments to their price cap indices for the business data services basket as part of their annual price cap tariff filings.⁸¹¹ In combination, these adjustments seek to replicate prices in a competitive market by passing the benefits of carrier cost reductions to ratepayers. An X-factor that is too low fails to pass these efficiency gains to ratepayers at a windfall for carriers. In the past, these adjustments combined to reduce price cap indices over time because the productivity-based X-factor often exceeded GDP-PI.

359. The Commission initially adopted two productivity-based X-factors in 1990 – a minimum 3.3 percent X-factor and an optional 4.3 percent X-factor – subject to an earnings sharing

⁸⁰¹ *Suspension Order*, 27 FCC Rcd at 10562-62, para. 10; *1990 Price Cap Order*, 5 FCC Rcd at 6792, para. 47; see 47 CFR § 61.46.

⁸⁰² *Data Collection Order*, 27 FCC Rcd at 16320, para. 3; see *CALLS Order*, 15 FCC Rcd at 13038-39, paras. 183-84.

⁸⁰³ *Data Collection Order*, 27 FCC Rcd at 16320, para. 3; *1990 Price Cap Order*, 5 FCC Rcd at 6795-801, paras. 74-119.

⁸⁰⁴ *1990 Price Cap Order*, 5 FCC Rcd at 6792, 6807-10, paras. 48, 166-90. Exogenous costs adjustments allow carriers modify their rates to reflect changes outside its control and include, for example, changes in Universal Service Fund or TRS contribution amounts. The carrier can choose whether it wants to collect such amounts directly from its end users through rate adjustments. See *id.* at 6807, para. 166.

⁸⁰⁵ *Id.* at 6792, para. 47.

⁸⁰⁶ *Data Collection Order*, 27 FCC Rcd at 16320, para. 3; *1990 Price Cap Order*, 5 FCC Rcd at 6795-801, paras. 74-119.

⁸⁰⁷ *1990 Price Cap Order*, 5 FCC Rcd at 6796 para. 75.

⁸⁰⁸ *Id.*

⁸⁰⁹ *1999 Price Cap Review FNPRM*, 14 FCC Rcd at 19721, para. 14 (citing Bridger M. Mitchell & Ingo Vogelsang, *Telecommunications Pricing: Theory and Practice* 14 (1991)).

⁸¹⁰ 47 CFR § 61.45(b)(1)(i).

⁸¹¹ *Id.*

requirement. At that time, the X-factor applied to both switched access services and business data services. In the *1995 Price Cap Review Order*, the Commission found that the X-factor was lower than the actual difference between carrier productivity and productivity in the economy as a whole, and that the formula had failed to pass sufficient benefits from carriers' productivity gains to ratepayers.⁸¹² In response, the Commission increased the minimum X-factor to 4.0 percent and replaced the single optional X-factor with two optional X-factors, 4.7 and 5.3 percent, actions that the D.C. Circuit upheld in *Bell Atlantic v. FCC*.⁸¹³ Subsequently, in the *1997 Price Cap Review Order*, the Commission eliminated all requirements to share earnings and prescribed a single 6.5 percent X-factor,⁸¹⁴ based primarily on a staff study of the historical LEC total factor productivity (TFP) and the growth rate of change in carrier input prices.⁸¹⁵ While it upheld the Commission's methodology underlying its adoption of a range from which to select an X-factor, the D.C. Circuit reversed and remanded the *1997 Price Cap Review Order* for further explanation of the Commission's decision to adopt 6.5 percent as the specific X-factor from within the range.⁸¹⁶

360. In the 2000 *CALLS Order*, the Commission revisited the X-factor selection following the D.C. Circuit's remand and based on an industry proposal.⁸¹⁷ The X-factor under the *CALLS* plan, unlike under prior price cap regimes, was not a productivity-based factor but "a transitional mechanism . . . to lower rates for a specified time period."⁸¹⁸ The *CALLS* X-factor for business data services increased from 3.0 percent in 2000 to 6.5 percent for 2001-03 but was set equal to inflation beginning in 2004.⁸¹⁹ The business data services X-factor was not challenged on appeal.⁸²⁰ As the Commission has yet to replace the interim *CALLS* plan X-factor, price cap LECs' business data services rates have remained frozen at 2003 levels excluding any necessary exogenous cost adjustments.⁸²¹ As a result, baseline price

⁸¹² *Price Cap Performance Review for Local Exchange Carriers*, CC Docket No. 94-1, First Report and Order, 10 FCC Rcd 8961, 9069-70, para. 246 (1995) (*1995 Price Cap Review Order*), *aff'd Bell Atlantic Tel. Cos. v. FCC*, 79 F.3d 1195 (D.C. Cir. 1996), *recon. denied*, 14 FCC Rcd 1684 (1999); *see also* Birch et al. Comments at 66-67.

⁸¹³ *1995 Price Cap Review Order*, 10 FCC Rcd 8961, 9055, para. 214 (1995).

⁸¹⁴ *Id.* at 16645, para. 1.

⁸¹⁵ *Id.* at 16772-93, Appx. D. The 1997 staff total factor productivity study calculated the historical productivity growth difference between LECs and the national economy for 1986 through 1995. Specifically, the staff first calculated for each year the difference between LEC total factor productivity change and the national economy total factor productivity change. The study then calculated for each year an input price difference between the change in LEC input prices and nation-wide input prices. The two calculations were summed for each year. *See id.*

⁸¹⁶ *United States Telecom Ass'n v. FCC*, 188 F.3d 521, 528, 530 (D.C. Cir. 1999) (*USTA v. FCC*).

⁸¹⁷ *See CALLS Order*, 15 FCC Rcd 12962.

⁸¹⁸ *Id.* at 13028, para. 160.

⁸¹⁹ *Id.* at 13025, para. 149; 47 CFR § 61.45(b)(1)(iv). Because rates are both reduced by and increased by the inflation rate, they are effectively frozen.

⁸²⁰ *CALLS Remand Order*, 18 FCC Rcd at 14997, para. 34 n.132. We note that the 6.5 percent *switched access* X-factor was challenged in the 5th Circuit and remanded for further explanation of how the Commission derived the precise percentage. *Texas Office of Public Util. Counsel v. FCC*, 265 F.3d 313, 329 (5th Cir. 2001) (*TOPUC v. FCC*) (holding that the Commission had failed to show a rational basis as to how it derived the 6.5 percent *switched access* X-factor). *See CALLS Remand Order*, 18 FCC Rcd at 14999, paras. 38-39. However, in *TOPUC v. FCC*, the petitioners did not challenge, nor does it appear that the 5th Circuit addressed, the X-factor for special access services. *See id.* at 14997, para. 34 n.132.

⁸²¹ 47 CFR § 61.45(b)(1)(iv) ("Starting in the 2004 annual filing, X shall be equal to GDP-PI for the special access basket."). The Commission hoped that, by the end of the five-year *CALLS* plan, competition would exist to such a degree that deregulation of access charges (*switched* and *special*) for price cap LECs would be the next logical step. *CALLS Order*, 15 FCC Rcd at 12977, para. 35. The X-factor adopted in the *1990 Price Cap Order* included an additional 0.5 percent consumer productivity dividend to ensure "direct benefits to ratepayers." This dividend was

(continued...)

cap levels have not been adjusted to reflect any incumbent LEC productivity gains beyond offsetting any inflation adjustment during the period in which the X-factor has been frozen, 2004 to the present.

361. The Commission sought comment in the *2005 Special Access NPRM* on whether it should re-impose a productivity-based X-factor as a method of helping ensure reasonable prices for business data services.⁸²² The Commission also sought comment on whether it is appropriate to estimate and apply to business data services an X-factor that is unique to these services and, if so, on whether it should base such an X-factor on a measure of productivity applicable to a broader category of services than business data services alone.⁸²³ Finally, the Commission sought comment on imposing as an interim productivity X-factor of 5.3 percent – the last productivity factor that was adopted by the Commission and judicially upheld – as well as other reasonable interim alternatives.⁸²⁴

362. During the course of the proceeding, some commenters have argued that the Commission should re-impose a productivity-based X-factor to account for carrier cost savings compared to the overall economy;⁸²⁵ while others have argued that the Commission should continue to apply the *CALLS* X-factor that is no higher than the rate of inflation.⁸²⁶ More recently, Sprint, Ad Hoc, and Birch contend that the Commission should establish an appropriate productivity-based X-factor to help ensure reasonable business data services prices in the future.⁸²⁷ Birch argues that the incumbent LECs have maintained “their rates for DSn-based dedicated services at unreasonably high levels despite their declining costs, and in so doing, have reaped enormous windfalls” from frozen price caps.⁸²⁸ Ad Hoc argues that the Commission must “update its price cap rules, including the development of an ‘X’ factor based on a total factor productivity study.”⁸²⁹

363. Incumbent LECs generally oppose adoption of a productivity-based X-factor. AT&T, for example, asserts that the record does not support revisions to the X-factor, arguing that the Commission cannot “simply announce that from here on out, price cap regulation shall apply to certain services and certain areas.”⁸³⁰ AT&T opposes a productivity-based X-factor for TDM services because “this would be a very complicated endeavor, and could not be done with the inadequate data that comprises the record in this proceeding”⁸³¹ and that given the transition away from TDM service resetting the X-factor would be a

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included to account for an expectation that, because of the more efficient regulatory scheme being adopted, future productivity growth would be faster compared to past productivity growth. *1999 Price Cap Review FNPRM*, para. 8 (citing *1990 Price Cap Order*, 5 FCC Rcd at 6796).

⁸²² *2005 Special Access NPRM*, 20 FCC Rcd at 2008-09, paras. 35-37.

⁸²³ *Id.*

⁸²⁴ *Id.* at 2036, para. 131 (citing *1995 Price Cap Review Order*, 10 FCC Rcd at 9050).

⁸²⁵ See Ad Hoc 2005 NPRM Comments at 43-74; PAETEC 2005 NPRM Comments at 17-18; Nextel 2005 NPRM Comments at 19-20; T-Mobile 2005 NPRM Comments at 19; ATX et al. 2005 NPRM Comments at 24-26; AT&T 2005 NPRM Comments at 5-6; Ad Hoc 2005 NPRM Reply; TW 2005 NPRM Reply at 22; T-Mobile 2007 PN Comments at 14; 360 Networks et al. 2007 PN Reply at 30-32.

⁸²⁶ See Verizon 2005 NPRM Comments at 43-45; Iowa 2005 NPRM Telecom/Valor Comments at 25-28; USTA 2005 NPRM Comments at 16-18; Bell South 2005 NPRM Comments at 55-56; CenturyTel 2005 NPRM Comments at 9-10; SBC 2005 NPRM Comments at 40-45; Iowa Telecom. Systems 2007 PN Comments at 31.

⁸²⁷ Birch et al. Comments at 9; Sprint Comments at 4-5, 83-85; Ad Hoc Comments at 13.

⁸²⁸ Birch et al. Comments at 61.

⁸²⁹ Ad Hoc Comments at 13.

⁸³⁰ AT&T Reply at 33.

⁸³¹ *Id.* at 33.

“waste of time and resources.”⁸³² AT&T contends that the Commission has to give “informed content to all of the working parts of a price cap regime” including “the X-factors,” which is “no easy task.”⁸³³ Further, AT&T argues that the D.C. Circuit has yet to sustain an X-factor and “the process of developing a service-specific X-factor at this juncture would be even more difficult and arbitrary than in the past.”⁸³⁴ USTelecom maintains that there is no evidence of carrier “windfalls” due to carrier productivity gains, nor can the Commission “make assumptions about productivity gains without careful study, for which data have not been collected.”⁸³⁵ CenturyLink argues that altering the price cap indices, or relatedly, adopting a new X-factor, would place “artificial restrictions on the rates that [incumbent LECs] can charge” for business data services, unnecessary due to “competitive pressures, particularly from Ethernet providers.”⁸³⁶

(ii) Proposal to Restore Use of a Productivity-based X-factor

364. A productivity-based X-factor and a corresponding inflation measure had been a fundamental feature of the Commission’s price cap system from the system’s inception in 1987 until the adoption of the CALLS plan.⁸³⁷ This balance reflected two propositions that we believe are essential to any effort to ensure reasonable rates in non-competitive markets: (a) that the service provider have an opportunity to recover its costs of service; and (b) that the ratepayer benefit from any decrease in those costs in much the same way as a customer in a competitive market benefits from cost decreases. We believe we should restore this balance between ratepayer and price cap carrier interests by incorporating a productivity-based X-factor into our price caps system for business data services on a forward-going basis. We invite comment on this view. We also ask whether we should make any adjustments to current price caps to reflect any past productivity gains that were not reflected in our past regulatory regimes. Below, we propose corresponding action to regulate the rates of IP-based BDS in non-competitive markets.⁸³⁸

365. The goal of price cap regulation is to have rates and output levels roughly mirror rates and output levels in a competitive market, at least on average over an extended period of time. If inflation outpaces productivity growth, price cap rates may become unreasonably low. Conversely, if productivity growth outpaces inflation, companies with market power will be able to charge unreasonably high rates. Our current system, in which the X-factor equals its inflation measure, implicitly assumes that changes in business data services productivity perfectly offset inflation in the general economy. We think such a perfect offset likely did not occur in the business data services industry during the period since the expiration of the CALLS plan. Given the rapid growth in business data services output, and the ever-increasing economies of scale with respect to providing business data services, per unit costs likely have decreased significantly since that time. We seek comment on whether this analysis is correct and, if so, whether this productivity trend will continue.

⁸³² *Id.* at 34-35.

⁸³³ *Id.* at 31.

⁸³⁴ *Id.*

⁸³⁵ USTelecom Reply at 39-40 & n.117.

⁸³⁶ CenturyLink Reply at 53.

⁸³⁷ See *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, Notice of Proposed Rulemaking, 2 FCC Rcd 5208, 5214, 5218-19, paras. 35, 59, 62 (1987) (seeking comment on Commission’s tentative conclusion that the advantages of the price cap model outweigh the disadvantages and proposing to include a productivity adjustment factor designed to reflect the rate at which productivity is increasing either within the exchange, interexchange or entire telecommunications industry or within a comparable industry). The CALLS plan included an X-factor that not based on productivity. See *CALLS Order*, 15 FCC Rcd 12962.

⁸³⁸ See *infra* Part V.F.2.

366. Over the period since the expiration of the CALLS plan, as technology has evolved and for other business reasons, price cap LECs, like other LECs, have been consolidating TDM switches, placing soft-switches, increasing fiber deployments, and decreasing maintenance costs.⁸³⁹ We believe that, as a consequence, business data services productivity growth has significantly outpaced inflation and therefore that the price cap LECs are likely charging unreasonably high rates. In a regulatory environment where prices fail to reflect productivity gains and, consequently, carriers set prices too high, end users will purchase less of the services produced, and the quantity of output will be lower than if prices were set at a competitive level. The productivity of which the plant is capable will not be realized.

367. We note that some price cap LECs assert that their costs have risen and the fact that the X-factor has been set equal to the GDP-PI has forced them to charge below-cost prices.⁸⁴⁰ We are skeptical of this claim: these price cap LECs have not provided any evidence to support their claim that business data services productivity increases have departed from historical patterns and now lag behind productivity increases in the economy as a whole. Additionally, we note that no price cap LEC has filed any request that we examine the frozen productivity factor in light of their claimed increased costs. But even if we were to accept the price cap LECs' claim, that would only prove that we need to restore the fundamental balance between carriers and ratepayers inherent in the Commission's price cap system.

368. Competitive LECs, in contrast, maintain that price cap LECs have been reaping the benefits of cost-saving productivity gains and have not passed these cost savings to customers.⁸⁴¹ If the competitive LECs are correct — as our analysis strongly suggests,⁸⁴² prices are higher than an appropriate X-factor would have produced. We therefore believe we should incorporate a productivity-based X-factor into our price caps system for business data services. We invite comment on the above analysis and this approach.

(iii) Methodology for Determining a Productivity-based X-factor

369. In the past, the Commission has relied on staff studies of the historical incumbent LEC TFP (i.e., total factor productivity) growth rate, which is commonly used to measure productivity and productivity growth in the economy as a whole.⁸⁴³ TFP is the relationship between the output of goods and service to inputs of basic factors of production – capital, labor, and materials. A TFP study quantifies this ratio of output to inputs and measures the change in the ratio over time.⁸⁴⁴ Productivity is measured as the ratio of an index of the outputs of a firm, industry, or group of industries to an index of its inputs while productivity growth is measured by changes in this ratio over time.⁸⁴⁵

⁸³⁹ See, e.g., *Wireline Competition Bureau Short Term Network Change Notification Filed by Verizon North LLC*, WC Docket No. 16-38, Public Notice (Feb. 12, 2016) (switch retirement); Public Notice of Network Change Under Rule 51.329(a), Dec. 15, 2014,

http://www.verizon.com/about/sites/default/files/documents/terms/drpkdp06t_nc12092014.pdf (switch retirement); <http://www.verizon.com/about/terms-conditions/network-disclosures> (various network changes, including replacement of copper facilities with fiber); Comments of Verizon and Verizon Wireless, In the Matter of Technological Transition of the Nation's Communications Infrastructure, WC Docket No. 12-353, at 6-7 (filed Mar. 5, 2013) (describing reduced operational and maintenance costs associated with newer and fiber-based networks).

⁸⁴⁰ AT&T March 21, 2016 *Ex Parte* at 2 (arguing that “there are a host of reasons to believe that the Commission's policies have driven the price caps considerably *below* competitive levels”).

⁸⁴¹ See Birch et al. Comments at 61, 66-67.

⁸⁴² See *supra* Part V.A.

⁸⁴³ *1999 Price Cap FNPRM*, 14 FCC Rcd at 19721, para. 11 & n.24 (citing Dale W. Jorgenson & Zvi Griliches, *The Explanation of Productivity Change*, 34 Rev. Econ. Stud. 249 (1967)).

⁸⁴⁴ *1997 Price Cap Review Order*, 12 FCC Rcd at 16679, para. 91.

⁸⁴⁵ *1999 Price Cap FNPRM*, 14 FCC Rcd at 19720-21, paras. 9-11.

370. In TFP models, output can be measured either in terms of physical units of the service produced, such as minutes or calls, or by dividing revenues by an index of output prices. Output indices are created to measure changes in the level of outputs over time. Indices for particular categories of output are weighted to create a single output index.⁸⁴⁶ Inputs are usually classified into categories such as labor, materials, and capital services. Indices reflecting changes in the quantities of labor, materials, and capital services are weighted and aggregated into a single input index. The growth rate of the aggregate input index depends on the growth rates of the individual input indices and their relative weights. Capital services are assumed to be a fixed proportion of the capital stock (i.e., plant and equipment), so that changes in capital services can be measured through measurement of changes in the capital stock.⁸⁴⁷

371. When it last set a last productivity-based X-factor in 1997, the Commission calculated the historical difference in productivity growth between incumbent LECs and the economy nationwide for a given period, specifically the difference between incumbent LEC TFP change and economy-wide TFP change.⁸⁴⁸ The Commission then calculated an input price differential reflecting the difference in the rate of the change of LEC input prices as compared with the rate for the economy as a whole. These two factors were then added together for each year. Several averages were created using these numbers, including the historical average for the entire period among others, to create a “zone of reasonableness,” ultimately selecting an X-factor near the upper end of this zone at 6.0 percent.⁸⁴⁹ The Commission also retained a 0.5 percent consumer productivity dividend “to ensure that price cap LECs flow-through a reasonable portion of the benefits of productivity growth to ratepayers.”⁸⁵⁰

372. In the 2005 *Special Access NPRM*, the Commission sought comment on the consequences of using a productivity factor that is based on a “broad-based productivity study such as staff’s TFP study.”⁸⁵¹ The Commission also asked parties to submit studies quantifying an appropriate X-factor for business data services.⁸⁵² In response to that *NPRM*, commenters submitted various estimates of a reasonable range for the X-factor, including their own TFP studies.⁸⁵³ While these studies provide helpful methodological insight, they do not reflect recent productivity growth in business data services or the overall economy.

373. Sprint urges the Commission to “explore all available methodologies for updating the X-factor to reflect the productivity growth rates that the incumbent LECs are readily able to achieve.”⁸⁵⁴ Sprint suggests two alternative methodologies that would rely on data collected in this rulemaking. First, Sprint states that the Commission could use incumbent LEC outputs for 2013 as one X-factor input.⁸⁵⁵ Second, Sprint maintains that the Commission could calculate an “imputed X-factor based on changing

⁸⁴⁶ *Id.* at 19721, para. 12 & n.25 (citing *1997 Price Cap Review Order*, 12 FCC Rcd at 16657).

⁸⁴⁷ *Id.* at 19721, para. 13 & n.26 (citing *1997 Price Cap Review Order*, 12 FCC Rcd at 16657-58).

⁸⁴⁸ *1999 Price Cap FNPRM*, 14 FCC Rcd at 19721, para. 15.

⁸⁴⁹ *Id.* at 19721, para. 15 (citing *1997 Price Cap Review Order*, 12 FCC Rcd at 16696-97).

⁸⁵⁰ *1997 Price Cap Review Order*, 12 FCC Rcd at 16690. The Commission stated that inclusion of a consumer productivity dividend was especially critical in achieving this goal because the sharing requirement was being eliminated from the price cap plan. See *1999 Price Cap FNPRM*, 14 FCC Rcd at 19721-22, para. 16

⁸⁵¹ *2005 Special Access NPRM*, 20 FCC Rcd at 2009, para. 37.

⁸⁵² *Id.* at 2008, para. 36.

⁸⁵³ See e.g., Sprint 2007 PN Comments at 19-20; ATX 2007 PN Comments at 44-45; Ad Hoc 2007 PN Comments, Attach.; see Embarq 2007 PN Reply Comments at 21-23 (criticizing Sprint’s TFP study for estimating productivity gains as arbitrary); Ad Hoc 2005 NRPM Comments, Attach., Gately Decl.; Sprint 2007 PN Comments, Attach.;

⁸⁵⁴ Sprint Comments at 84.

⁸⁵⁵ *Id.*

prices of comparable services over time” supplemented with data from “historic Commission data reports (e.g., ARMIS), posted tariff rates, competitor data, and/or cost models.”⁸⁵⁶

374. We agree with Sprint that we should explore all available methodologies for determining a productivity-based X-factor for business data services. Accordingly, we seek comment on several methodologies and ask the parties to suggest additional alternatives that they believe will lead to reasonable rates for those business data services regulated under price caps.

375. We believe that we should balance potential precision with administrative feasibility in deciding how to set a productivity-based X-factor. Measuring past productivity and predicting its future trajectory are inexact sciences; we are not required “to enter precise predictive judgments on all questions as to which neither [our] staff nor interested commenters [are] able to supply certainty.”⁸⁵⁷ On the contrary, we believe that we may properly rely on available data to estimate productivity growth in the provision of business data services and use that estimate to calculate a reasonable productivity-based X-factor.⁸⁵⁸ We invite comment on this analysis and on how we should balance potential precision with administrative feasibility in setting a productivity-based X-factor.

376. We invite comment below on three methodologies for calculating a productivity-based X-factor and corresponding price cap indices adjustments.⁸⁵⁹ We think these methodologies capture cost-reduction incentives while mimicking competitive-market outcomes by using projections of productivity gains, rather than actual values, based on historical trends. They calculate possible productivity-based X-factors by taking the difference between an economy-wide rate of inflation and the growth rate of industry input prices and the projected growth rate of a firm’s productivity level.

377. Our calculations rely on three data sources: (a) the U.S. Bureau of Labor Statistics’ (BLS’s) Capital, Labor, Energy, Materials, and Services (KLEMS) data;⁸⁶⁰ (b) data from the peer review process in connection with the development of the Connect America Cost Model (CACM);⁸⁶¹ and (c) those data in combination with cost data that TDS submitted in this proceeding. We seek comment on whether data from these sources provide a reasonable basis for calculating a productivity-based X-factor. Do they properly balance potential precision with administrative feasibility? Are there alternative sources of data that would more precisely calculate productivity increases in the provision of business data services? If so, would the additional precision associated with obtaining those data and using them to calculate a productivity-based X-factor outweigh the associated burdens?

⁸⁵⁶ *Id.* at 73; *see also id.* at 84-85 (arguing that the Commission should take a similar approach to the permanent regulatory regime as with the interim price cap regime).

⁸⁵⁷ *Am. Pub. Comm’ns Council v. FCC*, 215 F.3d 51, 55-56 (D.C. Cir. 2000).

⁸⁵⁸ *See generally Nat’l Ass’n of Regulatory Util. Comm’rs v. FCC*, 737 F.2d 737 F.2d 1095, 1116-17, 1140-42 (D.C. Cir. 1984); *id.* at 1141 (“Each step in the FCC’s calculation [wa]s to some extent guesswork, but it [wa]s *reasoned* guesswork.”) (emphasis in original); *United States v. FCC*, 707 F.2d 610, 617 (D.C. Cir. 1983) (holding that in setting AT&T’s authorized rate of return, the FCC adequately explained its choice of 17.4 percent as the company’s cost of equity because the agency “essentially engaged in a triangulation exercise” to arrive at a “reasonable computation of [an] unknown variable”).

⁸⁵⁹ *See infra* Part V.F.1.e.

⁸⁶⁰ U.S. Dept. of Labor, Bur. of Labor Statistics, Multifactor Productivity, Nonmanufacturing Sectors and NIPA-level Nonmanufacturing Industries KLEMS Multifactor Productivity Tables by Industry, <http://www.bls.gov/mfp/mprdload.htm>; *see also* Industries at a Glance: Broadcasting: NAICS 515, U.S. Dept. of Labor, Bur. of Labor Statistics, <http://www.bls.gov/iag/tgs/iag515.htm>; Industries at a Glance: Telecommunications: NAICS 517, U.S. Dept. of Labor, Bur. of Labor Statistics, <http://www.bls.gov/iag/tgs/iag517.htm>.

⁸⁶¹ FCC, Peer Review of Connect America Phase II Cost Model, Responses to Peer Reviews, Christiaan Hogendorn, at 3-4, App., <https://www.fcc.gov/general/peer-review-connect-america-phase-ii-cost-model> (last visited Apr. 20, 2016).

378. The KLEMS data used in our calculations are publicly available, annual industry-level data on industry-level measures of input prices and total factor productivity (TFP) for the telecommunications and broadcasting industries. We seek comment on any adjustments to the KLEMS data that we should make to improve its utility as a measure of business data services productivity. We seek comment on the relevant years for which we should use KLEMS data.

379. In response to a peer review of the CACM, the CACM was used to generate cost share data for ten cost categories.⁸⁶² Are there other cost categories that we should include or should we exclude some of these cost categories from our calculations? Does combining CACM peer review data with company-specific data, such as the TDS data used in calculating the proposed X-factor and corresponding adjustments to price cap indices, provide a more precise estimate of business data services productivity growth? Are there other sources of available company-specific cost data that would increase that precision?

380. In 2000, at the urging of certain price cap LECs, the Commission eliminated a requirement that price cap LECs report expense matrix data that the Commission had previously used in calculating X-factors.⁸⁶³ The Commission recognized, however, that it might need certain of those data in its policy making.⁸⁶⁴ The Commission stated that it expected companies to keep expense matrix data available and to provide them to the Commission upon request.⁸⁶⁵ The Commission also conditionally forbore from requiring price cap LECs to comply with historical cost assignment and cost allocation rules as well as the filing of certain accounting data that the Commission previously relied on in conducting TFP studies.⁸⁶⁶ We invite comment on whether we should require price cap LECs to submit their expense matrix data from 2005 to 2015?⁸⁶⁷ If so, should we require that these data be reported using the categories previously required under the Commission's rules and, if not, what categories should we specify?⁸⁶⁸ Would the benefits from these data outweigh the burdens?

⁸⁶² The categories are: labor, fiber, poles, conduit, drop, optical network terminals, fiber pedestals, splitters, electronics, and land/buildings.

⁸⁶³ *Comprehensive Review of the Accounting Requirements and ARMIS Reporting Requirements for Incumbent Local Exchange Carriers: Phase I*, CC Docket No. 99-253, Report and Order, 15 FCC Rcd 8690, 8694, para. 7 (2000) (*Phase I Accounting Streamlining Order*). The Commission's rules had required certain incumbent LECs to maintain disaggregated financial data in subsidiary record categories and report that data in an expense matrix. The the expense matrix divided the expenses associated with each account into: (1) Salaries and Wages, (2) Benefits, (3) Rents, (4) Other Expenses, and (5) Clearances. Among other uses, the expense matrix assists in calculation of a productivity offset because it separates labor and material expenses, and labor and material prices do not necessarily move together. *Id.* at 8694, para. 5; *see* 47 CFR § 32.5999(f) (1999).

⁸⁶⁴ *Phase I Accounting Streamlining Order*, 15 FCC Rcd at 8694, para. 5.

⁸⁶⁵ *Id.* OMB approved these continuing obligations for incumbent LECs to maintain expense matrix data and to provide them to the Commission upon request. *See Notice of Office of Management and Budget Action*, OMB No. 3060-0370 (June 19, 2000).

⁸⁶⁶ *See Petition of USTelecom for Forbearance Under 47 U.S.C. § 160(c) from Enforcement of Certain Legacy Telecommunications Regulations*, WC Docket No. 12-61, Memorandum Opinion and Order, 28 FCC Rcd 7627, 7646-54, paras. 31-51 (2013), *pet. for rev. denied sub nom. Verizon v. FCC*, 770 F.3d 961 (D.C. Cir. 2014) (granting forbearance for price cap carriers other than AT&T, Verizon and CenturyLink on cost assignment and ARMIS requirements, subject to compliance filing requirements). AT&T, Verizon and CenturyLink were granted this forbearance relief previously. *See id.* at 7647-48, 7676, paras. 35, 108.

⁸⁶⁷ *See infra* Part V.F.1.d (proposing to adjust the price cap indices to so that they reflect business data services productivity growth since the expiration of the CALLS plan).

⁸⁶⁸ 47 CFR § 32.5999(f) (1999). The 2000 *Phase I Accounting Streamlining Order* repealed this rule. 15 FCC Rcd at 8694, para. 7.

381. We ask whether we should require the price cap LECs to submit cost studies, as Sprint suggests,⁸⁶⁹ to help us determine business data services productivity growth. If so, what methodology should we specify for those costs studies? Would the benefits from relying on company-specific data from these cost studies, as opposed to economy-wide or industry-wide KLEMS and CAPM data, outweigh the burdens?

382. We invite comment on whether and, if so, how we may use the pricing data collected in this proceeding to supplement our other calculations. Would regressions comparing prices for DS1 and DS3 services in competitive and non-competitive areas provide proxies for the minimum amount that prices should have fallen in non-competitive areas and, if so, how we should use those proxies in setting an X-factor and price cap indices adjustments? We seek comment on the pros and cons of using regressions to supplement other X-factor calculations. We ask the parties to submit their own regressions.

(iv) Consumer Productivity Dividend

383. In the *1990 Price Cap LEC Order*, the Commission “expected . . . that incentive regulation would result in greater productivity gains than rate of return regulation” and instituted a consumer productivity dividend adjustment to “assure that the first benefits of price caps flow to customers in the form of reduced rates.”⁸⁷⁰ The Commission retained the 0.5 percent consumer productivity dividend in a 1995 interim rule and again in 1997.⁸⁷¹

384. We seek comment on whether we should incorporate a consumer productivity dividend into our price cap system. If so, how should we calculate that dividend? Should we incorporate a dividend component into any X-factor that we set? Should we include such a dividend in a price cap indices adjustment if we decide to take that approach?

(v) Methodology for Setting Inflation Measure

385. GDP-PI (i.e., the gross domestic product price index) is a measure of inflation incorporated into the Commission’s price cap index formula as one of three basic components in addition to the X-factor and exogenous cost adjustments.⁸⁷² In the 2000 *CALLS Order*, the Commission chose to use the U.S. Department of Commerce’s Bureau of Economic Analysis’ (BEA’s) chain-weighted GDP-PI, as opposed to fixed-weighted indexes, to measure inflation in the price cap index formula because it found that such indexes are significantly more accurate.⁸⁷³ The Commission agreed with commenters, finding that “only significant economic comparisons for medium and longer term periods, while fixed-weight indexes become unrepresentative after only a few years of economic change.”⁸⁷⁴

⁸⁶⁹ Sprint Comments Reply at 72-73 (requesting that the Commission consider requiring incumbent LECs to submit cost studies to “demonstrate that their costs exceed the rates set by regulation” so that the Commission may “re-start’ the price cap regime quickly without fear of imposing undue hardship on incumbent LECs”).

⁸⁷⁰ *1990 Price Cap Order*, 5 FCC Rcd 6786, 6799, para. 100.

⁸⁷¹ *1997 Price Cap Review Order*, 12 FCC Rcd at 16690, para. 123. The D.C. Circuit remanded the *1997 Price Cap Review Order* in part for an explanation of the Commission’s choice of 0.5 percent for the consumer productivity dividend. See *USTA v. FCC*, 188 F.3d at 5527.

⁸⁷² *CALLS Order*, 15 FCC Rcd at 13038-39, paras. 183-84. The Commission’s rules define “GDP Price Index (GDP-PI)” as “[t]he estimate of the Chain-Type Price Index for Gross Domestic Product published by the United States Department of Commerce, which the Commission designates by Order.” 47 CFR § 61.3(r). As used in the price cap index formula, GDP-PI equals “[f]or annual filings only, the percentage change in the GDP-PI between the quarter ending six months prior to the effective date of the new annual tariff and the corresponding quarter of the previous year. For all other filings, the value is zero.” 47 CFR § 61.45(b)(1)(iv).

⁸⁷³ *CALLS Order*, 15 FCC Rcd at 13038, para. 183 (citing J. Steven Landefeld and Robert P. Parker, *BEA’s Chain Indexes, Time Series, and Measures of Long-Term Economic Growth*, 77 *Surv. of Current Bus.* 58 (May 1997)).

⁸⁷⁴ *CALLS Order*, 15 FCC Rcd at 13038, para. 183.

386. The Commission currently uses the BEA chain-weighted GDP-PI to measure inflation.⁸⁷⁵ We find that this measure accurately reflects cost changes that carriers face without being susceptible to carrier influence or manipulation.⁸⁷⁶ We propose that we should continue to use GDP-PI as the inflation measure in the price cap index formula consistent with BEA's measure for purposes of setting the X-Factor.⁸⁷⁷ We seek comment on this proposal.

c. Other Potential Cap Components

387. In the 2005 *Special Access NPRM*, the Commission invited comment on a series of additional issues relating to price caps. These issues included: (a) whether the price cap index formula for business data services should include a growth or "g" factor to account for any demand growth effects that are not reflected in an X-factor;⁸⁷⁸ (b) whether the Commission should require price cap LECs to share a portion of their business data services earnings with ratepayers through adjustments to the price cap indices;⁸⁷⁹ (c) whether the Commission should retain a low-end adjustment mechanism for price cap LECs that have not implemented pricing flexibility;⁸⁸⁰ and (d) whether the Commission should subdivide its special access price cap basket into additional or different categories and subcategories.⁸⁸¹

388. We ask the parties to update the record on each of these issues. We also ask whether there are any additional issues we should resolve to help ensure that our price cap system produces reasonable rates for business data services in non-competitive markets.

389. *Growth Factor.* A growth or "g" factor would allow ratepayers to benefit from at least of portion of any business data services demand growth effects that are not reflected in a productivity-based X-factor.⁸⁸² We invite comment on whether we should adopt a "g" factor and, if so, how we should calculate it. We also ask how we should measure demand growth and how we can ensure that any "g" factor does not double count growth already reflected in a productivity-based X-factor.⁸⁸³ We ask, in particular, whether demand growth benefits not reflected in an X-factor should be shared between business data services providers and their customers. Should any "g" factor we adopt be applied only on a going-forward basis, or should we also adjust the price caps indices to account for prior demand growth?⁸⁸⁴

390. *Earnings Sharing.* Earnings sharing allows ratepayers to benefit from business data services profitability and was a feature of the Commission price cap regime until 1997.⁸⁸⁵ In abolishing sharing, the Commission found that it blunted price cap LECs' efficiency incentives and that eliminating it would remove vestiges of rate of return regulation from the price cap system.⁸⁸⁶ We find these reasons

⁸⁷⁵ *Id.*

⁸⁷⁶ See 1990 *Price Cap Order*, 5 FCC Rcd at 6792, para. 50.

⁸⁷⁷ We use GDP-PI in our X-factor and price cap indices adjustments in this Further Notice. See *infra* Part V.F.1.d.

⁸⁷⁸ 2005 *Special Access NPRM*, 20 FCC Rcd at 2009-10, paras. 38-40.

⁸⁷⁹ *Id.* at 2010-11, paras. 41-44.

⁸⁸⁰ *Id.* at 2011, paras. 45-47.

⁸⁸¹ 2005 *Special Access NPRM*, 20 FCC Rcd at 2012, para. 50

⁸⁸² See generally 1990 *Price Cap Order*, 5 FCC Rcd at 6793-95, paras. 55-73.

⁸⁸³ See 2005 *Special Access NPRM*, 20 FCC Rcd at 2010, para. 40.

⁸⁸⁴ See Ionary 2005 *NPRM Comments* at 9.

⁸⁸⁵ 1997 *Price Cap Review Order*, 12 FCC Rcd at 16700, para. 148.

⁸⁸⁶ *Id.*

persuasive and therefore believe that we should not reinstate sharing.⁸⁸⁷ We invite comment on this approach.

391. *Low-End Adjustment.* The low-end adjustment permits price cap LECs that earn a rate of return 100 basis points or more below the prescribed rate of return for rate-of-return carriers to increase their price cap indices in the next year to a level that would allow them to earn 100 basis points below that rate of return.⁸⁸⁸ This mechanism is available to all price cap LECs that have not implemented pricing flexibility.⁸⁸⁹ In the *2005 Special Access NPRM*, the Commission tentatively concluded that, if it were to continue to apply price caps to business data services, it should retain a low-end adjustment mechanism for price cap LECs that have not implemented pricing flexibility.⁸⁹⁰

392. In this Further Notice, we propose below to replace the current pricing flexibility framework with a new technology-neutral framework. Under the proposed framework, price cap LECs' TDM BDS in non-competitive markets will be subject to price caps and can be offered through individually negotiated agreements, a regime that parallels in most practical respects the Phase I pricing rules.⁸⁹¹ And price cap LECs' TDM BDS in competitive markets will be removed from price cap regulation and offered pursuant to commercial agreements. We invite comment on how our action on this proposed paradigm should affect our consideration of whether we should retain a low-end adjustment as part of our price cap system. In particular, should we allow business data services providers that provide their TDM services under these varying regimes to seek low-end adjustments? If so, how can we assure that the providers' claimed earnings on services provided under price caps accurately reflect their costs of providing those services?

393. In March 2016, the Commission reduced the prescribed rate of return for rate-of-return carriers from 11.25 percent to 9.75 percent, subject to a transition.⁸⁹² Effective July 1, 2016, this transition will reduce the 11.25 percent rate of return by 25 basis points per year until it reaches the represcribed 9.75 percent on July 1, 2021.⁸⁹³ We ask that the parties address whether we should use this reduced rate of return to measure eligibility for a low-end adjustment in the event we retain that mechanism. If so, how, if at all, should we adjust the percentage that determines eligibility for a low-end adjustment and the level to which price cap indices are retargeted as this transition proceeds?

⁸⁸⁷ See Verizon 2005 NPRM Comments at 46; Qwest 2005 NPRM Comments at 18; Iowa Telecom/Valor 2005 NPRM Comments at 34; Verizon 2005 NPRM Reply, Attach. A, William Taylor Reply Decl. at 30-31 (asserting that the Commission “determined that the efficiency losses from sharing outweighed any benefit from keeping regulated prices closer to accounting costs” and that was no data suggesting that the conclusion should be reversed); Verizon 2005 NPRM Reply at 39 (opposing sharing because “it takes away the benefits of greater efficiency and the incentive to introduce new service and investment in facilities”); Qwest 2005 NPRM Reply at 17, Attach. at 14 (arguing that sharing “created perverse incentives for carriers to shift costs and blunted the incentive of price cap regulation by reducing any rewards for ILEC efficiency gains”). *But see* NJ Ratepayer Advocate 2005 NPRM Comments at 8-9; Ad Hoc 2005 NPRM Comments at 49-50; PAETEC 2005 NPRM Comments at 18-19; ATX et al. 2005 NPRM Comments at 26-27; ATX 2005 NPRM Reply at 48-50; NJ Ratepayer Advocate 2005 NPRM Reply at 40 (arguing that the Commission should require incumbent LECs to share earnings up to a certain level and return 100 percent of any earnings that exceed that level” because sharing “serves as a backstop to X-factor calculation error, a flow-through of cost reductions to consumers, and encourages LECs to adopt an X-factor that most closely matches their internal expected rate of productivity growth”).

⁸⁸⁸ *2005 Special Access NRPM*, 20 FCC Rcd at 2011, paras. 45-47.

⁸⁸⁹ See *Pricing Flexibility Order*, 14 FCC Rcd at 14304, para. 162.

⁸⁹⁰ *2005 Special Access NPRM*, 20 FCC Rcd at 2011, para. 47.

⁸⁹¹ See *supra* Part V.F.1.a; *infra* V.H.1.

⁸⁹² *Connect America et al.*, WC Docket No. 10-90 et al., Report and Order, Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking, FCC 16-33, para. 326 (WCB rel. Mar. 30, 2016).

⁸⁹³ *Id.*

Specifically, should we use the 9.75 percent prescribed rate of return in considering low-end adjustments when it is effective or should the applicable rate of return track the rate of return transition?

394. *Baskets and Bands.* A price cap basket is a broad grouping of services, such as TDM services. Prices for services in a given basket are capped by its price cap index.⁸⁹⁴ Placing services together in the same basket limits the LEC's pricing flexibility and incentives to shift costs.⁸⁹⁵ Within the special access service basket, services currently are grouped into service categories and subcategories.⁸⁹⁶ Similar services are grouped together into service categories within a single basket to act as a substantial bar on the LEC's ability to engage in anticompetitive behavior.⁸⁹⁷

395. The rules adopted by the Commission in the *1990 Price Cap Order* established upper and lower pricing bands for each separate category or subcategory.⁸⁹⁸ Originally, the pricing bands for most of the service categories were set at five percent above and below the Service Band Index (SBI).⁸⁹⁹ In the *1995 Price Cap Review Order*, the Commission increased the lower pricing band to 15 percent for services subject to zone density pricing.⁹⁰⁰ Subsequently, the Commission eliminated the lower service band indices, concluding that this would lead to lower prices and encourage LECs to charge rates that reflect the underlying costs of providing exchange access services.⁹⁰¹ It found that the price cap index and upper pricing bands adequately control predatory pricing and that greater downward pricing flexibility would benefit consumers both directly through lower prices and indirectly by encouraging only efficient entry.⁹⁰²

396. In the *2005 Special Access NPRM*, the Commission sought comment on the categories and subcategories the Commission should establish in a special access basket if we continued to apply price cap regulation to business data services.⁹⁰³ In response, commenters proposed a number of changes to the categories and subcategories for the special access basket.⁹⁰⁴ We ask interested parties to update

⁸⁹⁴ *1990 Price Cap Order*, 5 FCC Rcd at 6788.

⁸⁹⁵ *Id.* at 6810-11, paras. 198-203.

⁸⁹⁶ The special access basket currently contains the following categories or subcategories:

- (i) Voice grade special access, WATS special access, metallic special access, and telegraph special access services;
- (ii) Audio and video services;
- (iii) High capacity special access, and DDS services, including the following subcategories:
 - (A) DS1 special access services; and
 - (B) DS3 special access services;
- (iv) Wideband data and wideband analog services.

47 CFR § 61.42(e)(3).

⁸⁹⁷ *1990 Price Cap Order*, 5 FCC Rcd at 6811, para. 203.

⁸⁹⁸ *Id.* at 6813-14, paras. 224-26.

⁸⁹⁹ *Id.* The SBI is a subindex of the prices for each category or subcategory.

⁹⁰⁰ *1995 Price Cap Review Order*, 10 FCC Rcd at 9141, para. 411.

⁹⁰¹ *Access Charge NPRM, Order, and NOI*, 11 FCC Rcd at 21487-88, para. 305.

⁹⁰² *Id.*

⁹⁰³ *2005 Special Access NPRM*, 20 FCC Rcd at 2011-14, paras. 48-58.

⁹⁰⁴ Sprint 2005 NPRM Comments at 13-14; ATX et. al. 2005 NPRM Comments at 28-32 ("High capacity services above the DS3 level should be placed in a separate basket."); ATX 2005 NPRM Reply at 51-54; CompTel/ALTS 2005 NPRM Comments at 3; NJ Ratepayer 2005 NPRM Reply at 41-42; TW 2005 NPRM Reply at 30-31 (arguing that "services subject to different levels of demand elasticity and differing levels of competitive entry should be subject to separate service categories or subcategories and pricing bands"); T-Mobile 2005 NPRM Comments at 20;

(continued...)

their comments with respect to the special access basket categories and subcategories in light of technological and operational changes that have occurred in the business data services marketplace since 2005.

397. We seek comment on whether the special access basket should be subdivided into more than one basket, and whether the baskets should be further subdivided into categories and subcategories. We ask whether should use a single basket or multiple baskets and the advantages and disadvantages of each approach. What categories and subcategories should we establish in a BDS basket if we adopt a price cap method to regulate BDS prices? Should we retain without modification for BDS the existing special access category and subcategories? If not, parties should identify the specific categories and subcategories of BDS that they contend we should adopt.

398. We ask parties to discuss the advantages and disadvantages of having a BDS basket with relatively few categories or subcategories compared to one with many. We also seek comment on what criteria and data we should examine to determine which services to place in which categories or subcategories. We ask parties proposing categories or subcategories, to explain in detail the bases for their proposed categories or subcategories, and to support their proposals with data and studies.

399. Should we establish separate categories or subcategories based on BDS line densities? For example, channel termination services extending between a LEC end office and a customer premise in areas where there are more than 10,000 special access lines per square mile could be placed in a particular subcategory.

400. For the same reasons that the Commission eliminated the lower pricing bands, we believe that there should be no lower band for service categories or subcategories to restrict the price cap LECs' downward pricing flexibility. We seek comment on this approach. We likewise seek comment on the upper band value to limit the price cap LECs' upward pricing flexibility for the categories or subcategories. Should we retain five percent as the value? Should we use different values for different categories or subcategories? What criteria and data should we use to determine these values?

d. Baseline Price Cap Level Adjustments

401. Analysis of the business data services market suggests that price cap carriers have achieved significant productivity gains and cost savings since the expiration of the CALLS plan on June 30, 2005. An economically efficient firm subjected to competition would have been incentivized to pass these productivity cost savings to customers in the form of lower prices. Price cap incumbent LECs, however, have not reduced their prices for DS1 and DS3 services in areas subject to stand-alone price caps and Phase I relief. Instead, these carriers have charged the highest rates permitted under their price cap indices.⁹⁰⁵ While AT&T challenges this assertion, contending that it has **[BEGIN HIGHLY CONFIDENTIAL]** [REDACTED] **[END HIGHLY CONFIDENTIAL]** in headroom under its special access price caps,⁹⁰⁶ an examination of this claim that puts that amount of "headroom" into the context of AT&T's price cap constrained gross revenues demonstrates that this amount reflects the prohibition on pricing over the cap and is as close to 0.0 percent headroom as can be achieved without going over.⁹⁰⁷ In

(Continued from previous page) _____

Sprint 2005 NPRM Comments at 13-14; *see also* Nextel 2005 NPRM Comments at 21. *But see* Verizon 2005 NPRM Comments at 38-39; Verizon 2005 NPRM Reply at 39; Iowa Telecom/Valor 2005 NPRM Comments at 30-31 (Arguing for the elimination all pricing bands); Wiltel 2005 NPRM Reply at 36-37; Broadwing 2005 NPRM Comments at 19 (arguing that separate baskets will decrease the flexibility incumbent LECs have to raise prices for DS1 and DS3 connections to buildings); SBC 2005 NPRM Comments at 62-65; CompTel/ALTS 2005 NPRM Comments at 3; Sprint 2005 NPRM Comments at 13-14.

⁹⁰⁵ See Letter from Christopher T. Shenk, Attorney for AT&T Inc., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, at 1-2 (filed Mar. 21, 2016).

⁹⁰⁶ *Id.*

⁹⁰⁷ See *supra* para. 240, Tbl. 6.

any event, AT&T's public statements make clear that its productivity gains are significant and very likely exceed those for the general economy.⁹⁰⁸ Further, carriers granted Phase II relief are not even subject to price caps to constrain their prices for those services.

402. By allowing the X-factor to remain equal to inflation after the expiration of the CALLS plan, the Commission essentially froze price caps: subtracting GDP-PI from GDP-PI cancels out productivity gains. The Commission took such course without providing any reasoned analysis — and, indeed, any analysis — as to why such a freeze might be consistent the Commission's statutory obligation to ensure just and reasonable business data services rates. Given growth in business data services output since the CALLS plan expired, and the significant economies of scale with respect to providing these services, per unit costs likely have decreased since then. Had there been sufficient competition, price cap carrier rates would have decreased to reflect these lower costs. In a properly administered price cap system, price cap rates also would have decreased to reflect those lower costs. They have not, however. The goal of price cap regulation is to have rates and output levels roughly mirror rates and output levels in a competitive market, at least on average over an extended period of time. If inflation outpaces productivity growth, price cap rates may become unreasonably low. Conversely, if productivity growth outpaces inflation, companies with market power will be able to charge unreasonably high rates.

403. We invite comment on whether business data services productivity gains have outpaced inflation during the period since June 30, 2005, the date the CALLS plan expired. We ask that the parties support their position on this issue with detailed data and economic analysis. We seek comment on whether in the event we conclude that business data services productivity gains outpaced inflation during that period, we should adjust the baseline price cap levels to capture those gains for ratepayers. As noted above, we propose that a new forward-looking productivity factor should be applied to TDM services in non-competitive markets (with corresponding rate regulation for IP-based BDS in non-competitive markets).

e. X-factor and Price Cap Index Adjustment Calculations

404. As indicated above, our X-factor and price cap indices adjustment calculations rely on BLS's KLEMS data; CACM peer review data; and CACM peer review data in combination with TDS cost data.⁹⁰⁹ We think our X-factor calculations capture cost-reduction incentives while mimicking competitive-market outcomes by using projections of productivity gains, rather than actual values, based on historical trends. We use a proxy for the growth rate of input prices, a measure of economy-wide rate of inflation based on a national price index (i.e., GDP-PI) adjusted to account for systematic difference between the growth rates of national prices and telecommunications industry-specific input prices. To adjust the price cap index to account for the historic productivity X-factor, this estimation of X is subtracted from the annual change in the GDP-PI to determine the annual change in the price cap index, c , which can be expressed as:

$$c = P - \frac{(\hat{D} + \hat{t})}{\text{X-factor}}$$

where P is the economy-wide rate of inflation (i.e. the GDP-PI), \hat{D} is the projected difference between the economy-wide rate of inflation and the growth rate of industry input prices, and \hat{t} is the projected growth rate of the firm's productivity level. The X-factor, which is the sum of \hat{D} and \hat{t} , may be interpreted as a correction term by which the projected growth rates of economy-wide prices are adjusted to account for systematic differences between the broader economy and the regulated industry.

⁹⁰⁸ AT&T's 10-K filings with the Securities and Exchange Commission, EDGAR, AT&T INC. 2015 ANNUAL REPORT ("Network costs decreased \$434 [million] primarily due to lower interconnect costs resulting from our ongoing network transition to more efficient Ethernet/IP-based technologies.")

⁹⁰⁹ We explain the data inputs used to calculate productivity growth in Appendix C.

405. We calculate the X-factor by subtracting from the change in GDP-PI, the change in industry prices and add the change in industry total factor productivity (TFP). The change in industry TFP is the difference between the change in TFP for price cap LECs and the change in TFP for the overall U.S. economy.⁹¹⁰ We calculate an input price differential reflecting the historical difference in the average annual rate of change in price cap LEC input prices as compared with the historical average annual rate of change in the economy as a whole. These two factors are then added together for each year and subtracted from the measure of the change in the rate of inflation (i.e. the change in GDP-PI). The calculation of the X-factor can be expressed by the following formula:

$$X = \% \Delta \text{GDP-PI} - \% \Delta \text{Industry Input Prices} + \% \Delta \text{Industry TFP}$$

Applying this basic calculation, we apply various data sources and models for estimating the inputs in the X-factor equation, as discussed below and in greater detail in Appendix C. From these calculations, we develop a forward-looking X-factor adjustment to the price cap index applied annually.

406. *Method One – KLEMS Model.* Our first set of calculations rely on KLEMS from BEA⁹¹¹ and the U.S. Department of Labor’s Bureau of Labor Statistics (BLS).⁹¹² The BLS maintains yearly KLEMS statistics on Broadcasting⁹¹³ and Telecommunications.⁹¹⁴ These industry-level measures of input prices and total factor productivity (TFP) are publically available. This is the most granular level of industry detail for which KLEMS data is available on a regular and consistent basis. Input price indexes are available for each of the five components of KLEMS – capital (K), labor (L), energy (E), non-energy materials (M), and services purchased from other businesses (S).⁹¹⁵

407. Commission staff computed three X-factor estimates using KLEMS data: (1) the first estimate uses growth rates that are averaged over all years for which we have data, 1997 through 2013; (2) the second considers only the years for which data would have been available in 2005, 1997 through

⁹¹⁰ 1999 Price Cap Review FNPRM, 14 FCC Rcd at 19721, para. 15

⁹¹¹ U.S. Dept. of Commerce, Bur. of Economic Analysis, Industry Data, GDP-by-industry, http://www.bea.gov/iTable/index_industry_gdpIndy.cfm (last visited Mar. 14, 2016).

⁹¹² U.S. Dept. of Labor, Bur. of Labor Statistics, Multifactor Productivity, <http://www.bls.gov/mfp/mprdownload.htm> (last visited Mar. 14, 2016).

⁹¹³ Industries in the Broadcasting subsector (NAICS 515) include “establishments that create content or acquire the right to distribute content and subsequently broadcast the content,” including “broadcasting studios and facilities for over the air or satellite delivery of radio and television programs of entertainment, news, talk, and the like” as well as “operating studios and facilities for the broadcasting of programs that are typically narrowcast in nature (limited format, such as news, sports, education, and youth-oriented programming) on a subscription or fee basis.” U.S. Dept. of Labor, Bur. of Labor Statistics, Industries at a Glance: Broadcasting: NAICS 515, <http://www.bls.gov/iag/tgs/iag515.htm> (last visited Apr. 20, 2016). NAICS stands for “North American Industry Classification System,” which is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. U.S. Census Bur., North American Industry Classification System, <https://www.census.gov/eos/www/naics/> (last visited Apr. 20, 2016).

⁹¹⁴ Industries in the Telecommunications subsector (NAICS 517) “provide telecommunications and the services related to that activity (e.g., telephony, including Voice over Internet Protocol (VoIP); cable and satellite television distribution services; Internet access; telecommunications reselling services)” and is “primarily engaged in operating, and/or providing access to facilities for the transmission of voice, data, text, sound, and video” which “may be based on a single technology or a combination of technologies.” U.S. Dept. of Labor, Bur. of Labor Statistics, Industries at a Glance: Telecommunications: NAICS 517, <http://www.bls.gov/iag/tgs/iag517.htm> (last visited Apr. 20, 2016).

⁹¹⁵ U.S. Dept. of Labor, Bur. of Labor Statistics, Multifactor Productivity, Nonmanufacturing Sectors and NIPA-level Nonmanufacturing Industries KLEMS Multifactor Productivity Tables by Industry, <http://www.bls.gov/mfp/mprdownload.htm> (last visited Apr. 20, 2016).

2003; and (3) the third considers data from 2005 (the year in which the CALLS plan ended) through 2013. The year 1997 provides a helpful starting point as the last year in which the Commission prescribed a productivity-based X-factor and 2013 represents the year for which the business data services data was collected. The results are as follows:

Table 7. KLEMS Data for Price Cap X-Factor and Reset⁹¹⁶

Year Range	GDP-PI	X-factor	Adjustment
1997 - 2013	1.98%	2.75%	-7.37%
1997 - 2003	1.77%	3.21%	-13.54%
2005 - 2013	1.90%	1.85%	0.48%

408. *Method Two - Connect America Cost Model.* Our second set of calculations uses data from the CACM peer review process. In the 2011 *USF/ICC Transformation Order*, the Commission adopted CACM to provide a forward-looking estimate by census block of the costs of providing a voice and broadband-capable network for use in determining Connect America Fund support for broadband necessary to serve price cap areas.⁹¹⁷ The Commission's response to a peer review of the CACM set forth shares and estimates of changing prices for ten cost categories.⁹¹⁸ Relying on cost models and industry financial accounts, the Commission staff determined the key cost components of business data services supply, estimated their shares, and estimated changes in the input prices of each key component. These calculations relied on the following input categories and estimates of the cost shares of each of these categories: labor, fiber, poles, conduit, drop, optical net terminal, fiber pedestals, splitters, electronics, and land/buildings.⁹¹⁹

409. The CACM peer review response provides base information about the key costs of supplying business data services. The CACM was developed to estimate the costs of a mass market residential broadband fiber-to-the-premise network that also is used to provide telephone service, and was built to also provide business data services. Consequently, it is essentially a model of the costs of an incumbent LEC supply, but with a focus on residential rather than business data services. Despite this, there are no reasons to think that either (1) the underlying cost categories of the CACM or (2) the rates of change in input prices of these cost categories would be significantly different for business data services than for residential data services. The CACM peer review response provides at least a very rough indication of shares even though its modeling is not limited to business data services.

410. For each category, Commission staff calculated low and high estimates for changes in input prices. Two measures, one high and one low, were used for changes in total factor productivity. The low estimate for net impact on costs applies the low estimate for input prices and the high estimate for productivity. The high estimate for net impact on costs applies the high estimate for input price and the low estimate for productivity. Weighted averages were computed for both low and high estimate, where the weights were the cost category shares. Commission staff calculated the net impact on costs which equals the change in industry input prices plus the change in industry TFP. The results are as follows:

⁹¹⁶ Sources: GDP-PI comes from the Bureau of Economic Analysis while the Industry Input Price Index and Industry TFP which is used to calculate the X-factor comes from the Bureau of Labor Statistics.

⁹¹⁷ *USF/ICC Transformation Order*, 26 FCC Rcd at 17725, para. 156.

⁹¹⁸ FCC, Peer Review of Connect America Phase II Cost Model, <https://www.fcc.gov/general/peer-review-connect-america-phase-ii-cost-model> (last visited Apr. 20, 2016).

⁹¹⁹ See FCC, Peer Review of Connect America Phase II Cost Model, FCC Response to Professor Christiaan Hogendorn, https://apps.fcc.gov/edocs_public/attachmatch/DOC-322385A1.pdf.

Table 8. CACM Data for Price Cap X Factor and Reset⁹²⁰

Year Range	GDP-PI	X-factor ⁹²¹	Price Cap Adjustment
1997 - 2015	1.91%	3.33%	-13.31%
1997 - 2013	1.98%	3.54%	-14.55%
1997 - 2003	1.77%	4.01%	-20.30%
2005 - 2013	1.90%	3.14%	-11.74%

411. *Method Three – TDS and Connect America Cost Model.* Our third set of calculations is a modification of method two, relying on CACM calculations supplemented with data provided by TDS Telecom (TDS). The TDS data consist of booked financial data on TDS’s incumbent LEC operations.⁹²² Commission staff used these data as an alternative set of input categories. However, the TDS categories, other than those for labor and real estate, were not at the same level of detail as in the CACM calculations. This required that the TDS categories for switching⁹²³ and transmission⁹²⁴ be mapped to the remaining eight CACM categories. The results are as follows:

Table 9. TDS and CACM Data for Price Cap X Factor and Reset⁹²⁵

Year Range	GDP-PI	X-factor	Price Cap Adjustment
1997 - 2015	1.91%	3.58%	-15.47%
1997 - 2013	1.98%	3.76%	-16.45%
1997 - 2003	1.77%	4.21%	-21.88%
2005 - 2013	1.90%	3.37%	-13.78%

412. We invite comment on whether these methodologies provide a reasonable basis for assessing industry productivity for use in X-factor and price cap indices adjustment and whether we should use them for such purpose. How precise are they? Are there alternative methodologies that would provide comparable or greater precision at comparable, or lower, cost? If so, we ask the parties to describe those methodologies in detail and to explain how we should apply them.

413. Are the data used in our calculations reliable? Are other, more detailed data available that would more accurately portray productivity trends? Do data that provide broad measures of large economic sectors, like the KLEMS data, provide the most reliable data for measuring BDS productivity trends in relation to production trends in the overall economy? Or are telecommunications-specific data, like the CAPM data, or company-specific data, like the TDS data, preferable? We ask the commenters to

⁹²⁰ Sources: Connect America Cost Model, Bureau of Labor Statistics, Real Capital Analytics, Federal Reserve Bank of San Francisco.

⁹²¹ The X-factor is based on a midpoint net impact which was calculated by summing the corresponding high and low estimates for each listed year range and dividing by two.

⁹²² See Letter from Steve Pitterle, Manager – Carrier Relations, TDS Telecommunications Corporation, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, Attach. 1 (filed Sept. 24, 2015) (TDS Sept. 24, 2015 *Ex Parte*).

⁹²³ Commission staff included the CACM categories fiber, poles, conduit, drop, optical network terminals, and fiber pedestals in the TDS cost share category “switching.”

⁹²⁴ Commission staff included the CACM categories splitters and electronics in the TDS cost share category “transmission.”

⁹²⁵ Sources: TDS, Connect America Cost Model, Bureau of Labor Statistics, Real Capital Analytics Moody’s/RCA CPPI™, Federal Reserve Bank of San Francisco.

address the relative merits of each of these categories of data and to suggest additional sources of reliable data within each category.

414. The calculations present three different time periods that we could use to determine a productivity-based X-factor and, if we decide to take that course, price cap indices adjustments. We ask whether these time periods accurately capture BDS productivity trends for such purposes and, if not, which other time periods would provide increased accuracy and why.

415. Finally, we ask the parties to recommend, based on our analysis or their proposed alternative, whether we should make adjustments to the X-factor and price cap indices. We also seek comment on capping existing price cap indices and ask whether this should be done in all areas or just certain areas with pricing flexibility. We ask commenters to explain the basis for their recommendation and explain how such approaches would impact competition and the technology transitions.

f. Moving Services in Non-Competitive Areas into Price Cap Regulation

416. We seek comment below in this Further Notice on applying the substance of the current Phase I pricing flexibility requirements to TDM BDS offered in non-competitive areas.⁹²⁶ To implement such proposal, we also seek comment above on extending price cap regulation to TDM BDS offered in non-competitive areas that presently are subject to Phase II pricing flexibility.⁹²⁷ We now seek comment on how we would move such services back into price caps. Because the services we now consider currently are subject to Phase II pricing flexibility, their rates have been moved out of price cap constrained tariffs and are, in some cases, higher than they would have been had they been consistently constrained by the price caps. What, if any, changes to the currently applicable rates should be made as part of a transition back into price caps and why? If so, how should such changes be implemented? Does this transition raise any special considerations? We seek comment on these questions.

g. Adjusting Price Cap Indices

417. Pursuant to section 61.45 of our rules, price cap carriers file adjustments to the price cap index for the business data services basket as part of their annual price cap tariff filing.⁹²⁸ The price cap index varies by year based on the annual measure of inflation (now GDP-PI), the X-factor (now equal to GDP-PI), and any exogenous cost adjustments. In the Commission's formula to adjust the price cap index, the percentage change in GDP-PI between the quarter ending six months prior to the effective date of the annual tariff filing is subtracted by the productivity X-factor.⁹²⁹

418. We propose that if the Commission adopts a new X-factor or otherwise requires adjustments to the price cap indices, price cap carriers would implement the associated rate decreases by submitting TRPs (i.e., Tariff Review Plans) and special access tariff revisions for all rate elements associated with special access. Such TRPs would set forth the calculations underlying the API, and demonstrate that the revised API for the special access basket does not exceed the revised price cap index.⁹³⁰ We seek comment on this proposal.

419. How shall we adjust the price cap indices if the Commission adopts a new X-factor or otherwise requires adjustments to the price cap indices? Should the rate decreases that result from these actions apply to all rate elements associated with special access services, or should carriers be permitted to choose the manner in which the decreases are made as long as the revised API for the special access

⁹²⁶ See *supra* Part V.H.1.

⁹²⁷ See *supra* Part V.F.1.a.

⁹²⁸ 47 CFR § 61.45(a).

⁹²⁹ *Id.* § 61.45(b)(1)(i).

⁹³⁰ See *id.*

basket does not exceed the revised price cap index? What process should the Commission employ for purposes of implementing a new X-factor or any required adjustments to the price cap indices? In this regard, we invite comment on implementation issues such as the timing for complying with the required rate reductions, what should be included in related TRP submissions and tariff filings, and carrier certification requirements.

2. Anchor or Benchmarking Pricing

420. In non-competitive markets, absent guidance as to the range of rates that would be considered reasonable, a provider could exercise market power through the charging of supracompetitive rates. As discussed above, TDM BDS rates currently are constrained to some extent by price caps.⁹³¹ In this section, we propose and seek comment on a methodology to ensure that, *in non-competitive markets*, rates for Ethernet business data services not subject to price cap regulation are just and reasonable. We emphasize that the proposed mechanism described below would be used in those markets where the Commission determines, based on an application of the Competitive Market Test, the market is non-competitive such that it is likely competition is not constraining rates to just and reasonable levels. That said, the proposed methodology is not prescriptive, and is intended to facilitate providers and customers negotiating reasonable commercial agreements.

421. We first took action to protect against concerns regarding Ethernet pricing during the transition to IP in the *Emerging Wireline Order* by adopting an interim rule to ensure that incumbent LEC BDS providers that are discontinuing legacy TDM services offer Ethernet services, used as wholesale inputs by competitive carriers, at reasonably comparable rates, terms, and conditions.⁹³² This interim rule applies to two categories of services: (1) BDS services at DS1 speed and above; and (2) commercial wholesale platform services such as AT&T's Local Service Complete and Verizon's Wholesale Advantage.⁹³³ The interim reasonably comparable wholesale access requirement is a condition to a grant of an incumbent LEC's discontinuance application imposed under our authority pursuant to section 214(c) of the Act, and helps "bridg[e] the gap" between the current competitive situation and the completion of the BDS rulemaking.⁹³⁴ The condition that the rule imposes expires when "all of the following have occurred: (1) the Commission identifies a set of rules and/or policies that will ensure rates, terms, and conditions for special access services are just and reasonable; (2) the Commission provides notice such rules are effective in the Federal Register; and (3) such rules and/or policies become effective."⁹³⁵ The rules and policies that we propose establishing from this Further Notice are intended to meet the first prong of the *Emerging Wireline Order's* standards governing expiration of the condition. Once we adopt permanent rules subsequent to this Further Notice, we will provide the Federal Register notice called for in the second prong, which will announce the effective date called for in the third prong. We anticipate that the condition the interim rule imposes will expire as of the effective date of our permanent pricing rules for BDS, absent action staying or overturning our rules and policies. We further discuss our various methods for considering a permanent pricing methodology below.

422. In this Further Notice, we propose an anchor pricing or benchmarking approach to replace, as it applies to BDS, the interim rule currently in effect. We consider three options below.⁹³⁶ The

⁹³¹ See *supra* Part V.F.1.

⁹³² See *Emerging Wireline Order*, 30 FCC Rcd at 9443-48, paras. 131-37.

⁹³³ *Id.* at 9443-44, para. 132.

⁹³⁴ *Id.* at 9447-48, para. 137.

⁹³⁵ See 47 CFR §63.71(c)(1).

⁹³⁶ We emphasize that these three options described below relate to BDS alone. This Further Notice does not propose or seek comment on adopting these three options as to commercial wholesale platform services, the other set of services (in addition to BDS) currently subject to the interim reasonably comparable wholesale access

(continued...)

first option is to rely on regulated TDM service prices to anchor the prices of similar packet services. This option would be effective only where TDM prices could be expected to reasonably constrain the rates for higher speed packet-based services. In that case, we could decline to otherwise regulate packet-based BDS rates. If, however, we were unable to determine that regulated TDM prices would provide a reasonable constraint on packet-based BDS, a second option would be to establish one regulated price for packet-based BDS, for example, establish a regulated rate for a 10 Mbps Ethernet service, which could serve as an anchor for nearby-bandwidth packet-based BDS, and could arguably constrain those rates. Our third option is to initially use reasonably comparable prices for regulated TDM services as a benchmark to help the Commission determine whether rates for various packet-based BDS are just and reasonable, but over time using, as a benchmark, the packet-based BDS prices established under this approach. Price cap TDM rates do not have a single rate for a particular TDM service but a series of rates that, when combined, create a rate. How should we account for differences in rate structures between price-capped TDM rates and packet-based BDS?

423. We seek comment on which option we should use and how such a pricing regime should operate. We believe we should adopt the third option—using regulated TDM prices, but over time using the packet-based BDS prices established under this approach as a benchmarking tool in determining whether packet-based BDS rates are just and reasonable, similar to the interim rule adopted in the *Emerging Wireline Order*.⁹³⁷ We believe this option would be most effective in constraining rates and most consistent with the Commission’s goals of promoting facilities-based competition and facilitating technology transitions. We question whether, under the first option, TDM services could effectively constrain the prices for higher speed packet-based services in the current environment of increasing demand for high-bandwidth services.⁹³⁸ In addition, such reliance may create incentives at odds with our goal of facilitating the technology transitions. We also question the desirability of the second option, establishing rates for one tier of packet-based BDS, for two reasons. First, because it is doubtful that such an approach could reasonably constrain a relatively wide range of bandwidths (for example, it is unlikely that a 25 Mbps anchor price would effectively constrain prices for 2 Mbps and 50 Mbps services). Second, for reasons similar to our hesitation to bring such services under price cap regulation, any price regulation where the Commission would be establishing rates for carriers to charge (even for just one service) would still add reporting and monitoring burdens on carriers, which could inhibit innovation. In contrast, we believe the third option would be the least burdensome and most effective in encouraging competition through commercial negotiation. We seek comment on these various options and our views.

424. Certain parties have suggested we could use a cost model to establish benchmarks for packet-based BDS Ethernet services.⁹³⁹ For instance, as noted above, the CACM was used to provide a forward-looking estimate by census block of the costs of providing a voice and broadband-capable network for use in determining Connect America Fund support for broadband necessary to serve price cap areas.⁹⁴⁰ We seek comment on whether we could either establish a new cost model or modify an existing cost model to provide a basis for establishing Ethernet rate benchmarks within price cap incumbent LEC service areas to the extent that price regulation might otherwise apply? What would be the benefits of a model-based approach in contrast to the anchor or benchmarking approaches described above? Is there a

(Continued from previous page) _____
condition. Nothing in this Further Notice limits or alters the request for comments in Part IV.E or elsewhere in the *Emerging Wireline FNPRM*. See *Emerging Wireline FNPRM* 30 FCC Rcd at 9478-97, paras. 202-44.

⁹³⁷ We note this proposed tool is similar to the first question of the five the Commission developed to guide its evaluation, using a “totality of the circumstances” test for the interim rule adopted in the *Emerging Wireline Order*. *Emerging Wireline Order*, 30 FCC Rcd at 9462, para. 159.

⁹³⁸ See *supra* Parts III.E, III.F.

⁹³⁹ Windstream April 21, 2016 *Ex Parte* Letter at 3.

⁹⁴⁰ *USF/ICC Transformation Order*, 26 FCC Rcd at 17725, para. 156.

particular model that we should consider? What would be the benefits of establishing a new model instead of modifying an existing model?

425. *Benefits of Using an Anchor or Benchmarking Pricing.* Although packet-based BDS have largely been provided outside of price cap regulation, we expect adoption of an anchor or benchmarking pricing mechanism would provide many of the advantages of price caps and other forms of pricing regulation without some of the disadvantages. Through the adoption of price cap regulation, the Commission attempted to encourage incumbent LECs to innovate and increase efficiencies in providing service.⁹⁴¹ However, bringing more services under our price caps would entail reporting and monitoring costs which we can avoid under our proposed anchor or benchmarking approach (since such an approach, in part by its expression, and in part through setting of precedents in adjudications, will encourage parties to negotiate reasonable terms and conditions). We seek comment on this approach. Would our proposed approach work effectively to constrain prices and increase innovation? Would one of the alternative forms be more effective than our proposed approach?

426. We note that the *Verizon/INCOMPAS Joint Letter* suggests that the Commission should rely on ex ante rate regulation in relevant markets with insufficient competition.⁹⁴² We seek comment on the principles in the *Verizon/INCOMPAS Joint Letter*. How would we implement ex ante pricing regulation that would further the goals of constraining prices and ensuring just and reasonable rates and be imposed on a technology neutral basis? How would such regulation be implemented on an operational basis?

a. Structure of Anchor or Benchmarking Pricing

427. As described above, we propose to use as a benchmark for reasonable packet-based BDS rates the price of the most comparable legacy TDM technology and base the reasonableness of the price on that service level, even if the services are provided using a new or different technology.⁹⁴³ Over time, as TDM benchmarks are discontinued, packet-based BDS rates established as being fair and reasonable under this approach would serve as a continuing benchmark. We seek comment on this proposal. How would this methodology be implemented? Should this price be a ceiling for the rates of various packet-based services or should it merely be used as a tool to determine whether rates are reasonable? Would this method be a workable solution to ensure that packet-based BDS rates are just and reasonable? If not, what alternative solutions should the Commission consider?

b. Services Regulated under Anchor or Benchmarking Pricing

428. We believe we should impose anchor or benchmarking pricing only in non-competitive markets. Is that the correct determination? Why or why not? Would there be reasons to impose anchor or benchmarking pricing in competitive markets? We believe that in effectively competitive markets, anchor or benchmarking pricing would not be necessary because competition would be sufficient to constrain prices to just and reasonable levels. We also believe that anchor or benchmarking pricing would not be appropriate where we find sufficient material competitive effects under the Competitive Market Test, even where that means competition is not necessarily driving prices to effectively competitive levels. This is because we must account for limitations on our ability to establish what a

⁹⁴¹ See *Pricing Flexibility Order*, 14 FCC Rcd at 14239-40, para. 37; *LEC Price Cap Order*, 5 FCC Rcd at 6790, 6825, paras. 31, 319.

⁹⁴² *Verizon/INCOMPAS Joint Letter* at 2; see also Public Knowledge Letter at 1-2 (supporting the framework proposed by Verizon/INCOMPAS).

⁹⁴³ See, e.g., Ofcom, Review of the Wholesale Broadband Access Markets, Update on the Impact of Fibre Roll-out and Further Consultation on the Proposed Charge Control, Consultation at 1, para. 1.3 (2014) (discussing an anchor pricing approach whereby “the price of existing services is ‘anchored’ by the legacy technology, even if the services are actually provided over new technology”), <http://stakeholders.ofcom.org.uk/binaries/consultations/wba-review-update/summary/wba-review-update.pdf> (*Ofcom Broadband Access Review*).

competitive price is, the harms of unintended consequences from regulatory action (for example, to the extent regulatory action encourages waste through rent-seeking), as well as its administrative costs. Is that a reasonable approach? If not, what impact would anchor or benchmarking pricing have on areas that already have material competitive effects?

429. We seek comment on the scope of the application of rate regulation in non-competitive markets to packet-based BDS (and, as well, to TDM BDS). In non-competitive areas, should all providers be subject to rate regulation or should only some providers be so impacted? If the latter, how should we determine which providers? So, for example, should rate regulation apply only to the largest providers (and how would such an outcome be implemented as market shares change over time)? Conversely, should we consider adopting a rule that providers with less than a certain percentage of market share would not be subject to rate regulation on the ground that smaller providers likely represent new entrants? Or should we use another factor than market share were we to adopt this approach, such as the ubiquity of infrastructure capable of delivering BDS service in a relevant geographic market, or the effective ability of a provider to reach some percentage of potential BDS customers? We seek general comment on the scope of rate regulation in non-competitive markets.

c. Prices Providers Will Charge

430. We propose above to evaluate the reasonableness of rates for packet-based BDS by benchmarking them against the incumbent LEC's TDM price for the most comparable level of service available, and over time, as TDM services are discontinued, benchmarking them against packet-based BDS rates established as being just and reasonable under this approach. For example, the anchor price for a particular market for a 5 Mbps Ethernet service would be the cost of the closest TDM equivalent offered by the incumbent LEC, which, for example, might be a DS1. This would not imply that the price of the Ethernet service should be the same as that of the nearest equivalent service, but only that the Commission would judge whether the 5 Mbps service price was just and reasonable in the light of the DS1 price. In this example, the Commission could determine that the 5 Mbps service price should not exceed the price of the DS1 multiplied by 3.3 ($= 5/1.5$), given the prices of higher bandwidth services usually fall more than proportionately with bandwidth, and that Ethernet services are considered to have a lower cost in supply than legacy TDM services. Would this anchor price approach be workable? If not—what method should the Commission utilize? If it is workable, would the proposed upper bound, that the ratio of the price of a packet-based BDS with a bandwidth in excess of a regulated TDM service to the price of the TDM service should not exceed the ratio the packet-based BDS bandwidth to the TDM service bandwidth, be reasonable? What about for packet-based BDS for which the nearest comparable TDM service has a higher bandwidth?

431. We seek comment on this proposal. Does it adequately cover situations in which an obvious comparable TDM service does not exist in a given market? We welcome comment on any alternative or additional ways for providers to address the situation where it is difficult to find a comparable TDM service offering on which to base the anchor price.

432. In addition to the bandwidth of the service offering, should the rates differ based on the technology, service tier, geographic location, quality of service, or any other factors? How should these differences be accounted for in determining the ultimate rate ceilings that providers are permitted to charge at or below for their packet-based BDS? How would any discounts commonly provided for TDM services influence the benchmark rates? Are there any other issues that should be accounted for that may affect the ultimate rates (either higher or lower) than the benchmark set by our anchor price? If so, what are they, and why should BDS providers be entitled to adjust their rates accordingly? How do we ensure that carriers are not permitted to increase prices above the benchmark by imposing unreasonable charges on related services, such as special construction?⁹⁴⁴

⁹⁴⁴ See Windstream April 21, 2016 *Ex Parte* Letter at 3.

d. Changes in Prices over Time

433. Our anchor or benchmark prices must adjust to changes in economic conditions and advancements in technology and productivity that impact the costs of providing services. Specifically, how would anchor prices be established once incumbent LECs have fully transitioned from TDM to packet-based services? To address this challenge, at least over the medium term, we propose to make permanent, after the interim rule expires, the current network transition requirement adopted in the *Emerging Wireline Order* which requires an ILEC discontinuing TDM service to offer a comparable packet service at comparable prices.⁹⁴⁵ We seek comment on that approach, and also on how best to establish an anchor or benchmark price for the potential situation where, due to increased bandwidth demands, sales of low bandwidth Ethernet services decline and have been replaced by broad demand for higher bandwidth BDS. Is this situation too speculative to consider regulatory approaches at this point? In particular, would our proposal to use as a benchmark any packet-based BDS with prices that were established under this approach work? Is this approach sufficiently technology-neutral, and if not, is there a more appropriate technology-neutral alternative? Would this approach over time be likely to become unmoored as TDM services are discontinued and as the minimum bandwidth of service offerings rise? What other factors would cause the Commission to reset anchor or benchmark pricing? Should anchor or benchmark pricing be revisited on a regular, recurring basis? In any case, is it likely there will be any need for regulation of such higher bandwidth services or are there reasons to believe that, as this transition takes place, such services will take on the characteristics of low bandwidth services, including a lack of competitive supply for such services?

e. Forbearance from Tariffing Requirements

434. In the *Enterprise Broadband Forbearance Orders*, the Commission granted forbearance from the application of dominant carrier regulation, including tariffing, to certain of the petitioning incumbent LECs' broadband telecommunications services.⁹⁴⁶ The forbearance grants did not include all price cap incumbent LECs and only included certain IP services being offered at the time of the grants, resulting in some inconsistency regarding the tariffing of IP-services.⁹⁴⁷ Upon implementation of an anchor or benchmarking pricing methodology, we believe we should continue the forbearance from tariffing for all packet-based services currently subject to forbearance. In addition, we believe we should expand the forbearance to include all price cap incumbent LECs and all packet-based services. We believe that forbearance from tariffing will allow for greater use of commercial negotiations, which will facilitate innovative integrated service offerings designed to meet changing market conditions and will increase customers' ability to obtain service arrangements that are specifically tailored to their individualized needs.⁹⁴⁸ We seek comment on these views. Would this approach be consistent with the three-part test in section 10(a) of the Act?⁹⁴⁹ What impact would a more comprehensive forbearance from

⁹⁴⁵ *Emerging Wireline Order*, 30 FCC Rcd at 9443-44, para. 132.

⁹⁴⁶ See, e.g., *AT&T Forbearance Order*, 22 FCC Rcd at 18706 n.5 (forbearing "from the requirements contained in section 203 of the Act, 47 U.S.C. § 203, section 214 of the Act, 47 U.S.C. § 214, (as it relates to dominant carriers), and the following sections of the Commission's rules: 47 CFR §§ 61.31-59 (general rules for dominant carriers), 47 CFR § 63.71 (to the extent it provides discontinuance rules for domestic dominant carriers), 47 CFR Part 69 (access charge and pricing flexibility rules)"); *Embarq/Frontier Enterprise Broadband Forbearance Order*, 22 FCC Rcd at 19480 n.6 (forbearing "from the requirements contained in section 203 of the Act, 47 U.S.C. § 203, section 214 of the Act, 47 U.S.C. § 214 (as it relates to dominant carriers), and the following sections of the Commission's rules: 47 CFR §§ 61.31-59 (general rules for dominant carriers), 47 CFR § 63.71 (to the extent it provides discontinuance rules for domestic dominant carriers), 47 CFR Part 69 (access charge and pricing flexibility rules), as well as the tariffing obligations under the *Computer Inquiry* rules").

⁹⁴⁷ See, e.g., *AT&T Forbearance Order*, 22 FCC Rcd at 18728, para. 40 ("Our forbearance grant is restricted to broadband services that AT&T currently offers . . .").

⁹⁴⁸ See, e.g., *id.*

⁹⁴⁹ 47 U.S.C. § 160(a).

tariffing have on the development of packet-based BDS? Would greater flexibility lead to more competitive pricing and offerings? How should the increased use of forbearance from tariffing requirements be implemented? Should the detariffing be mandatory or should carriers be permitted to file permissive tariffs? Should there be any grandfathering for services that are currently offered pursuant to tariff?

435. The success of the proposed anchor or benchmarking pricing framework will rest in part on parties having access to generally available rates that comply with the anchor or benchmarking pricing requirements. Our primary goal under anchor or benchmarking pricing would be to create a framework of technology-neutral regulation that will facilitate the emergence of competition. We want to minimize burdens on market participants and not increase barriers to market entry. Tariffing has the potential to impose burdensome obligations and may prevent more competitive offerings from being introduced by limiting flexibility and the ability to individually tailor product offerings. The disclosure tariffs require, however, is a positive aspect in non-competitive areas because it can help combat unjust and unreasonable rates, terms, and conditions. Requiring BDS providers to disclose their rates, terms, and conditions publically would provide a clear check as to whether they are compliant with our anchor pricing requirements. Do these potential transparency benefits outweigh potential benefits to competition that would arise from forbearance from tariffing requirements? Are there other potential benefits to tariffs that we should consider? We now turn to a proposed public disclosure requirement that would offset any negative impact of forbearance from tariffing requirements.

f. Public Disclosure

436. We believe we should require providers affected by our proposed anchor or benchmarking pricing regime to publicly disclose their generally available rates, terms, and conditions. The rates in these public disclosures should be consistent with the anchor or benchmarking pricing rules we adopt and should be available to customers on the carrier's website. We seek comment on these proposals. How should disclosure of rates be implemented? Is posting on a carrier's website sufficient?

g. Implementation

437. *Timing and Transition.* Currently, the *Emerging Wireline Order's* reasonably comparable standard helps ensure that providers are offering just and reasonable rates when they seek to discontinue certain legacy TDM services. Accordingly, we have temporary policies in place that should help ease any unjust and unreasonable rates in the Ethernet BDS market where legacy TDM services are discontinued. With this in mind, what is a reasonable timeline for implementing the new anchor or benchmarking pricing methodology? Should the timeline be linked to the determinations under the Competitive Market Test? What types of changes and preparations would providers need to undertake to switch to the anchor or benchmark prices that would justify time for a transition? If a transition is needed, how long should it last to ensure that providers are ready and customers are provided relief in as timely a manner as possible?

438. *Grandfathering.* Some BDS providers and purchasers enter into contracts with terms that last for several years, especially in the context of receiving term discounts.⁹⁵⁰ We do not intend to intervene where sufficient material competitive effects keep rates at just and reasonable levels. However, should the Commission need to take additional action after adoption of our proposed anchor or benchmarking pricing regime, it is well-established that “[u]nder the *Sierra-Mobile* doctrine, the Commission has the power to prescribe a change in contract rates when it finds them to be unlawful, and to modify other provisions of private contracts when necessary to serve the public interest.”⁹⁵¹ Such a need may arise, for example, when contract terms last long after adoption of our regime, which would prevent the rates from falling to just and reasonable level under our anchored prices. We note that an

⁹⁵⁰ See *supra* Part V.F.4

⁹⁵¹ *Western Union Tel. Co. v. FCC*, 815 F.2d 1495, 1501 (D.C. Cir. 1987) (citations omitted).

agency may modify or abrogate a valid contract “only if it harms the public interest.”⁹⁵² Under what circumstances should we exercise our authority under the *Sierra-Mobile* doctrine to abrogate such contracts that remain inconsistent with the benchmarked rates under our anchor pricing system? In the context of the prices for BDS, under what, if any, circumstances would rates above the anchor or benchmark price justify contract abrogation?

h. Reporting Requirements

439. We do not envision that our anchor or benchmarking pricing methodology will impose any additional reporting requirements on carriers that offer the Ethernet services falling under these new anchor or benchmark rates. We have, however, proposed to require public disclosure of generally available terms and conditions.⁹⁵³ We invite commenters to explain whether any reporting requirements should be imposed to ensure that providers comply with our rules and that those rules serve the purposes for which they were designed. If reporting requirements should be implemented, what form should they take? Should we require certification that providers are in compliance? Are there any other requirements we should consider, and what are the costs and benefits of adopting additional requirements?

i. Enforcement Actions and Declaratory Rulings

440. We expect the Commission’s enforcement process and declaratory ruling process will be critical components of our proposed anchor or benchmarking pricing methodology that will help ensure our new rules prevent providers from offering packet-based BDS at rates, terms, and conditions that are unjust and unreasonable. For example, interested parties may file complaints alleging that particular BDS providers’ rates, terms, and conditions are unjust, unreasonable, or unjustly or unreasonably discriminatory.⁹⁵⁴ Based on these complaints, we would then evaluate the rates providers’ charge to determine whether they are just and reasonable. This determination would be made based on the facts before us in each individual circumstance. In response to complaints, providers of Ethernet BDS could make arguments about why the services at issue cost more to provide than the TDM services to which we would look to benchmark prices. BDS providers, in addition, may seek declaratory rulings that the rates they charge for services subject to our anchor pricing system are just and reasonable.⁹⁵⁵ Such declaratory rulings will provide BDS providers certainty that they are in compliance with our new anchor or benchmarking pricing regime. We seek comment on whether the complaint and declaratory ruling processes would be reasonable processes to utilize in enforcing the proposed pricing methodology. Should we adopt a timeframe for resolving these complaints or declaratory rulings? Where the Commission concludes that the rates for BDS services were unjust and unreasonable, should providers be found liable for refunds? Are there better approaches to meeting these goals?

⁹⁵² *Morgan Stanley Capital Group Inc. v. Public Util. Dist. No. 1 of Snohomish Cty.*, 554 U.S. 527, 548 (2008) (*Morgan Stanley*); see also *Western Union Tel. Co. v. FCC*, 815 F.2d at 1501 (D.C. Cir. 1987) (“Under the *Sierra-Mobile* doctrine, the Commission has the power to prescribe a change in contract rates when it finds them to be unlawful, . . . and to modify other provisions of private contracts when necessary to serve the public interest[.]”) (citing *FPC v. Sierra Pacific Power Co.*, 350 U.S. 348, 353-55 (1956)); *United Gas Co. v. Mobile Gas Corp.*, 350 U.S. 332, 344 (1956)); *id.* at 1501 n.2 (explaining that “[a]lthough the legal standard for changing contract rates (they must be ‘unlawful’) differs from the standard for changing other contract provisions (they must disserve ‘the public interest’), in fact the two standards are not very different”); *Morgan Stanley*, 554 U.S. at 546 (holding that the public interest standard under *Sierra-Mobile* is not at odds with the just-and-reasonable rate standard, but rather defines “what it means for a rate to satisfy the just-and-reasonable standard in the contract context”).

⁹⁵³ See *supra* Part V.F.2.f.

⁹⁵⁴ See 47 U.S.C. § 208.

⁹⁵⁵ See 47 CFR § 1.2.

3. Wholesale Pricing

441. Certain competitive LECs argue that business data services providers are charging them wholesale rates higher than the retail rates those same providers charge end user customers, and that such wholesale rates are unreasonable.⁹⁵⁶ These competitive LECs argue that when business data services providers price their wholesale services higher than their retail services, this can result “in a price squeeze, preventing [competitors] from competing with the RBOCs for the sale of Ethernet service to end users.”⁹⁵⁷ As evidence of this price squeeze, Windstream cites the fact that the “ILECs’ wholesale Guidebook rates bear little relationship to real retail prices. [BEGIN CONFIDENTIAL] [REDACTED]

[REDACTED] [END CONFIDENTIAL] which is below its wholesale Guidebook rate for an Ethernet at the same capacity level and term (\$1,225) as well as its DS3 three-year rate (\$1,232.50).⁹⁵⁸ TDS also argues that the “RBOCs were offering Ethernet service to wholesale customers such as TDS CLEC at a price higher than they sold the same service at retail, even though they avoided some significant costs when selling at wholesale.”⁹⁵⁹ Windstream adds that, [BEGIN HIGHLY CONFIDENTIAL] [REDACTED]

[REDACTED] [END HIGHLY CONFIDENTIAL]

442. These allegations raise concerns that are not novel. The Commission previously has recognized that incumbent LECs can “strategically manipulate the price of their direct competitors’ wholesale inputs to prevent competition in the downstream retail market.”⁹⁶⁰ While our proposed framework would move away from regulating providers based on their historical categorizations, we find it likely that providers in non-competitive markets have similar abilities and incentives to engage in such price manipulation. We believe that existing rules may apply to these concerns regarding wholesale pricing, and that addressing such concerns in our proposed framework may provide helpful guidance.⁹⁶¹ We also note that the *Verizon/INCOMPAS Joint Letter* states that “[t]here should be a relationship between wholesale and retail pricing” for business data services.⁹⁶²

443. Sections 201(b) and 202(a) require charges, practices and classifications to be just and reasonable and prohibit unjust or unreasonable discrimination.⁹⁶³ Section 251(c)(4) requires that incumbent LECs offer “for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers,” without unreasonable conditions or limitations.⁹⁶⁴ And the Act places reasonable resale obligations on all LECs. Section

⁹⁵⁶ See, e.g., TDS Reply at 5-8; Windstream Comments at 49-52.

⁹⁵⁷ TDS Reply at 5.

⁹⁵⁸ Windstream Comments at 50.

⁹⁵⁹ TDS Reply at 5.

⁹⁶⁰ *Unbundled Access to Network Elements, Review of the Section 251 Unbundling Obligations of Local Exchange Carriers*, Order on Remand, 20 FCC Rcd 2533, 2570, para. 63 (2005) (*TRRO*), *aff’d*, 450 F.3d 528 (D.C. Cir. 2006).

⁹⁶¹ See *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and Order, 11 FCC Rcd 15499, 15501, para. 14 (1996) (*Local Competition Order*) (subsequent history omitted) (observing that “[a]lthough they may provide some of their own facilities, . . . entrants will likely need agreements that enable them to obtain wholesale prices for services they wish to sell at retail”).

⁹⁶² *Verizon/INCOMPAS Joint Letter* at 3.

⁹⁶³ 47 U.S.C. §§ 201(b), 202(a).

⁹⁶⁴ *Id.* § 251(c)(4).

251(b)(1) requires that all LECs have “[t]he duty not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of its telecommunications services.”⁹⁶⁵ We seek proposals for and comment on adopting rules, under sections 201 and 202(a), ensuring just and reasonable wholesale rates that would be applicable to provider(s) in non-competitive markets. Are there other sources of authority that we should consider? How do we best ensure that we employ sources of authority that operate in a technology-neutral manner?

444. We ask commenters to explain how frequently business data services providers charge wholesale customers rates that exceed the corresponding retail rate. Does the practice vary depending on bandwidth levels or other product features?⁹⁶⁶ Are there other examples of this practice, and if so where is such pricing taking place? Windstream argues that such practices violate “Section 251(b)(1) as an ‘unreasonable or discriminatory condition[] or limitation[]’ that results in a failure to provide carrier customers and end users services ‘subject to the same conditions,’ and violates prohibitions of sections 201 and 202 against unjust and unreasonable as well as unreasonably discriminatory practices and charges.”⁹⁶⁷ We invite commenters to explain whether charging higher rates for wholesale business data services than for comparable retail services would violate the Act and our rules. We also seek comment on the view that, because of avoided costs or other factors, reasonable wholesale rates should be lower than retail. Do the services wholesale customers tend to purchase use different portions of the incumbent LECs’ networks than the services retail customers purchase?⁹⁶⁸ Are there differences in the incumbent LECs’ expenses for sales, marketing, customer service, technical support, and uncollectibles between wholesale and retail customers?⁹⁶⁹ If there are differences justifying a discount, how would we determine the just and reasonable discount that would apply to wholesale rates?

445. We seek comment on what if any steps should be taken to ensure that customers have a basis for determining whether wholesale rates are just and reasonable under existing or proposed rules. For example, what steps are incumbent LECs currently taking to disclose the lowest retail price to potential customers under existing rules? Are such processes effective, or should we take additional measures to ensure that potential customers are aware of the lowest retail price? For example, should we require some form of public disclosure, such as on a carrier’s website? Would such a disclosure put purchasers in a better position to know whether the rates they are charged are just and reasonable? Are there other requirements we should adopt regarding wholesale rates?

446. Finally, we seek comment on the relationship between any requirement concerning wholesale rates and the rate regulation we have proposed for TDM and packet-based services in non-competitive markets. Should both approaches be used? One or the other? Or are there certain markets (by service, geography, customers or some combination of factors) for which the relationship between wholesale and retail rates is most salient?

4. Terms and Conditions

a. Restrictions on Tying Arrangements

447. Competitive LECs have alleged that incumbent LECs engage in certain forms of tying arrangements that they claim are harmful to competition in the business data services market and which inhibit the transition to IP technology. We review these allegations and seek comment on them and on proposals we make to prohibit such tying arrangements.

⁹⁶⁵ *Id.* § 251(b)(1).

⁹⁶⁶ *See* Windstream April 21, 2016 *Ex Parte* Letter at 3.

⁹⁶⁷ Windstream Comments at 60 (citing 47 U.S.C. §§ 201, 202, 251(b)(1) and 47 CFR § 51.603(b)).

⁹⁶⁸ *See* Windstream April 21, 2016 *Ex Parte* Letter at 3.

⁹⁶⁹ *Id.*

448. Tying arrangements are a widely recognized form of contractual arrangement that can occur in virtually any type of market. According to economic literature, a firm engages in tying “when it makes the sale (or price) of one of its products conditional upon the purchaser also buying some other product from it.”⁹⁷⁰ The main harm from tying has traditionally been based on a “leverage theory,” in which tying provides a firm with monopoly power in one market the ability to use this leverage to monopolize a second market.⁹⁷¹ The Commission has previously expressed concerns with tying arrangements and sought comment on such arrangements.⁹⁷²

449. Competitive LECs are generally critical of the tying arrangements they allege incumbent LECs employ in the business data services market, claiming incumbent LECs use their market position in the TDM services to leverage their sales of Ethernet services. Competitive LECs accuse incumbent LECs of using restrictive provisions and penalties in tariff pricing plans for TDM BDS to leverage sales and market share in Ethernet markets.⁹⁷³ For example, TDS Metrocom states that incumbent LECs “use their lock-up contracts for TDM special access to leverage the market power they have gained over the decades in TDM special access to impede competitors from constructing and offering Ethernet special access.”⁹⁷⁴

450. The incumbent LECs generally defend the reasonableness of provisions in their tariffs that credit purchasers’ Ethernet purchases in fulfillment of their TDM pricing plan commitments.⁹⁷⁵ They also assert that provisions in their Ethernet commercial agreements that provide credits to buyers to offset their penalty liabilities under TDM pricing plans do not force competitive LECs to sign up for such agreements⁹⁷⁶ and are “not within the scope of the Commission’s [tariff] investigation.”⁹⁷⁷ AT&T also argues that the competitive LECs have taken inconsistent positions on this issue, noting that “even as the CLECs are seeking regulatory actions that would artificially discourage the replacement of TDM services with Ethernet services, they claim that the DS1 pricing plans are preventing competition in Ethernet services.”⁹⁷⁸

451. Competitive LECs allege that incumbent LECs engage in different types of tying arrangements in their tariffs and commercial agreements. First, they allege that incumbent LECs include various types of provisions in their tariff pricing plans that on their face allow customers of those plans to count their Ethernet purchases from the incumbent LEC toward fulfillment of their TDM pricing plan percentage commitments (so-called IP migration provisions). The Bureau identified these concerns in the *Designation Order*.⁹⁷⁹ According to competitive LECs, some TDM agreements allow customers to fulfill their volume commitments for DS1 and DS3 dedicated services with purchases of Ethernet services from the incumbent LEC.⁹⁸⁰

⁹⁷⁰ Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 *The American Economic Review* 837 (Sept. 1990).

⁹⁷¹ *Id.*

⁹⁷² 2005 *Special Access NPRM*, 20 FCC Rcd at 2033, para. 119; *Data Collection FNPRM*, 27 FCC Rcd at 16357, para. 93.

⁹⁷³ See *Lightower Opposition 2*; *TDS Metrocom Opposition at 2*.

⁹⁷⁴ *TDS Metrocom Opposition at 2*.

⁹⁷⁵ See, e.g., *AT&T Direct Case at 43*; *CenturyLink White Paper at 18*; *Verizon Rebuttal at 8*.

⁹⁷⁶ See, e.g., *AT&T Rebuttal at 24*.

⁹⁷⁷ *AT&T Rebuttal at 22*.

⁹⁷⁸ *AT&T Rebuttal at 14*.

⁹⁷⁹ See *Designation Order*, 30 FCC Rcd at 11444-47, paras. 54-60.

⁹⁸⁰ *TDS Metrocom Opposition at 1-2* (“The RBOCs have all admitted as part of their Direct Cases that they enter into contracts with purchasers of TDM special access that require customers to commit to purchase specified volumes of TDM special access and allow customers to comply with the specified volume requirements by purchasing

(continued...)

452. Competitive LECs also allege that incumbent LECs use the leverage gained through tariff pricing plan penalties to induce customers, particularly competitive LECs, to purchase large volumes of the incumbent LECs' Ethernet service. They state that incumbent LECs either waive or provide credit in a competitive LEC customer's commercial agreement for Ethernet that offset that customer's penalty liability under a tariff or non-tariff pricing plan as leverage to obtain the competitive LEC's commitment to purchase the incumbent LEC's Ethernet and other services. Competitive LECs argue that this gives incumbent LECs an advantage over other providers of Ethernet service, especially those that lack a significant market presence in TDM services.⁹⁸¹ Moreover, Lightower asserts that these contracts "coerce those customers that want to upgrade to Ethernet to select [an incumbent provider's] Ethernet, rather than Ethernet offered by a competitor."⁹⁸²

453. The Commission has consistently expressed concern about the potential of incumbent LEC pricing plans to harm competition in the business data services market.⁹⁸³ The Commission specifically identified tying arrangements as a potential source of concern at the inception of this proceeding. It stated, "[w]e are concerned here with whether a firm bundles the purchase of one product with the purchase of a product the customer might otherwise not have made. A provider dominant in one product may seek to influence the purchase of other products by imposing terms and conditions that bundle the products together."⁹⁸⁴ The Bureau designated for investigation the potentially unreasonable or anticompetitive nature of IP migration provisions in certain incumbent LEC tariff pricing plans.⁹⁸⁵

454. As part of the technology neutral framework for regulating business data services, we propose prohibiting tariff and other contractual arrangements that condition the sale of business data services in a non-competitive market on the sale of such services in a competitive market. Such rules would be applied on a technology neutral basis. We seek comment on both the harms such agreements may impose and on implementation of any prohibition in light of the ongoing purchase agreements for such services that may contain tying arrangements. How do we balance current business expectations of customers and providers against the long term harms such arrangements may impose on the evolution of the competitive market for business data services? We address specifically three types of tying arrangements that have been identified in the record: IP migration provisions, typically found in incumbent LEC tariff pricing plans, provisions that leverage incumbent LEC tariff pricing plan penalty liability to induce sales of Ethernet and other services, and geographic tying. To what extent, if at all, would a prohibition on tying obviate the need to identify multi-location customers, or any other class of customers, for purposes of the application of the Competitive Markets Test or alternative regulatory

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Ethernet."); Lightower Opposition at 8 ("Evidence in the special access rulemaking docket persuasively demonstrates how the ILECs use their dominance in the TDM market to their advantage in the Ethernet market. Level 3 explains how ILECs 'use new volume commitments in overlay agreements to lock up the market for Ethernet.' They do so by 'granting competitors some relief from shortfall penalties under volume commitments for DS1 and DS3 dedicated services in exchange for large volume commitments that include Ethernet . . . services.'").

⁹⁸¹ See Lightower Opposition at 9 ("Because of the volume commitments and shortfall penalties in their TDM agreements, Verizon's existing TDM customers that wish to upgrade to Ethernet without incurring penalties often have little alternative but to move their TDM circuits to Verizon Ethernet instead of a competitor's Ethernet. This impedes deployment of competitive fiber networks and impedes self-deployment by Verizon's customers.").

⁹⁸² Lightower Opposition at 10.

⁹⁸³ See, e.g., *Designation Order*, 30 FCC Rcd at 11425-27, para. 19 ("In 2005, the Commission stated that it 'has long been concerned about dominant carriers offering their services on terms and conditions that weaken or harm the competitive process sufficiently to reduce consumer welfare.'") (quoting *2005 Special Access NPRM*, 20 FCC Rcd at 2031, para. 115); *Analytical Framework Public Notice*, 24 FCC Rcd at 13642.

⁹⁸⁴ *2005 Special Access NPRM*, 20 FCC Rcd at 2033, para. 119.

⁹⁸⁵ See *Designation Order*, 30 FCC Rcd at 11452-53, paras. 70-71.

approach? Are there any other actions that the Commission should consider to address issues arising from customers who are purchasing a service that spans competitive and non-competitive markets?

455. *IP migration provisions.* IP migration provisions are common among incumbent LEC pricing plans. These provisions allow customers to count Ethernet purchases toward fulfillment of their TDM commitments. Competitive LECs take two positions in connection with such provisions. They either advocate that the Commission make such provisions effective⁹⁸⁶ or, more recently, advocate that such provisions represent an unlawful tying arrangement.⁹⁸⁷ The incumbent LECs defend such IP migration provisions and contend they allow competitive LECs to transition TDM purchases to Ethernet and facilitate the technology transition.⁹⁸⁸ We seek comment on whether we should prohibit such provisions as unreasonable tying arrangements. To what extent do such provisions encourage and facilitate incumbent LECs' leveraging of their dominance in the provision of TDM business data services to increase sales of their Ethernet services? How do the price cap incumbent LECs' market positions differ between the TDM and Ethernet business data services markets that are usually covered by the tariff containing such provisions? We seek comment on whether and, if so, to what extent incumbent LEC IP migration provisions advantage incumbent LECs competing for Ethernet sales. If IP migration provisions were eliminated from incumbent LEC tariff pricing plans, what would be the impact on customers of those plans? To what extent have customers relied on IP migration provisions to meet their commitments under TDM pricing plans? What volume of Ethernet purchases would be affected? If customers were unable to count such purchases toward fulfillment of their TDM commitments, what potential penalties would they incur? How would a prohibition, if adopted, best be implemented? Should customers be allowed a "fresh look" period to re-evaluate their tariff commitments or other transition period to allow customers to adapt their purchasing arrangements? Would this unreasonably deprive price cap incumbent LECs of the benefit of their bargain? How could such a prohibition best be applied in a technology-neutral manner? What implementation questions are raised by our proposal to eliminate tariffing?⁹⁸⁹ What additional factors should the Commission consider?

456. *Provisions Leveraging Penalty Liability.* As explained above, competitive LECs have more recently alleged incumbent LECs use tariff pricing plan penalty liability as leverage to induce competitive LECs to agree to large Ethernet purchases from the incumbent LECs. They claim that these practices represent unreasonable tying arrangements and could extend incumbent LECs' dominance of TDM business data services to IP services. We seek comment on prohibiting the use of provisions that offset penalty liability from tariff pricing plans in Ethernet commercial agreements. We note that such provisions appear in multiple commercial agreements submitted by the four large incumbent LECs in response to the Bureau's tariff investigation. How pervasive are these practices? What is their impact on competition for Ethernet services? What would be the impact of eliminating such provisions on buyers, sellers and the market generally? To what extent do such agreements contain change of law provisions in anticipation of changes such as this? We also seek comment on the use of other provisions in commercial agreements that tie the sale of Ethernet services to the sale of services by providers in non-competitive markets. Finally, if the Commission were to bar the use of such provisions in Ethernet commercial agreements, how should the Commission implement such a requirement? Should the Commission, as some competitive LECs have advocated, require commercial agreements that link purchases to tariffed penalties or other tariff provisions be filed with the Commission as a contract tariff? What should the parameters be of such a requirement? Would any other type of linkage require such agreement to be filed as a tariff? How could such a prohibition best be applied in a technology-neutral manner?

⁹⁸⁶ See Windstream Opposition at 18-20; XO Opposition at 59; Joint CLEC Opposition at 78.

⁹⁸⁷ See TDS Metrocom Opposition at 1-2; Sprint Opposition at 50.

⁹⁸⁸ See, e.g., Verizon Direct Case at 38.

⁹⁸⁹ See *supra* Part V.H.2.

457. *Geographic Tying.* Competitive LECs also assert that incumbent LECs engage in tying the sale of business data services in markets where they have significant market share to the sale of business data services in markets where the Commission's prior competitive triggers have been met. Such allegations generally involved assertions that TDM services in non-competitive, largely rural price cap markets were tied to sales of such services in Phase I or Phase II pricing flexibility markets.⁹⁹⁰ In response, AT&T challenges what it calls the CLECs' "leveraging theory," and denies that it could leverage sales in non-competitive areas to monopolize sales in competitive areas unless the sales in non-competitive areas represent a substantial volume of purchases, which it claims is not the case.⁹⁹¹

458. First, we recognize that in the competition analysis above we find that the competitive triggers adopted in the *Pricing Flexibility Order* were poor measures of competition.⁹⁹² In this Further Notice, however, we propose a new framework that includes a Competitive Market Test to determine areas that are competitive and non-competitive. The assertions and arguments concerning tying across markets subject to different levels of market concentration remain relevant in the new regulatory framework. We seek additional comment on whether and to what extent we should be concerned geographic tying could take place under the proposed technology-neutral framework and, if so, what remedial action we should take.

459. *Impact on IP Transition.* While prohibiting such tying arrangements would minimize potential harm, it would also eliminate the ability of providers and purchasers to link TDM purchases and Ethernet purchases in any way, including the use of IP migration provisions in TDM tariffed services and the use of credits to offset penalty liability conditioned on the purchase of Ethernet service from the provider. It is clear from the record that linking DSn purchases and Ethernet purchases involves material short term benefits for purchasers as they attempt to manage the effects of the decline in TDM services and the transition to IP services. Some competitive LECs advocate in favor of such arrangements and incumbent LECs generally defend their reasonableness. Considering the benefits of these arrangements may be particularly relevant given the current decline in TDM sales and the consequent penalty liabilities that decline involves.

460. The Commission has established as one of its priorities facilitating technology transitions.⁹⁹³ While we share the concerns of commenters that incumbent LECs may have the incentive and ability to leverage their market position in TDM services to increase their Ethernet sales, we also recognize that addressing the harms of tying TDM BDS to Ethernet services may require a more nuanced approach to reflect the implications of such a prohibition on the technology transition. AT&T states that such restrictions would "artificially discourage the replacement of TDM services with Ethernet services."⁹⁹⁴ We seek comment on approaches that would encourage the transition to Ethernet while limiting an incumbent LEC's ability to leverage its market position in the provision of TDM BDS to gain a similar position in the provision of Ethernet offerings. Are there other ways to provide both parties with the benefits from these arrangements while limiting the harms to competition in the market for business data services? We also seek comment on ways to allow the benefits of such arrangements during a defined period of time to facilitate the industry's transition to IP services.

461. Finally, we seek comment on how we should implement any prohibition on tying arrangements the Commission may adopt. What effect would adopting such a prohibition have on

⁹⁹⁰ See, e.g., Joint CLEC Opposition at 61-62.

⁹⁹¹ AT&T Direct Case at 36-37.

⁹⁹² See *supra* Part V.A.7.b.

⁹⁹³ See *Technology Transitions, et al.*, Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, 29 FCC Rcd 1433, 1435, para. 2 (2014) (*Technology Transitions Order*).

⁹⁹⁴ AT&T Rebuttal at 14.

existing tariff and contractual arrangements in tariffs and commercial agreements? Should the Commission consider either grandfathering existing agreements or providing a transition period to allow parties to adapt their agreements to reflect such a prohibition? Should there be a “fresh” look period to allow customers to reallocate their purchases in light of the modifications or prohibitions we propose to tying arrangements?

b. Percentage Commitments

462. In the *Designation Order*, the Bureau designated for investigation whether the use of percentage commitments based on a purchaser’s historical or existing (at the point of entry into the plan) levels of purchases in certain incumbent LEC tariff pricing plans is a just and reasonable practice under section 201(b) of the Act or is unreasonably discriminatory under section 202(a) of the Act.⁹⁹⁵ Percentage commitments are requirements included in some incumbent LEC tariff pricing plans that require customers to commit to buy, over the term of the plan, a high percentage of the amount of services they elect to purchase when initiating or renewing purchases through a tariff pricing plan.⁹⁹⁶

463. Competitors allege that incumbent LECs use percentage commitments to “lock-in” demand for special access services by requiring a high percentage of buyers’ existing purchases from the incumbent LECs to expand their portion of the special access services market to the exclusion of competitors.⁹⁹⁷ Incumbent LECs disagree, contending that their special access pricing plans are “voluntary,” and allow customers to select from several options.⁹⁹⁸ Incumbent LECs also argue that percentage commitments are reasonable because they allow incumbents to minimize risks associated with revenue, realize scale economies, and spread fixed costs over a large customer base.⁹⁹⁹

464. Given the framework we adopted in the Tariff Investigation Order that addresses the special access marketplace by focusing on penalties, we declined to take action on percentage commitments in that Order.¹⁰⁰⁰ We seek comment on whether this approach is sufficient to ensure that percentage commitments will not harm competition, impede investment and deployment of facilities-based competitive networks, or hinder the transition to IP-based business data services.

465. We also seek to broaden our inquiry into minimum percentage commitments in this Further Notice and seek comment on the impact percentage commitments have on the provision of TDM based business data services. With regard to the TDM based market, how prevalent is the use of such commitments in tariff pricing plans and contract tariffs beyond those investigated in the Bureau’s tariff investigation? What impact do such commitments have systemically on the market for TDM based business data services? How do they vary? Competitive LECs claim that such commitments tend to “lock up” or foreclose significant portions of the market for TDM based business data services, impairing competition and inhibiting technology transition.¹⁰⁰¹ Is that still the case? Incumbent LECs assert in the tariff investigation that the decline in TDM based business data services market effectively rendered the competitive LECs’ lock up arguments moot. We seek comment on whether that is in fact the case or whether percentage commitments operate differently in a declining market. What is their effect in a declining TDM market? What remedies would be appropriate to ensure that percentage commitments are

⁹⁹⁵ *Designation Order*, 30 FCC Rcd 11431, para. 30.

⁹⁹⁶ *Id.*

⁹⁹⁷ *See, e.g.*, Windstream Sept. 24, 2015 *Ex Parte* Letter at 2-3; XO Sept. 23, 2015 *Ex Parte* Letter at 3-4.

⁹⁹⁸ *See, e.g.*, CenturyLink Mar. 12, 2013 Reply Comments at 22.

⁹⁹⁹ *See, e.g.*, Letter from Curtis L. Groves, Assistant General Counsel, Federal Regulatory and Legal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, RM-10593, at 7 (filed Mar. 2, 2015).

¹⁰⁰⁰ *See supra* para. 88.

¹⁰⁰¹ *See, e.g.*, Windstream Sept. 24, 2015 *Ex Parte* Letter at 2-3; XO Sept. 23, 2015 *Ex Parte* Letter at 3-4. Lightower Opposition at 2; Sprint Opposition at 22, 44; Joint CLECs Opposition at 18.

reasonable and allow incumbent LECs the flexibility to manage their businesses while also minimizing the potential harms associated with “locking in” competitive LEC customers? Should the Commission consider prohibiting the use of percentage commitments, limiting the level at which the commitment is set, or taking some other remedial step to ensure they do not negatively impact the market?

466. We also seek comment on the use of percentage commitments in commercial agreements for the sale of packet based business data services such as Ethernet. Competitive LECs cite the incumbent LECs’ use of such requirements in Ethernet commercial agreements and claim incumbent LECs are attempting to lock up or control their Ethernet purchases.¹⁰⁰² Competitive LECs cite in particular the fact that their Ethernet commercial agreements with incumbent LECs typically involve large scale purchases and involve the sale of other telecommunications services such as mobile wireless and long distance service.¹⁰⁰³ How commonly are percentage commitments used in Ethernet commercial agreements and at what percentage levels are they set? How do they impact the market for Ethernet business data services? Should the fact that commercial agreements can involve such large scale purchases impact our analysis? If the Commission found percentage commitments were impacting the Ethernet market, what remedies should the Commission consider adopting? To the extent commenters suggest the adoption of remedies, they should also address how such remedies should be implemented.

c. Term Commitments

467. In the *Designation Order*, the Bureau designated for investigation whether the use of long term commitments in the incumbent LEC tariff pricing plans at issue was a just and reasonable practice under section 201(b) of the Act.¹⁰⁰⁴ Term commitments require customers that participate in a term pricing plan to commit to continue to make those purchases for a set term of months or years. Term commitments in tariff pricing plans vary considerably from one year to as long as ten years.

468. Competitive providers contend that pricing plans that include longer term commitments are unreasonable and multiply the effect of high percentage commitments that reduce the demand that would otherwise be subject to competition by prolonging the timeframe in which this demand is subject to the term commitment.¹⁰⁰⁵ Incumbent LECs assert that offering longer term pricing plans is a recognized business practice that is beneficial to them and to their purchasers. For example, AT&T contends that term commitments are a “legitimate means of pricing special access facilities so as to encourage the efficiencies associated with larger traffic volumes and the certainty associated with longer-term relationships.”¹⁰⁰⁶

469. We declined to address term commitments in the Tariff Investigation Order, instead addressing competitive LECs’ concerns by prohibiting penalties that exceed the incumbent LECs’ expectation damages.¹⁰⁰⁷ We seek comment on whether action on term commitments is necessary to

¹⁰⁰² Incumbent LECs typically asserted in response that the substance of commercial agreements were beyond the scope of the tariff investigation. *See, e.g.*, AT&T Reply Brief at 20-21 (“Those negotiated agreements are not within the scope of the Commission’s investigation.”).

¹⁰⁰³ *See, e.g.*, Joint CLEC Opposition at 10, 93 (citing a commercial agreement in which [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL]).

¹⁰⁰⁴ *Designation Order*, 30 FCC Rcd 11461, para. 85.

¹⁰⁰⁵ *Id.* at 11462, para. 85. *See also* XO Sept. 23, 2015 *Ex Parte* Letter at 11.

¹⁰⁰⁶ AT&T Mar. 28, 2012 *Ex Parte* Letter at 2 (citing *Transport Rate Structure and Pricing*, CC Docket No. 91-213, Fourth Memorandum Opinion and Order on Reconsideration, 10 FCC Rcd 12979, 12984, para. 13 (1995) and *Special Access Expanded Interconnection Order*, 7 FCC Rcd at 7463, para. 199).

¹⁰⁰⁷ *See supra* Parts IV.C-D.

ensure that they will not harm competition, impede investment and deployment of facilities-based competitive networks, or hinder the transition to IP-based business data services. We also seek to broaden our inquiry into term commitments in this Further Notice and seek comment on the impact term commitments have on the provision of TDM based business data services generally. How prevalent is the use of such commitments in tariff pricing plans and contract tariffs beyond those investigated in the Bureau's tariff investigation? What impact do such commitments have systemically on the market for TDM based business data services? In the tariff investigation, the incumbent LECs submitted data that showed that the average term lengths for agreements under the plans at issue was considerably longer than the term lengths typically reported by competitive LECs.¹⁰⁰⁸ It also showed that a very high percentage of all sales in the plans at issue – over 97 percent – occur in plans longer than three years.¹⁰⁰⁹ Are longer term agreements in any way evidence of a seller's market power? Do incumbent LEC term plans that are longer than most competitive LEC plans tend to inhibit the technology transition or otherwise impact competition in the TDM based market? What remedies would be appropriate to ensure that term commitments are reasonable and allow incumbent LECs the flexibility to manage their businesses while also minimizing the potential harms associated with the alleged "locking in" competitive providers?

470. We also seek comment on the use of term commitments in commercial agreements for the sale of IP based business data services such as Ethernet. How do term commitments in Ethernet commercial agreements compare with those in TDM tariff pricing plans and contract tariffs? To what extent do term commitments impact the Ethernet market? How does the length of term commitments offered by competitive providers in Ethernet commercial agreements compare with the length of term commitments offered by incumbent LECs? What remedies, if any, should the Commission consider adopting either to limit or condition term commitments in Ethernet commercial agreements? To the extent commenters suggest the adoption of remedies, they should also address how such remedies should be implemented. To the extent that the Commission should consider restrictions on term commitments, should such restrictions apply solely to non-competitive markets or more broadly to all markets?

d. Upper Percentage Thresholds

471. In the *Tariff Investigation*, the Bureau designated for investigation pursuant to section 205 of the Act the question whether the use of upper percentage thresholds in certain incumbent LEC tariff pricing plans, either by themselves or in conjunction with other pricing plan provisions, is a just and reasonable practice under section 201(b) of the Act and/or is unreasonably discriminatory under section 202(a) of the Act.¹⁰¹⁰ Under upper percentage thresholds, if a buyer's purchases increase more than a set percentage above their initial volume commitment during the term of the plan, the buyer is required either to commit to an increased purchase volume or to pay an overage penalty. We did not address upper percentage thresholds in the *Tariff Investigation Order*, but instead seek comment on whether we should adopt a broad prohibition on such requirements in non-competitive areas.

472. The incumbent LECs claim upper percentage thresholds help set limits on the costs they incur in providing portability. Pricing plans that provide portability allow customers to terminate certain circuits under a plan and replace them with other circuits without incurring early termination penalties. Verizon states that upper percentage thresholds "help enforce the commitment customers make in order to

¹⁰⁰⁸ Data submitted by the incumbent LECs subject to the tariff investigation showed that term commitments under the pricing plans at issue averaged [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] for AT&T, CenturyLink, Frontier, and Verizon, respectively. Competitive LECs state that term commitments in their contracts for TDM based business data services are more typically one or two years and rarely exceed three years. See, e.g., Joint CLEC Opposition, Declaration of Gary Black Jr. at 16, para. 27.

¹⁰⁰⁹ This is based on staff analysis of data submitted by the incumbent LECs in Table VIII of the tariff investigation data template.

¹⁰¹⁰ *Designation Order*, 30 FCC Rcd at 11457-58.

receive portability benefits, which impose costs on Verizon.”¹⁰¹¹ AT&T asserts that it is reasonable to set an upper limit on its “potential costs from premature disconnections.”¹⁰¹² CenturyLink claims that without upper percentage thresholds, a customer could benefit from the flexibility of CenturyLink’s plan “without the corresponding commitment necessary to recover the cost of providing the service.”¹⁰¹³

473. CenturyLink also argues that upper percentage thresholds allow the customer greater flexibility in managing its needs and provide a degree of predictability to assist CenturyLink’s “network personnel with purchasing and planning.”¹⁰¹⁴ AT&T asserts that upper percentage thresholds do not have an anti-competitive impact and do not deter entry because the tariffs “account for only a relatively small percentage of the marketplace.”¹⁰¹⁵

474. The competitive LECs argue that upper percentage thresholds are unjust and unreasonable and assert that the incumbent LECs have failed to justify them. The Joint CLECs argue that upper percentage thresholds impose “arbitrary upper limits”¹⁰¹⁶ and their application “results in differential treatment of customers.”¹⁰¹⁷ Sprint asserts that “the incumbents’ direct cases provide no believable economic rationale behind” such pricing plan practices¹⁰¹⁸ and that upper percentage thresholds “force purchasers to ratchet up their commitment levels.”¹⁰¹⁹ Other competitive LECs assert that these thresholds “serve[] both to lock up increased demand and to create greater exposure to shortfall penalties over time.”¹⁰²⁰ The Joint CLECs also discount the incumbent LEC argument that upper percentage thresholds encourage customers to predict their future needs more accurately and that they help incumbent LECs plan for network usage. They explain that “[t]hese same objectives could be achieved through cooperative planning between seller and buyer without the need for arbitrary upper limits.”¹⁰²¹

475. We seek comment on whether the use of upper percentage thresholds in tariffs and contract tariffs generally is an unreasonable practice. As discussed above, in both the Tariff Investigation Order and earlier in this Further Notice, the price cap LECs’ all-or-nothing requirements often served to restrict customer options and inhibit the ability of competitive LEC customers to plan for their network evolution. Such unreasonable restrictions also may have contributed to the asserted lock in effect of upper percentage thresholds. We seek comment on whether the price cap LECs’ arguments about their potential risk exposure when customers add large amounts of circuits to their plans with portability are more persuasive if the customer has the choice to place its demand in a term plan without portability when adding new circuits to its agreements with the price cap LEC. We seek comment on whether upper percentage thresholds are unreasonable and should be prohibited for providers of TDM business data services in non-competitive markets. Under what circumstances might upper percentage provisions be found reasonable? In the record, incumbents LECs argued they incurred risks and costs when an increase in purchases reached a certain point; however, they failed to provide any financial information on what

¹⁰¹¹ Verizon Direct Case at 112.

¹⁰¹² AT&T Direct Case at 49.

¹⁰¹³ CenturyLink Narrative Responses at 28; *see also* Verizon Direct Case at 31.

¹⁰¹⁴ CenturyLink Narrative Responses at 28.

¹⁰¹⁵ AT&T Direct Case at 49.

¹⁰¹⁶ Joint CLEC Opposition at 87.

¹⁰¹⁷ Joint CLEC Opposition at 45.

¹⁰¹⁸ Sprint Opposition at 33-34.

¹⁰¹⁹ Sprint Opposition at ii.

¹⁰²⁰ Letter from Thomas Jones, Counsel for Cbeyond et al., to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, at 4 (filed Oct. 28, 2014).

¹⁰²¹ Joint CLEC Opposition at 87.

these costs are or how they are related to actual upper percentages or overage penalties that are used. We seek comment on what showing a carrier should be required to make if it supports such a provision. Will removing the all-or-nothing requirements from the providers' tariffs provide the flexibility customers need to make different choices if they do not want to increase their spend under an upper percentage threshold? If we were to adopt a prohibition on upper percentage thresholds, what is an appropriate transition period for phasing out these provisions?

476. We seek comment on the extent to which commercial agreements for the provision of Ethernet-based service assess upper percentage thresholds. We also seek comment on whether these provisions are found elsewhere in the telecommunications industry or offered by other carriers other than in incumbent LEC tariffs. Are upper percentage thresholds in Ethernet commercial agreements unreasonable and, if so, should the Commission prohibit them in this context as well? Should such a prohibition apply solely to non-competitive markets or more broadly to all markets?

e. Overage Penalties

477. The Bureau designated for investigation pursuant to section 205 of the Act the question whether the use of overage penalties in certain incumbent LEC tariff pricing plans, either by themselves or in conjunction with other pricing plan provisions, is a just and reasonable practice under section 201(b) of the Act and/or is unreasonably discriminatory under section 202(a) of the Act.¹⁰²² Overage penalties effectively function as the enforcement mechanism for the upper volume thresholds addressed in the previous section of this Further Notice. For example, under the Verizon Commitment Discount Plan, Verizon charges the customer the undiscounted month-to-month rate for each circuit in excess of 130 percent of the customer's commitment level unless the customer increases its commitment level to encompass the overage. We did not address overage penalties in the Tariff Investigation Order, but instead seek further comment here.

478. Incumbent LECs assert that overage penalties are necessary to discourage purchasers from gaming tariffs. Verizon states that without overage penalties, competitive LECs could commit "only small volumes while receiving multi-year discounts on much greater volumes."¹⁰²³ AT&T argues that there are a variety of ways for competitive LECs to avoid penalties.¹⁰²⁴ CenturyLink insists that overage penalties are "mild incentives" for customer to conform to their tariffs.¹⁰²⁵

479. The competitive LECs assert there is insufficient new demand for TDM business data services to game the system. Sprint states that competitive LECs are forced to "choose only between increasing their commitment level to the incumbent or paying punitive penalties that dramatically raise costs and undermine the purchasers' ability to compete."¹⁰²⁶ The Joint CLECs argue that overage penalties are "unjust and unreasonable, as well as unjustly and unreasonably discriminatory."¹⁰²⁷

480. We seek comment on the use of overage penalties to enforce upper percentage thresholds in TDM based tariffs and contract tariffs. If the Commission does not eliminate upper percentage thresholds, we seek comment on the circumstances under which the Commission should find overage penalties to be unreasonable. For example, in the Tariff Investigation Order, we determined that shortfall penalties that exceeded the seller's revenue expectations were unreasonable.¹⁰²⁸ We seek comment on

¹⁰²² *Designation Order*, 30 FCC Rcd at 11459-60, para. 82.,

¹⁰²³ Verizon Direct Case at 31.

¹⁰²⁴ AT&T Direct Case at 49.

¹⁰²⁵ CenturyLink White Paper at 44.

¹⁰²⁶ Sprint Opposition at 32.

¹⁰²⁷ Joint CLEC Opposition at 84.

¹⁰²⁸ *See supra* paras. 132-34.

whether this is an appropriate approach to assessing overage penalties as well. How would such a measure work in the case of an overage? How should the Commission determine a seller's revenue expectations in an overage situation? Are there alternative approaches to determining the outer bound of reasonableness for overage penalties? Commenters advocating for the use of a different measure of reasonable overage penalties should explain their reasons for not applying the standard used to assess shortfall penalties and identify an alternative standard using examples. What is the best way to structure overage penalties to ensure that the fees reasonably compensate providers while not excessively penalizing purchasers?

481. We also seek comment on whether and to what extent overage penalties are contained in commercial agreements for the provision of Ethernet business data services. Is it reasonable to include such penalties in agreements for Ethernet business data services in non-competitive areas? If so, how do these contracts calculate these penalties? If the Commission decides to eliminate overage penalties or impose limitations on them, how should it implement those decisions? Would there be any need for the Commission to consider adopting any transitional rules to facilitate implementation? Should such a prohibition apply solely to non-competitive markets or more broadly to all markets?

f. Automatic Renewal and Evergreen Provisions

482. Competitive LECs have asserted certain provisions in incumbent LEC tariff pricing plans that apply upon expiration of a purchaser's agreement to buy services tend to lock purchasers into re-committing to purchase under those plans under essentially the same prices, terms and conditions of their previous agreements. These provisions include requirements for automatic renewal of subscription agreements under the same terms and conditions as a previous agreement and requirements that force buyers to pay higher, undiscounted month-to-month rates immediately upon expiration of an agreement. Competitive LECs claim these provisions impair competition and inhibit technology transitions. We seek comment on the reasonableness of such provisions in tariffs and commercial agreements in areas where competition is not present. We also seek comment on existing so-called "evergreen" provisions in some tariff pricing plans that allow customers to extend service under the same prices, terms and conditions for certain periods of time following the expiration of an agreement, including whether we should require such provisions in tariffs and commercial agreements in non-competitive markets.

483. Incumbent LEC tariff pricing plans commonly contain provisions related to the expiration of a purchaser's agreement. It is inherent in the relatively long-term nature of the need for and provision of business data services that parties generally must renegotiate their agreements at the expiration of an agreement in order to continue the service arrangement. Parties typically negotiate the terms and conditions of a subsequent agreement as they approach the end of the term of an existing agreement. The provisions we seek comment on – automatic renewals and requirements to revert to undiscounted, month to month rates – may impose unreasonable constraints on purchasers whose agreements have expired in light of the long term nature of broadband data services agreements and the substantial logistics required to move purchases to other providers or construct facilities to self-provision.

484. *Automatic Renewal.* Provisions requiring automatic renewal of agreements are included in certain incumbent LEC tariff pricing plans. For example, the Commitment Discount Plan (CDP) in Verizon Tariff No. 1 states "[i]f the CDP Customer does not notify the Telephone Company of its choice during the two (2) month extension, a new CDP will begin based on the previously effective commitment period."¹⁰²⁹ We propose to prohibit automatic renewal provisions in tariff pricing plans and contract tariffs for the provision of TDM based broadband data services in non-competitive areas as an unreasonable constraint on purchasers' ability to modify their commitments or seek alternative providers to supply their needs. We seek comment on whether automatic renewal provisions are unreasonable. We also seek comment on how common they are and how frequently they are invoked in practice. What is the practical impact of such provisions on purchasers' options at the expiration of an agreement? How do

¹⁰²⁹ See, e.g., Verizon Tariff F.C.C. No. 1 § 25.1.8(c)(2).

they impact the dynamics between the parties as they renegotiate their arrangements? How do they impact the flexibility and the timeframe customers have to negotiate or to develop alternative sources of supply? Do competitive LECs also impose automatic renewal provisions in their business data service sales agreements? We also seek comment on whether such provisions are used in commercial agreements for Ethernet business data services? Additionally, are such provision included in agreements for managed services sold to retail end users? Finally, we seek comment on whether such a prohibition should apply solely to non-competitive markets or more broadly to all markets?

485. *Reversion to Month to Month Pricing.* Incumbent LEC tariff pricing plans for TDM based business data services commonly revert automatically to undiscounted, month to month pricing following the expiration of an agreement or shortly thereafter. Such a requirement effectively eliminates the discount that the purchaser had benefited from under the expired agreement, regardless of the duration of the term commitment the purchaser may already have fulfilled and in the absence of the provider incurring additional costs. Given the scale of discounts typically provided under pricing plans, which can range as high as 40 percent or more, reversion to month to month pricing constitutes an impending significant price increase for purchasers absent recommitting their purchases under a pricing plan. Competitive LECs claim that the threat of having to pay month to month rates effectively forces them to re-subscribe most, if not all, of their purchases to a tariff plan immediately following the expiration of a plan, and effectively locks them into the pricing plan when they commit to a new plan. XO claims that month-to-month rates are so much higher than the undiscounted rates they pay that they “effectively force competitors into a new long-term commitment tying up the bulk of a carrier’s special access requirements.”¹⁰³⁰ Level 3 argues that it has “little ability to switch large volumes of dedicated services to a competitive LEC’s facilities after an incumbent volume commitment expires because . . . the process required to cut over dedicated services from the incumbent LEC’s network to a competitive LEC’s network is often extremely slow.”¹⁰³¹ In order to switch a large volume of dedicated services currently purchased from an incumbent LEC to competitive LECs after the expiration of an incumbent LEC volume commitment, Level 3 states that it must “cease purchasing dedicated services under a plan with a volume commitment for the extended period of time it takes . . . to build facilities to the locations in question and perform the necessary cutover of service.”¹⁰³²

486. Given the comments in the record, we are particularly concerned that incumbent providers have the incentive and ability to use the expiration of a contract as an opportunity to increase charges for ongoing service and use that as leverage to induce customers to recommit to their pricing plans. In areas without sufficient competition, these provisions have the potential to put increased pressure on customers to renew contracts with incumbent providers, even if the terms are unfavorable, to avoid paying higher rates for an extended period of time. We therefore believe that any provision that enables a provider to increase its rates upon the expiration of either a tariff or commercial agreement for TDM or Ethernet-based service in areas without sufficient competition is unreasonable under section 201 of the Act.¹⁰³³

487. We seek comment on our view and on the following additional questions. How do such provisions constrain purchasers’ options at the end of an agreement? Could the reversion to month to month rates be understood as, in effect, a penalty enforcing the re-subscription to a subsequent agreement? How reasonable is it to assess month to month rates, after a purchaser has already fulfilled its

¹⁰³⁰ XO Opposition at 54.

¹⁰³¹ Black Decl. at 14.

¹⁰³² *Id.* at 14.

¹⁰³³ While competitive LECs appear to impose similar terms in certain their contracts, they may not be universally enforced in practice and they may not have the same impact as those in incumbent LEC tariff pricing plans. *See* XO Opposition at 54 (“even where the contract with a competitive provider would allow the assessment of higher rates upon termination, competitive providers often do not invoke these provisions.”).

commitments under a previous agreement which presumably compensated the incumbent LEC for the circuits involved? Do competitive LECs also impose such a requirement at the expiration of their sales agreements? If we were to require the modification of such provisions, should the Commission determine that evergreen provisions are a more reasonable alternative?

488. We note that incumbent LECs argue that one of the benefits to a provider of offering term discount plans is that the plans allow it “to recover its costs over the life of the plan.”¹⁰³⁴ If the life of the plan has ended, and the incumbent LEC has presumably recovered its costs apart from on-going maintenance costs, is there any justification for allowing the incumbent LEC to increase the price and charge higher rates upon termination? How do these higher rates compare to the shortfall penalties that customers pay if they terminate their plans early? We also seek comment on whether an automatic reversion to undiscounted rates is a feature common to IP based Ethernet commercial agreements. To the extent such provisions appear in Ethernet commercial agreements, should the Commission consider prohibiting or otherwise restricting them? Finally, should such any such prohibition or restriction apply solely to non-competitive markets or more broadly to all markets?

489. *Evergreen Provisions.* We also seek comment on so-called “evergreen” provisions that allow a purchaser to continue to purchase services under the same terms and conditions following the expiration of an agreement as it had under the expired agreement. According to XO, competitive providers often employ evergreen provisions in their agreements with their customers.¹⁰³⁵ Other competitive providers, including EarthLink and Integra, agree, noting that “after the expiration of the initial term of a dedicated services contract with a competitive LEC wholesaler, EarthLink typically can purchase competitive LEC dedicated services on a month-to-month basis at the rate that applied under the term commitment.”¹⁰³⁶ Incumbent LECs also employ evergreen provisions in certain instances. For example, the CenturyLink Term Discount Plan allows customers to continue purchasing under the TDP’s rates and terms for up to an additional twelve months following the expiration of a plan.¹⁰³⁷ Verizon states that its CDP “offers customers an extra two months of discounts after a plan terminates to assist with that transition.”¹⁰³⁸ Similarly, Frontier will allow customers an additional month of discounted rates under its DS1 Term Payment Plan (TPP).¹⁰³⁹ And AT&T continues to charge the same discounted prices following the expiration of an agreement for some of its Ethernet commercial agreements. It states that “once [a provider] makes the switch to AT&T’s Ethernet services, the terms associated with that plan are short, ranging from 24-36 months. When those terms expire, the services automatically transition to month-to-month terms, but with the same discounts associated with the original term for a substantial period of time.”¹⁰⁴⁰ We seek comment on whether the Commission should require the inclusion of evergreen provisions in tariff pricing plans and commercial agreements for business data services in non-competitive markets. Would requiring carriers to provide evergreen status on a monthly basis following the expiration of an agreement provide purchasers flexibility in assessing their options or transitioning

¹⁰³⁴ CenturyLink Comments at 33.

¹⁰³⁵ XO Opposition at 53.

¹⁰³⁶ Joint CLEC Opposition, Jeary Decl., at 13; *see also* Birch Opposition, Denny Decl. at 9-10.

¹⁰³⁷ CenturyLink Tariff F.C.C. No. 9 § 7.4.11 (K) (“The customer will have up to 12 months (365 days) grace period to renew their TDP before month-to-month rates will be assessed.”).

¹⁰³⁸ Verizon Direct Case at 38; *see* Verizon F.C.C. Tariff No. 1 § 25.1.8(C)(2). Verizon notes that its “NDP does not contain such a grace period, but, because commitment levels are assessed based on 12-month averages, customers enjoy significant flexibility to reduce their commitments prior to the plan’s expiration under that plan as well.” Verizon Direct Case at 38 n.136. *See also* Verizon Telephone Companies Tariff F.C.C. No. 14 § 5.6.14(L)(4) (allowing two months).

¹⁰³⁹ Frontier Telephone Companies Tariff F.C.C. No. 6 § 7.2.1.(G)(11).

¹⁰⁴⁰ AT&T Rebuttal at 35.

their purchases to IP based services? Would it be reasonable to impose such a requirement on providers in markets without sufficient competition, which would be assured additional purchases of their services under terms they have already agreed to?

490. We also seek comment on whether Ethernet commercial agreements commonly include evergreen provisions to ensure continued service at the same rates, terms and conditions following the expiration of an agreement. Are such provisions more common in Ethernet agreements than in TDM pricing plans? With regard to applying this framework to the provision of Ethernet-based business data service, do parties face the same constraints when negotiating agreements for TDM services and Ethernet-based services after a contract's expiration? Are there special terms and conditions that only apply when parties are negotiating a move from a provider's TDM services to a provider's Ethernet-based services and, if so, what impact do those terms and conditions have on the provision of Ethernet services? We also seek comment on whether a mandate for evergreen provisions should apply solely to non-competitive markets or more broadly to all markets.

491. We seek comment on whether required evergreen status should be time limited. If so, what would be a reasonable period of time that would provide flexibility to purchasers but also not unreasonably extend uncertainty for providers in non-competitive areas? Should customers be allowed to pay monthly rates equal to those under the original agreement for up to one year past the contract's expiration? Would this provide sufficient time to account for the average length of contract negotiations and to protect the interests of both parties? Do contract renewal negotiations typically extend beyond one year, and if they do, are there examples of providers that are willing to continue offering rates at the same level as those in the expired deal? We seek comment on this time period and whether a shorter or longer term would be more appropriate.

G. Alternative Approaches to Reforming BDS That Fulfill Core Goals

492. In addition to seeking comment on the new regulatory framework outlined above, we invite commenters to suggest alternative frameworks to apply to BDS. Are there other regulatory frameworks that would minimize regulation where competition is sufficient to constrain BDS rates, terms, and conditions and focus regulatory action on circumstances in which sufficient competition is lacking? All proposals should address the commercial practicalities and administrative feasibility of applying the alternative framework and explain how it furthers the Commission's core goals of promoting investment, innovation, competition, and protecting customers in the BDS marketplace.

493. In Part V.D.2 above, we invite comment a Competitive Market Test that focuses on product markets, customer classes, business density, and the number of facilities-based providers in a given geographic area, such as the census block. In this section, we seek comment on alternative approaches and criteria for determining whether or not a market is competitive. Commenters proposing such an alternative should explain how it will further the Commission's core goals in application and address administrative feasibility.

494. In Part V.D.5 we ask for comment as to which provider(s) specific rules in a non-competitive market should apply and how the Commission should determine whether to apply specific regulation to a particular provider, including the use of market shares, in non-competitive markets. In this section, we seek alternative proposals that would ensure that the Commission limits regulation to that which is necessary to ensure just and reasonable rates, terms and conditions within a non-competitive market while still encouraging new market entrants. Should we use a test of market power and, if so, how should market power be defined and how would such a market-power test be applied in a way that minimizes burdens on providers and the Commission? As to the scope of regulation, should we focus on the conditions in non-competitive markets and consider regulations that would apply generally or should we apply specific rules only to certain entrants, and if so, which ones? And how can we maintain and/or create incentives for new entry? How should we consider the potential presence of barriers to entry and policies that might serve to lower artificial barriers to entry? In general, what is the best form of regulation of a non-competitive market? As in Part V.D.5, we ask commenters to consider the impact of alternative new regulatory frameworks on investment and innovation.

495. For any proposed frameworks submitted in response to this section, commenters should explain how any triggers would be applied, which provider(s) would be subject to regulation and how such regulation would be implemented and enforced. For example, would there be tariffs or another mechanism? How would any alternative market test be applied, and would there be a process for challenges? Commenters submitting proposals they believe are simpler than the framework proposed above should explain why and how the administration would differ from the alternative proposals in this Further Notice.

496. While we have focused in the immediately preceding paragraphs on alternative tests of market competitiveness, we also encourage commenters to consider and suggest higher-level alternative regulatory regimes that would further the Commission's core goals.

H. Deregulation of the Pricing Process

497. In this section, we consider modifications to existing pricing mechanisms to implement the technology neutral regulatory framework for business data services proposed above. The proposed actions are intended to remove significant regulatory burdens, maintain price cap constraints where necessary to ensure just and reasonable rates, and create incentives to facilitate the technology transitions. First, we propose to replace the current pricing flexibility regime with rules based on the results of the Competitive Market Test.¹⁰⁴¹ Under such rules, we would move competitive services out of price caps and move non-competitive services into a structure that provides the protections of price caps while allowing providers to negotiate individual contracts. Second, we propose a path to detariff TDM business data services while maintaining price caps on a detariffed basis.¹⁰⁴² Finally, we seek comment on a voluntary mechanism that would provide carriers with the flexibility to adjust price cap rates for TDM BDS when replacement packet-based business data services are available.

498. We recognize that in this Further Notice we propose a number of changes to our interrelated regulatory rules. Specifically, in addition to the proposals in this section, we propose adopting a price cap productivity factor and relying on price cap TDM rates as benchmarks for non-competitive IP rates. We seek comment on any impacts that various proposals may have on each other.

1. Replacement of Pricing Flexibility Rules

499. As discussed above, we find the current pricing flexibility rules were based on a poor measure of competition, and we propose replacing that measure with a Competitive Market Test.¹⁰⁴³ Through application of the Competitive Market Test, we will identify competitive and non-competitive business data services markets.¹⁰⁴⁴ In this section, we seek comment on the rules that will apply to TDM services currently subject to regulation under price caps as well as the pricing flexibility rules under the new regulatory framework. In 2005, the Commission invited comment on whether the pricing flexibility rules had worked as intended, and if not, whether they should be modified or repealed.¹⁰⁴⁵ Additionally, in 2012, the Commission asked about how the pricing flexibility rules should be changed in light of the impending data collection.¹⁰⁴⁶ Here, we propose and seek comment on changes to the existing pricing flexibility rules.

¹⁰⁴¹ See *supra* Parts V.D.2, V.D.3.

¹⁰⁴² We note that the detariffing proposals contained in this section would only be applicable to price cap incumbent LECs and would not apply to BDS offered by incumbent LECs subject to rate-of-return regulation, which are outside the scope of this proceeding.

¹⁰⁴³ See *supra* Part V.A.7.b.

¹⁰⁴⁴ See *supra* Parts V.D.2, V.D.3.

¹⁰⁴⁵ See *2005 Special Access NPRM*, 20 FCC Rcd at 2018, para. 71.

¹⁰⁴⁶ See *Data Collection Order*, 27 FCC Rcd at 16352-54, paras. 80-90.

500. *Competitive Services.* In the technology neutral framework described above, we propose subjecting competitive business data services to limited rules under section 201 and 202 of the Act. As discussed above, where competition is sufficient to ensure rates terms and conditions are just and reasonable, we find more heavy-handed regulation is likely to inhibit the development of a competitive market.¹⁰⁴⁷ This analysis is equally true for TDM and packet-based business data services. Accordingly, we propose to treat competitive TDM and packet-based BDS on a technology neutral basis and propose further to remove TDM BDS determined to be competitive under the Competitive Market Test from price cap regulation and apply the competitive regulatory framework proposed above to these services. We seek comment on these proposals. Are there any reasons to treat competitive TDM differently from other competitive business data services? Are there implementation concerns with regulating these competitive services in this manner? Why or why not? If so, we seek proposals for addressing such concerns. If we adopt these proposals should we require mandatory detariffing?

501. *Non-Competitive Services.* The Competitive Market Test will likely find some business data services are non-competitive and draw boundaries for such findings on a level more granular than an MSA, the current pricing flexibility boundary. Accordingly, it is possible that such non-competitive business data services may currently be regulated under price caps, Phase I pricing flexibility or Phase II pricing flexibility rules. Regardless of their current status, a non-competitive finding is a determination that we cannot rely on competition to constrain rates, terms and conditions to just and reasonable levels.¹⁰⁴⁸ We thus would need to have rules in place to constrain rates to just and reasonable levels. Our analysis of the application of the pricing flexibility rules indicates that customers have often benefited from individually negotiated contracts, and we believe that allowing such contracts will facilitate the development of a competitive market where possible. In order to constrain rates to just and reasonable levels and preserve the benefit of negotiated contracts where available, we propose to subject non-competitive TDM business data services, regardless of the currently applicable price cap and pricing flexibility rules, to a single, light-handed price cap regime that protects customers while providing flexibility to facilitate competition as it evolves. Specifically, we propose to apply the substance of the current Phase I pricing flexibility requirements to TDM business data services offered in non-competitive areas and seek comment on this proposal. Do parties support this proposal, why or why not? What concerns, administrative or otherwise, are raised by this proposal? Commenters asserting such services should be treated differently based on their current regulatory status should explain why that is consistent with the overall framework we propose in this order.

502. We seek comment on what changes to our current Phase I pricing flexibility rules are necessary to apply their substance to non-competitive TDM business data services. We propose to base our application of those rules and any necessary rule modifications on our authority under sections 201 and 202 of the Act.¹⁰⁴⁹ We seek comment on this proposal.

2. Additional Regulatory Incentives for Price Cap Carriers

503. As we state above, we understand that the current business data services environment is in transition and we strive, even in areas characterized by insufficient competition, to regulate in a manner that reflects the current environment and will provide the correct incentives. Accordingly, we seek comment on potential regulatory forbearance and flexibility that will permit price cap incumbent LECs to continue to facilitate the technology transition, and to have increased incentives to develop innovative products and services.

504. *Forbearance from Tariffing Requirements.* Section 203 of the Act requires carriers to “file with the Commission . . . schedules showing all charges for itself and its connecting carriers for

¹⁰⁴⁷ See *supra* Part V.F.2.

¹⁰⁴⁸ See *supra* Parts V.D.2, V.D.3.

¹⁰⁴⁹ See 47 U.S.C. §§ 201, 202.

interstate and foreign wire or radio communication[s]”¹⁰⁵⁰ This requirement originates from the Communications Act of 1934 and was adopted at a time when the filed tariffs were likely the only method customers had to access particular rates. Much has changed in the last eighty-two years, and today there are many methods carriers have to communicate rates to their customers. Indeed the Commission has seen significant success in a number of markets, including the interstate domestic long distance market, where there has been forbearance from tariffing requirements since 2001.¹⁰⁵¹ In deciding to detariff these services, the Commission found that tariffs “are not necessary to ensure that the rates, practices, and classifications of nondominant interexchange carriers for interstate, domestic, interexchange services are just and reasonable and not unjustly or unreasonably discriminatory” and are not necessary for the protection of consumers.¹⁰⁵²

505. *Detariffing in Competitive Areas.* We believe that implementation of our proposal for broadband data services offered in competitive markets would require that we forbear from the tariffing requirements in section 203 of the Act to the extent a BDS provider is currently subject to those requirements. We seek comment on this view and on the benefits of detariffing to customers and carriers in a competitive area. We also seek comment on whether the Commission should forbear from sections 204 and 205 of the Act. We propose forbearing to the extent necessary to implement our proposed framework and to condition the forbearance on the continuing existence of a competitive market under the Competitive Market Test. We expressly contemplate that should a market become non-competitive, then all of the regulation of non-competitive markets would apply, including price cap regulation. We invite comment on these proposals and on whether such conditional forbearance would meet the statutory forbearance criteria.

506. *Detariffing in Non-Competitive Areas.* We propose the Commission make a similar finding for BDS in non-competitive areas, including TDM services under the section 10(a) standard, allowing forbearance from the tariffing requirements of section 203 of the Act, but continuing to require price cap regulation. We seek comment on this proposal, including the costs and benefits of tariffing in a non-competitive market or a market in which competition may be evolving over time. How would such a regulatory approach work to meet the goals of our proposed framework? How should the Commission consider the effect of any such forbearance on competition as set forth in section 10(b)? If the Commission decides to forbear from section 203, should it require mandatory detariffing as it did with interstate interexchange services or should it allow permissive tariffing? What would be the benefits of either approach? Should the Commission consider forbearing from sections 204 and 205 for these services? Would relief from tariffing and other provisions meet the statutory forbearance criteria? Would such relief provide additional incentives for innovation and development of new services? How would

¹⁰⁵⁰ *Id.* § 203.

¹⁰⁵¹ See *Policy and Rules Concerning the Interstate, Interexchange Marketplace*, CC Docket No. 96-61, Second Report and Order, 11 FCC Rcd 20730 (1996) (*Detariffing Order*). Numerous carriers requested reconsideration of the *Detariffing Order* and review from the Court of Appeals for the District of Columbia Circuit. See *Policy and Rules Concerning the Interstate, Interexchange Marketplace*, Order on Reconsideration, 12 FCC Rcd 15014 (1997) (allowed tariffing of dial around 1+ services using the carrier access code and tariffing of new customer services for a limited period of 45 days); see also *Policy and Rules Concerning the Interstate, Interexchange Marketplace*, Second Order on Reconsideration and Erratum, 14 FCC Rcd 6004 (1999) (adopting public disclosure requirements regarding the rates, terms, and conditions governing detariffed services). The *Detariffing Order* became effective May 1, 2000, see *Domestic, Interexchange Carrier Detariffing Order Takes Effect; Common Carrier Bureau Implements Nine-Month Transition Period; Comment Sought on Modifications to Transition Plan*, CC Docket No. 96-61, Public Notice, 16 FCC Rcd 3688 (2000), and was implemented as of July 31, 2001. *Detariffing of Long Distance Telephone Industry to Become Effective at the End of the Month*, News Release (rel. July 25, 2001). In a separate order, the Commission detariffed carriers providing international interexchange services. See *2000 Biennial Regulatory Review; Policy and Rules Concerning the International, Interexchange Marketplace*, IB Docket No. 00-202, Report and Order, 16 FCC Rcd 10647 (2001).

¹⁰⁵² *Detariffing Order*, 11 FCC Rcd at 20742, para. 21; see also *id.* at 20750, para. 36.

such relief benefit consumers and businesses? If providers continue to file similar information with the Commission as a tariff, we ask whether this impacts commenters' views on the benefits and burdens of such approach.

507. *Technology Neutral Framework.* The price cap structure is a legacy form of regulation for dominant carriers that would only apply to the TDM services that are being phased out in the technology transition. Although these services are diminishing, we recognize that applying this form of regulation only to the TDM services of dominant carriers should be reconciled with our goal of carrier and technology neutral regulation for the future of BDS. The Commission has a long history of regulating TDM services using a price cap methodology along the lines proposed for TDM regulation in non-competitive markets. While we find above that TDM and packet-based BDS are in the same product market, these services are not identical and we also recognize significant switching costs in the market. We believe our regulatory framework can and should take account of legitimate differences in the provision of these services. We seek comment on how to do so and how to harmonize our goal of technological neutrality with the application of price cap regulation? Are there other methods of regulation that we should consider applying to these services or packet-based BDS to achieve our goals?

508. *Deemed Lawful.* We note that without tariff filings, carriers would not receive the protection pursuant to section 204(a) of the Act of deemed lawful status for filing tariffs on a streamlined basis.¹⁰⁵³ This status immunizes carriers from damages liability for the periods in which the streamlined tariffs are in effect.¹⁰⁵⁴ We seek comment on how removing this protection would impact carriers and customers and the remedies available for rate challenges, including potential retroactive refunds. Should we provide carriers the option of permissive tariffing that would allow incumbent LECs to retain the "deemed lawful" protections of section 204(a) if the carrier should choose that option?¹⁰⁵⁵

509. *Price Cap Filings.* How, if at all, should the Commission modify its price cap filing rules in light of any forbearance from tariffing requirements? Under current rules, price cap incumbent LECs are required to submit a yearly filing to demonstrate that the carrier's API does not exceed its PCI.¹⁰⁵⁶ Would any additional rules be necessary to provide for adding new services? We seek comment on how any such filing should occur. Should the Commission maintain the yearly annual access charge filing requirement for this showing? Are there other alternatives that would ensure compliance with the price cap rules? Without tariff filings, how should the Commission best ensure that price cap incumbent LECs are offering rates consistent with their price cap filings? How should the Commission address a violation? Absent tariff filings, how would the Commission examine the newly filed rates or require the price cap incumbent LEC to modify its rates, to the extent appropriate, in the event of a violation? Would the Commission need to take formal action against the carrier and, if so, what form would that take? Are there other means for the Commission to review changes to a carrier's rates without the tariff filing requirement? Would the public disclosure requirement discussed below be sufficient?

510. What additional rules or procedures would be necessary to address rate or discount plan changes that would have resulted in a tariff filing absent forbearance? For example, under our current rules, a price cap LEC that grandfathers or otherwise discontinues a rate discount plan would be reducing the rate options for that service, which would constitute a rate restructure pursuant to section 61.49(e) of

¹⁰⁵³ 47 U.S.C. § 204(a)(3).

¹⁰⁵⁴ *Virgin Islands Telephone Corp. v. FCC*, 444 F.3d 666, 670 (D.C. Cir. 2006).

¹⁰⁵⁵ We note that in the past, when the Commission has granted forbearance from tariffing requirements, it has for the most part required mandatory detariffing. *See, e.g.*, 47 CFR 61.19 (prohibiting carriers from filing tariffs for interexchange services, with few limited exceptions); *AT&T Forbearance Order*, 22 FCC Rcd at 18729, para. 42 (conditioning the forbearance relief granted to AT&T on its not filing or maintaining any interstate tariffs for its specified broadband services).

¹⁰⁵⁶ 47 CFR § 61.43 (requiring price cap local exchange carriers to submit annual price cap tariff filings that propose rates for the upcoming tariff year, and that make appropriate adjustments to their PCI, API and SBI values).

our rules, requiring the carrier to file supporting materials sufficient to make the adjustments to each affected API and SBI.¹⁰⁵⁷ Such a change may or may not impact the price cap, depending on the impact such a change will have on customer choices going forward. For example, if the price cap LEC grandfathers a service that has no customers, it potentially will have no impact on the carrier's API or SBI. The same is not true when a carrier grandfathers a pricing plan with substantial customers. We seek comment on what, if any, new requirements are necessary to ensure effective operation of the price cap as carriers begin to discontinue various discount plans.

511. *Public Disclosure.* Even if the Commission decides to forbear from tariffing requirements, we understand the importance of transparency for the price cap incumbent LEC's TDM rates. Accordingly, we propose to require price cap incumbent LECs to publicly disclose the rates, terms, and conditions for services currently subject to tariffing requirements.¹⁰⁵⁸ We seek comment on this proposal. How should disclosure of rates be implemented? Is posting on a carrier's website sufficient? Should the public disclosure requirement be limited to non-competitive markets?

512. *Option to Include Packet-Based Services in Price Caps.* As the technology transition continues to progress, one option for promoting an efficient move from TDM services to packet-based business data services is to allow BDS providers, on an entirely voluntary basis, the option to place some or all of their packet-based services under price cap regulation by including them in the special access basket. Moving these services into the basket would create flexibility for the provider to make rate adjustments to services within the confines of the cap. This would allow carriers flexibility to set prices for both packet-based services and TDM services based on the relative cost of and demand for these services, as would be the case in a competitive market. At the same time, the price cap would minimize the carriers' ability to charge non-competitive prices. We seek comment on this voluntary option. If the Commission were to permit this option, how should it be implemented? Would it incentivize technology transitions? Should packet-based services be placed in a separate service category and/or subcategories within the special access basket? If so, should pricing flexibility within the packet-based service category and/or subcategories be limited to an annual increase of five percent, relative to the percentage change in the PCI, the same percentage that applies to existing special access service categories and subcategories?¹⁰⁵⁹ Should providers be able to utilize this option at any time, or should there be a window or multiple windows of opportunity for when it would be available?

I. Forbearance Grants and Deemed Grants

513. An integral part of the "pro-competitive, de-regulatory national policy framework"¹⁰⁶⁰ established in the 1996 Act is the requirement, set forth in section 10 of the Communications Act, that the Commission forbear from applying any provision of the Act, or any of the Commission's regulations, if the Commission makes certain findings with respect to such provisions or regulations.¹⁰⁶¹ Under section 10(a), the Commission is required to forbear from any such provision or regulation if it determines that (1) enforcement of the provision or regulation is not necessary to ensure the telecommunications carrier's charges, practices, classifications, or regulations are just, reasonable, and not unjustly or unreasonably discriminatory; (2) enforcement of the provision or regulation is not necessary to protect consumers; and

¹⁰⁵⁷ *Id.* § 61.49(e). The Service Band Index is an index of the level of aggregate rate element rates in a service category, which index is calculated pursuant to section 61.47. 47 CFR § 61.3(o).

¹⁰⁵⁸ We note that in the detariffing of domestic, long distance rates, the Commission required that carriers make available to the public the rates, terms and conditions of their services in one location during normal business hours and also on their website, if they have one. *See Detariffing Order*, 11 FCC Rcd at 20777, para. 86.

¹⁰⁵⁹ *See* 47 CFR § 61.47(e).

¹⁰⁶⁰ Joint Explanatory Statement of the Committee of Conference, S. Conf. Rep. No. 230, 104th Cong., 2d Sess. 113 (1996).

¹⁰⁶¹ 47 U.S.C. § 160(a).

(3) forbearance is consistent with the public interest.¹⁰⁶² In making this public interest determination, the Commission also must consider, pursuant to section 10(b), “whether forbearance from enforcing the provision or regulation will promote competitive market conditions.”¹⁰⁶³

514. Section 10(c) of the Act specifies that “[a]ny telecommunications carrier, or class of telecommunications carriers, may submit a petition to the Commission requesting that the Commission exercise the authority granted under this section with respect to that carrier or those carriers, or any service offered by that carrier or carriers.”¹⁰⁶⁴ Section 10(c) states that “[a]ny such petition shall be deemed granted if the Commission does not deny the petition for failure to meet the requirements for forbearance under [section 10(a)] within one year after the Commission receives it, unless the one-year period is extended by the Commission.”¹⁰⁶⁵

1. Verizon Deemed Grant

515. As discussed above,¹⁰⁶⁶ in 2006 Verizon’s Enterprise Broadband Forbearance Petition was deemed granted by operation of law after the Commission did not act on that petition within the statutory time limit. That petition had requested forbearance from the application of traditional Title II common carrier requirements to “all broadband services” that Verizon (i.e., “The Verizon telephone companies”) “does or may offer . . . to the extent” that relief was “not covered by” four other petitions that Verizon had previously filed.¹⁰⁶⁷ Those other petitions had requested “declaratory relief, or alternatively forbearance, to make clear that certain of [Verizon’s] broadband services offered over its fiber-to-the-premises . . . networks and other packet-switched services such as ATM and Frame Relay services remain free of common carrier regulations.”¹⁰⁶⁸ Verizon subsequently narrowed the scope of its forbearance request to exclude TDM special access services.¹⁰⁶⁹

516. The deemed grant allows Verizon to not comply with statutory provisions and Commission rules that apply to other similarly situated carriers. In the *Enterprise Broadband Forbearance Orders*, the Commission denied as inconsistent with the statutory forbearance criteria AT&T’s, legacy Embarq’s, legacy Frontier’s, Qwest’s, and ACS’s requests for this additional forbearance relief.¹⁰⁷⁰ In October 2007, the Commission unanimously committed itself to “issu[ing] an order addressing Verizon’s forbearance petition . . . on grounds comparable to those set forth” in the *AT&T*

¹⁰⁶² *Id.*

¹⁰⁶³ 47 U.S.C. § 160(b).

¹⁰⁶⁴ *Id.* § 160(c).

¹⁰⁶⁵ *Id.*

¹⁰⁶⁶ *See supra* Part II.B.5.

¹⁰⁶⁷ Verizon Enterprise Broadband Petition at 1-2.

¹⁰⁶⁸ *Id.* at 2 (citing Conditional Petition of Verizon Telephone Companies for Forbearance Under 47 U.S.C. § 160(c) with Regard to Broadband Services Provided Via Fiber to the Premises, WC Docket No. 04-242 (filed June 28, 2004); Petition of the Verizon Telephone Companies for Declaratory Ruling or, Alternatively, for Interim Waiver with Regard to Broadband Services Provided Via Fiber to the Premises, WC Docket 04-242 (filed June 28, 2004); Verizon Petition, in the Alternative, for Forbearance to Allow It to Exercise Pricing Flexibility for Advanced Services Where the Commission Has Granted Relief for Traditional Special Access Services, WC Docket No. 04-246 (filed June 25, 2004); Verizon Petition for Waiver to Allow It to Exercise Pricing Flexibility for Advanced Services Where the Commission has Granted Relief for Traditional Special Access Services, WC Docket No. 04-246 at 1 (filed June 25, 2004)).

¹⁰⁶⁹ Verizon Feb. 7, 2006 Letter at 2.

¹⁰⁷⁰ *See, e.g., AT&T Forbearance Order*, 22 FCC Rcd at 18707, para. 2; *Embarq/Frontier Forbearance Order*, 22 FCC Rcd at 19480, para. 2.

Enterprise Broadband Forbearance Order “within 30 days.”¹⁰⁷¹ The Commission did not adopt such an order and has never articulated why Verizon should not have to meet, among other statutory and regulatory obligations, the reasonableness and nondiscrimination requirements in sections 201 and 202(a) of the Act that apply to other similarly situated carriers.¹⁰⁷²

517. Although we believe that forbearance reversal should not be taken lightly, action on Verizon’s forbearance petition is appropriate to bring it in line with the forbearance granted to other comparable carriers. Consistent with *Enterprise Broadband Forbearance Orders* and with the Commission’s unanimous commitment to apply the *AT&T Forbearance Order* to Verizon,¹⁰⁷³ we propose to reverse the Verizon deemed grant to the extent it encompasses forbearance relief not granted other carriers. We additionally propose that this decision would extend to Hawaiian Tel and to the legacy Verizon portions of FairPoint and Frontier, which were “Verizon telephone companies” at the time of the deemed grant. We invite comment on these proposals and ask whether such action would be consistent with the statutory forbearance criteria.

2. Other Forbearance Actions

518. Various price caps LECs in addition to Verizon have received forbearance from section 203 of the Act for certain packet-based and optical transmission broadband data services.¹⁰⁷⁴ Other similarly situated incumbent LECs, however, have not received the same regulatory relief and provide BDS under price caps. The Commission also has exercised its forbearance authority to permissively detariff interstate exchange access services provided by competitive LECs.¹⁰⁷⁵

519. In this Further Notice, we propose a number of interrelated changes to our regulation of business data services, many of which would allow or require carriers to detariff business data services that are presently provided subject to the tariffing requirements in section 203. Implementing those proposed changes would require that we expand the prior forbearance from section 203 to additional business data services providers and additional business data services. We believe we should expand that forbearance to the extent necessary to implement any regulatory changes we adopt in this proceeding. We invite comment on this view and on whether such forbearance would be consistent with the statutory forbearance criteria.¹⁰⁷⁶

3. Legal Standard and Procedure

520. We believe that we have statutory authority to reverse a forbearance grant and a forbearance “deemed grant” by the failure of the Commission to act within the deadline of section 10(c). As the D.C. Circuit has observed, the Commission’s forbearance actions — and the forbearance relief “deemed granted” to Verizon — are “not chiseled in marble.”¹⁰⁷⁷ Instead, the Commission may “reassess” that forbearance as it “reasonably see[s] fit based on changes in market conditions, technical, capabilities, or policy approaches to regulation” of business data services.¹⁰⁷⁸ We invite comment on the

¹⁰⁷¹ *AT&T Forbearance Order*, 22 FCC Rcd at 18732, para. 50.

¹⁰⁷² *See, e.g., AT&T Forbearance Order*, 22 FCC Rcd at 18707, para. 2.

¹⁰⁷³ *See id.* at 18732, para. 50.

¹⁰⁷⁴ 47 U.S.C. § 203; *see supra* Part II.B.5.

¹⁰⁷⁵ *See Hyperion Telecommunications, Inc. Petition Requesting Forbearance, Time Warner Communications Petition for Forbearance, Complete Detariffing for Competitive Access Providers and Competitive Exchange Carriers*, CCB/CPD Nos. 96-3, 96-7, CC Docket No. 97-146, Memorandum Opinion and Order and Notice of Proposed Rulemaking, 12 FCC Rcd 8596 (1997) (*Hyperion Forbearance Order*).

¹⁰⁷⁶ *See supra* paras. 500-501.

¹⁰⁷⁷ *Ad Hoc v. FCC*, 572 F.3d at 911.

¹⁰⁷⁸ *Id.*

legal standard we would need to meet to reverse forbearance that has been deemed granted. Where, as here, Verizon does not oppose reversal of its deemed granted forbearance to place it on the same footing with other carriers as part of our proposed new framework,¹⁰⁷⁹ we believe that this standard is met. We invite comment on this analysis.

521. While we choose to address potential forbearance reversal in this rulemaking proceeding, we do not here consider whether rulemaking procedures are required for a reversal of forbearance.¹⁰⁸⁰ Nor are we, in taking this procedural approach here, classifying forbearance proceedings as necessarily requiring rulemaking procedures. The Commission has previously declined to classify forbearance as either adjudication or rulemaking.¹⁰⁸¹ Rather, we find only that it is appropriate to address the proposed reversal here through a rulemaking proceeding.¹⁰⁸²

J. Monitoring the Marketplace Going Forward

522. The data collected in the *2015 Collection* provides a one-time snapshot of the BDS marketplace for 2013 and gives the Commission its most comprehensive insight into the BDS industry to date.¹⁰⁸³ The industry continues to change, however, and so will the state of competition. The Commission must therefore have the necessary information to update its analysis to monitor the state of competition going forward and measure the effectiveness of its regulatory framework. Accordingly, to update the analysis of the BDS industry going forward, we propose to conduct a periodic collection of data every three years, starting with the collection of year-end 2017 data. We seek comment on this proposal and alternative mechanisms that would assure our market definitions and competition analysis are updated on a regular basis.

523. In the *Data Collection Further Notice*, the Commission asked whether and how often it should require the submission of updated data on the special access market and what process it should use to collect any recurrent updates.¹⁰⁸⁴ Commenters did not directly address this issue but several incumbent LECs highlighted how dynamic this industry is and the need to account for “new sources of supply” going forward.¹⁰⁸⁵ These same commenters point out the deficiencies of relying on a single year’s worth of data from 2013 as it fails to capture more recent developments.¹⁰⁸⁶ This highlights the need to periodically

¹⁰⁷⁹ See *Verizon/INCOMPAS Joint Letter* at 2.

¹⁰⁸⁰ Cf. *Verizon and AT&T, Inc. v. FCC*, 770 F.3d 961, 966-67 (D.C. Cir. 2014) (discussing the designation of petitions for forbearance as rulemaking or adjudication).

¹⁰⁸¹ See *Petition to Establish Procedural Requirements to Govern Proceedings for Forbearance Under Section 10 of the Communications Act of 1934, as Amended*, Report and Order, 24 FCC Rcd 9543, 9554, para. 20 (2009).

¹⁰⁸² See 47 U.S.C. § 154(j) (providing the Commission authority to “conduct its proceedings in such manner as will best conduce to the proper dispatch of business and to the ends of justice”).

¹⁰⁸³ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order on Reconsideration, 29 FCC Rcd 10899, 10901, para. 4 (WCB 2014).

¹⁰⁸⁴ See *2012 Further Notice*, 27 FCC Rcd at 16353, para. 86.

¹⁰⁸⁵ See, e.g., Verizon 2012 Comments at 3 (“In order to assess competition in this dynamic industry, the Commission must look not only at the competitive alternatives available to customers today, but also at new sources of supply that competitors have planned or that are likely to become available going forward.”).

¹⁰⁸⁶ See Frontier Comments at 19 (“Moreover, the data are now well more than two years old, making their use even more problematic.”); Verizon Comments at 2 (“Because they are from 2013, the data do not permit the Commission to analyze the “state of competition *today*,” which was the goal of the original December 2012 *Notice*.”); USTelecom Comments at 2 (“New competition from cable and other providers is not captured in the 2013 data collection, which provides a snapshot of a single point in time.”).

collect data in the future to update the Commission's analysis. This will allow the Commission to keep abreast with the changing state of competition. The GAO reached a similar conclusion in 2006.¹⁰⁸⁷

1. Mandatory Periodic Collection

524. We propose to require BDS providers to submit information similar to what was collected previously for 2013, starting in 2018 and submitting 2017 data. In light of our experience with the data collection and analysis conducted, significantly paring down the number of providers required to report and the amount of reported information to those data categories most relevant to our analysis is appropriate. As with the earlier collection, we plan to focus on obtaining data on market structure, pricing, demand, and responses to competitive pressures. We propose, however, to eliminate many of the questions directed at providers related to terms and conditions, coverage footprints for "best efforts" services, marketing materials, disconnection policies, and short term and long-range promotional and advertising strategies. Our prior experience shows that the burden on filers of collecting such information going forward is not justified by the corresponding benefits of having this information for our core market analysis. We do not underestimate the importance of best efforts service, however, but can account for this service by using the information already collected by the Commission annually pursuant to the FCC Form 477 (Local Telephone Competition and Broadband Reporting). We also propose to not collect data from BDS purchasers on a mandatory basis and to instead use voluntary survey sampling of purchasers as discussed below.¹⁰⁸⁸ These changes would substantially decrease the burden on filers while providing the Commission with the data necessary to periodically update its analysis.

2. Providers Covered by the Periodic Collection Requirement

525. We propose to narrow the scope of our collection to minimize burdens on smaller providers where possible without compromising our analysis. While we would require all price cap incumbent LECs to provide data, we are considering excluding from the periodic collection those competitive providers below a set threshold based on either location with connection, number of BDS customers, or BDS revenues.

526. The *Data Collection Order* required all providers, regardless of size, to respond to the data collection.¹⁰⁸⁹ The Commission imposed the obligation broadly at the urging of commenters asserting that even a small provider can be a significant competitor in the marketplace and the importance of identifying all sources of potential competition regardless of provider size.¹⁰⁹⁰ We consequently received hundreds of submissions from small providers. These smaller providers were often challenged to respond to the collection and lacked internal personnel to allocate to the project and the necessary technical expertise to assemble and submit responses. Thus they often had to employ outside consultants to assist with compliance.

527. We continue to analyze whether the exclusion of providers below various thresholds will significantly impact the results of our price regressions and other methods of analysis. We seek comment

¹⁰⁸⁷ See *GAO Report* at 15 ("To more effectively monitor and determine whether its deregulatory actions are achieving their goals of encouraging competition, and ensuring lower prices and adequate consumer choice, FCC should . . . [c]onsider collecting additional data and developing additional measures to monitor competition on an ongoing basis . . ."), <http://www.gao.gov/new.items/d0780.pdf>.

¹⁰⁸⁸ The same type of survey approach is used in the United Kingdom to obtain information from purchasers of what Ofcom terms as business connectivity services. See Ofcom, *Business Connectivity Market Review – May 2015 Consultation*, 15-16 (rel. May 15, 2015), http://stakeholders.ofcom.org.uk/binaries/consultations/bcmr-2015/summary/BCMR_Sections.pdf.

¹⁰⁸⁹ See *Data Collection Order*, 27 FCC Rcd at 16328, para. 22.

¹⁰⁹⁰ See *id.* at 16328, para. 22 n.51 (citing letters from AT&T and Verizon urging the Commission to collect data from all providers regardless of size).

on this proposal generally and ask for commenters to suggest appropriate thresholds and to quantify the potential impact of any exclusion on our analysis of the BDS industry.

3. Required Data and Information

528. Based on what we have learned, the most valuable data to our analysis is on the providers' locations with connections and billing information. Accordingly, we propose to require incumbent LECs to report locations where they have connections and provided BDS over the applicable period consistent with the information collected for questions II.B.2-3 in the *2015 Collection*. Competitive providers would report locations where they have in-service or idle connections consistent with the reporting requirements for questions II.A.3-4 in the *2015 Collection*. The reported locations would include all locations to which the competitive provider has a fiber connection (whether idle or in-service). Providers would also submit monthly billing information for the applicable period to the billed circuit element and linked to the served location consistent with the reporting requirements for questions II.A.12-14 for competitive providers and II.B.4-6 for incumbent LECs in the *2015 Collection*.

529. Other categories of information required from providers as taken from the *2015 Collection* would include the reporting of:

- BDS revenues for applicable period separated by customer and technology as required by questions II.A.15-16 for competitive providers and questions II.B.8-9 for incumbent LECs;
- Wire centers subject to price cap regulation by incumbent LECs for the applicable period as required by question II.B.7;
- Fiber network maps and information on fiber nodes by competitive providers as required by question II.A.5; and
- Information on recent RFPs from competitive providers as required by question II.A.11.

530. During the course of the Bureau's review of the collected 2013 data and ex parte discussions with stakeholders, we have also identified additional categories of questions or variations of previous categories of questions for which we propose to collect from all covered providers to assist with updating the Commission's analysis. These categories are as follows:

- A report on the different categories of BDS offered, including the different bandwidth speeds offered and the performance level guarantees offered with each type of service;
- Descriptions of how the provider structures its market operations to focus on particular classes of customers and the package of services marketed to each customer class;
- Information on BDS customer churn data, wins and losses over the applicable period, and the provider type to whom they are winning or losing customers to the extent known;
- Internal business documents assessing competitive pressures in the marketplace and changes to business operations in response to competitive pressures;
- Information to better track customer purchases across providers;
- Data on managed services purchased, which include a BDS component; and
- Information specific to the sale of leased lines to, and use by, carrier customers.

531. We believe this additional information would help the Commission further assess BDS demand by different classes of customers, the needs of those customer classes, and the level of competition in the marketplace. These changes would also address recommendations for improvements by our outside economic consultant.¹⁰⁹¹ We seek comment on the proposed data points discussed above.

¹⁰⁹¹ Rysman White Paper at V.

In addition, depending on the ultimate criteria adopted for a Competitive Market Test, we seek comment on alternative data points for collection so the Commission can better measure the effectiveness of the Competitive Market Test criteria and reevaluate and update its market definitions.

4. Voluntary Survey of Purchasers

532. We propose to not require BDS purchasers to submit data on a mandatory basis as with the previous collection given the burdens associated with such reporting compared to the value of the data for our analysis. The Commission instead proposes to conduct, with the assistance of a third-party, a voluntary survey of BDS purchasers, starting in 2017. The survey would include a sampling of wholesale and retail customers, a sampling of businesses of different sizes: small, medium, and large, and a sampling of mobile wireless providers.

533. The survey would collect information on, but not limited to, the BDS needs of the customer (e.g., establishing virtual or private networks, accessing data centers or cloud-based services, accessing the Internet, and processing credit card transactions, among other information), the number of business locations requiring service, the performance levels required by the customer (e.g., the service guarantees required on reliability, latency, packet loss, jitter, and mean time to repair), the purchaser's bandwidth requirements (symmetrical and/or asymmetrical), the BDS provider(s) they purchase from, the purchase and substitutability of "best efforts" services to meet their BDS needs, the extent to which they purchase BDS using fixed wireless, other potential BDS substitutes, number of available providers to fulfill BDS needs in a given area, types of BDS typically purchased by the customer (e.g., Ethernet at certain speeds or DS1s and DS3s), prices typically paid for each type of BDS, any problems encountered with obtaining BDS (availability, timing, problematic terms and conditions, and the like), total BDS expenditures over the prior calendar year, the extent to which purchaser buys TDM products and plans to purchase such legacy services over the next three years. We seek comment on this proposal and on other potential categories of information to include in the survey.

5. Timing of the Collection

534. We believe that a periodic collection every three years is reasonable for our oversight needs. We seek comment on this view. This collection period would minimize the burden on filers while still allowing the Commission to timely gather data to update its analysis and monitor competition. The BDS industry is changing and significant developments can occur from year-to-year. By collecting data every three years, the Commission can effectively take stock of these changing trends. That said, we propose to conduct the first periodic collection in 2018, for year-end 2017 data. This would mean more than a three-year gap from the 2013 data but is reasonable to give covered providers time to update their systems to better track the information requested.

VI. PROCEDURAL MATTERS

A. Filing Instructions

535. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998). Comments and reply comments on this *Further Notice* must be filed in WC Docket No. 16-143.

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

- Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
 - All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
 - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
 - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

B. Ex Parte Requirements

536. This proceeding shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission's *ex parte* rules.¹⁰⁹² Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. Memoranda must contain a summary of the substance of the *ex parte* presentation and not merely a list of the subjects discussed. More than a one or two sentence description of the views and arguments presented is generally required. If the oral presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

C. Paperwork Reduction Act Analysis

537. This Further Notice contains proposed new information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the OMB and other Federal agencies to comment on the information collection requirements contained in this document, as required by the PRA, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we seek specific comment

¹⁰⁹² 47 CFR §§ 1.1200 *et seq.*

on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

D. Initial Regulatory Flexibility Analysis

538. As required by the Regulatory Flexibility Act of 1980 (RFA),¹⁰⁹³ the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) for this Further Notice, of the possible significant economic impact on small entities of the policies and rules addressed in this document. The IRFA is set forth as Appendix D. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the Further Notice provided on or before the dates indicated on the first page of this document. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this Further Notice of Proposed Rulemaking, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).¹⁰⁹⁴

VII. ORDERING CLAUSES

539. ACCORDINGLY, IT IS ORDERED that, pursuant to sections 1, 2, 4(i)–(j), 10, 201(b), 202(a), 203, 204(a), 205, 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i)–(j), 160, 201(b), 202(a), 203, 204(a), 205, 303(r), and 403 this Tariff Investigation Order and Further Notice of Proposed Rulemaking IS ADOPTED.

540. IT IS FURTHER ORDERED that, pursuant to sections 203, 204(a) and 205 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 203, 204(a), and 205, we direct Verizon, AT&T, CenturyLink, and Frontier to amend their tariff plans identified in this Tariff Investigation Order, by removing in each case the relevant language requiring customers to aggregate all their purchases under a single plan and to submit appropriate tariff revisions within sixty (60) days from the release date of this Order to become effective on not less than one day's but not more than fifteen (15) days' notice, and for this purpose, we waive section 61.58 of the Commission's rules, 47 CFR § 61.58. Specifically, Verizon must amend its CDPs, NDPs, and TVPs, AT&T must amend the Ameritech DCP, and the Southwestern Bell and Pacific Bell DS1 TPP, CenturyLink must amend the RCP, and Frontier must amend the DS1 OPP, DS1 TPP, NDPs and TVPs.

541. IT IS FURTHER ORDERED that, pursuant to sections 203, 204(a) and 205 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 203, 204(a), and 205, we direct Verizon, AT&T, and Frontier to amend their tariff plans identified in this Tariff Investigation Order, by removing the shortfall provisions from their tariff plans within sixty (60) days from the release date of this Order to become effective on not less than one day's but not more than fifteen (15) days' notice, and for this purpose, we waive section 61.58 of the Commission's rules, 47 CFR § 61.58. Specifically, Verizon must remove the shortfall provisions from its CDPs and NDPs, AT&T must remove the shortfall provisions from the Southwestern Bell and Pacific Bell DS1 TPP, and Frontier must remove the shortfall provisions from the OPP and NDPs.

542. IT IS FURTHER ORDERED that, pursuant to sections 203, 204(a) and 205 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 203, 204(a), and 205, we direct AT&T and Frontier to amend their tariff plans identified in this Tariff Investigation Order, by removing the early termination penalty provisions within sixty (60) days from the release date of this Order to become effective on not less than one day's but not more than fifteen (15) days' notice, and for this purpose, we waive section 61.58 of the Commission's rules, 47 CFR § 61.58. Specifically, AT&T must remove the early termination penalty provisions from the Southwestern Bell and Pacific Bell DS1 TPP, and Frontier must remove the early termination provisions from the OPP.

¹⁰⁹³ See 5 U.S.C. § 603.

¹⁰⁹⁴ *Id.* § 603(a).

543. IT IS FURTHER ORDERED that, pursuant to sections 203, 204(a) and 205 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 203, 204(a), and 205, the tariff investigation, initiated in WC Docket No. 15-247, with the exception of the question of how to implement the elimination of the “all-or-nothing” provisions for existing agreements is TERMINATED.

544. IT IS FURTHER ORDERED that, pursuant to the applicable procedures set forth in sections 1.415 and 1.419 of the Commission’s Rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments on the Further Notice of Proposed Rulemaking and the application of the prohibition on all-or-nothing provisions in the tariff pricing plans subject to the tariff investigation to existing agreements on or before June 28, 2016, and reply comments on or before July 26, 2016.

545. IT IS FURTHER ORDERED that the Commission’s Consumer & Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Further Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analyses to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Incumbent LEC Tariff Pricing Plans Subject to Investigation

Tariff	Pricing Plan	Section ¹
AT&T		
Ameritech Operating Companies Tariff F.C.C. No. 2	Discount Commitment Plan (DCP)	7.4.13
BellSouth Telecommunications, LLC Tariff F.C.C. No. 1	Area Commitment Plan (ACP)	2.4.8 (B)
Pacific Bell Telephone Company Tariff F.C.C. No. 1	DS1 Term Payment Plan (DS1 TPP)	7.4.18
Southwestern Bell Telephone Company Tariff F.C.C. No. 73	DS1 Term Payment Plan (DS1 TPP)	7.2.22
CenturyLink		
CenturyLink Operating Companies Tariff F.C.C. No. 11	Regional Commitment Program (RCP)	7.1.3.B
CenturyLink Operating Companies Tariff F.C.C. No. 9	Special Access Term Discount Plan	7.4.11
Frontier		
Frontier Telephone Companies Tariff F.C.C. No. 5	DS 1 Term Volume Plans (DS1 TVP)	5.6.14
Frontier Telephone Companies Tariff F.C.C. No. 5	DS 3 Term Volume Plan (DS3 TVP)	5.6.19
Frontier Telephone Companies Tariff F.C.C. No. 6	DS1 Term Payment Plan (DS1 TPP)	7.2.1(G)
Frontier Telephone Companies Tariff F.C.C. No. 11	DS1 Optional Payment Plan Portability Commitment (DS1 OPP)	2.11.1.1(D)
Frontier Telephone Companies Tariff F.C.C. No. 13	National Discount Plan (NDP)*	23.1
Frontier Telephone Companies Tariff F.C.C. No. 14	DS1 Term Volume Plans (DS1 TVP)*	5.6.14
Frontier Telephone Companies Tariff F.C.C. No. 14	DS3 Term Volume Plan (DS3 TVP)*	5.6.19
Frontier Telephone Companies Tariff F.C.C. No. 14	National Discount Plan (NDP)*	23.1
Verizon		

¹ The citations in this list are not intended to be inclusive of every provision in the relevant tariffs that may be related to the pricing plans under investigation.

* Plan included in investigation pursuant to an order by the Commission in response to the transfer of Verizon operations in California, Florida, and Texas to Frontier. *See Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247, Order, DA 16-339 (Pricing Pol. Div. rel. Mar. 31, 2016).

Tariff	Pricing Plan	Section¹
Verizon Telephone Companies Tariff F.C.C. No. 1	Commitment Discount Plans (CDP)	25.1
Verizon Telephone Companies Tariff F.C.C. No. 11	Commitment Discount Plans (CDP)	25.1
Verizon Telephone Companies Tariff F.C.C. No. 14	DS1 Term Volume Plans (DS1 TVP)	5.6.14
Verizon Telephone Companies Tariff F.C.C. No. 14	DS3 Term Volume Plan (DS3 TVP)	5.6.19
Verizon Telephone Companies Tariff F.C.C. No. 1	National Discount Plan (NDP) ²	25.3
Verizon Telephone Companies Tariff F.C.C. No. 11	National Discount Plan (NDP)	25.2
Verizon Telephone Companies Tariff F.C.C. No. 14	National Discount Plan (NDP)	23.1
Verizon Telephone Companies Tariff F.C.C. No. 16	National Discount Plan (NDP)	22.1

² Verizon has one National Discount Plan that is contained in four separate tariffs. The above chart identifies where the NDP is located in each of the tariffs being investigated.

APPENDIX B

Dr. Marc Rysman, Empirics of Business Data Services (April 2016)

EMPIRICS OF BUSINESS DATA SERVICES

WHITE PAPER

By Dr. Marc Rysman¹
Boston University

April 2016

¹ I thank FCC staff for excellent assistance in producing this paper.

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I. INTRODUCTION

This paper studies the market for business data services in the United States. Whereas businesses often have the option of using mass-market Internet service, such as offered by the local cable or telephone company, many business applications demand higher levels of quality, in terms of bandwidth, or service guarantees. For instance, a mobile phone company that requires backhaul from its cellular towers has large bandwidth requirements. A chain of retail outlets that relies on data services to process card payments cannot tolerate downtime in service. Financial institutions similarly require secure and reliable communication services.

Formally, business data service(s) (BDS) refers to electronic end-to-end communication services sold at symmetrical speeds with guaranteed service levels, such as high guaranteed uptime. Naturally, BDS are generally purchased for business purposes. BDS exclude complex services also sold to businesses, such as a managed voice, private network and Internet access solution, although BDS are an input into such services. BDS are integral to the functioning of the US economy, and approximately \$45 billion in BDS sales were made in 2013.² Providers of BDS primarily consist of legacy phone carriers from the period when local telephone service was monopolized (termed Incumbent Local Exchange Carriers – ILECs), and competitive local exchange carriers (CLECs), including many cable companies. We use the term competitive providers (CPs) to refer to CLECs inclusive of cable companies.

The Federal Communication Commission (FCC) has long been concerned that certain BDS providers may exercise market power due to a concentrated market structure and the difficulty of entry. As such, the FCC has developed a system of price caps and related regulation for these services, as well as a separate set of regulations under which CPs can sometimes purchase unbundled network elements (UNEs) from ILECs at prices set by state regulators.³ The FCC relaxed price-cap regulations in metropolitan statistical areas (MSAs) that met certain triggers for competitive presence.⁴ However, indications that the triggers were not working as intended has led to a freeze on this process.⁵

This paper studies the supply of BDS, also called “special access.” An important goal of this project is to provide guidance to the FCC as it engages in a revamping of its regulatory approach to this industry. In

² Revenue amount is based on total aggregate revenues reported by providers in response to questions II.A.15-16 and II.B.8-9 in the Collection.

³ UNEs relevant to this proceeding come in three forms, DS1s, DS3s, and unbundled copper loops (to which the purchaser attaches its own equipment). UNEs are not uniformly available, and availability declines as copper is retired and as certain competitive triggers relevant to DS1 and DS3 availability are met. 47 U.S.C. § 251(c)(3); 47 C.F.R. § 51.319(a)(4)(i)-(ii), (5)(ii); 47 C.F.R. § 51.309(b).

⁴ See *Access Charge Reform*, CC Docket No. 96-262; *Price Cap Performance for Local Exchange Carriers*, CC Docket No. 94-1; *Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers*, CCB/CPD File No. 98-63; *Petition of U.S. West Communications, Inc. for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MSA*, CC Docket No. 98-157, Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 14221 (1999), *aff'd WorldCom v. FCC*, 238 F.3d 449 (D.C. Cir. 2001). The FCC provided a fixed definition of MSAs based on 1980 Census delineations. 47 C.F.R. § 69.707; FCC Areas, Cellular Market Areas, <http://transition.fcc.gov/oet/info/maps/areas/>. In some cases, pricing flexibility was also granted to “non-MSAs”, regions within an ILEC’s study area within a state that fall outside of any MSA. *Id.*

⁵ See *Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Report and Order, 27 FCC Rcd 10557 (2012).

particular, I have been instructed to examine whether, and if so where, there is market power in this industry. My analysis of market power is multipronged. I first consider revenue market shares. I then analyze the structure of supply in terms of the number and types of entrants, both nationally and locally at the level of the census block⁶ and even at the level of a unique location such as a single building or a cell tower (hereafter referred to by the shorthand “buildings”). Finally, I consider determinants of price, particularly in relation to the number of competitors for various geographic regions. The presumption is that if price is lower in the face of local competition, then the effect of competition is important. I also discuss factors that could lead to spurious findings, such as local cost heterogeneity. I control for a number of factors in a regression approach, and I consider prices for different classes of products and firms. The goal of these regressions is to test whether prices fall when there is local competition. If so, I take this as evidence of market power in the BDS industry, where there is not competition. That is, if market power did not exist, for instance because the threat of entry held down prices in all local markets, we would not necessarily see any further decrease in price when actual entry did occur. This approach is common in antitrust settings. For instance, the regression set up here is similar to the well-known use of regression in the merger case of Staples and Office Depot, successfully opposed by the Federal Trade Commission.⁷

This paper relies on a recent data collection, ordered by the FCC under its regulatory powers (the Collection). These data provide a new and deeper look at this industry, not available to previous researchers. The data provide locations served by each firm in the industry,⁸ down to the street address, as well as information on the characteristics of the connection medium (such as fiber optic cable). I use these data to study market structure at various geographies. Furthermore, the data contain billed service-by-service revenue as well as aggregate BDS revenues for ILECs and CPs. Interpreting billed service-by-service revenue as a price, and combining with the location data, allows me to study how price varies with competition.

The FCC is considering how to address current regulatory structures in a time frame that befits a rapidly evolving industry. The collected data are for 2013, and the market has evolved somewhat since then. Collecting and working with such an enormous data set is challenging. In vetting the collection, the FCC implemented many data error detection protocols, which led the FCC to revisit how firms constructed their contributions. These issues are typical for any empirical analysis, but in situations like this, there is always more work that could be done. My paper ends with a series of suggestions for future work to provide a deeper understanding of the industry.

⁶ Census Blocks are statistical subdivisions of Census Tracts, which are statistical subdivisions of a county or equivalent. See U.S. Census Bureau <http://blogs.census.gov/2011/07/20/what-are-census-blocks>

⁷ Serdar Dalkir and Frederick R. Warren-Boulton, (1997) “Prices, Market Definition, and the Effects of Merger: Staples-Office Depot” in *The Antitrust Revolution: Economics, Competition, and Policy*, edited by John E. Kwoka, Jr. and Lawrence J. White, Chapter 6, Oxford University Press; 6 ed. (July 23, 2013).

<https://global.oup.com/academic/product/the-antitrust-revolution-9780199315499?cc=us&lang=en&>.

⁸ More strictly, ILECs reported locations where they currently sell BDS or more complex business services that require an underlying BDS to supply; cable companies reported all locations they have connected to any headend that is capable of supplying Ethernet service, even if they do not sell service at that location, and otherwise any location where they currently sell BDS or more complex business services that require an underlying BDS to supply; while all remaining CPs reported any location they are able to serve over the carrier’s own facilities. “Own facilities” for CPs includes not only facilities they own but also fiber under long-term leases from other carriers (known as indefeasible right of use – IRU). Non-cable CPs report locations even if they do not sell service at that location, and any location where they currently sell BDS or more complex business services that require an underlying BDS to supply over a UNE.

The paper studies what are arguably three different data sets covering revenue, locations and prices, yet evidence of ILEC market power is found in each. The revenue data point to the importance of the ILECs in this industry, particularly if we are willing to include their revenue as CPs outside of their ILEC regions. The location data similarly show that the ILECs provide facilities-based service to many more locations than CPs. However, if we focus on buildings served by fiber, competitive providers are a robust presence, almost the size of ILECs in terms of number of buildings served.

The price data tell a similar story. Regressions of ILEC rates for DS1 and DS3 lines show that competition in the building, and the census block, consistently lowers prices in economically and statistically significant ways. Interestingly, we see some effects of competitive fiber in the census block, even if that fiber is not connected to any buildings in the block. In contrast, regressions for higher bandwidth lines show muddled and conflicting effects of competition, often at low levels of statistical significance. Thus, these results are in line with the analysis of the location data.

Looking beyond market power, it would be valuable to extend the analysis of the broad range of data available to the FCC to identify and develop triggers the FCC could use to choose when to apply, or refrain from applying, price cap and other regulation to this industry. Triggers could take into account the presence of local competition, the presence of high customer demand, or perhaps some demographic data such as the number of establishments. Predicting what triggers would work well is hazardous, but the results of this study would suggest that regulation of higher-end products is perhaps not necessary. For DS1 and DS3 lines, the presence of competition as I have measured it reduces prices. While that might suggest that just the presence of competition may be sufficient to forgo regulation, I find that more competition leads to lower prices, so I cannot say that just the presence of competition eliminates market power, only that the presence of competition reduces market power.

II. BACKGROUND

Understanding the data and my approach to the data require an understanding of the industry. The BDS market is populated by different types of providers making use of varying delivery technologies. An ILEC serves customers in its region using its own network facilities. CPs may also build facilities to customers, sometimes making use of ILEC facilities for some part of the service. In addition, CPs may lease lines from ILECs and sometimes other CPs in order to provide service entirely over leased facilities. In some circumstances, CPs may lease ILEC facilities at a regulated wholesale price, referred to as the Unbundled Network Element (UNE) price. CPs also can purchase from ILECs or more commonly other CPs, for periods often exceeding ten years, the right to use dark fiber in many respects as if it were their own facility.⁹ Since multi-location customers often prefer to work with a single provider and since no provider has facilities in every location, providers often contract with each other to provide multi-location services, either via leased lines or UNEs (where they are available).

I divide competitive providers (CPs or CLECs) into three types: ILEC-affiliated CLECs, Cable companies, and Other CLECs. Technically the cable companies are CLECs, but because of differences discussed below, I separate cable CLECs from non-cable, “traditional” CLECs. The largest traditional CLECs are affiliated with ILECs. For instance, Verizon operates both as an ILEC in its ILEC region and as a CLEC outside of its region. I call these companies ILEC-affiliated CLECs. As we will see, ILECs rarely build facilities outside of their region, and instead ILEC-affiliated CLECs make heavy use of leased lines. In addition, there are what I term Other CLECs, such as Level 3 and XO, which compete via

⁹ These arrangements are often called indefeasible rights of use (IRUs).

owned facilities, leased lines and UNEs. Furthermore, Cable companies and Other CLECs can be grouped into the Independent CLEC category which consists of competitors that are not affiliated with an ILEC. All ILECs and CPs may provide further services, called managed services, over and above BDS, such as cloud-hosting services, running an internal phone system for a consumer, or managing their private networks.

Traditional CLECs provide BDS using a number of different technologies. Data services can be provided over traditional circuit-based technologies. Leading technologies of this type are DS1 lines and DS3 lines, typically carried over copper pairs (a relatively old form of wiring technology), which account for the majority of revenue in this industry, according to these data. A DS1 line transfers 1.5 megabits per second both in upload and download. A DS3 line carries about 30 times the bandwidth of a DS1 line, which is a symmetric 1.5 Mbps service. It is also possible to achieve higher bandwidth levels over circuit-based technologies. An alternative to circuit-based technology is packet-based service, which includes Ethernet services. These are more commonly delivered over fiber optic cable but can be delivered over copper lines and hybrid fiber coaxial networks. Fiber optic cable can deliver higher bandwidth and service levels, and most new investment is in fiber. In several places in the paper, I distinguish between circuit-based and packet-based service, non-fiber and fiber service, or between DS1 lines, DS3 lines and higher bandwidth lines. In all three cases, the latter represents the higher-end technology. But keep in mind that low-bandwidth packet-based services also exist in the industry.

Cable operators hold an important place in this industry, offering two broad categories of service: “best-efforts” services supplied to mass-market (most commonly residential) customers that come with asymmetrical speeds and few if any service guarantees, and BDS, which comes with symmetrical speeds and significant service guarantees.¹⁰ While the symmetrical speeds and service guarantees provided for BDS over coaxial cable typically are not as robust as for fiber-based BDS, if cable services with such guarantees were sold in 2013, then they would appear as cable CP competition in the data on which my estimations were based.

In this paper, I do not study best-efforts services directly. That I have not directly modeled the impact of best-efforts competition is not to say that I have concluded best-efforts services are not a viable competition in this industry. The decision to focus on BDS stems from a belief (that receives support from my regressions) that BDS competition is likely to be different from best-efforts services competition, and the time limitations I faced. However, integrating best-efforts services is important for future research, and the FCC collected data on best-efforts service. That being said, the price regression section below discusses how the location fixed effects strategy addresses cable provision, and how parameters can be interpreted in light of the issues alluded to here.

III. DATA

The data can be usefully thought of in three parts: aggregate revenues, location and pricing. The first part collects aggregate BDS revenue data from each firm. We observe aggregate revenue by type of technology (packet-based or circuit-based) for each firm. Firms report all BDS revenue, but not from managed services. If BDS is sold to a customer as part of a larger managed service contract, and the BDS

¹⁰ By installing a specialized modem for the customer and an equipment upgrade in its network, a cable company can deliver a relatively high quality data service over its hybrid fiber coaxial cable (HFC) network that has some features of DS1, DS3 and Ethernet BDS. Cable HFC networks use a communication standard known as Data Over Cable Service Interface Specification (DOCSIS). The DOCSIS 3.0 standard allows for the provision of Ethernet over DOCSIS as a “best efforts” service or with service guarantees.

element is not priced separately, the data do not contain that revenue. I expect that limitation to affect CP revenue more than ILEC revenue, since in most cases, ILECs are regulated to price BDS separately even if the ILEC also sells managed services. CPs do not face this requirement.

The location data are meant to capture all locations at which a firm provides service. This exact data collection differs between ILECs and CPs. ILECs report all locations in their region at which they have a customer. The customers are serviced by ILEC facilities, because ILECs typically do not use CP facilities in the ILEC's own region. Whereas ILECs report every location they have a customer, non-cable CPs reported all locations at which the CP owns or leases per an IRU a connection to a location, including locations where it does not currently have a customer. Cable CPs reported all locations with connections owned or leased as an IRU that are connected to a Metro Ethernet (MetroE)-capable headend. For connections not linked to a MetroE-capable headend, cable CPs reported in-service connections used to provide BDS or a managed service that includes BDS within the offering. The FCC did not collect locations at which ILECs have a connection but no customer, because ILEC facilities are practically ubiquitous in their region, and can be assumed to have facilities in every location.

In addition, CPs report any location at which they provide service not with their own facilities but over a leased line that is purchased at a regulated price, a so called UNE price. However, the data do not contain locations at which firms provide service over non-UNE leased lines. That said, the data would record the location served by the non-UNE leased line as a location of the provider that actually owns the connection. In this sense, the data are particularly strong for studying facilities-based competition. For this reason, I focus on facilities-based competition in much of the paper. An interesting question is whether UNE entry also provides some competitive pressure. I do address this indirectly, but recommend the FCC consider analysis of UNE competition.

For pricing data, providers report revenue in the form of monthly billing data for each BDS contract linked to locations reported elsewhere in the collection where applicable, and I interpret billings as a price. As with the revenue data, we do not observe billing data if the BDS service is part of a larger managed service contract. As above, the ILEC data includes substantial sales of DS1s and DS3s, because the ILECs must sell these services on a stand-alone basis due to the FCC's regulations. The data do not likely capture, however, all of the ILEC's packet-based sales, which the ILEC may have sold as a managed service. Likewise, the data contain CP billing data only for the subsample of CP customers that purchase BDS separate from or without any managed services. Of course, the data still contain unique CP location identifiers from the location data. For these reasons, I focus my analysis of prices on how ILEC prices respond to CP presence. I note that conventional wisdom is that ILECs hold any market power that exists rather than CPs, and that facilities-based entry is the most important source of competitive discipline, so my focus on facilities-based entry and ILEC prices is not particularly restrictive.

Attachment 4 further describes the background for the industry, and describes in detail the FCC's process for collecting these data. The data required significant processing in order to be usable for statistical analysis. Full descriptions of the FCC's approach appear in the appendices. I provide brief overviews here, particularly for the location and pricing data.

For the location data, a goal of the FCC was to assign locations to buildings, in part to determine competitive overlap within buildings. Identifying when two competitors are in the same building is a non-trivial problem with these data. Some data providers reported latitudes and longitudes, while others reported addresses, and even then, slightly different latitude and longitudes or slightly different addresses may actually be part of the same building for our purposes. In order to determine which customers were in the same building, the FCC assumed that locations less than 50 meters (approximately 164 feet) apart were the same building (unless the geocoded address reported that they were in distinct buildings).

Naturally, this requires a procedure to address sequences of locations that are less than 50 meters apart each, but together are more than 50 meters apart. In practice, each customer in the data appears in only one building. We assign each building to a census block, which then implies its census tract¹¹ and county.

For pricing data, providers report billing revenue, not prices. Even within a single buyer-seller relationship, we observe substantial variation in monthly revenue, even going to zero. From conversations with providers, this arises because of complex discounting and bonus terms in the contracts. I take the view that buyers focus on the average monthly price rather than any given one-month price, since customers tend to subscribe to a service for longer periods of time than a month. Indeed, many contracts commit the buyer to stay with the seller for extended periods. Thus, I take the average revenue across the months for any given contract as the “price.” Even so, price varies substantially across the data, and so we must be on guard for spurious results, as the large number of observations means that most coefficients in a regression environment will be statistically significant at conventional levels of significance.

An additional challenge is how different providers price different elements of their service. Physically, a service is made up of several elements, such as the connection to the edge of the provider’s network (sometimes referred to as the “last mile”) and the transport from this edge to the Internet backbone or to another location owned by the customer. Altogether, these elements add up to a circuit. Some providers price the circuit, whereas some providers price different elements of a circuit. I add up revenue to a single circuit and use the total circuit revenue to construct price. Note that some authors (such as the National Regulatory Research Institute) have argued that the FCC should recognize separate markets for backhaul transport. My approach of aggregating to the level of the circuit rules out separate analysis of the transport market. In this paper, I focus only on the market for circuits provided to customers (sometimes called the channel termination market), although the transport market may also be interesting to study.

In addition, as described in Attachment 1, the FCC drops observations that fail some basic checks of quality. For instance, if a sequence of elements is reported to be part of the same circuit, but different bandwidths were reported for those elements, the FCC drops the observation. Even with these conditions, the data have more than 2 million observations, and that is after having summed over circuit elements and after averaging over the time variation in the data.

IV. ANALYSIS

A. Revenues

In this section, I present tables that describe revenue in the industry, focusing on the distinctions between circuit-based and packet-based technology, as well distinctions between ILECs and competitive providers. This data came from revenue totals reported by providers in response to questions II.A.15-16 and II.B.8-9 in the Collection and not from the monthly billing data.

Table 1 presents total BDS revenues reported by the firms by provider type (ILECs or CP), and by technology (circuit-based or packet-based). Overall revenue to CPs is slightly greater than that of ILECs. In addition, we see that circuit-based services account for about 75% of ILEC BDS revenue. In contrast,

¹¹ Census Tracts are statistical subdivisions of a county or equivalent. See U.S. Census Bureau https://www.census.gov/geo/reference/gtc/gtc_ct.html.

CPs draw substantially more revenue than ILECs from packet-based services, almost 2.5 times more. Still, CPs make extensive use of circuit-based lines, which represent 42% of their BDS revenue.

As mentioned in the data section, an important caveat is that revenue from the resale of BDS that are leased from an ILEC, as well as revenues from the resale of UNE lines, count towards CP revenue reported. That is, these revenue data do not distinguish between facilities-based, leased-line, and UNE service provision. Conventional wisdom is that resale over ILEC BDS is likely to be a relatively weak form of competition for ILECs, and consequently these revenue shares overstate the competitive presence of CPs. In fact, it is probable that a substantial share of CP revenue over circuit-based lines actually represents lines leased from ILECs, since facilities-based entry from CPs tends to focus on packet-based technology.

	ILECs	Competitive Providers
Circuit BDS	\$ 16.1	\$ 9.7
Packet BDS	\$ 5.6	\$ 13.3
Total	\$ 21.7	\$ 23.0

Table 1: BDS Revenue by Technology and Provider Type

In addition to the allocation of facilities-based revenue, it is important to recognize that much of the CP revenues in Table 1 can be ascribed to ILECs. We can see this in Table 2 which shows revenues by technology and firm for all firms with over \$100 million in revenue. ILEC-affiliated-CLECs reported their revenue separately from their ILEC in the revenue data, and I report these separately in the table. We see that the largest CPs are arms of firms that also have ILEC operations. The four largest CPs are AT&T, Verizon, CenturyLink, and Windstream. The largest CPs without ILEC operations were Level 3 (plus tw telecom) and Zayo, the 7th and 10th largest firms on this list.¹² These observations certainly affect our sense of how large CPs are that we might have drawn from Table 1. Table 1 shows that CP revenue is slightly more than ILEC revenue, but Table 2 shows that two-thirds of the CP revenue accrues to ILEC affiliates.¹³

Also, we can see that the reliance of ILECs on circuit-based data are heavily driven by AT&T. The rest of the industry is close to a 50-50 revenue split between circuit and packet, but AT&T, the biggest player by far, has a [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] revenue ratio. Since 2013, industry reports suggest that AT&T has invested substantially in packet-based technology.¹⁴

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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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¹² Since the time of this data collection (in 2013), Level 3 merged with tw telecom,

¹³ As stated above, cable revenue is not counted if it comes from outside of BDS services, such as best-efforts DOCSIS 3.0 services.

¹⁴ See Sean Buckley, AT&T’s \$14B Project VIP: Breaking Out the Business Service, U-verse Numbers, FierceTelecom (Sept. 24, 2013), <http://www.fiercetelecom.com/special-reports/atts-14b-project-vip-breaking-out-business-service-u-verse-numbers>.

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

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A second important caveat is that these numbers do not include revenues that are earned when a firm sells a managed service in a bundle that uses BDS as an input. As stated above, this problem affects CPs more than ILECs, and so Tables 1 and 2 might overstate ILEC revenues relative to CP revenues. To investigate this, FCC staff collected publically available information on the approximate total BDS and managed service revenues of the largest telecommunications carriers. Shown in Table 3, these data indicate that while the combined Level 3 and tw telecom loom relatively larger, ILECs and ILEC-affiliates (not broken out) still dominate.¹⁵ As before, this table counts all earnings made over leased BDS and UNEs.

Company	2013	2014	2015
AT&T	\$30,113	\$29,523	\$28,929
Verizon	\$20,716	\$19,839	\$18,922
CenturyLink	\$11,038	\$10,999	\$10,561
Level3	\$3,011	\$4,193	\$4,989
Windstream	\$1,666	\$1,767	\$1,863
Comcast	\$3,241	\$3,951	\$4,742
Time Warner	\$1,901	\$2,312	\$3,284
Frontier	\$2,276	\$2,183	\$2,161
Charter	\$812	\$993	\$1,127
Earthlink	\$945	\$911	\$945
Cox*	\$1,800		
Total (excl. Cox)	\$75,719	\$76,671	\$77,523

Table 3: Revenues for Business Services 2013-2015 (\$000s)

¹⁵ Level 3 revenues include those from tw telecom, which Level 3 acquired in 2014. We were unable to obtain a revenue estimate for Cox in either 2014 or 2015. Data sources are discussed in Attachment 5.

B. Locations

Using locations to measure market structure should be linked to our concept of a relevant market. In theory, the relevant market should be determined in both geographic and product space, both by customer willingness to switch away in both dimensions, and by the willingness of firms to switch towards a customer in both dimensions. In practice, I expect customers are unlikely to switch geographic locations based on the price of business data services. A provider that raises price is unlikely to drive a customer to a new address that is served by a rival provider. Similarly, it would be rare that the expected price of BDS or managed services would significantly influence a customer's location decisions because such costs are a relatively small part of the purchasing firm's overall costs, and because in many instances other factors will dominate, such as the need to meet the purchasing firm's own customers' desires.

Although customers would be unlikely to switch locations based on the BDS market, they may be willing to switch to products outside of the BDS market. For instance, some customers may view best-efforts broadband service as a viable alternative. Recall that the FCC's data collection defined the BDS market by the presence of service guarantees, and so customers willing to forgo service guarantees might purchase outside of the BDS market in response to a price increase of BDS. It is unclear how many customers fall into this category. Although I do not model best efforts service directly, my regression framework does address the presence of such service through location fixed effects.

I am primarily interested in suppliers switching towards customers. In terms of product space, I assume that a supplier providing any bandwidth could easily provide any other bandwidth at that location. An exception to this would be a copper connection that has no spare capacity and could not be readily replaced without de novo deployment. Consequently, while my assumption will generally be true for CP facilities, which are predominantly fiber, it may not be true for UNE competition, which is copper-based and has regulatory capacity restrictions, and in some instances may not be true for ILEC deployments (where only copper facilities may be available).¹⁶ But in general, my approach should be reasonable.¹⁷

Thus, the main focus of my paper is on the ability of suppliers to reach customers across geographical space. How close must customers be such that we should consider providers to those customers to be in the same geographic market? The answer to this question is crucial in designing regulation. For instance, previous regulation attempted to identify MSAs in which the FCC could significantly relax price regulation (so called Pricing Flexibility Phase I and II markets). Understanding the relevant market over which to identify competition is a critical step in determining whether to apply regulation at the level of the MSA, or some smaller or larger geographical region.

Building facilities from one location to another can be a costly endeavor, and can include not only the cost of stringing or burying lines, but also the cost of getting approval from the relevant government authorities and from building owners. Whereas some statements from industry sources suggest that a provider can easily reach any location in a census block, or beyond, in which it has presence, other statements suggest that in some cases, even building from one floor of a building to another can be prohibitively costly, especially if permission from the building owner is not forthcoming.¹⁸

¹⁶ UNEs are available only to a limited extent for DS1s and DS3s. 47 C.F.R. §§ 51.319(a)(4)(i), 51.319(5)(ii).

¹⁷ There is also the possibility of firms switching from outside of the BDS market into the market, particularly cable companies providing best-efforts services. Best efforts service is addressed in the price regression primarily with location fixed effects, which I further discuss below.

¹⁸ See, e.g., Mark Israel, Daniel Rubinfeld and Glenn Woroch, 11 "Competitive Analysis of the FCC's Special Access Data Collection" (Jan. 26, 2016) (IRW White Paper); and United States Government Accountability Office, (continued...)

Finally, while I examine competition at the level of different geographic regions, analysis of competition in a narrow geographic region may not properly measure competition. While some customers seek to connect a single building via BDS, most need to connect at least two and often many more locations together. Thus, a customer buying a bundle of connections to many locations may not be able to pick and choose providers at any given location, but may find their choices limited to carriers that can meet their bundled needs. For example, the record suggests there are economies in dealing with one provider, and that for some customers there are advantages in having all of one's services on facilities owned by the provider.¹⁹ In this light, a customer seeking a bundle of lines will generally have less competitive choice than any measure of competitiveness based on a specific geographic region might indicate. However, it is possible that these customers are particularly attractive and so competition for them is particularly fierce. Ultimately, this is an empirical question. Because it is difficult to track customers across providers, especially for customers that buy managed services from CP providers, I cannot address this issue, but I discuss data requirements for further study in this direction in the conclusion.

In this section, I describe market structure across different geographic regions, particularly focusing on the building and the census block as potential geographic relevant markets. Knowing the number of rivals for any given relevant market is important for determining the competitiveness of a market. In the next section, I relate prices to the amount of competition in different potential geographic markets to assess whether one geographic market definition makes more sense than another.

Why focus on the building and the census block? Narrative evidence suggests that CPs generally build out no more than a quarter to a half-mile. Answers varied, but these sorts of distances appeared consistently in the narrative responses.²⁰ By way of comparison, we can consider the land area of census tracts that have at least one BDS-connected building in the location data. In this data set, the median census tract has a land area of 1.71 square miles. If the median census tract was a square, then its sides would each be 1.31 miles long, generally too long for a CP to build across according to the narrative responses. The median of 1.71 square miles masks substantial variation in the data. A square tract at the 25th percentile would be larger still, with sides of around 2.3 miles long. In contrast, the median census block is 0.026 square miles, so a square median-sized census block would have sides that were 0.16 miles long. The distribution around the median is also skewed. For instance, the 25th percentile is 0.1 square miles, so a square 25th-percentile census block would have sides that were 0.3 miles long. Based on the narrative evidence, census blocks appear to be better measures for competitive pressure than census tracts. I revisit this issue with price data, but it helps to inform my approach to the location analysis.

Table 4 shows the distribution of about 1.217 million buildings (unique locations) in the data by provider type and technology.²¹ CPs report locations where they serve or at least have a connection to the location

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FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services, GAO 07-80, at 2, 19-20 (rel. Nov. 2006), <http://www.gao.gov/products/GAO-07-80>.

¹⁹ Peter Bluhm with Bob Loube, *Competitive Issues in Special Access Markets*, 32 (Rev. Ed. 2009), (<http://nrri.org/download/2009-02-competitive-issues-in-special-access-markets/>).

²⁰ See Narrative Responses to Question II.A.8 in the Collection.

²¹ The FCC developed two estimates of building (strictly unique locations), and in both cases found there to be approximately 1.2 million buildings. The one used here is referred to as Cluster Method 2, first treats any location with a unique geocoded street address as a separate location, and then considers any remaining locations within 50 meters of another (with a disambiguation process) to be unique. Cluster Method 1 uses the same process as Cluster Method 2, but does not treat unique geocoded street addresses as unique, but also amalgamates these if they are

(continued...)

for approximately 522,000 buildings or 43% of buildings.²² Of these, CPs report that they have connections to nearly 245,000 locations or 47% of CP locations (or 20% of all locations) through leased (UNE) lines.²³ Thus, CPs report that they can reach approximately 277,000 locations or less than a quarter of all buildings via their own facilities. About half of this facilities-based service is from cable companies, with most of the rest being CLECs with no ILEC operations.

A striking result is the low number of buildings connected by facilities-based service from ILEC-affiliated CLECs, 7%. This contrasts with the large share of CP revenue from ILEC-affiliated CLECs shown in Table 2. Recall that although competitive provider revenue is larger than ILEC revenue, two thirds of that revenue is to CLECs that are associated with ILECs. Thus, although Table 1 shows a substantial revenue share flows to CPs, Table 2 and Table 4 show a large portion of that revenue is going to ILEC-affiliated CLECs. This implies the top three ILEC-affiliated CLECs significantly rely on BDS leased from another LEC, typically the local ILEC.

In the location data, rather than report where they could supply service, ILECs report where they do provide service. ILECs provide service in 69% of buildings nationwide, with that number going up to 84% if I include ILEC UNE sales. In fact, at some points in the analysis, I assume that ILECs can provide service to any building. This is reasonable to the extent that ILECs have ubiquitous facilities. Most likely, there are some buildings where a competitive provider is delivering service and the local ILEC would find it very expensive to serve (for example, a newly built cell tower in a relative remote part of the ILEC’s territory). However, I believe these situations are relatively rare.

	As Reported (Locations w/ Customers)	As Reported With CP UNEs Counted as ILEC	Locations if ILEC Assumed Everywhere
ILECs	69.1%	84%	100%
	As Reported (Locations with Connections)	UNEs	Facilities
All CPs	43%	20%	23%
Cable	14%	1%	13%
ILEC-affiliated CLEC	7%	6%	1%
Other CLECs	25%	15%	9%

Table 4: Locations

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 within 50 meters of each other. The FCC prefers Cluster Method 2 because the FCC believes geocoded street addresses generally represent unique buildings. For technical details on both methods. See Attachment 1.

²² Under Cluster Method 2, there were 521,594 unique locations with CP connections counting both locations that at least one CLEC could service over its own facilities, and connections that were only served over a UNE or UNEs (521,954/1,216,976 is approximately 43%). See *supra* note 8. Locations reported by CPs affiliated with ILECs within the affiliated ILEC’s territory were treated as belonging to the ILEC.

²³ Under Cluster Method 2, there were 244,656 locations CLECs served over UNEs only (244,656/521,945 is approximately 47%; 244,656/1,216,976 is approximately 20%).

Table 5 reports several statistics describing firms in this market. There are 491 different providers in this data set, with the median firm serving only 35 buildings. Thus, there are many small players. Even the 90th percentile firm by size serves only 1,148 buildings.

Number of Providers	491
Median # of Buildings Served	35
90th Percentile of # of Buildings Served	1,148

Table 5: Summary of Providers²⁴

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[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

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Table 6, which lists the largest firms by number of buildings, paints a different picture. It shows that the largest providers are much, much larger than the median, or even the 90th percentile firm. The biggest four are ILECs, followed by a set of cable companies and CLECs. Windstream reports [BEGIN HIGHLY CONFIDENTIAL] [REDACTED] [END HIGHLY CONFIDENTIAL] buildings served via UNE, and we see the very low UNE use by the other ILECs. Sources beyond our data set tell us that cable companies are investing in BDS,²⁵ so we might be concerned that since these data are two years old, cable

²⁴ Some filers did not report any locations. In addition the FCC was unable to geocode a small percentage of the reported locations resulting in a fewer number of providers reflected in this data set.

²⁵ See generally Letter from Steven F. Morris, National Cable & Telecommunications Association (NCTA), to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, 1 (Mar. 22, 2016) (“Over the past few years, cable operators have been expanding the number of commercial buildings they serve, the geographic footprint of their

(continued...)

BDS are underrepresented. However, even if cable companies have been growing at 20% per year, or are 50% larger now than when the data were collected, they would still be much smaller than ILECs.²⁶

Table 7 shows the number of competitors per building. In the first column, I assume that ILECs can serve every building, and I assign UNE service from a competitive provider to the local ILEC. Thus, I do not count UNE service as competition. In the second column, I assume ILECs serve every building, and I assign UNE service to the associated CP. The assumptions incorporated into this column should lead to the most possible competitors per building.

Number of providers	ILECs assumed everywhere UNE locations assumed ILEC		ILECs assumed everywhere UNE locations assumed CLEC	
	Number of buildings	Percentage of buildings	Number of buildings	Percentage of buildings
1	939,638	77.2	694,982	57.1
2	265,708	21.8	479,615	39.4
3	9,482	0.8	33,693	2.8
4	1,335	0.1	5,564	0.5
5	495	0	1,709	0.1
6	318	0	1,413	0.1

Table 7: Number of competitors per building

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 networks, and the types of services they offer to business customers (including increasing use of service level agreements.”); *see, e.g.*, Letter from Matthew Brill, Counsel to Comcast, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, 2 (Mar. 25, 2016) (“Like all cable providers, Comcast historically focused on residential areas, but in recent years the Company has expanded its cable/broadband plant to reach additional commercial customers.”); Sean Buckley, Time Warner Cable, Comcast threaten AT&T and Verizon Ethernet Market Status, FierceTelecom (Mar. 9, 2016) (“Time Warner Cable (NYSE: TWC), Comcast (NASDAQ: CMCSA) and other cable operators continue to make a dent in the Ethernet market, challenging incumbent telcos AT&T (NYSE: T) and Verizon (NYSE: VZ) as well as Level 3 Communications in the U.S. Ethernet market.”), <http://www.fiercetelecom.com/story/time-warner-cable-comcast-threaten-att-and-verizon-ethernet-market-status/2016-03-09>.

²⁶ As above, the cable locations are BDS locations, which I interpret to exclude residential broadband or connections to a non-MetroE cable headend that use DOCSIS to provide a best efforts service. *See* [Mari Silbey](#), Moffett: Business Services Critical to Cable Growth, Light Reading (Dec. 1, 2015) (noting that cable “[c]ommercial services only make up roughly 10% of revenue contribution today, but they’re growing at a 20% rate,” which is approximately 44% estimated growth since 2013), <http://www.lightreading.com/cable/cable-business-services/moffett-business-services-critical-to-cable-growth/d/d-id/719612>. Also, it is possible that although the physical growth rate of cable networks was about 50%, the act of adding service guarantees to existing DOCSIS service could lead to much higher growth rates within the BDS market.

In either case, the number of competitors per building seems small with the median building being served by a single provider. In the first case, 21.8% of buildings are served by two providers, and in the second, 39.4%. Almost no buildings are served by 3 or more providers. Thus, by this measure, there is relatively little competition present.

We also observe very few buildings with facilities-based competition. The level of competition observed in Table 7 is in part due to the assumption that ILECs are everywhere. If we consider only the set of buildings where ILECs list an active customer or CPs list being able to serve a customer with facilities (so UNE buildings are dropped), we have a set of 1,055,517 buildings, of which 778,179 (74%) are served only by ILECs, 214,502 (20%) are served only by CPs (include ILEC-affiliated CLECs), and only 62,836 (less than 6%) are served by both.

Although it appears in Table 7 that relatively few buildings are served by competitive providers, that result may be masking important heterogeneity in buildings. In their narrative responses, CPs reported that they target high bandwidth and fiber customers. It is possible that Table 7 understates important competition at higher bandwidths. In order to pursue this issue, I examined the set of buildings in which an ILEC or CP reported fiber connections. There were nearly 490,000 of these, or about 40 percent of the unique 1.2 million locations reported. Table 8 provides the breakdown by carrier type. We see that 6% of buildings with fiber are served by both an ILEC and a CP, somewhat higher than buildings overall. More strikingly, the number of buildings served by CPs is almost equal that of ILECs. Thus, when looking at fiber-connected buildings, which are presumably buildings with greater demand, whether due to at least one high-bandwidth customer or many small customers, CPs are a much more robust presence.²⁷

	ILEC only	CP only	ILEC and CP	Total
Number of buildings with fiber	237,730	221,469	27,866	487,085
Percent of total buildings with fiber	49%	45%	6%	100%
Percentage of total 1.2 M buildings	20%	18%	2%	41%

Table 8: Buildings served by fiber

There are some problems inherent in analyzing the data at the building level. It is possible that providers in nearby buildings exert competitive pressure even if they cannot immediately serve the building in question. A further problem is that many buildings may contain only one customer, and thus we will observe only one provider regardless of how competitive the market to serve that customer is. For these reasons, we also consider the census block. A census block can be thought of as a city block, and in many cases, there are multiple potential customers in a block. As discussed earlier, based on narrative evidence about CP buildout strategies, building across a census block is often feasible.²⁸

²⁷ As stated above, it would be interesting to study the market for customers that require bundles of locations to be served, to see whether CP services are viable. I discuss the data requirements in the conclusion section.

²⁸ However, blocks may be large in some cases so building across a block may be expensive, and when census blocks are small, they are often in dense locations where obtaining permissions to build and deployment is more problematic. Nonetheless, census blocks are another useful cut of the data to evaluate competition.

I look only at the approximately 650,000 census blocks in the data with reported locations, rather than all census blocks in the United States.²⁹

Table 9 reports the percentage of census blocks with a given number of competitors, as well as the mean number of competitors, by provider type. Strikingly, the vast majority of census blocks have 0 or 1 of each of the 5 competitor types. Although the average census block has 0.36 competitive providers, we see that 69.05% have no competitive provision at all. Even counting ILECs, less than 5% of census blocks have 3 competing firms in them. Some reports suggest cable providers have grown by 50% since the collection of these data, but even if we optimistically assume that cable is now in 50% more census blocks, the qualitative results do not change. However, we should keep in mind that based on the results in Table 8, selecting on census blocks served by fiber presumably would show a much stronger CP presence.

Number of Providers	1. ILEC in Region	2. Cable	3. ILEC Affiliated CP	4. Other CLEC	5. Competitive Providers (2+3+4)	6. Total (1+5)
0	0	80.33	98.46	87.15	69.05	0
1	98.95	19.26	1.39	11.49	27.15	68.38
2	1.04	0.39	0.14	1.03	2.83	27.57
3	0.01	0.01	0.01	0.23	0.58	3.00
4	0.00	0.00	0	0.08	0.20	0.63
5 or more	0	0.00	0	0.03	0.19	0.42
Mean	1.01	0.20	0.02	0.15	0.36	1.38

Table 9: Number of Facilities-Based Providers per Census Block

In some of the price regressions that follow, I distinguish between census blocks subject to different regulatory status. These regressions might be difficult to interpret if the level of competition under different regulatory regimes were very different. However, that is not the case. In Table 10, I present just column 5 of Table 9, broken up by whether census block is under a price cap, or subject to Phase 1 or Phase 2 pricing flexibility regulation. We see more providers in Phase 1 markets, and more still in Phase 2 markets, but the difference is not enormous. There are an average of 0.33 CPs in price cap regions, and 0.41 in Phase 2 areas.

Number of Providers	Phase 1	Phase 2	Price Cap	All Areas
0	70.24%	66.69%	69.49%	69.05%
1	25.21	28.12	28.27	27.15
2	3.07	3.90	1.95	2.83

²⁹ The 2010 Census defined 11,166,336 Census blocks. From 2010 Census Tallies of Census Tracts, Block Groups & Blocks for United States, Puerto Rico, and the Island Areas. See U.S. Census Bureau <https://www.census.gov/geo/maps-data/data/tallies/tractblock.html>

3	0.80	0.81	0.23	0.58
4	0.32	0.28	0.04	0.20
5 or more	0.36	0.20	0.02	0.19
Mean	0.37	0.41	0.33	0.36

Table 10: Number of competitive providers per census block by Regulatory Regime

C. Prices

I now turn to the price data. For each price, I observe the name of the customer, an indicator about the type of customer (provider, mobile provider, end user), the provider, the type of provider (ILEC, CLEC, Cable), the bandwidth, and whether the service is circuit-based or packet-based. Based on the location data analyzed above, the FCC has added several variables, such as the number of facilities-based competitors in the building, and the number in the census block. Given the results in Table 7 and Table 9, I focus on indicators for whether there is competition in the building or census block, since that captures most of the variation in the data. I also have census data at the zip code level, such as the number of establishments, the total payroll and total employment. A detailed description of the variables and their construction appears in Attachments 1-2.

Table 11 presents the number of observations by product.³⁰ The data provide extensive information about DS1 lines, more than 2 million observations. Even for higher-end products, the data have more than 30,000 observations. This is important because a priori, it is not clear which products should exhibit competitive effects. In addition, Table 12 provides the number of observations by provider. We have a large number of observations of ILECs, and we have more than 180,000 observations each of both ILEC-affiliated CLECs and Other CLECs. Even for cable companies, we observe more than 90,000 prices. The data set is truly vast, since these numbers of observations are computed after having summed up over circuit elements and averaging over month-to-month variation.

DS1	DS3	45 - 1024 Mbps	> 1024 Mbps
2,132,847	206,945	259,054	37,481

Table 11: Number of Observations by Product

ILEC in-region	ILEC-affiliated CLEC	Cable	Other CLEC
2,076,427	189,106	95,044	275,750

Table 12: Number of Observations by Provider

³⁰ A discussion of the methodology used for constructing the monthly billing observations into a data set for analysis, including the aggregation of monthly elements into monthly circuits and monthly circuits into an average, is provided in Attachment 1.

Before turning to price regressions, I present some important summary tables from the regression data set. In the regressions, I use only observations from ILECs in their region. In particular, my dependent variable is ILEC in-region prices. Summary statistics appear in Table 13.

	DS1	DS3	High Bandwidth
Price (\$)	218.96	1,314.03	3,002.09
Std Deviation of Price	252.36	4,400.74	9,138.56
Facilities-Based Comp. Provider in Bldg	0.24	0.44	0.45
An Indep. CLEC has Fiber in the CB	0.87	0.93	0.93
Customer is a Telecom Provider	0.90	0.90	0.81
Customer is a Mobile Telecom Provider	0.24	0.23	0.35
Customer is a Cable Operator	0.03	0.02	0.00
Packet-Based Connection	0	0	0.86
Observations	1,399,440	120,129	80,326

Table 13: Summary Statistics for Price Data for ILEC (in region) prices

The table reports three columns, for DS1 lines, DS3 lines, and all others, which the table refers to as “High Bandwidth,” referring to all services, circuit- or packet-based with throughput in excess of a DS3 (45 Mbps).³¹ The average price differs significantly, with the price of DS1 lines at \$218.96 per month, DS3 lines at \$1,314.03 per month, and the rest substantially more.

The vast majority of sales are to other telecom providers, about 90%. About a quarter of that is for mobile providers, even for DS1 lines, suggesting that in 2013 many mobile towers still utilized DS1 lines for backhaul. About 86% of the higher bandwidth circuits are packet-based. The regressions contain several more variables, such as some census data. Attachment 2 provides tables with descriptions of all variables used and more descriptive measures of each variable, such as the median, minimum, and maximum.

Now we turn to price regressions. An observation is a price paid by a customer, and the dependent variable in all of the regressions is the log of price. By using the log, I can interpret coefficients as the percent change in price. I use only ILEC prices. I present separate regression for DS1 lines, DS3 lines, and all lines with greater than DS3 bandwidth (greater than 45 mbps), which I term “High Bandwidth” observations.

To measure competition, I focus on an indicator for when a facilities-based competitor can serve a customer in the census block. This indicator is drawn from the location data used to construct the building-level analysis described above. Thus, the indicator is on if a CLEC has a connection to a building in the census block, whether or not the CLEC has an active customer.

To further explore the effect of local competition, I also break out this indicator into whether the competitor has a customer in the same building as the ILEC customer in question, or just in the same census block. In order to check whether more competitive provision leads to further lower prices, I also present a regression where, rather than an indicator for facing a competitor in the census block, I include

³¹ Due to timing constraints, the data set analyzed did not include packet-based services with bandwidths of 45 Mbps and less.

indicators for different numbers of competitors. In addition, I present a regression with an indicator for competitive provision at the census tract, to check for an effect of more distant competition.

In addition, in some cases I use an indicator for whether an Independent CLEC has a fiber optic cable in the census block. This indicator is drawn from network maps provided to the FCC by CPs, and thus is drawn from a separate data set than the one used to construct the indicators for a CP in the building, census block or tract. The theory behind using this variable is that it might be relatively easy to build out from the network throughout the census block, even if the CP is not currently connected to any buildings. It is possible for this indicator to be off even when there is a CP customer in the census block. This can arise because the CP serves the customer without fiber, or because the network just skirts a census block border. It can also happen because of data error, which can happen any time that a researcher combines information from two separate data sets.³² The rest of the results change very little when dropping this variable.

The basic idea that motivates my regressions is that if more competition reduces prices, it tells us that markets without competition exhibit market power. If the threat of entry, or alternatively highly elastic demand, eliminated the ability to raise price over competitive levels, we would not see prices decline when actual entry occurred.³³ I do not test whether entry eliminates market power, or how much entry would be necessary to do so. The goal of this paper is to detect market power.

In this statistical analysis, it is important that the presence of competition determines the price, rather than the price determining the presence of competition, or some omitted variable determines both price and entry. My approach relies on some randomness (at least, relative to the other variables I study) in how CPs choose where to enter, driven perhaps by strategic decisions or internal cost concerns.

A major concern is that locations differ in important and unobservable ways. For instance, locations may differ in how costly they are to serve with BDS. Thus, low cost areas might see low prices and high competition independent of any causal effect of competition on price. Locations also differ in their regulatory status, such as whether they are subject to price flex regulation, and locations differ to the extent they face competition from outside the BDS market, such as from best efforts cable. To address these issues, I use location fixed effects in my regressions. In particular, I try both census tract fixed effects and county fixed effects.

With census tract fixed effects, I cannot measure the effects of variables that vary across census tracts, but not within them. For those not familiar with fixed effects in a regression framework, I provide some intuition. Using census tract fixed effects is intuitively akin to the following: At each census tract, I take the average ILEC price at census blocks with a CP, and the average ILEC price in census blocks without a CP. I then compute the difference in these average prices. Thus, it is like having a data set where the observation is a census tract and the data are the price difference observed in the tract. The coefficient in the regression is essentially the average difference over the census tracts.

³² It is possible that some ILECs with ILEC-affiliated CLECs reported their network in both their CLEC and ILEC areas, which is contrary to the goals of the data collection. Therefore I used an indicator for the presence of an Independent CLEC fiber network in the census block, which would exclude ILEC-affiliated CLECs but include both Cable and Other CLEC's facilities.

³³ The idea of using the relationship between prices and entry to detect entry is well-known in the field of antitrust. A well-known example is the FTC vs. Office Depot and Staples. *See* FTC, <https://www.ftc.gov/enforcement/cases-proceedings/1510065/ftc-v-staplesoffice-depot>.

Importantly, if some factor affects one census tract but not another, but affects the ILEC prices in both the competitive census blocks and the non-competitive ones in the same way, it will not affect the coefficient that I measure. For instance, suppose that in census tracts with Phase II pricing flexibility, the ILEC raises all of its prices by \$10, and in census tracts with strong cable presence, the ILEC lowers all prices by \$10. Although prices in both competitive and non-competitive census blocks in these tracts have changed by \$10, I use only the difference in those prices, which has not changed. Thus, to the extent that my setup is appropriate, it does not matter whether some markets differ in ways that are constant across the census tract, since the fixed effects allow me to isolate the effect of the competitive variables by comparing only within census tracts. In this way, I measure the effect of the competitive variables I focus on, without including explicit measures of every variable that affects the BDS market, many of which are unobserved.

Thus, I control for the effects of unobserved cost, price flex regulation and cable penetration, among other issues, with location fixed effects. I am not claiming that those unobserved variables are not important. Indeed, it is entirely possible that these variables have important effects on prices. My only claim is that my regressions measure the effect of competition in the BDS market, over and above any of those effects that might also be present. Regardless of how big or small unobserved effects might be, I show the effect of the CPs serving customers in a census block. To the extent that local BDS competition is important, it shows that those other effects at the very least cannot be eliminating all market power in all the BDS markets.

My approach is problematic to the extent that unobserved effects differ across census blocks within the same census tract. For instance, it might be the unobserved costs of providing service varies substantially even within census tracts. Also, it is possible that the ability of cable operators to provide alternatives to BDS (such as service over via best effort cable) varies across census blocks within the same census tract. These issues are difficult to address directly, but I discuss them in turn after presenting the results.

In addition to the indicators for competition and the location fixed effects, I use several other control variables. I use indicators for whether the customer is a telecommunications firm and whether the firm is a mobile telecommunications firm. I also include an indicator for whether the customer is a cable operator. For the regressions with high-bandwidth prices, I include controls for the log of bandwidth and whether the connection is packet- or circuit-based. I also include several control variables from the census that are measured at the level of the 5 digit zip code: the log of employment, the log of payroll and the log of the number of establishments.³⁴ In addition, I use two measures of the number of establishments in a census block from Dun & Bradstreet, the number of establishments in the block and the number of establishments per square mile in the census block.³⁵ These are meant to control for demand. I use robust standard errors in all regressions.

The first set of results appears in Table 14. In this regression, I use a single variable to measure competition, an indicator variable for whether a CP can serve a customer in the same census block. Recall that a CP can serve a customer if it has a physical connection to the customer's building, even if it

³⁴ When using zip code measures with census tract fixed effects, it is important to remember that census tracts are a finer geographic measure than zip codes. That is, there are substantially more census tracts than zip codes in the US. Many census tracts do not perfectly fit in a zip code, so the effect of zip code demographics are identified but the interpretation of census variables when they are identified by these overlap areas is confusing. Thus, I do not emphasize the interpretation of the coefficients on the census variables in my discussion.

³⁵ Dun & Bradstreet data are only available for census blocks located in MSAs.

does not have an actual sale at the time of the survey. With census-tract fixed effects, we see negative and statistically significant effect for DS1 and DS3 lines. The presence of competition for DS1 lines is associated with a 3.2% decline in prices, which is economically significant, although not especially large by the standards of competition analysis.³⁶ However, for DS3 lines, the effect is a 10.9% decrease in price. When we turn to county fixed effects, we find large effects for competition for DS1 and DS3 lines. Competition is associated with a 5.6% decline in prices for DS1 lines and an 11.4% decline for DS3 lines. The effect for high-bandwidth lines is statistically insignificantly different from zero for census tract fixed effects and is positive for county fixed effects.³⁷

Whether census-tract fixed effects or county fixed effects are more appropriate is difficult to say. Naturally, census-tract fixed effects better insulate regression results against unobserved heterogeneity. However, highly granular fixed effects can capture too much variation in the sense that they prevent us from making use of any regional variation in market structure, even if that variation is large or useful for identification purposes. Ideally, we look for results that are robust across specifications, and those become more apparent as we dig deep into these regressions.

In the data, we observe an alternative measure of competition to location presence, which is whether the competitor has fiber network in the census block. This variable is drawn from the network maps provided by the CLECs. In Table 15, I include an indicator for whether an independent CLEC has fiber network in the census block.³⁸ The effects are fairly small and insignificant for census tract fixed effects, but are large and important for county fixed effects. More importantly, the coefficients on the first variable, the indicator for a competitor being able to serve the block, do not change much from Table 14 which excludes the effect of Independent CLEC fiber networks in the census block. One might think that the appropriate specification would involve interacting the two competition variables, to see if the presence of competitive fiber in the block caused the effect of serving a building to decrease. However, Table 16 presents this interaction and it is negative, suggesting that if anything, the effect of competition is stronger when there is competitive fiber in the block. Going forward, I focus on the indicators for competitive location rather than fiber in the block.

Table 17 explores the source of the competitive effect by breaking out the indicator for competition into an indicator for competition in the building and an indicator for competition in the block. The indicator for competition in the block is on only if the competitor is not in the building, so for instance, the building

³⁶ I interpret the coefficients on dummy variables as percentage effects, so I interpret a coefficient of -0.05 as implying that competition reduces price by 5%. However, this is not strictly accurate. To see this, define $P = \exp(X\beta + \alpha D)$, where X is a vector of explanatory variables, D is a dummy variable, and β and α are estimated parameters. Let P_1 be the value of P when $D=1$ and P_0 be the value of P when $D=0$. The percentage effect of D is $(P_1 - P_0)/P_1$, which in this case is $\exp(\alpha) - 1$. The formula $\exp(\alpha) - 1$ is approximately equal to α when α is close to zero. For instance, the true percentage increase when $\alpha=0.02$ is 2.02%, and when $\alpha=-0.02$ is -1.98%. For $\alpha=0.05$ and -0.05, these values are 5.12% and -4.88%, and for $\alpha=0.20$ and $\alpha=-0.20$, these values are 22.14% and -18.12%.

³⁷ Because my paper emphasized the effect of competition, I do not dwell on the other control variables, but certainly it seems sensible that price increases with increases in the bandwidth of a service. Packet-based service, especially for high-bandwidth options, can often be cheaper to provide, which would explain the negative coefficient there. The demographic variables are difficult to interpret since they are highly collinear, and they capture a mix of demand features and economies of density.

³⁸ This variable ignores whether ILEC-affiliated CLECs have fiber in the block. We know they rarely enter with facilities, and so this variable is meant to guard against ILEC-affiliated CLECs that may have reported their ILEC fiber networks.

indicator could be on and the block variable could be off simultaneously if the only competitor in the block happens to be in the same building. With census tract fixed effects, we see a fairly large effect for competition in the building variable for DS1 lines, -4.7%, and a smaller but still significant effect for the block -2.7%. For DS3 lines, we see an important negative effect for the building, -6.3%, and even larger effect for the block at -11.8%. The high bandwidth results are difficult to interpret – insignificant and small for the building and positive for the census block. As with Table 14, the negative price effects for DS1 and DS3 lines are similar and perhaps larger with county fixed effects. For DS1 lines, the building effect is -6.6% and the block effect is -4.4%, and for DS3 lines, these numbers are -4.7% and -12.4%. The results for high-bandwidth lines are again inconclusive.

Overall, it appears that the physical presence of local competition is important for DS1 and DS3 lines for either set of location fixed effects. Effects appear larger and more apparent for DS3 lines than DS1 lines. This result may reflect the increasing willingness of competitors to build out for DS3 lines rather than DS1 lines because DS3 customers represent higher demand. Note that the DS3 regressions suggest that the results cannot be entirely driven by unobserved cost heterogeneity because we would expect to see stronger effects at the building relative to the block if that were the case.³⁹

Competition might be important not just in the census block, but over some wider area. Although narrative evidence on build-out strategies suggest that the effects of competition cannot extend too far, it is useful to consider what price regressions say about this. In Table 18, I include separate indicators for competition in the building, the census block and the census tract. Again, these variables are defined so that they indicate further competition in the block or the tract, over and above any competition in a smaller geography. This feature implies that the coefficient on the census tract indicator is identified even when using census tract fixed effects, since the indicator will vary within a census tract based on whether we consider ILEC prices to customers in the same building or block as the rival. For instance, in a census tract with a single CP building, the census tract indicator of competition will be off when we consider ILEC prices in that building and in that block, but the indicator will be on for ILEC prices in the rest of the census tract.

The indicator for a CP in the census tract is negative and significant for DS1 and DS3 lines, and is particularly large for DS3 lines, -21% for census tract fixed effects and -3.6% for county fixed effects. The coefficients on the building and block indicators are similar to those in Table 17. These results suggest that the relevant market may be wider than a census block. It would be interesting to pursue this further. An alternative to using geographic boundaries such as census blocks and census tracts to define markets would be to define a radius around each customer, and count the number of competitors that fall within that radii. An advantage of using census blocks and tracts as I do here is that they often scale in size appropriately with local travel costs, and also we often observe useful demographic data at this level from the census or other sources, such as Dun & Bradstreet. Furthermore, it is easy to impose and interpret location fixed effects. The advantage of using radii to determine markets is that each customer is defined to be in an individualized market, and furthermore, we can scale radius easily to determine the appropriate market size. Pursuing the radius approach is an interesting topic for future research.

Interestingly, the effect is negative and significant for high bandwidth lines under county fixed effects,

³⁹ That is, if there were variation within the block, we would expect to see competition attracted to buildings that were low cost, in which case those buildings would have high competition and low prices, which is inconsistent with Table 17. It is still possible that there is unobserved heterogeneity that operates at the level of the census block, but not within census blocks. That seems unlikely, but cannot be ruled out.

and large at -7.3%. However, while the parameter for census tract fixed effects appears sizeable, -3.9%, the parameter is not statistically significantly different from zero. Overall, my approach to detecting market power finds inconsistent and insignificant results on local competition for high bandwidth customers. A potential explanation is that multiple CPs are willing to build to high bandwidth customers, so that this market is relatively competitive. Going forward, I focus on DS1 and DS3 lines.

Focusing on an indicator for competition in the same building rather than the number of competitors in the same building is natural because there are so few buildings with multiple competitors. However, at the level of the census block, it is possible to consider different effects for different numbers of competitors. I explore this in Table 19. This table regresses log price on an indicator for a CP in the building, as well as three indicator variables for different numbers of additional CPs in the census block: an indicator for one additional competitor, an indicator for two or three, and an indicator for four or more. For census tract fixed effects, the effect of one competitor is negative and significant, and the effect of two or three is more negative and also significant. Although the parameters on four or more competitors are not larger than two or three for DS1 and DS3, the coefficients in these cases still appear reasonably sized and larger than the case of one CP.

The results for county fixed effects appear fairly large. First, the coefficient on the building indicator is large and significant for both DS1 and DS3 lines, at -6.5% and -5.2%. The effect of one additional competitor in the block is significant for DS1 and DS3 lines, and the effect of two or three additional competitors is more negative, and also statistically significant. The effect of four additional competitors is particularly large for DS3 lines, -28%. Overall, these results draw a pattern of increasing price effects with more competition, although with this many parameters, the results do not line up perfectly.

An important feature of the BDS market are price caps, administered by the FCC. We might expect price caps to limit any market power, and thus limit observable effects of market power on pricing because price caps limit pricing flexibility. However, as discussed above, the FCC has allowed for ILEC pricing flexibility in a number of markets. Markets with pricing flexibility can be under Phase 1 or Phase 2 flexibility, where Phase 2 indicates greater flexibility to raise prices above the price cap index (as described earlier). We might expect the effect of competition to be larger in markets with pricing flexibility.

I explore this possibility in Table 20. This table returns to the specification in Table 14, which had a single measure of competition, an indicator for competition in the census block. In this case, I further interact that variable with indicators for whether the carrier has Phase 1 or Phase 2 pricing flexibility in that geographic market. Note that this regression does not test whether prices are overall higher in Phase 1 or Phase 2 markets. The FCC's pricing flexibility regime applies Phase 1 and Phase 2 to ILECs at the level of the county, so the level effect on prices will generally be absorbed by county or census tract fixed effects. But still, even with these fixed effects, we can measure whether the effect of competition differs in pricing flexibility. Intuitively, we compare census blocks with and without competition in the same census tract, and then we difference that across census tracts with and without pricing flexibility.

The results appear fairly strong, and suggest that the results up to now masked important heterogeneity across markets with and without pricing flexibility. With census tract fixed effects, DS1 lines show almost no price change in blocks with competition with no pricing flexibility, and DS3 lines show a 12.5% increase in prices in price cap markets. In contrast, DS1 lines show an effect of -3.8% in Phase 1 markets and -4.8% in Phase 2 markets. Even more striking, DS3 lines show a parameter of -0.337 effect in Phase 1 markets, and -0.265 in Phase 2 markets. As described in Footnote 36, these correspond to percentage effects of -28.6% and -23.2%. These effects are possibly implausibly large, and time

constraints prevent me from further exploring these issues. But I take the main results to be that the census tracts fixed effects columns show little or no competitive effect in price cap markets, with negative effects in pricing flexibility markets.

With county fixed effects, we also see smaller effects than for price cap markets, or even a positive effect for DS3 lines. In contrast, DS1 lines show a -7.3% effect for Phase 1 and -4.0% for Phase 2. DS3 lines are more striking: -22.1% and -19.1% in Phase 2. Thus, regulatory treatment appears to have a large effect on competitive interactions.

V. CONCLUSIONS

Overall, the various sources of data tell a consistent story. The revenue data show that ILECs are an outsized presence in this industry, especially when counting their CLEC operations outside of their ILEC markets. Since most of that operation is over leased lines, it appears from the revenue data that ILECs dominate the market for facilities-based service in their regions.

The location data tell a similar overall story, with ILECs serving many more locations with facilities-based service than CPs. However, that overall story masks important variation by technology. When focusing on buildings served by fiber, CPs serve almost as many buildings as ILECs. The revenue data make clear that non-fiber service is still a major part of the industry, but to the extent that the future is with fiber, this finding could bode well for future competition in this industry, at least for high value BDS, such as high bandwidth services.

Price regressions tell a similar story. Whereas the effects of local competition, such as at the building level or the census blocks, are important for DS1 lines and particularly DS3 lines, they are much less clear for higher end bandwidths. This result holds up across a variety of specifications. There does appear to be some effect of transport fiber in the census block, even if it does not connect to a building, which speaks to CLEC buildout strategies.

The consistency of the results across the location and pricing data are important. In particular, in my approach to price regressions, it is impossible to completely control for unobserved cost and demand heterogeneity. So for instance, it is possible that low cost areas attract competitive entry, which leads to a spurious correlation between competition and price. Location fixed effects should substantially mitigate this problem, and indeed, the results within census blocks suggest that cost heterogeneity is not driving the results. Still, it cannot be ruled out. Thus, it is important that the location data, which allow us to study competition levels at the building and the census block, leads to similar conclusions. Indeed, the location data also suggest that CPs are a more robust presence for higher levels of service.

I did not test for the efficacy of competition at much longer distances both because narrative evidence from CPs on their buildout strategies suggest this is misguided, and because doing so introduces so much cost heterogeneity that it would be difficult to interpret effects. Thus, I do not address the previous regulatory regime, which applied relief from price caps at the level of the county, or even the MSA.

I do not directly control for the presence of competition from cable operators in my regressions. Rather, I use the location fixed effects to address this issue. It may be that the extent of cable provision differs within locations. For instance, in the same census tract, it could be that some areas have access to upgraded best efforts cable technology (i.e. best efforts DOCSIS) where others do not, depending on the cable buildout strategy. If the presence of cable differs within tracts, but is random or uncorrelated with BDS competition, then accounting for it would not affect my results. It is possible that cable provision is correlated with the presence of BDS competitor provision because both types of provision should be

attracted to areas of high demand.⁴⁰ If that correlation is high enough, then best efforts cable could be driving the competition coefficients I find rather than CPs within BDS. However, in that case, there is still an effect of competition on price. Knowing the distribution of cable technology might affect our interpretation of whether that competition is driven by the BDS market or by cable, but it does not change the conclusion in this paper that there is evidence that local competition affects BDS prices.

Importantly, I find that the effect of competition is larger in regions with regulatory pricing flexibility. To be clear, my approach, which relies on location fixed effects and thus within region variation, does not allow me to distinguish whether price levels are higher in areas with price caps or areas with pricing flexibility. Thus, I do not directly test whether regulation is more or less effective than competition in disciplining prices. Rather, my results say that competition has bigger effects on DS1 and DS3 prices in area with pricing flexibility. This is certainly consistent with the notion that areas with pricing flexibility exhibit more market power, either because of the pricing flexibility itself, or because pricing flexibility was somehow applied in areas that exhibit more market power, although that was not the intent of the regulation.

I hope that work with these data and future data collection continue. There are basic statistical issues which would be interesting to explore, such as the use of clustered standard errors (I use robust standard errors in this paper), and specifications that allowed the effect of competition to interact with the regulatory regime. Also, the role of volume and term commitments is difficult to interpret, and deserves further exploration. It would also be interesting to contrast the effects of facilities-based entry with that of UNE entry.

In future data collection, I recommend collecting more data about managed service contracts and leased lines. I assume that price is too complex in these situations to be useful, but tracking customer names and bandwidth levels would still be quite useful. For instance, we might imagine that the market for national customers is different than for local customers. One could match customer names across contracts to see if national customers typically purchase from particular types of firms. However, that network-type analysis is impossible if we do not observe which customers purchase managed services from CLECs.

⁴⁰ Although, industry sources suggest that cable focused on relatively smaller consumers than traditional CLECs, particularly in 2013 relative to now.

	DS-1 Tract FE	DS-3 Tract FE	Hi-Band Tract FE	DS-1 County FE	DS-3 County FE	Hi-Band County FE
A Facilities-based Competitor Can Serve a Building in the Census Block	-0.032	-0.109	0.023	-0.056	-0.114	0.046
	(0.002)*	(0.021)*	(0.018)	(0.001)*	(0.010)*	(0.011)*
Customer is a Telecommunications Provider	-0.196	-0.025	0.135	-0.131	0.014	0.146
	(0.003)*	(0.018)	(0.017)*	(0.003)*	(0.016)	(0.014)*
Customer is a Mobile Telecommunications Provider	0.103	0.194	-0.201	0.148	0.199	-0.364
	(0.002)*	(0.013)*	(0.012)*	(0.001)*	(0.010)*	(0.010)*
Customer is a Cable Operator	-0.073	-0.050	-0.464	-0.055	-0.005	-0.472
	(0.003)*	(0.027)	(0.140)*	(0.003)*	(0.027)	(0.113)*
Natural Log of Establishments in the Zip Code	0.008	0.031	-0.140	-0.023	0.070	-0.011
	(0.005)	(0.048)	(0.051)*	(0.002)*	(0.014)*	(0.014)
Natural Log of Annual Payroll in the Zip Code	-0.016	-0.052	0.074	-0.082	0.113	0.123
	(0.007)*	(0.065)	(0.074)	(0.002)*	(0.017)*	(0.015)*
Natural Log of Employment in the Zip Code	-0.004	0.105	0.041	0.045	-0.181	-0.111
	(0.010)	(0.095)	(0.101)	(0.003)*	(0.024)*	(0.021)*
Natural Log of Number of Establishments in the Census Block (D&B)	0.011	-0.024	0.005	0.021	0.062	0.028
	(0.001)*	(0.009)*	(0.008)	(0.001)*	(0.004)*	(0.005)*
Natural Log of Establishments (D&B) per Square Mile in the Census Block	-0.006	0.045	-0.003	-0.030	-0.060	-0.042
	(0.001)*	(0.008)*	(0.007)	(0.000)*	(0.003)*	(0.003)*
Natural Log of Mbps			0.247			0.198
			(0.005)*			(0.005)*
Packet-based Connection			-0.531			-0.660
			(0.035)*			(0.027)*
Constant	5.513	5.762	5.757	6.202	6.471	6.293
	(0.027)*	(0.275)*	(0.284)*	(0.009)*	(0.067)*	(0.074)*
Adjusted R-Squared	0.33	0.26	0.45	0.18	0.10	0.29
F Statistic	1,558.51	42.21	243.42	5,025.12	101.50	415.99
Observations	1,399,440	120,129	80,326	1,399,440	120,129	80,326

* $p < 0.05$
Robust Std Errors in Parentheses

Table 14: Regression of Log Price on Competition in the Census Block

	DS-1 Tract FE	DS-3 Tract FE	Hi Band Tract FE	DS-1 County FE	DS-3 County FE	Hi Band County FE
A Facilities-based Competitor Can Serve a Building in the Census Block	-0.032	-0.108	0.025	-0.052	-0.104	0.054
	(0.002)*	(0.021)*	(0.018)	(0.001)*	(0.010)*	(0.011)*
An Indep. CLEC Has a Fiber Network in the Census Block	-0.003	-0.016	-0.030	-0.046	-0.121	-0.073
	(0.002)	(0.035)	(0.025)	(0.002)*	(0.016)*	(0.017)*
Customer is a Telecommunications Provider	-0.196	-0.025	0.136	-0.131	0.012	0.146
	(0.003)*	(0.018)	(0.017)*	(0.003)*	(0.016)	(0.014)*
Customer is a Mobile Telecommunications Provider	0.103	0.194	-0.201	0.148	0.196	-0.364
	(0.002)*	(0.013)*	(0.012)*	(0.001)*	(0.010)*	(0.010)*
Customer is a Cable Operator	-0.073	-0.050	-0.464	-0.055	-0.006	-0.467
	(0.003)*	(0.027)	(0.140)*	(0.003)*	(0.026)	(0.113)*
Natural Log of Establishments in the Zip Code	0.008	0.031	-0.140	-0.022	0.075	-0.010
	(0.005)	(0.048)	(0.051)*	(0.002)*	(0.014)*	(0.014)
Natural Log of Annual Payroll in the Zip Code	-0.016	-0.051	0.075	-0.081	0.123	0.124
	(0.007)*	(0.065)	(0.074)	(0.002)*	(0.017)*	(0.015)*
Natural Log of Employment in the Zip Code	-0.004	0.104	0.040	0.045	-0.196	-0.111
	(0.010)	(0.095)	(0.101)	(0.003)*	(0.024)*	(0.021)*
Natural Log of Number of Establishments in the Census Block (D&B)	0.012	-0.023	0.006	0.022	0.064	0.029
	(0.001)*	(0.009)*	(0.008)	(0.001)*	(0.004)*	(0.005)*
Natural Log of Establishments (D&B) per Square Mile in the Census Block	-0.007	0.045	-0.004	-0.030	-0.059	-0.042
	(0.001)*	(0.008)*	(0.007)	(0.000)*	(0.003)*	(0.003)*
Natural Log of Mbps			0.247			0.198
			(0.005)*			(0.005)*
Packet-based Connection			-0.531			-0.660
			(0.035)*			(0.027)*
Constant	5.515	5.776	5.785	6.222	6.539	6.338
	(0.027)*	(0.277)*	(0.285)*	(0.009)*	(0.068)*	(0.075)*
Adjusted R-Squared	0.33	0.26	0.45	0.18	0.10	0.29
F Statistic	1,402.67	38.02	223.50	4,548.82	96.99	382.86
Observations	1,399,440	120,129	80,326	1,399,440	120,129	80,326

* $p < 0.05$

Robust Std Errors in Parentheses

Table15: Regression of Log Price on Competition and CLEC Network in the Block

	DS-1 Tract FE	DS-3 Tract FE	Hi Band Tract FE	DS-1 County FE	DS-3 County FE	Hi Band County FE
A Facilities-based Competitor Can Serve a Building in the Census Block	-0.017 (0.005)*	0.032 (0.063)	0.040 (0.057)	-0.016 (0.004)*	-0.023 (0.032)	0.085 (0.041)*
An Indep. CLEC Has a Fiber Network in the Census Block	0.000 (0.002)	0.035 (0.041)	-0.028 (0.026)	-0.038 (0.002)*	-0.090 (0.021)*	-0.066 (0.018)*
Ind. CLEC Fiber Network in CB x Facilities-based CLEC in Building in CB	-0.016 (0.005)*	-0.151 (0.066)*	-0.016 (0.059)	-0.039 (0.004)*	-0.088 (0.033)*	-0.033 (0.042)
Customer is a Telecommunications Provider	-0.196 (0.003)*	-0.025 (0.018)	0.136 (0.017)*	-0.131 (0.003)*	0.011 (0.016)	0.146 (0.014)*
Customer is a Mobile Telecommunications Provider	0.103 (0.002)*	0.194 (0.013)*	-0.201 (0.012)*	0.147 (0.001)*	0.194 (0.010)*	-0.364 (0.010)*
Customer is a Cable Operator	-0.073 (0.003)*	-0.050 (0.027)	-0.464 (0.140)*	-0.055 (0.003)*	-0.007 (0.026)	-0.467 (0.113)*
Natural Log of Establishments in the Zip Code	0.009 (0.005)	0.033 (0.048)	-0.140 (0.051)*	-0.022 (0.002)*	0.078 (0.014)*	-0.010 (0.014)
Natural Log of Annual Payroll in the Zip Code	-0.015 (0.007)*	-0.049 (0.065)	0.074 (0.074)	-0.079 (0.002)*	0.128 (0.017)*	0.125 (0.015)*
Natural Log of Employment in the Zip Code	-0.004 (0.010)	0.101 (0.095)	0.041 (0.101)	0.043 (0.003)*	-0.204 (0.024)*	-0.112 (0.020)*
Natural Log of Number of Establishments in the Census Block (D&B)	0.012 (0.001)*	-0.024 (0.009)*	0.006 (0.008)	0.022 (0.001)*	0.064 (0.004)*	0.029 (0.005)*
Natural Log of Establishments (D&B) per Square Mile in the Census Block	-0.007 (0.001)*	0.045 (0.008)*	-0.003 (0.007)	-0.030 (0.000)*	-0.059 (0.004)*	-0.042 (0.003)*
Natural Log of Mbps			0.247 (0.005)*			0.198 (0.005)*
Packet-based Connection			-0.531 (0.035)*			-0.659 (0.027)*
Constant	5.513 (0.027)*	5.724 (0.277)*	5.783 (0.285)*	6.214 (0.009)*	6.511 (0.069)*	6.331 (0.075)*

Adjusted R-Squared	0.33	0.26	0.45	0.18	0.10	0.29
F Statistic	1,276.67	34.91	206.30	4,151.66	89.77	353.39
Observations	1,399,440	120,129	80,326	1,399,440	120,129	80,326

Table 16: Regression of Log Price on Competition, Interacted with the Presence of Fiber in the Block

* $p < 0.05$
 Robust Std Errors in Parentheses

	DS-1 Tract FE	DS-3 Tract FE	Hi Band Tract FE	DS-1 County FE	DS-3 County FE	Hi Band County FE
A Facilities-based Competitor Can Serve the Building	-0.047	-0.063	-0.023	-0.066	-0.047	-0.014
	(0.002)*	(0.016)*	(0.017)	(0.002)*	(0.010)*	(0.011)
At Least One Facilities-based Competitor is in the Block But Not the Building	-0.027	-0.118	0.053	-0.044	-0.124	0.062
	(0.002)*	(0.018)*	(0.016)*	(0.001)*	(0.010)*	(0.010)*
Customer is a Telecommunications Provider	-0.197	-0.026	0.135	-0.132	0.012	0.147
	(0.003)*	(0.018)	(0.017)*	(0.003)*	(0.016)	(0.014)*
Customer is a Mobile Telecommunications Provider	0.104	0.195	-0.201	0.149	0.198	-0.363
	(0.002)*	(0.013)*	(0.012)*	(0.001)*	(0.010)*	(0.010)*
Customer is a Cable Operator	-0.073	-0.049	-0.462	-0.055	-0.005	-0.466
	(0.003)*	(0.027)	(0.140)*	(0.003)*	(0.027)	(0.113)*
Natural Log of Establishments in the Zip Code	0.009	0.037	-0.143	-0.023	0.066	-0.007
	(0.005)	(0.048)	(0.051)*	(0.002)*	(0.014)*	(0.014)
Natural Log of Annual Payroll in the Zip Code	-0.012	-0.020	0.064	-0.073	0.120	0.124
	(0.007)	(0.066)	(0.074)	(0.002)*	(0.017)*	(0.015)*
Natural Log of Employment in the Zip Code	-0.008	0.067	0.054	0.037	-0.185	-0.114
	(0.010)	(0.096)	(0.101)	(0.003)*	(0.024)*	(0.020)*
Natural Log of Number of Establishments in the Census Block (D&B)	0.012	-0.016	-0.000	0.021	0.071	0.022
	(0.001)*	(0.009)	(0.008)	(0.001)*	(0.004)*	(0.005)*
Natural Log of Establishments (D&B) per Square Mile in the Census Block	-0.006	0.044	0.000	-0.028	-0.061	-0.037
	(0.001)*	(0.008)*	(0.007)	(0.000)*	(0.004)*	(0.003)*
Natural Log of Mbps			0.247			0.197
			(0.005)*			(0.005)*
Packet-based Connection			-0.530			-0.658
			(0.035)*			(0.027)*
Constant	5.500	5.654	5.785	6.158	6.432	6.279
	(0.027)*	(0.277)*	(0.284)*	(0.009)*	(0.067)*	(0.075)*
Adjusted R-Squared	0.33	0.26	0.45	0.18	0.10	0.29
F Statistic	1,434.20	40.55	223.52	4,538.74	98.73	380.33
Observations	1,399,440	120,129	80,326	1,399,440	120,129	80,326

* $p < 0.05$

Robust Std Errors in Parentheses

Table17: Regression of Log Price on Competition in the Building and the Block

A Facilities-based Competitor Can Serve the Building	-0.051	-0.074	-0.026	-0.069	-0.049	-0.023
	(0.002)*	(0.016)*	(0.017)	(0.002)*	(0.010)*	(0.011)*
At Least One Facilities-based Competitor is in the Block But Not the Building	-0.033	-0.136	0.049	-0.049	-0.126	0.058
	(0.002)*	(0.018)*	(0.017)*	(0.001)*	(0.010)*	(0.010)*
At Least One Facilities-based Competitor is in the Tract But Not the Block	-0.030	-0.210	-0.039	-0.039	-0.036	-0.073
	(0.003)*	(0.039)*	(0.033)	(0.002)*	(0.013)*	(0.012)*
Customer is a Telecommunications Provider	-0.197	-0.025	0.135	-0.132	0.011	0.146
	(0.003)*	(0.018)	(0.017)*	(0.003)*	(0.016)	(0.014)*
Customer is a Mobile Telecommunications Provider	0.103	0.194	-0.201	0.148	0.198	-0.366
	(0.002)*	(0.013)*	(0.012)*	(0.001)*	(0.010)*	(0.010)*
Customer is a Cable Operator	-0.073	-0.049	-0.462	-0.055	-0.005	-0.470
	(0.003)*	(0.027)	(0.140)*	(0.003)*	(0.027)	(0.114)*
Natural Log of Establishments in the Zip Code	0.008	0.039	-0.143	-0.025	0.065	-0.008
	(0.005)	(0.048)	(0.051)*	(0.002)*	(0.014)*	(0.014)
Natural Log of Annual Payroll in the Zip Code	-0.011	-0.023	0.065	-0.065	0.126	0.135
	(0.007)	(0.066)	(0.074)	(0.002)*	(0.017)*	(0.015)*
Natural Log of Employment in the Zip Code	-0.009	0.068	0.053	0.032	-0.189	-0.120
	(0.010)	(0.096)	(0.101)	(0.003)*	(0.024)*	(0.021)*
Natural Log of Number of Establishments in the Census Block (D&B)	0.012	-0.020	-0.001	0.021	0.070	0.021
	(0.001)*	(0.009)*	(0.008)	(0.001)*	(0.004)*	(0.005)*
Natural Log of Establishments (D&B) per Square Mile in the Census Block	-0.006	0.047	0.000	-0.027	-0.060	-0.036
	(0.001)*	(0.008)*	(0.007)	(0.000)*	(0.004)*	(0.003)*
Natural Log of Mbps			0.247			0.198
			(0.005)*			(0.005)*
Packet-based Connection			-0.530			-0.658
			(0.035)*			(0.027)*
Constant	5.524	5.860	5.815	6.141	6.424	6.264
	(0.027)*	(0.280)*	(0.284)*	(0.009)*	(0.068)*	(0.075)*

Adjusted R-Squared	0.33	0.26	0.45	0.18	0.10	0.29
F Statistic	1,312.39	38.62	206.73	4,183.88	91.46	361.38
Observations	1,399,440	120,129	80,326	1,399,440	120,129	80,326

* $p < 0.05$
 Robust Std Errors in Parentheses

Table18: Regression of Log Price on Competition in the Building, the Block and the Tract

	DS-1 Tract FE	DS-3 Tract FE	DS-1 County FE	DS-3 County FE
A Facilities-based Competitor Can Serve the Building	-0.048 (0.002)*	-0.066 (0.016)*	-0.065 (0.002)*	-0.052 (0.010)*
One Facilities-based Competitor is in the Block But Not the Building	-0.018 (0.002)*	-0.095 (0.020)*	-0.028 (0.001)*	-0.070 (0.011)*
Two or Three Facilities-based Competitors are in the Block But Not the Building	-0.051 (0.002)*	-0.154 (0.022)*	-0.075 (0.002)*	-0.159 (0.013)*
Four or More Facilities-based Competitors are in the Block But Not the Building	-0.040 (0.004)*	-0.132 (0.031)*	-0.065 (0.003)*	-0.280 (0.019)*
Customer is a Telecommunications Provider	-0.197 (0.003)*	-0.025 (0.018)	-0.132 (0.003)*	0.010 (0.016)
Customer is a Mobile Telecommunications Provider	0.103 (0.002)*	0.195 (0.013)*	0.149 (0.001)*	0.194 (0.010)*
Customer is a Cable Operator	-0.073 (0.003)*	-0.049 (0.027)	-0.056 (0.003)*	-0.010 (0.026)
Natural Log of Establishments in the Zip Code	0.008 (0.005)	0.038 (0.048)	-0.025 (0.002)*	0.063 (0.014)*
Natural Log of Annual Payroll in the Zip Code	-0.008 (0.007)	-0.011 (0.066)	-0.068 (0.002)*	0.144 (0.017)*
Natural Log of Employment in the Zip Code	-0.011 (0.010)	0.057 (0.096)	0.034 (0.003)*	-0.209 (0.024)*
Natural Log of Number of Establishments in the Census Block (D&B)	0.013 (0.001)*	-0.014 (0.009)	0.023 (0.001)*	0.080 (0.004)*
Natural Log of Establishments (D&B) per Square Mile in the Census Block	-0.006 (0.001)*	0.043 (0.008)*	-0.028 (0.000)*	-0.060 (0.004)*
Constant	5.486 (0.027)*	5.623 (0.278)*	6.133 (0.009)*	6.331 (0.068)*
Adjusted R-Squared	0.33	0.26	0.18	0.11
F Statistic	1,205.98	34.64	3,799.32	91.43
Observations	1,399,440	120,129	1,399,440	120,129

* $p < 0.05$
Robust Std Errors in Parentheses
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Table19: Regression of Log Price on Number of Competitors in the Census Block

	DS-1 Tract FE	DS-3 Tract FE	DS-1 County FE	DS-3 County FE
A Facilities-based Competitor Can Serve a Building in the Census Block	0.001 (0.003)	0.125 (0.030)*	-0.009 (0.003)*	0.060 (0.019)*
Phase 1 x Facilities-based Competitor in Census Block	-0.038 (0.004)*	-0.337 (0.041)*	-0.073 (0.003)*	-0.221 (0.025)*
Phase 2 x Facilities-based Competitor in Census Block	-0.048 (0.004)*	-0.265 (0.039)*	-0.040 (0.003)*	-0.191 (0.022)*
Customer is a Telecommunications Provider	-0.196 (0.003)*	-0.024 (0.018)	-0.130 (0.003)*	0.013 (0.016)
Customer is a Mobile Telecommunications Provider	0.103 (0.002)*	0.195 (0.013)*	0.148 (0.001)*	0.200 (0.010)*
Customer is a Cable Operator	-0.073 (0.003)*	-0.051 (0.027)	-0.054 (0.003)*	-0.004 (0.027)
Natural Log of Establishments in the Zip Code	0.008 (0.005)	0.038 (0.048)	-0.023 (0.002)*	0.069 (0.014)*
Natural Log of Annual Payroll in the Zip Code	-0.015 (0.007)*	-0.038 (0.065)	-0.079 (0.002)*	0.117 (0.017)*
Natural Log of Employment in the Zip Code	-0.005 (0.010)	0.082 (0.095)	0.043 (0.003)*	-0.185 (0.024)*
Natural Log of Number of Establishments in the Census Block (D&B)	0.012 (0.001)*	-0.025 (0.009)*	0.021 (0.001)*	0.063 (0.004)*
Natural Log of Establishments (D&B) per Square Mile in the Census Block	-0.006 (0.001)*	0.046 (0.008)*	-0.030 (0.000)*	-0.060 (0.003)*
Constant	5.510 (0.027)*	5.772 (0.275)*	6.189 (0.009)*	6.467 (0.067)*
Adjusted R-Squared	0.33	0.26	0.18	0.10
F Statistic	1,284.75	40.55	4,168.15	89.71
Observations	1,399,440	120,129	1,399,440	120,129

* $p < 0.05$

Robust Std Errors in Parentheses

Table 20: Regression of Log Price on Competition in the Block, by Price Flex Regulation

ATTACHMENT 1 - DATA SET CONSTRUCTION AND DEFINITION OF VARIABLES

Four tables were used to calculate the connection prices. Tables II.A.12 Part 1 and II.B.4 Part 1 are the billing tables for competitor responses and “In-Region ILEC” respondents, respectively.” Tables II.A.13 and II.B.5 are the adjustment tables for competitors and “In-Region ILECs,” respectively. The billing tables contain the billed amounts for each element of a connection. Some connections consist of a single billed element covering all of the components of the connection while others contain multiple billing elements for components of the connection such as mileage, channel termination, facility charges, ports, etc. The adjustment tables contain adjustments to the bills in the billing tables that were not included on the bills in the billing table; so-called out-of-cycle adjustments. These adjustments are identified as applying to a single billing element of a single connection, multiple elements in a single connection, elements in multiple connections, or all connections purchased by a customer. The unadjusted bill for each connection is obtained by summing the total billed field for all elements that share a common value for Circuit ID, Closing Date, and Filer FRN. This yields an unadjusted bill, which is the charge for the connection (defined by Circuit ID and Filer FRN) levied on the closing date. Because a few connections have more than one closing date in a single month, it can be difficult to determine the monthly bill. Therefore all unadjusted bills that have multiple closing dates in the same month are dropped, though other bills for that specific connection are retained if they have a single closing date in the month. A bill is also dropped if the closing date is not in 2013 or if the elements within the connection list different customer ids.

Accounting for the out-of-cycle adjustments is a complicated procedure. The adjustment table lists the time period over which the adjustment was applied as well as the total amount of the adjustment. The total adjustment is distributed equally over each month of the adjustment period. Because the adjustment period commonly covers dates in 2012 for which we do not have bills and because many adjustments for 2013 bills are not issued until 2014 (and therefore not in the dataset), adjustments are tracked by the month but not the year. Therefore an adjustment that applied to a November 2012 bill (which would not be in the dataset) will be applied to the November 2013 bill of that connection. This ensures that bills receive the adjustments they are most likely to have received.

The scope of the adjustment is also indicated. The scope is one of four types: applying to a single element in a single connection, applying to multiple elements in a single connection, applying to multiple elements in multiple connections, and applying to all connections purchased by the customer.¹ The first two types of scope are relatively easy to account for as they apply to a single connection. The monthly bill for that connection is adjusted by the monthly adjustment. The adjustments that apply to more than one connection are more complicated. The monthly adjustment is distributed across the monthly bills in proportion to the size on the monthly bills of the connections to which the adjustment applies. For example, if an adjustment applies to three connections with monthly bills of \$500, \$700, and \$800 for a total of \$2000, then the bills will get 25%, 35%, and 40% of the monthly adjustment, respectively.

The resulting dataset is one of adjusted monthly billed prices for connections. Because these prices can swing widely from month to month as charges are delayed and then imposed, the simple average of the monthly bills for a connection is calculated and referred to as the “Average Monthly Price.” It was calculated based upon the number of monthly bills in the dataset. For some connections bills for all 12 months were present, while for other connections only a single month was present. Nearly half of all connections were present for the full 12 months.

¹ Some adjustments that are indicated as applying to a single circuit are associated to more than one circuit in the billing table. Those adjustments are assumed to apply to all circuits that they are associated with and that the error occurred in the definition of the scope of the adjustment and not in the assigning of the adjustment to circuits.

Before analyzing these data, questionable observations were removed. In particular, when certain characteristics which should be constant for a connection across all elements and all time periods were instead variable, those observations were not analyzed. Those characteristics which should be constant are: circuit type, bandwidth, and customer. Connections that are strictly for transport between wire centers were also removed. These were identified as connections that do not list a location ID for any of the billing elements in the billing table. These connections were removed from the analysis because the cost structure behind providing transport is likely to be substantially different from providing service to end-user premises and therefore would make comparisons of prices less meaningful. Connections for which all of the monthly adjusted bills were exactly zero were also removed. It was determined in consultation with filers that these connections did not actually have a price of zero but rather were paid for by the customer through other means that were not captured in the data request.

A correction for the filing status of some ILECs was made. ILECs filed information in Part A of the data collection instrument that was intended to be filed by competitors for operations of their ILEC-affiliated CLECs. ILEC operations outside of their territories were appropriately filed using this section and would be classified as “Out-of-Region ILEC” operations. However, some ILECs filed this section for connections that were provided within their incumbent territory by their ILEC-affiliated CLEC. The procedure used to reclassify these observations from an “Out-of-Region ILEC” category to an “In-Region ILEC” category was as follows. The FCC identified wire centers that were most likely to serve a location (described in Table II.A.4) using a commercial product providing the boundaries of wire centers. These wire centers were identified by CLLI codes. The CLLI codes of “In-Region ILEC” wire centers were listed in table II.B.7. When an ILEC connection from Table II.A.4 Part A was served by a wire center listed by that ILEC in Table II.B.7 it was reclassified as an “In-Region ILEC” connection. If the connection from Part A was either served by another “In-Region ILEC's” wire center or the FCC was unable to determine the serving wire center, then it remained classified as an “Out-of-Region ILEC” connection.

A number of characteristics of the connections and the provider of the connection were available for analysis. Characteristics of the connections themselves are the type of connection (DS1, DS1-UNE, DS3, DS3-UNE, other circuit-based connection, and packet-based connections) and the bandwidth of the connection. The filers were also categorized. The most basic categorization was whether the filer is a competitor or an “In-Region ILEC”. This categorization was based upon whether the circuit data came from tables in section II.A or tables in section II.B. However, the competitors were further categorized. Seven ILEC filers also filed data as competitors when they were providing service outside their territories. These were referred to as “Out-of-Region ILECs.” “Cable Operators” also filed as competitors and were self-identified on the Filer Identification Information form. The remaining companies that filed as competitors and were classified as “Independent CLECs.” Information which categorized the purchasers of the connections into several categories was also available. Filers indicated whether the customer was a “Telecommunications Provider” or not. In addition, the FCC categorized customers as “Mobile Telecommunications Providers” and “Cable Operators.” If a customer was not placed into one of these categories then it was considered an “Other Customer.”

As previously mentioned, the FCC geocoded service locations (provided in Tables II.A.4 for competitors and Table II.B.3 for “In-Region ILECs”) and then aggregated them into buildings using two methods. Method number two was used to determine the building the connection serves. Not all service locations were successfully geocoded and therefore a number of circuits were excluded from analyses that required location information. Using the information provided about a service location in Table II.A.4, the competitor reporting the location was classified as either serving the location with its own facilities or with unbundled network elements (UNE). Filers reported whether they serve the location with an IRU, a UNE, or an unbundled copper loop (UCL). Filers that reported serving the location only using UNEs and/or UCLs were classified as UNE-only competitors at that location. If the filer indicated that they

used an IRU to serve the location, or indicated they did not use an IRU, UNE, or UCL, then it was classified as a facilities-based competitor at that location. With this information, the number of facilities-based competitors in a building, Census block, Census tract, and county was calculated.

Competitors were requested to supply a fiber network map in question II.A.5. These maps were used to determine the census blocks that the fiber networks passed through.

The location data allowed for the incorporation of information about the area served by the connection. The Census Bureau's data on businesses at the ZIP code level is used to enhance the information on the economic conditions at the location by introducing the total number of establishments, total mid-March employees, and annual payroll by ZIP code of the service location into the dataset. In addition, data collected by Dun & Bradstreet estimating the number of establishments in Census blocks within MSAs were submitted into the record and incorporated into the regression dataset.

Finally, using FCC records, the regulatory status of special access prices was determined for each ILEC in each county in the U.S. Each ILEC connection in the database that was successfully geocoded was categorized as being under price cap regulation, phase I pricing flexibility regulation, or phase II pricing flexibility regulation.

ATTACHMENT 2 - VARIABLESAverage Monthly Price

A continuous variable of the average monthly price. Constructed as discussed earlier in this document.

A Facilities-based Competitor Can Serve the Building

An indicator variable that is 1 when at least one competitor can serve the building. Competitors that listed a location in Table II.A.4 and did not provide the name of a UNE or UCL supplier, or indicated they had an IRU, are considered facilities-based. This is intended to indicate competitors that have their own facilities, either through ownership or an IRU, in the building. They may not be providing service at this time or they may be providing a service not captured by the data request (e.g., managed services). Locations are based upon the geo-coding and clustering method 2 implemented by FCC staff. This is necessary in order to determine when locations provided by different filers are the same building.

A Facilities-based Competitor Can Serve a Building in the Census Block

An indicator variable that is 1 when at least one competitor can serve a building located in the Census block.

At Least One Facilities-based Competitor is in the Block But Not the Building

An indicator variable that is 1 when there are more facilities-based competitors in the census block than in the building

One Facilities-based Competitor is in the Block But Not the Building

An indicator variable that is 1 when there is exactly one facilities-based competitor in the census block that is not serving the building (with its own facilities).

Two or Three Facilities-based Competitors are in the Block But Not the Building

An indicator variable that is 1 when there are two or three facilities-based competitors in the census block that are not serving the building (with their own facilities).

Four or More Facilities-based Competitors are in the Block But Not the Building

An indicator variable that is 1 when there are four or more facilities-based competitors in the census block that are not serving the building (with their own facilities).

At Least One Facilities-based Competitor is in the Tract But Not the Block

An indicator variable that is 1 when there are more facilities-based competitors in the census tract than in the census block.

An Indep. CLEC Has a Fiber Network in the Census Block

An indicator variable that is 1 when an independent CLEC, which excludes out-of-region ILECs, has a fiber network in the census block

Ind. CLEC Fiber Network in CB x Facilities-based CLEC in Building in CB

An indicator variable that is 1 when there is an independent CLEC fiber network in the census block AND a facilities-based competitor can serve a building in the census block.

The Carrier Has Phase 1 Pricing Flexibility in the Wire Center

An indicator variable that is 1 when the ILEC has Phase 1 pricing flexibility at the location

The Carrier Has Phase 2 Pricing Flexibility in the Wire Center

An indicator variable that is 1 when the ILEC has Phase 1 pricing flexibility at the location

Phase 1 x Facilities-based Competitor in Census Block

An indicator variable that is 1 when the ILEC has Phase 1 pricing flexibility at the location AND a facilities-based competitor can serve a building in the census block.

Phase 2 x Facilities-based Competitor in Census Block

An indicator variable that is 1 when the ILEC has Phase 2 pricing flexibility at the location AND a facilities-based competitor can serve a building in the census block.

Customer is a Telecommunications Provider

An indicator variable that is 1 when the purchaser of the connection is a telecommunications provider

Customer is a Mobile Telecommunications Provider

An indicator variable that is 1 when the purchaser of the connection is a mobile telecommunications provider

Customer is a Cable Operator

An indicator variable that is 1 when the purchaser of the connection is a cable operator

Establishments in the Zip Code

The number of establishments in the ZIP code for 2013 as measured by the Census Bureau. An establishment is a single location within the ZIP code that engages in business activities. Note that a single company that has multiple locations within a ZIP code would have each of those locations counted as a separate establishment.

Annual Payroll (\$1,000) in the Zip Code

The total payroll, in thousands of dollars, in the ZIP code for 2013 as measured by the Census Bureau.

Employment in the Zip Code

The number of mid-March 2013 employees in the ZIP code as measured by the Census Bureau.

Number of Establishments in the Census Block (D&B)

The number of establishments in the census block as estimated by Dun & Bradstreet

Establishments (D&B) per Square Mile in the Census Block

The number of establishments in the census block as estimated by Dun & Bradstreet divided by the land area, in square miles, of the census block

Mbps

The reported bandwidth of the connection in Mbps as listed in tables II.A.12 Part 1 and II.B.4 Part 1.

Packet-based Connection

An indicator variable that takes on the value of 1 if the connection provides a packet-based distribution service. The source of this information is the reported circuit type in tables II.A.12 Part 1 and II.B.4 Part 1.

**ATTACHMENT 3 – DESCRIPTIVE STATISTICS ABOUT VARIABLES
USED IN REGRESSIONS**

DS-1 Connections

	Mean	Std. Dev.	Min	Median	Max
Average Monthly Price	218.96	252.36	0	159.97	116,353.12
A Facilities-based Competitor Can Serve the Building	0.24	0.43	0	0	1
A Facilities-based Competitor Can Serve a Building in the Census Block	0.54	0.5	0	1	1
At Least One Facilities-based Competitor is in the Block But Not the Building	0.42	0.49	0	0	1
One Facilities-based Competitor is in the Block But Not the Building	0.23	0.42	0	0	1
Two or Three Facilities-based Competitors are in the Block But Not the Building	0.14	0.34	0	0	1
Four or More Facilities-based Competitors are in the Block But Not the Building	0.05	0.22	0	0	1
At Least One Facilities-based Competitor is in the Tract But Not the Block	0.81	0.39	0	1	1
An Indep. CLEC Has a Fiber Network in the Census Block	0.87	0.34	0	1	1
Ind. CLEC Fiber Network in CB x Facilities-based CLEC in Building in CB	0.52	0.5	0	1	1
The Carrier Has Phase 1 Pricing Flexibility in the Wire Center	0.45	0.5	0	0	1
The Carrier Has Phase 2 Pricing Flexibility in the Wire Center	0.36	0.48	0	0	1
Phase 1 x Facilities-based Competitor in Census Block	0.25	0.43	0	0	1
Phase 2 x Facilities-based Competitor in Census Block	0.21	0.4	0	0	1
Customer is a Telecommunications Provider	0.91	0.28	0	1	1
Customer is a Mobile Telecommunications Provider	0.24	0.43	0	0	1
Customer is a Cable Operator	0.03	0.16	0	0	1
Establishments in the Zip Code	1,121	820	3	961	8,080
Annual Payroll (\$1,000) in the Zip Code	1,374,864	2,182,729	30	706,153	27,812,942
Employment in the Zip Code	21,989	20,939	1	16,206	181,730
Number of Establishments in the Census Block (D&B)	48	85.46	1	20	2,057
Establishments (D&B) per Square Mile in the Census Block	3,596	14,190	0.01	591	603,238

Mbps	1.54	0	1.5	1.54	1.54
Packet-based Connection	0	0	0	0	0

DS-3 Connections

	Mean	Std. Dev.	Min	Median	Max
Average Monthly Price	1,314.03	4,400.74	0.01	785	596,710.55
A Facilities-based Competitor Can Serve the Building	0.44	0.5	0	0	1
A Facilities-based Competitor Can Serve a Building in the Census Block	0.74	0.44	0	1	1
At Least One Facilities-based Competitor is in the Block But Not the Building	0.56	0.5	0	1	1
One Facilities-based Competitor is in the Block But Not the Building	0.25	0.43	0	0	1
Two or Three Facilities-based Competitors are in the Block But Not the Building	0.21	0.41	0	0	1
Four or More Facilities-based Competitors are in the Block But Not the Building	0.09	0.29	0	0	1
At Least One Facilities-based Competitor is in the Tract But Not the Block	0.87	0.34	0	1	1
An Indep. CLEC Has a Fiber Network in the Census Block	0.93	0.26	0	1	1
Ind. CLEC Fiber Network in CB x Facilities-based CLEC in Building in CB	0.72	0.45	0	1	1
The Carrier Has Phase 1 Pricing Flexibility in the Wire Center	0.45	0.5	0	0	1
The Carrier Has Phase 2 Pricing Flexibility in the Wire Center	0.41	0.49	0	0	1
Phase 1 x Facilities-based Competitor in Census Block	0.36	0.48	0	0	1
Phase 2 x Facilities-based Competitor in Census Block	0.3	0.46	0	0	1
Customer is a Telecommunications Provider	0.9	0.3	0	1	1
Customer is a Mobile Telecommunications Provider	0.23	0.42	0	0	1
Customer is a Cable Operator	0.02	0.14	0	0	1
Establishments in the Zip Code	1,243	808	3	1,117	8,080
Annual Payroll (\$1,000) in the Zip Code	1,848,712	2,489,452	30	983,186	27,812,942
Employment in the Zip Code	26,487	22,059	2	19,877	181,730
Number of Establishments in the Census Block (D&B)	47	87.74	1	19	2,057
Establishments (D&B) per Square Mile in the Census Block	4,298	14,106	0.16	890	603,238
Mbps	44.74	0.03	44.18	44.74	45

Packet-based Connection	0	0	0	0	0
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High Bandwidth Connections

	Mean	Std. Dev.	Min	Median	Max
Average Monthly Price	3,002.09	9,138.56	0.01	1,149.26	1,304,076.50
A Facilities-based Competitor Can Serve the Building	0.45	0.5	0	0	1
A Facilities-based Competitor Can Serve a Building in the Census Block	0.69	0.46	0	1	1
At Least One Facilities-based Competitor is in the Block But Not the Building	0.47	0.5	0	0	1
One Facilities-based Competitor is in the Block But Not the Building	0.22	0.41	0	0	1
Two or Three Facilities-based Competitors are in the Block But Not the Building	0.16	0.37	0	0	1
Four or More Facilities-based Competitors are in the Block But Not the Building	0.09	0.28	0	0	1
At Least One Facilities-based Competitor is in the Tract But Not the Block	0.83	0.38	0	1	1
An Indep. CLEC Has a Fiber Network in the Census Block	0.93	0.26	0	1	1
Ind. CLEC Fiber Network in CB x Facilities-based CLEC in Building in CB	0.68	0.47	0	1	1
The Carrier Has Phase 1 Pricing Flexibility in the Wire Center	0.57	0.5	0	1	1
The Carrier Has Phase 2 Pricing Flexibility in the Wire Center	0.25	0.43	0	0	1
Phase 1 x Facilities-based Competitor in Census Block	0.41	0.49	0	0	1
Phase 2 x Facilities-based Competitor in Census Block	0.17	0.38	0	0	1
Customer is a Telecommunications Provider	0.81	0.39	0	1	1
Customer is a Mobile Telecommunications Provider	0.35	0.48	0	0	1
Customer is a Cable Operator	0	0.05	0	0	1
Establishments in the Zip Code	1,237	1,005	3	1,032	8,080
Annual Payroll (\$1,000) in the Zip Code	1,796,848	2,905,725	44	872,477	27,812,942
Employment in the Zip Code	25,312	24,597	9	18,119	181,730
Number of Establishments in the Census Block (D&B)	45	77.55	1	21	2,057
Establishments (D&B) per Square Mile in the Census Block	5,112	15,795	0.05	896	455,646
Mbps	745.48	6,352.81	48	155.52	1,024,000
Packet-based Connection	0.86	0.34	0	1	1

ATTACHMENT 4 - FCC BACKGROUND ON BUSINESS DATA SERVICES

Business data service (special access) refers to the transmission of information between network points at certain guaranteed speeds and service levels. This service utilizes dedicated, high-capacity connections sold, either on a stand-alone basis or embedded in a package of communications services, to businesses, government institutions, hospitals, educational institutions, and libraries, i.e., not to residential end users. Wireless providers use this service to backhaul voice and data from cell towers to wired telephone and broadband networks; small businesses, governmental branches, hospitals and medical offices, and even schools and libraries also use business data service for the first leg of communications with the home office; branch banks and gas stations use such connections for ATMs and credit card readers; and even other communications providers purchase business data service as an input for their own communication service offerings to retail customers. The primary suppliers of business data service include traditional phone companies, i.e., incumbent local exchange carriers (ILECs) like AT&T and Verizon, cable companies like Comcast and Cox, and other competitive local exchange carriers (CLECs) like Level 3 and XO Communications.

The FCC has historically subjected ILECs to rate regulation and tariffing requirements, i.e., dominant carrier safeguards, for the provision of their business data service. Other providers of business data service are largely unregulated except for the basic just and reasonable requirements applicable to all carriers under sections 201 and 202 of the Communications Act of 1934.

The FCC has two forms of rate regulation – price cap and rate-of-return. The focus here is on those ILECs subject to price cap regulation (price cap ILECs) where a ceiling is set on the overall rates charged and carriers are theoretically incentivized to operate more efficiently to lower costs and maximize profits. The FCC has a process (established in 1999) for granting price cap ILECs a certain degree of pricing flexibility when specified regulatory triggers are satisfied. These triggers, which were designed as a proxy for potential competition in the given geographic area, are based on the collocations of non-ILEC providers in an ILEC's wire centers. Depending on the level of pricing flexibility, ILECs can “offer special access services at unregulated rates through generally available and individually negotiated tariffs.”¹

In January 2005, the FCC initiated a rulemaking to broadly examine the regulatory framework going forward for the provision of interstate special access services by price cap ILECs.² This proceeding remains pending today. Then, in a series of actions taken in the late 2000s, the FCC removed rate regulation and tariffing requirements for many of the emerging business data services offered by price-cap ILECs. Accordingly, many of the packet-based services, using an Ethernet technology protocol for example, and optical carrier transmission services offered by ILECs are largely free of regulation as is the case with other non-ILEC providers. The portfolio of ILEC business data service offerings still subject to dominant carrier safeguards consist mainly of time-division multiplexing (TDM)-based services. These legacy services include DS1s and DS3s, which have a symmetrical bandwidth of about 1.5 Mbps and 45 Mbps, respectively.

In August 2012, the FCC suspended its rules for the further grant of pricing flexibility to ILECs for the remaining regulated business data services in areas subject to price cap regulation.³ The FCC took this step based on “significant evidence that these rules . . . are not working as predicted, and widespread agreement across industry sectors that these rules fail to accurately reflect competition in today's special

¹ *Pricing Flexibility Suspension Order*, 27 FCC Rcd at 10563, para. 11.

² *See 2005 Special Access NPRM*, 20 FCC Rcd at 1994, para. 1.

³ *See Pricing Flexibility Suspension Order*, 27 FCC Rcd at 10557-58, para. 1.

access markets.”⁴ The FCC found that the pricing flexibility triggers “are a poor proxy for the presence of competition sufficient to constrain special access prices or deter anticompetitive practices”⁵ The FCC then set course for a one-time data collection “to identify a permanent reliable replacement approach to measure the presence of competition for special access services.”⁶

On December 18, 2012, the Commission released an Order calling for the mandatory collection of data for an analysis of the marketplace for business data services. The FCC then collected data and information in early 2015 for its analysis from entities providing or purchasing business data services in price cap areas and from larger entities that provide “best efforts” business broadband Internet access services.

The stated goal of the FCC’s multi-faceted market analysis is to evaluate, among other things, “how the intensity of competition (or lack thereof), whether actual or potential, affects prices, controlling for all other factors that affect prices.”⁷ The FCC intends to include “econometrically sound panel regressions . . . of the prices for special access on characteristics such as 1) the number of facilities-based competitors (both actual and potential); 2) the availability of, pricing of, and demand for best efforts business broadband Internet access services; 3) the characteristics of the purchased service; and 4) other factors that influence the pricing decisions of special access providers, including cost determinants (*e.g.*, density of sales) and factors that deliver economies of scale and scope (*e.g.*, level of sales).”⁸ The FCC also intends to assess the reasonableness of terms and conditions offered by ILECs for business data service.⁹ The FCC will use the results of its analysis to evaluate “whether it is appropriate to make changes to its existing pricing flexibility rules to better target regulatory relief in competitive areas and evaluate whether remedies are appropriate to address any potentially unreasonable terms and conditions.”¹⁰

Data Collection Overview. The FCC required all providers of “dedicated service” in areas where the ILEC is subject to price cap regulation (*i.e.*, price cap areas) to respond to the data collection regardless of size. Providers included any entity subject to the FCC’s jurisdiction that provides dedicated service in a price cap area or provides a connection that is capable of providing a dedicated service in a price cap area. For purposes of the collection, the FCC defined dedicated service as a service that:

transports data between two or more designated points, *e.g.*, between an *End User’s* premises and a point-of-presence, between the central office of a local exchange carrier (LEC) and a point-of-presence, or between two *End User* premises, at a rate of at least 1.5 Mbps in both directions (upstream/downstream) with prescribed performance requirements that include bandwidth-, latency-, or error-rate guarantees or other parameters that define delivery under a *Tariff* or in a service-level agreement. *Dedicated Service* includes, but is not limited to, [circuit-based dedicated service (DS1s and DS3s)] and [packet-based dedicated service (such as Ethernet)]. For the purpose of this data collection, *Dedicated Service* does not include “best effort” services, *e.g.*, mass market broadband services such as DSL and cable modem broadband access.

⁴ *Id.*

⁵ *Pricing Flexibility Suspension Order*, 27 FCC Rcd at 10560, para. 5.

⁶ *Id.* at 10560, para. 6.

⁷ *Id.* at 16346-47, paras. 68-69.

⁸ *Id.* at 16346, para. 68.

⁹ *Id.* at 16354-56, paras. 91-93.

¹⁰ *Data Collection Implementation Order*, 28 FCC Rcd at 13192, para. 5.

Purchasers of dedicated service subject to the FCC's jurisdiction were also required to respond to the collection unless, among other exceptions, they purchased less than \$5 million in dedicated services in 2013. Entities that provide best efforts business broadband Internet access services in price cap areas were required to respond to the data collection unless they had fewer than 15,000 customers and fewer than 1,500 business broadband customers as of December 18, 2012.

The general categories of data and information collected by the FCC concern: market structure, pricing, demand, terms and conditions, and competition and pricing decisions.¹¹ For example, the market structure data included, among other things, data from providers on last-mile facilities used to provide dedicated service to end user locations, non-price factors affecting deployment, collocations, and network maps.¹² The pricing information included data from providers on the "quantities sold and prices charged for special access services, by circuit element" and required ILECs to "list the form of price regulation that applies . . . on a wire-center-by-wire-center basis."¹³ The demand data included not only information on the bandwidth of special access sold and revenues earned by providers but also on the expenditures made by purchasers.¹⁴ The terms and conditions collected from both providers and purchasers, included details on topics such as the discounts and benefits associated with tariff plans and the business rationale for those plans.¹⁵ The FCC also collected information on Requests for Proposals and advertised and marketed services to help evaluate competition and pricing decisions for special access services. Lastly, the FCC collected coverage area and pricing information from entities providing best efforts business broadband Internet access service.¹⁶ The large majority of information collected, especially the locations and billing information, is from the year 2013.

¹¹ *Id.* at 16331, para. 30.

¹² *Id.* at 16331-33, paras. 31-35.

¹³ *Id.* at 16333, paras. 36-37.

¹⁴ *Id.* at 16333-34, para. 38.

¹⁵ *Id.* at 16334, para. 39.

¹⁶ *Id.* at 16335-37, paras. 40-46.

ATTACHMENT 5 - SOURCES FOR TABLE 3, 2013-2015 BUSINESS REVENUES.

Verizon's business revenues include all Global Wholesale and Global Enterprise revenues, from the Verizon year-end 2014 10-K filing, under "Consolidated Revenues".

AT&T's business revenues include all "AT&T Business Services wireline operating revenues", from the AT&T 2014 Annual Report, page 19.

Our estimate of CenturyLink's business revenues applies CenturyLink's percentage of total revenues from business services to their total revenue figure, from the "Segments" subsection of the "Operations" section of the CenturyLink year-end 2014 10-K filing.

Level 3's business revenue estimate for 2014 includes Level 3's North American wholesale and North American enterprise revenues, as well as tw telecom's wholesale and enterprise revenues, from the Level 3 year-end 2014 10-K filing, page 71. For 2012 and 2013, Level 3's business revenues, add the listed figure for North American Wholesale and North American enterprise revenues for each respective year from the Level3 year-end 2014 10-K filing to tw telecom's "Data and Internet" and "Network" revenues for each respective year from tw telecom's year-end 2013 10-K filing, page 7.

Windstream's business revenue estimate includes "Enterprise", "Carrier", and "Wholesale" revenues, from the Windstream year-end 2014 10-K filing, page F-5.

Comcast business revenues from the Time Warner year-end 2014 10-K filing, page 57.

Time Warner Cable business revenues from the Time Warner Cable year-end 2014 10-K filing, page 42.

Frontier business revenues from item listed as "Consolidated Business" revenues, from the Frontier year-end 2014 10-K filing, page 30.

Charter business revenues from item listed as "Commercial" revenues, from Charter year-end 2014 10-K filing, page 46.

Earthlink business revenue estimate includes revenues from "Business Retail" and "Business Wholesale" services, from Earthlink year-end 2014 10-K filing, page 35.

Business revenue estimates for Cox for years 2014 and 2012 were unavailable. Cox's 2013 Business revenue estimate came from a Cox press release regarding business services: newsroom.cox.com/download/Cox+Business+New.pdf.

APPENDIX C
PRODUCTIVITY-BASED X-FACTOR AND PRICE CAP INDICES
ADJUSTMENT CALCULATIONS

1. The Commission staff used three data sources and methodologies to calculate possible productivity-based X-factors and possible adjustments to price cap indices for consideration in the Commission's *Business Data Services* rulemaking. This Appendix explains those data sources and how they were used. The inflation measure in our calculations is the Gross Domestic Price Index (GDP-PI).¹

2. The three sets of data and the methodologies applied to them approach the measurement of productivity growth in the provision of business data services from three different perspectives. The first, or KLEMS data for the broadcasting and telecommunications sector, provide the broadest perspective. The second, more focused perspective applies the underlying cost structure for telecommunications supply found in the staff's response to a peer review of the Connect America Cost Model (CACM) to a range of historical input price changes.² The X-factor estimates are derived by coupling this information with a range of productivity growth estimates. The third set of calculations tightens this focus by relying on historical cost data from TDS Telecommunications Corporation's (TDS's) incumbent local exchange carrier operations, instead of CACM cost structure. It follows a similar approach to the second, but relies on TDS's incumbent LEC's historical costs as reported the Commission.

3. We calculate the X-factor by subtracting, from the change in GDP-PI, the change in industry input price index and adding the change in industry total factor productivity (TFP). The change in industry TFP is the difference between the change in TFP for price cap incumbent LECs and the change in TFP for the overall U.S. economy.³ We calculate an input price differential reflecting the historical difference in the average annual rate of change in LEC input prices as compared with the historical average annual rate of change in the economy as a whole and develop an industry input price index which is subtracted from the measure of the change in the rate of inflation (which is estimated as the change in GDP-PI). The calculation of the X-factor can be expressed by the following formula:

$$\mathbf{X\text{-}Factor} = \% \Delta \mathbf{GDP\text{-}PI} - \% \Delta \mathbf{Industry\ Input\ Price\ Index} + \% \Delta \mathbf{Industry\ TFP}$$

I. SOURCE 1 – KLEMS

4. Our first method for calculating a productivity-based X-Factor relies on KLEMS data, which are used by The U.S. Department of Commerce's Bureau of Economic Analysis (BEA)⁴ and the U.S. Department of Labor's Bureau of Labor Statistics (BLS).⁵ Industry-level measures of input prices and total factor productivity are available from the Bureau of Labor Statistics (BLS).⁶ The BLS provides

¹ Bureau of Economic Analysis, National Income and Product Accounts, Table 1.1.4. Price Indexes for Gross Domestic Product, http://www.bea.gov/iTable/index_nipa.cfm.

² Federal Communications Commission, Peer Review of Connect America Phase II Cost Model, FCC Response to Professor Christiaan Hogendorn, https://apps.fcc.gov/edocs_public/attachmatch/DOC-322385A1.pdf.

³ *1999 Price Cap FNPRM*, 14 FCC Rcd at 19721, para. 15.

⁴ U.S. Department of Commerce, Bureau of Economic Analysis, Industry Data, GDP-by-industry, http://www.bea.gov/iTable/index_industry_gdpIndy.cfm (last visited Mar. 14, 2016).

⁵ U.S. Department of Labor, Bureau of Labor Statistics, Multifactor Productivity, <http://www.bls.gov/mfp/mprload.htm> (last visited Mar. 14, 2016).

⁶ Bureau of Labor Statistics, Multifactor Productivity, Nonmanufacturing Sectors and NIPA-level Nonmanufacturing Industries KLEMS Multifactor Productivity Tables by Industry, <http://www.bls.gov/mfp/mprload.htm>.

such measures, on an annual basis, in their KLEMS—capital (K), labor (L), energy (E), non-energy materials (M), and services purchased from other businesses (S) — statistics for Broadcasting and Telecommunications.⁷ Price indexes are available for each of these five inputs. We combined these five indexes into a single input-price index using as weights the amount spent on each factor as a share of total expenditure. Since total factor productivity is determined as an industry-wide residual, there is just a single value of that variable for each year. KLEMS data are only available up to 2013.⁸

5. We computed three X-factor estimates. A compound annual growth rate⁹ was applied to each index: GDP Price Index, Industry Input Price, and Industry Total Factor Productivity. The first estimate uses growth rates for all years for which we have KLEMS data (1997-2013). The estimate considers only the years for which data would have been available in 2005 (1997-2003).¹⁰ The third considers only the listed year range since the CALLS plan ended in 2005 (2005-2013).

6. For each range of years, the difference of GDP Price Index minus the X-factor was compounded over ten years to provide possible price cap indices adjustments or “reset.”¹¹ We provide these resets for demonstration purposes only. The results are as follows:

⁷ Bureau of Labor Statistics, Multifactor Productivity, Nonmanufacturing Sectors and NIPA-level Nonmanufacturing Industries KLEMS Multifactor Productivity Tables by Industry, <http://www.bls.gov/mfp/mprdload.htm>. Industries in the Broadcasting subsector (NAICS 515) include “establishments that create content or acquire the right to distribute content and subsequently broadcast the content,” including “broadcasting studios and facilities for over the air or satellite delivery of radio and television programs of entertainment, news, talk, and the like” as well as “operating studios and facilities for the broadcasting of programs that are typically narrowcast in nature (limited format, such as news, sports, education, and youth-oriented programming) on a subscription or fee basis.” Industries at a Glance: Broadcasting: NAICS 515, U.S. Dept. of Labor, Bur. of Labor Statistics, <http://www.bls.gov/iag/tgs/iag515.htm>. NAICS stands for “North American Industry Classification System” which is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. North American Industry Classification System, U.S. Census Bureau, <https://www.census.gov/eos/www/naics/>. Industries in the Telecommunications subsector (NAICS 517) “provide telecommunications and the services related to that activity (e.g., telephony, including Voice over Internet Protocol (VoIP); cable and satellite television distribution services; Internet access; telecommunications reselling services)” and is “primarily engaged in operating, and/or providing access to facilities for the transmission of voice, data, text, sound, and video” which “may be based on a single technology or a combination of technologies.” Industries at a Glance: Telecommunications: NAICS 517, U.S. Dept. of Labor, Bur. of Labor Statistics, <http://www.bls.gov/iag/tgs/iag517.htm>.

⁸ Data were as of July 28, 2015.

⁹ $[(\text{First Year Index Value} / \text{Last Year Index Value})^{(1 / \text{Number of Years between First and Last})} - 1] \times 100$.

¹⁰ The base year was 2009 for input prices and TFP, in which the input price index and TFP are set to 100 for purposes of developing an index. U.S. Dept. of Labor, Bureau of Labor Statistics, Multifactor Productivity, <http://www.bls.gov/mfp/mprdload.htm>. The relevant dataset was based on Multifactor Productivity and related KLEMS measures from the National Income and Product Accounts (NIPA) Industry Database for Broadcasting and Telecommunications (NAICS 515, 517). Specifically, Output and Input Prices, Real Sectoral Output, Input Quantities, and Multifactor Productivity, and Factor Shares (Factor Costs Divided by the Value of Production).

¹¹ Price Cap Reset = $[(1 + \text{GDP PI} - \text{X-Factor})^{10} - 1] \times 100$.

Table 1: X-Factor and Price Cap Reset Compound Annual Growth Rate Based on KLEMS Data

Year Range	GDP Price Index	Industry Input Price Index	Industry TFP	X-Factor	Price Cap Reset
1997 - 2013	1.98%	0.96%	1.73%	2.75%	-7.37%
1997 - 2003	1.77%	-1.47%	-0.03%	3.21%	-13.54%
2005 - 2013	1.90%	1.20%	1.15%	1.85%	0.48%

Sources: Bureau of Economic Analysis & Bureau of Labor Statistics.

II. SOURCE 2 – CONNECT AMERICA COST MODEL

7. The Connect America Cost Model¹² (CACM) can be used to generate cost share data. As part of a response to a peer review of the CACM, CostQuest¹³ and public estimates of price changes for ten cost categories were obtained, as well as proxies for productivity growth. We used the CACM's peer review response shares for all ten cost categories and the CostQuest estimated price changes for seven cost categories: fiber, poles, conduit, drop, optical network terminals, fiber pedestals, and splitters. Price changes for electronics were taken from the best estimates in the FCC's response to the peer review. Public sources were used for price changes in labor, real estate, and productivity, and we updated these. The CACM shares are as follows:

Table 2: Cost Shares for 10 Basic CACM Cost Categories

Cost category	Share
Labor	59.6%
Fiber	2.9%
Poles	1.2%
Conduit	2.2%
Drop	1.4%
ONT	9.1%
Fiber pedestals	2.7%
Splitters ¹⁴	5.7%
Electronics	6.4%
Land/Buildings	8.7%

Source: Connect America Cost Model (version 3.1).

8. For price changes in labor, real estate, and productivity, we calculated compound annual growth rates for four different year ranges. The first year range covers all years for which data are available. This values are reported below. The second, third, and fourth year ranges mirror, to the best extent possible, the three year ranges used in the Source 1. For each listed year range, we used the minimum value for the low estimate of the price change in labor and the maximum values for the high estimate.

¹² Federal Communications Commission, "Connect America Fund Phase II Models," <https://www.fcc.gov/general/connect-america-fund-phase-ii-models>.

¹³ CostQuest developed the CACM. See *USF/ICC Transformation Order*, 26 FCC Rcd at 17728, para. 168.

¹⁴ Approximately 30 percent of the splitter category is fiber, but the two expenses are not easily separated.

A. Labor

9. Price changes in labor were taken from the BLS' Quarterly Census of Employment and Wages.¹⁵ We retrieved average annual pay data for 2001, the first year for which data was available, through 2014.¹⁶ We used series at three levels of detail: Total, All Industries, Telecommunications (NAICS 517), and Wired Telecommunications Carriers (NAICS 5171). The compound annual changes in price for 2001 to 2014 are as follows:

Table 3: Compound Annual Change in Labor Prices from 2001-2014

All Industries	Telecommunications	Wired Telecommunications
2.72%	2.77%	2.47%

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

B. Real Estate

10. Price changes in real estate were taken from Real Capital Analytics, which provides multiple Commercial Property Price Indices.¹⁷ We retrieved data for 2000, the first year for which data were available, through 2015. We used four indexes: National All-Property, Core Commercial, Industrial, and Office.¹⁸ The compound annual changes in price for 2000 to 2015 are as follows:

Table 4: Compound Annual Change in Real Estate Prices from 2000-2015

National All-Property	Core Commercial	Industrial	Office
5.04%	4.54%	3.56%	5.07%

Source: Real Capital Analytics.

C. Productivity

11. Changes in productivity were taken from the Federal Reserve Bank of San Francisco,¹⁹ which was the same source used in the response to the CACM peer review. We retrieved data for 1997 through 2015. Two measures of total factor productivity were used: Total factor productivity (TFP) and TFP-Utilization-Adjustment, which adjusts TFP for capacity utilization. The compound annual changes in productivity for 1997 to 2015 are as follows:

¹⁵ Bureau of Labor Statistics, Quarterly Census of Employment and Wages, <http://www.bls.gov/cew/>.

¹⁶ Data for 2015 was not yet available. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, <http://www.bls.gov/cew/>.

¹⁷ Real Capital Analytics, Commercial Property Price Indices (CPPI™), Moody's/RCA CPPI™, https://www.rcanalytics.com/Public/rca_cpqi.aspx; *see also* Real Capital Analytics, Fact Sheet: CPPI™, Moody's/RCA Commercial Property Price Indices, https://www.rcanalytics.com/public/pdf/MOODYSCPPI_FactSheet.pdf.

¹⁸ Real Capital Analytics, Commercial Property Price Indices (CPPI™), Moody's/RCA CPPI™, https://www.rcanalytics.com/Public/rca_cpqi.aspx.

¹⁹ John G. Fernald, Federal Reserve Bank of San Francisco, A Quarterly, Utilization-Adjusted Series on Total Factor Productivity, Working Paper 2012-09 (updated March 2014), <http://www.frbsf.org/economic-research/indicators-data/total-factor-productivity-tfp/>.

Table 5: Compound Changes in Productivity 1997-2015

TFP	TFP Utilization-Adjustment
1.00%	1.10%

Source: Real Capital Analytics.

12. All of these components were used to estimate the net impact on industry costs of changes in price and productivity. For each of the four year ranges listed below, two weighted averages were computed for changes in input prices: one low and one high. The weights were the cost category shares. Similarly, for each of the four listed year ranges, two measures, one low and one high, were used for changes in total factor productivity.

13. Two estimates of net impact, one low and one high, were calculated for each of the four listed year ranges. The low estimate for net impact on costs uses the low estimate for input prices and the high estimate for productivity. The high estimate for net impact on costs uses the high estimate for input price and the low estimate for productivity. Also, a midpoint net impact was calculated by summing the corresponding high and low estimates (for each listed year range) and dividing by two.

14. In each instance, we used the compound annual growth rate for each term that came closest to the given year range. For example, the compound annual growth rate in labor prices for 2001 to 2014 were used in the listed year range 1997 to 2015. This is an implicit extrapolation for 1997 to 2000 as well as for 2015.

15. These estimates for net impact on costs were used to calculate a set of X-factors. Each net impact was subtracted from the GDP-PI for the closest possible listed year range. The year range 1997 to 2015 was added to the three listed year ranges in Source 1, because we wanted to make full use of all the available data.²⁰ The results are as follows:

Table 6: Net Impacts on Costs, X-Factors and Price Cap Resets

Year Range	Estimate	GDP-PI	Net Impact	X-Factor	Price Cap Reset
1997 - 2015	High	1.91%	-2.26%	4.17%	-20.47%
	Low	1.91%	-0.57%	2.48%	-5.58%
	Midpoint	1.91%	-1.42%	3.33%	-13.31%
1997 - 2013	High	1.98%	-2.39%	4.37%	-21.47%
	Low	1.98%	-0.73%	2.72%	-7.08%
	Midpoint	1.98%	-1.56%	3.54%	-14.55%
1997 - 2003	High	1.77%	-3.79%	5.55%	-32.02%
	Low	1.77%	-0.70%	2.47%	-6.79%
	Midpoint	1.77%	-2.24%	4.01%	-20.30%
2005 - 2013	High	1.90%	-2.26%	4.16%	-20.43%
	Low	1.90%	-0.22%	2.12%	-2.21%
	Midpoint	1.90%	-1.24%	3.14%	-11.74%

Sources: Connect America Cost Model, Bureau of Labor Statistics, Real Capital Analytics, Federal Reserve Bank of San Francisco.

16. Each X-factor was calculated by subtracting Net Impact from GDP-PI. Each Price Cap Reset was calculated by taking the difference in GDP-PI minus X and compounding it over ten years.

²⁰ Commission staff calculated the compound annual growth rate for 2000-2015, which was used to calculate year range 1997-1999 productivity as well.

III. SOURCE 3 – TDS & CONNECT AMERICA COST MODEL

17. This source is a modification of Source 2, which focuses on one company's incumbent LEC operations - TDS. We used the same high and low estimates for price changes in labor, land/buildings (or real estate), and productivity. All of the category shares, however, were revised based on TDS' cost shares.

18. TDS provided the Commission with booked financial data on its incumbent LEC operations.²¹ We used these data as an alternative set of input categories. Although there were categories for labor and real estate, the TDS categories for switching and transmission were mapped to the remaining eight CACM categories. Fiber, poles, conduit, drop, optical network terminals, and fiber pedestals were combined into switching, and splitters and electronics were combined into transmission. For high and low estimates of price changes for both switching and transmission, we took the weighted averages of price changes for the CACM categories. Each midpoint Net Impact, X-factor, and Price Cap Reset was calculated as before in Source 2. The results are as follows:

Table 7: Net Impacts on Costs, X-Factors and Price Cap Resets

Year Range	Estimate	GDP-PI	Net Impact	X-factor	Price Cap Reset
1997 - 2015	High	1.91%	-2.93%	4.84%	-25.72%
	Low	1.91%	-0.40%	2.31%	-3.97%
	Midpoint	1.91%	-1.67%	3.58%	-15.47%
1997 - 2013	High	1.98%	-3.03%	5.01%	-26.45%
	Low	1.98%	-0.54%	2.52%	-5.23%
	Midpoint	1.98%	-1.78%	3.76%	-16.45%
1997 - 2003	High	1.77%	-4.45%	6.22%	-36.57%
	Low	1.77%	-0.43%	2.19%	-4.20%
	Midpoint	1.77%	-2.44%	4.21%	-21.88%
2005 - 2013	High	1.90%	-2.93%	4.83%	-25.75%
	Low	1.90%	-0.01%	1.91%	-0.10%
	Midpoint	1.90%	-1.47%	3.37%	-13.78%

Sources: TDS, Connect America Cost Model, Bureau of Labor Statistics, Real Capital Analytics Moody's/RCA CPPI™, Federal Reserve Bank of San Francisco.

²¹ See Letter from Steve Pitterle, Manager – Carrier Relations, TDS Telecommunications Corporation, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 05-25, Attach. 1 (filed Sept. 24, 2015) (TDS Sept. 24, 2015 *Ex Parte*).

APPENDIX D

Initial Regulatory Flexibility Act Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities from the policies and rules proposed in this Further Notice of Proposed Rulemaking (Further Notice). The Commission requests written public comment on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the Further Notice provided in the item. The Commission will send a copy of the Further Notice, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).² In addition, the Further Notice and IRFA (or summaries thereof) will be published in the Federal Register.³

A. Need for, and Objectives of, the Proposed Rules

2. *Technology-Neutral Framework.* In the Further Notice the Commission proposes to replace the existing, fragmented regulatory regime applicable to business data services (BDS) (i.e., special access services) with a new technology-neutral framework – the Competitive Market Test – which subjects non-competitive markets to tailored regulation, and competitive markets to minimal oversight. The pricing flexibility framework adopted in 1999 based regulatory relief from dominant carrier regulations on the presence of third-party collocations in the incumbent local exchange carrier’s (LEC’s) wire centers, which were considered proxies for competition in the marketplace. The Commission’s review of the 2015 Collection data supports the Commission’s earlier findings that collocations are a poor proxy for predicting the entry of facilities-based competition and the 1999 regime retained unnecessary regulation in areas that were likely competitive and deregulated over large areas where competition was unlikely to occur. The Commission therefore proposes to abandon the collocation-based competition showings for determining regulatory relief for incumbent LECs and, instead, proposes to apply a new Competitive Market Test and seeks comment on a regulatory framework going forward.⁴

3. *Competitive Analysis.* The Commission sets forth its analysis of the extent of competition in the supply of BDS, based on its analysis of the 2015 Collection, and stakeholders’ comments, and seeks comment on these findings. As far as the BDS product market, the Commission finds that “best efforts” BIAS do not appear to be a substitute for BDS whereas packet-based BDS, including HFC, is a substitute for TDM-based BDS, and product markets are subdivided by customer requirements and BDS performance characteristics. As far as the BDS geographic market, geographic concentration on any measure is high. The Commission found that supply of BDS with a bandwidth in excess of 50 Mbps tends to be more competitive than supply of BDS with lower bandwidths and allowing ILECs to offer contract tariffs benefits BDS purchasers and suppliers. The Commission seeks comment on how many competitive choices are necessary to ensure a competitive market, how important is potential competition, whether facility-based supply beyond half a mile has a material effect on prices and whether prices vary by the type of supply. Finally, the Commission seeks comment on a white paper prepared by an outside econometrician engaged by the Commission, Dr. Marc Rysman, conducting an independent competition analysis of the BDS market.⁵

¹ See 5 U.S.C. § 603. The RFA, see 5 U.S.C. §§ 601-12, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

² See 5 U.S.C. § 603(a).

³ *Id.*

⁴ See *supra* Part V.D.

⁵ See *supra* Part V.A.

4. *Competitive Market Test.* As a replacement to the pricing flexibility rules, the Commission proposes a Competitive Market Test to determine the extent to which particular geographic areas and customer classes are subject to sufficient competition. In the Further Notice, the Commission proposes to define “business data services” (BDS) as a telecommunications service that transports data between two or more designated points at a rate of at least 1.5 Mbps in both directions (upstream/downstream) with prescribed performance requirements that include bandwidth, reliability, latency, jitter, and packet loss. The Commission, however, proposes excluding “best effort” services, e.g., mass market broadband Internet access service (BIAS) such as DSL and cable modem broadband access. The Commission is considering a test, which focuses on bandwidth, different customer classes, business density, and the number of providers in areas consisting of census blocks where each block in the relevant market meets the specified criteria. The Commission asks about applying the Competitive Market Test across all areas served by price cap carriers every three years to account for changes in business density and the presence of facilities-based providers in geographic areas. The Commission asks to what extent and how the Commission should give providers and purchasers an opportunity to challenge the determinations rendered.⁶

5. *Rules Applicable to All Markets.* The Commission proposes limited requirements applicable to all competitive and non-competitive BDS markets. First, the Commission seeks comment on prohibiting the use of nondisclosure agreements (NDAs) in BDS commercial agreements that restrict parties ability to provide information to the Commission, effectively require legal compulsion to produce information, and limit parties disclosure to a response to a request by the Commission (e.g. Notice of Proposed Rulemaking).⁷ Second, the Commission asks for comment on the appropriate treatment of the three types of tariff terms identified as unreasonable in the accompanying Tariff Investigation Order—“all-or-nothing” provisions, shortfall penalties, and early termination fees – as well as other contractual terms and conditions that have been subject to public comment. The Commission seeks comment on whether these provisions should be applied in non-competitive markets or more generally in all markets.⁸

6. *Non-Competitive Markets.* The Commission proposes a tailored set of rules to safeguard customers in non-competitive markets, including the use of price regulation. In the Further Notice, the Commission proposes to continue to apply price cap regulation to time-division multiplexing (TDM)-based BDS in non-competitive markets, including non-competitive areas subject to pricing flexibility. The Commission also seeks comment on the application of rate regulation in non-competitive markets to packet-based BDS. The Commission proposes to incorporate into its price cap system a productivity-based “X-factor” – an adjustment to the price ceiling carriers can charge reflecting the extent to which carriers overall outperform economy-wide productivity to ensure they are passing these gains to ratepayers while recovering their costs of service. We seek comment on the methodologies and data sources we should use to calculate the X-factor, including a staff-produced productivity study, and the corresponding price cap adjustments as well as the components of the price cap system.⁹

7. *Anchor Pricing and Benchmarking.* In the Further Notice, the Commission proposes to adopt an anchor pricing or benchmarking approach for BDS in non-competitive markets to replace the interim rule adopted in the *Emerging Wireline Order*. We likewise believe that that anchor or benchmark pricing would not be appropriate in competitive markets. The Commission considers three options: (1) relying on regulated TDM-based services pricing to anchor prices for similar packet-based services, (2) establishing a price for packet-based BDS which could serve as an anchor for similar packet-based services, and (3) initially using reasonably comparable prices for TDM-based services as a benchmark for packet-based services to determine whether those rates are just and reasonable. The Commission

⁶ See *supra* Part V.D.

⁷ See *supra* Part V.E.1.

⁸ See *supra* Part V.E.2.

⁹ See *supra* Part V.F.1.

proposes to adopt the third option but seeks comment on this proposal and any associated implementation issues.¹⁰ Upon implementation of anchor pricing or benchmarking, we propose to continue forbearing from tariffing all packet-based services and to expand forbearance to include all price cap carriers and all packet-based services because this will allow for greater commercial negotiation and innovation. For carriers subject to these requirements, we propose to require them to publically disclose their generally available rates, terms and conditions and seek comment on this proposal. The Commission seeks comment on whether any reporting requirements should be imposed and whether the complaint and declaratory ruling process is reasonable to ensure compliance with the proposed framework.¹¹ The Commission also seeks proposals for ensuring just and reasonable wholesale rates applicable in non-competitive markets such as whether providers are charging higher rates for wholesale than retail BDS, whether we should require public disclosure of these rates.¹²

8. *Terms and Conditions.* The Commission proposes generally prohibiting tariff and other contractual “tying” arrangements that condition the sale of BDS in a non-competitive market on the sale of such services in a competitive market. The Commission also proposes prohibiting automatic renewal provisions in tariff pricing plans and contract tariffs for the provision of TDM-based broadband data services in non-competitive areas. The Commission proposes to find unreasonable any provision that enables a provider to increase its rates upon the expiration of either a tariff or commercial agreement for TDM-based or Ethernet-based service in non-competitive areas. Finally, the Commission seeks comment on tariff or commercial agreements containing percentage commitments to increase commitments if they reach a percentage threshold, overage penalties for going over volume commitments, automatic renewal provisions, undiscounted month-to-month pricing, and “evergreen” provisions that allow a purchaser to continue under same terms and conditions as under an expired agreement.¹³ In addition to seeking comment on the new regulatory framework, the Commission invites comment on alternative frameworks to apply to BDS.¹⁴

9. *Pricing Deregulation.* The Commission proposes a set of deregulatory rules to govern competitive markets, using the Act’s statutory authority to ensure that the provision of telecommunications services is just and reasonable. The Commission proposes that tariffs should not be used as part of the regulation of any BDS. The Commission proposes removing TDM-based BDS determined to be competitive from price cap regulation and apply a competitive regulatory framework, proposing a path to detariff time-division multiplexing (TDM)-based services while maintaining price caps. The Commission proposes forbearing from tariffing requirements to the extent necessary to implement our proposed framework, conditioned on the continuing presence of competition. The Commission proposes a similar finding for BDS in non-competitive areas, including TDM-based services but continue to require price cap regulation. The Commission seeks comment on how the Commission should modify its filing rules if it forbears from tariffing requirements. The Commission proposes to apply Phase I pricing flexibility requirements to TDM-based BDS in non-competitive areas and seeks comment on this proposal and any necessary changes to this approach.¹⁵

10. *Forbearance Grants and Deemed Grants.* In order for the new regulatory framework be applied in a technology-neutral manner, the Commission proposes to eliminate the current exemption for certain Verizon services from the basic provisions of the Act governing just and reasonable offerings of telecommunications services. The Commission invites comment on the legal standard we would need to

¹⁰ See *supra* Part V.F.

¹¹ See *supra* Part V.G.

¹² See *supra* Part V.F.3.

¹³ See *supra* Part V.F.

¹⁴ See *supra* Part V.G.

¹⁵ See *supra* Part V.H.

meet to reverse Verizon's forbearance that has been deemed granted, stating its belief that this standard is met in a rulemaking proceeding. Additionally, the Commission proposes extending this decision to reverse forbearance to Hawaiian Telecom and to the legacy Verizon portions of FairPoint and Frontier and invites comment on these proposals. At the same time, the Commission proposes to expand forbearance to the extent necessary to implement any regulatory changes adopted in this proceeding, many of which would allow or require carriers to detariff BDS, and invites comment on this proposal.¹⁶

B. Legal Basis

11. The legal basis for any action that may be taken pursuant to the Further Notice is contained in sections 1, 2, 4(i)–(j), 10, 201, 202(a), 203, 204(a), 205, 208, 251, 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i)–(j), 160, 201(b), 202(a), 203, 204(a), 205, 208, 251, 303(r), and 403.

C. Description and Estimate of the Number of Small Entities to Which the Rules Would Apply

12. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.¹⁷ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”¹⁸ In addition, the term “small business” has the same meaning as the term “small-business concern” under the Small Business Act.¹⁹ A small-business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).²⁰

1. Total Small Entities

13. Our proposed action, if implemented, may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards.²¹ First, nationwide, there are a total of approximately 28.2 million small businesses, according to the SBA, which represents 99.7% of all businesses in the United States.²² In addition, a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”²³ Nationwide, as of 2007, there were approximately 1,621,215 small organizations.²⁴ Finally, the term “small governmental jurisdiction” is defined generally as “governments of cities, towns, townships, villages, school districts, or special districts, with a

¹⁶ See *supra* Part V.I.

¹⁷ See 5 U.S.C. § 603(b)(3).

¹⁸ *Id.* § 601(6).

¹⁹ *Id.* § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

²⁰ See 15 U.S.C. § 632.

²¹ See 5 U.S.C. §§ 601(3)–(6).

²² See SBA, Office of Advocacy, *Frequently Asked Questions*, http://www.sba.gov/sites/default/files/FAQ_March_2014_0.pdf.

²³ 5 U.S.C. § 601(4).

²⁴ Indep. Sector, *The New Nonprofit Almanac and Desk Reference* (2010).

population of less than fifty thousand.”²⁵ Census Bureau data for 2011 indicate that there were 90,056 local governmental jurisdictions in the United States.²⁶ We estimate that, of this total, as many as 89,327 entities may qualify as “small governmental jurisdictions.”²⁷ Thus, we estimate that most governmental jurisdictions are small.

2. Broadband Internet Access Service Providers

14. The rules adopted in the Order apply to broadband Internet access service providers. The Economic Census places these firms, whose services might include Voice over Internet Protocol (VoIP), in either of two categories, depending on whether the service is provided over the provider’s own telecommunications facilities (e.g., cable and DSL ISPs), or over client-supplied telecommunications connections (e.g., dial-up ISPs). The former are within the category of Wired Telecommunications Carriers,²⁸ which has an SBA small business size standard of 1,500 or fewer employees.²⁹ These are also labeled “broadband.” The latter are within the category of All Other Telecommunications,³⁰ which has a size standard of annual receipts of \$32.5 million or less.³¹ These are labeled non-broadband. According to Census Bureau data for 2007, there were 3,188 firms in the first category, total, that operated for the entire year.³² Of this total, 3144 firms had employment of 999 or fewer employees, and 44 firms had employment of 1,000 employees or more.³³ For the second category, the data show that 2,383 firms

²⁵ 5 U.S.C. § 601(5).

²⁶ See SBA, Office of Advocacy - Frequently Asked Questions, https://www.sba.gov/sites/default/files/FAQ_March_2014_0.pdf (last visited Mar. 4, 2016). U.S. Census Bureau, Statistical Abstract of the United States: 2012, Section 8, page 267, tbl. 429, <https://www.census.gov/compendia/statab/2012/tables/12s0429.pdf/> (data cited therein are from 2007).

²⁷ The 2011 Census data for small governmental organizations are not presented based on the size of the population in each organization. As stated above, there were 90,056 local governmental organizations in 2011. As a basis for estimating how many of these 90,056 local organizations were small, in 2011 we note that there were a total of 729 cities and towns (incorporated places and minor civil divisions) with populations over 50,000. See U.S. Census Bureau, American Fact Finder, <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml> (last visited Mar. 4, 2016). If we subtract the 729 cities and towns that exceed the 50,000 population threshold, we conclude that approximately 89,327 are small.

2007 U.S. Census data for small governmental organizations are not presented based on the size of the population in each such organization. There were 89,476 local governmental organizations in 2007. If we assume that county, municipal, township, and school district organizations are more likely than larger governmental organizations to have populations of 50,000 or less, the total of these organizations is 52,095. As a basis of estimating how many of these 89,476 local government organizations were small, in 2011, we note that there were a total of 715 cities and towns (incorporated places and minor civil divisions) with populations over 50,000. City and Town Totals Vintage: 2011 – U.S. Census Bureau, <http://www.census.gov/popest/data/cities/totals/2011/index.html>. If we subtract the 715 cities and towns that meet or exceed the 50,000 population threshold, we conclude that approximately 88,761 are small. U.S. Census Bureau, Statistical Abstract of the United States: 2012, Section 8, page 267, tbl. 429, <https://www.census.gov/compendia/statab/2012/tables/12s0429.pdf/> (data cited therein are from 2007).

²⁸ U.S. Census Bur., 2012 NAICS Definitions, “517110 Wired Telecommunications Carriers,” <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517110&search=2012%20NAICS%20Search>.

²⁹ 13 CFR. § 121.201, NAICS code 517110.

³⁰ U.S. Census Bur., 2012 NAICS Definitions, “517919 All Other Telecommunications,” <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517919&search=2012%20NAICS%20Search>.

³¹ 13 CFR § 121.201, NAICS code 517919.

³² U.S. Census Bur., 2007 Economic Census, Subject Series: Information, Table 5, “Establishment and Firm Size: Employment Size of Firms for the United States: 2007 NAICS Code 517110” (issued Nov. 2010).

³³ See *id.*

operated for the entire year.³⁴ Of those, 2,346 had annual receipts below \$32.5 million per year. Consequently, we estimate that the majority of broadband Internet access service provider firms are small entities.

15. The broadband Internet access service provider industry has changed since this definition was introduced in 2007. The data cited above may therefore include entities that no longer provide broadband Internet access service, and may exclude entities that now provide such service. To ensure that this FRFA describes the universe of small entities that our action might affect, we discuss in turn several different types of entities that might be providing broadband Internet access service. We note that, although we have no specific information on the number of small entities that provide broadband Internet access service over unlicensed spectrum, we include these entities in our Final Regulatory Flexibility Analysis.

3. Wireline Providers

16. *Incumbent Local Exchange Carriers (Incumbent LECs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent LEC services. The closest applicable size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.³⁵ According to Commission data,³⁶ 1,307 carriers reported that they were incumbent LEC providers.³⁷ Of these 1,307 carriers, an estimated 1,006 have 1,500 or fewer employees and 301 have more than 1,500 employees.³⁸ Consequently, the Commission estimates that most providers of incumbent LEC service are small businesses that may be affected by rules adopted pursuant to the Order.

17. *Competitive Local Exchange Carriers (Competitive LECs), Competitive Access Providers (CAPs), Shared-Tenant Service Providers, and Other Local Service Providers*. Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.³⁹ According to Commission data, 1,442 carriers reported that they were engaged in the provision of either competitive local exchange services or competitive access provider services.⁴⁰ Of these 1,442 carriers, an estimated 1,256 have 1,500 or fewer employees and 186 have more than 1,500 employees.⁴¹ In addition, 17 carriers have reported that they are Shared-Tenant Service Providers, and all 17 are estimated to have 1,500 or fewer employees.⁴² In addition, 72 carriers have reported that they are Other Local Service Providers.⁴³ Of the 72, seventy have 1,500 or fewer employees and two have more than 1,500 employees.⁴⁴ Consequently, the Commission estimates that most providers of competitive local exchange

³⁴ U.S. Census Bureau, 2007 Economic Census, Subject Series: Information, "Establishment and Firm Size," NAICS code 5179191 (rel. Nov. 19, 2010) (receipts size).

³⁵ 13 CFR § 121.201, NAICS code 517110.

³⁶ Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service*, Table 5.3 (Sept. 2010) (*Trends in Telephone Service*).

³⁷ *See Id.* at tbl. 5.3.

³⁸ *See id.*

³⁹ 13 CFR § 121.201, NAICS code 517110.

⁴⁰ *See Trends in Telephone Service* at Table 5.3.

⁴¹ *See id.*

⁴² *See id.*

⁴³ *See id.*

⁴⁴ *See id.*

service, competitive access providers, Shared-Tenant Service Providers, and other local service providers are small entities that may be affected by rules adopted pursuant to the Order.

18. We have included small incumbent LECs in this present RFA analysis. As noted above, a “small business” under the RFA is one that, *inter alia*, meets the pertinent small business size standard (e.g., a telephone communications business having 1,500 or fewer employees), and “is not dominant in its field of operation.”⁴⁵ The SBA’s Office of Advocacy contends that, for RFA purposes, small incumbent LECs are not dominant in their field of operation because any such dominance is not “national” in scope.⁴⁶ We have therefore included small incumbent LECs in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

19. *Interexchange Carriers.* Neither the Commission nor the SBA has developed a small business size standard specifically for providers of interexchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.⁴⁷ According to Commission data,⁴⁸ 359 carriers have reported that they are engaged in the provision of interexchange service. Of these, an estimated 317 have 1,500 or fewer employees and 42 have more than 1,500 employees. Consequently, the Commission estimates that the majority of interexchange carriers are small entities that may be affected by rules adopted pursuant to the Order.

20. *Operator Service Providers (OSPs).* Neither the Commission nor the SBA has developed a small business size standard specifically for operator service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.⁴⁹ According to Commission data, 33 carriers have reported that they are engaged in the provision of operator services. Of these, an estimated 31 have 1,500 or fewer employees and two have more than 1,500 employees.⁵⁰ Consequently, the Commission estimates that the majority of OSPs are small entities that may be affected by rules adopted pursuant to the Order.

21. *Prepaid Calling Card Providers.* Neither the Commission nor the SBA has developed a small business size standard specifically for prepaid calling card providers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.⁵¹ According to Commission data, 193 carriers have reported that they are engaged in the provision of prepaid calling cards.⁵² Of these, an estimated all 193 have 1,500 or fewer employees and none have more than 1,500 employees.⁵³ Consequently, the Commission estimates that the majority of prepaid calling card providers are small entities that may be

⁴⁵ 5 U.S.C. § 601(3).

⁴⁶ Letter from Jere W. Glover, Chief Counsel for Advocacy, SBA, to William E. Kennard, Chairman, Federal Communications Commission (filed May 27, 1999). The Small Business Act contains a definition of “small business concern,” which the RFA incorporates into its own definition of “small business.” 15 U.S.C. § 632(a); 5 U.S.C. § 601(3). SBA regulations interpret “small business concern” to include the concept of dominance on a national basis. 13 CFR § 121.102(b).

⁴⁷ 13 CFR § 121.201, NAICS code 517110.

⁴⁸ *Trends in Telephone Service*, Table 5.3.

⁴⁹ 13 CFR § 121.201, NAICS code 517110.

⁵⁰ *Trends in Telephone Service*, Table 5.3.

⁵¹ See 13 CFR § 121.201, NAICS code 517911.

⁵² See *Trends in Telephone Service* at Table 5.3.

⁵³ See *id.*

affected by rules adopted pursuant to the Order.

22. *Local Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.⁵⁴ According to Commission data, 213 carriers have reported that they are engaged in the provision of local resale services.⁵⁵ Of these, an estimated 211 have 1,500 or fewer employees and two have more than 1,500 employees.⁵⁶ Consequently, the Commission estimates that the majority of local resellers are small entities that may be affected by rules adopted pursuant to the Order.

23. *Toll Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.⁵⁷ According to Commission data, 881 carriers have reported that they are engaged in the provision of toll resale services.⁵⁸ Of these, an estimated 857 have 1,500 or fewer employees and 24 have more than 1,500 employees.⁵⁹ Consequently, the Commission estimates that the majority of toll resellers are small entities that may be affected by rules adopted pursuant to the Order.

24. *Other Toll Carriers.* Neither the Commission nor the SBA has developed a size standard for small businesses specifically applicable to Other Toll Carriers. This category includes toll carriers that do not fall within the categories of interexchange carriers, operator service providers, prepaid calling card providers, satellite service carriers, or toll resellers. The closest applicable size standard under SBA rules is for Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.⁶⁰ According to Commission data, 284 companies reported that their primary telecommunications service activity was the provision of other toll carriage.⁶¹ Of these, an estimated 279 have 1,500 or fewer employees and five have more than 1,500 employees.⁶² Consequently, the Commission estimates that most Other Toll Carriers are small entities that may be affected by the rules and policies adopted pursuant to the Order.

25. *800 and 800-Like Service Subscribers.*⁶³ Neither the Commission nor the SBA has developed a small business size standard specifically for 800 and 800-like service (toll free) subscribers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees.⁶⁴ The most reliable source of information regarding the number of these service subscribers appears to be data the Commission collects on the 800, 888, 877, and 866 numbers in use.⁶⁵ According to our data, as of September 2009, the number of 800 numbers assigned was 7,860,000; the number of 888 numbers assigned was 5,588,687; the number of 877 numbers assigned was 4,721,866; and the number of 866 numbers assigned was

⁵⁴ See 13 CFR § 121.201, NAICS code 517911.

⁵⁵ See *Trends in Telephone Service* at Table 5.3.

⁵⁶ See *id.*

⁵⁷ See 13 CFR § 121.201, NAICS code 517911.

⁵⁸ See *Trends in Telephone Service* at Table 5.3.

⁵⁹ See *id.*

⁶⁰ See 13 CFR § 121.201, NAICS code 517110.

⁶¹ See *Trends in Telephone Service* at Table 5.3.

⁶² See *id.*

⁶³ We include all toll-free number subscribers in this category, including those for 888 numbers.

⁶⁴ See 13 CFR § 121.201, NAICS code 517911.

⁶⁵ See *Trends in Telephone Service* at Tables 18.7-18.10.

7,867,736.⁶⁶ We do not have data specifying the number of these subscribers that are not independently owned and operated or have more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of toll free subscribers that would qualify as small businesses under the SBA size standard. Consequently, we estimate that there are 7,860,000 or fewer small entity 800 subscribers; 5,588,687 or fewer small entity 888 subscribers; 4,721,866 or fewer small entity 877 subscribers; and 7,867,736 or fewer small entity 866 subscribers.

4. Wireless Providers – Fixed and Mobile

26. The broadband Internet access service provider category covered by this Order may cover multiple wireless firms and categories of regulated wireless services. Thus, to the extent the wireless services listed below are used by wireless firms for broadband Internet access service, the proposed actions may have an impact on those small businesses as set forth above and further below. In addition, for those services subject to auctions, we note that, as a general matter, the number of winning bidders that claim to qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments and transfers or reportable eligibility events, unjust enrichment issues are implicated.

27. *Wireless Telecommunications Carriers (except Satellite)*. Since 2007, the Census Bureau has placed wireless firms within this new, broad, economic census category.⁶⁷ Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees.⁶⁸ For the category of Wireless Telecommunications Carriers (except Satellite), census data for 2007 show that there were 1,383 firms that operated for the entire year.⁶⁹ Of this total, 1,368 firms had employment of 999 or fewer employees and 15 had employment of 1,000 employees or more.⁷⁰ Since all firms with fewer than 1,500 employees are considered small, given the total employment in the sector, we estimate that the vast majority of wireless firms are small. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined “small business” for the wireless communications services (WCS) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years.⁷¹ The SBA has approved these definitions.⁷² *218-219 MHz Service*. The first auction of 218-219 MHz spectrum resulted in 170 entities winning licenses for 594 Metropolitan Statistical Area (MSA) licenses. Of the 594 licenses, 557 were won by entities qualifying as a small business. For that auction, the small business size standard was an entity that, together with its affiliates, has no more than a \$6 million net worth and, after federal income taxes (excluding any carry over losses), has no more than \$2 million in annual profits

⁶⁶ See *id.*

⁶⁷ U.S. Census Bur., 2012 NAICS Definitions, “517210 Wireless Telecommunications Categories (Except Satellite)”; <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517210&search=2012%20NAICS%20Search>.

⁶⁸ 13 CFR § 121.201, NAICS code 517210 (2012 NAICS). The now-superseded, pre-2007 CFR citations were 13 CFR § 121.201, NAICS codes 517211 and 517212 (referring to the 2002 NAICS).

⁶⁹ U.S. Census Bur., Subject Series: Information, Table 5, “Establishment and Firm Size: Employment Size of Firms for the United States: 2007 NAICS Code 517210” (issued Nov. 2010).

⁷⁰ See *id.*

⁷¹ *Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service (WCS)*, GN Docket No. 96-228, Report and Order, 12 FCC Rcd 10785, 10879, para. 194 (1997).

⁷² See Letter from Aida Alvarez, Administrator, SBA, to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission (filed Dec. 2, 1998) (*Alvarez Letter 1998*).

each year for the previous two years.⁷³ In the *218-219 MHz Report and Order and Memorandum Opinion and Order*, we established a small business size standard for a “small business” as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and their affiliates, has average annual gross revenues not to exceed \$15 million for the preceding three years.⁷⁴ A “very small business” is defined as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and its affiliates, has average annual gross revenues not to exceed \$3 million for the preceding three years.⁷⁵ These size standards will be used in future auctions of 218-219 MHz spectrum.

28. *2.3 GHz Wireless Communications Services.* This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined “small business” for the wireless communications services (“WCS”) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years.⁷⁶ The SBA has approved these definitions.⁷⁷ The Commission auctioned geographic area licenses in the WCS service. In the auction, which was conducted in 1997, there were seven bidders that won 31 licenses that qualified as very small business entities, and one bidder that won one license that qualified as a small business entity.

29. *1670–1675 MHz Services.* This service can be used for fixed and mobile uses, except aeronautical mobile.⁷⁸ An auction for one license in the 1670–1675 MHz band was conducted in 2003. One license was awarded. The winning bidder was not a small entity.

30. *Wireless Telephony.* Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. As noted, the SBA has developed a small business size standard for Wireless Telecommunications Carriers (except Satellite).⁷⁹ Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees.⁸⁰ According to Commission data, 413 carriers reported that they were engaged in wireless telephony.⁸¹ Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees.⁸² Therefore, a little less than one third of these entities can be considered small.

31. *Broadband Personal Communications Service.* The broadband personal communications services (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a “small business” for C- and F-Block licenses as an entity that has average gross revenues of \$40 million or less in the three

⁷³ See generally *Implementation of Section 309(j) of the Communications Act – Competitive Bidding*, PP Docket No. 93-253, Fourth Report and Order, 9 FCC Rcd 2330 (1994).

⁷⁴ See generally *Amendment of Part 95 of the Commission’s Rules to Provide Regulatory Flexibility in the 218-219 MHz Service*, WT Docket No. 98-169, Report and Order and Memorandum Opinion and Order, 15 FCC Rcd 1497 (1999) (*218-219 MHz Report and Order and Memorandum Opinion and Order*).

⁷⁵ See *id.*

⁷⁶ *Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service (WCS)*, GN Docket No. 96-228, Report and Order, 12 FCC Rcd 10785, 10879, para. 194 (1997).

⁷⁷ See *Alvarez Letter 1998*.

⁷⁸ 47 CFR § 2.106; see generally 47 CFR §§ 27.1-27.70.

⁷⁹ 13 CFR § 121.201, NAICS code 517210.

⁸⁰ *Id.*

⁸¹ *Trends in Telephone Service*, Table 5.3.

⁸² *Id.*

previous calendar years.⁸³ For F-Block licenses, an additional small business size standard for “very small business” was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years.⁸⁴ These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA.⁸⁵ No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small business status won approximately 40 percent of the 1,479 licenses in the first auction for the D, E, and F Blocks.⁸⁶ On April 15, 1999, the Commission completed the reauction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22.⁸⁷ Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

32. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status.⁸⁸ Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163 C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses.⁸⁹ On May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71.⁹⁰ Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses.⁹¹ On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block Broadband PCS licenses in Auction No. 78.⁹² Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.⁹³

33. *Specialized Mobile Radio Licenses.* The Commission awards “small entity” bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than \$15 million in each of the three previous calendar

⁸³ See *Amendment of Parts 20 and 24 of the Commission’s Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap; Amendment of the Commission’s Cellular/PCS Cross-Ownership Rule*; WT Docket No. 96-59, GN Docket No. 90-314, Report and Order, 11 FCC Rcd 7824, 7850-52, paras. 57-60 (1996) (*PCS Report and Order*); see also 47 CFR § 24.720(b).

⁸⁴ See *PCS Report and Order*, 11 FCC Rcd at 7852, para. 60.

⁸⁵ See *Alvarez Letter 1998*.

⁸⁶ See *Broadband PCS, D, E and F Block Auction Closes*, Public Notice, Doc. No. 89838 (rel. Jan. 14, 1997).

⁸⁷ See *C, D, E, and F Block Broadband PCS Auction Closes*, Public Notice, 14 FCC Rcd 6688 (WTB 1999). Before Auction No. 22, the Commission established a very small standard for the C Block to match the standard used for F Block. *Amendment of the Commission’s Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensees*, WT Docket No. 97-82, Fourth Report and Order, 13 FCC Rcd 15743, 15768, para. 46 (1998).

⁸⁸ See *C and F Block Broadband PCS Auction Closes; Winning Bidders Announced*, Public Notice, 16 FCC Rcd 2339 (2001).

⁸⁹ See *Broadband PCS Spectrum Auction Closes; Winning Bidders Announced for Auction No. 58*, Public Notice, 20 FCC Rcd 3703 (2005).

⁹⁰ See *Auction of Broadband PCS Spectrum Licenses Closes; Winning Bidders Announced for Auction No. 71*, Public Notice, 22 FCC Rcd 9247 (2007).

⁹¹ *Id.*

⁹² See *Auction of AWS-1 and Broadband PCS Licenses Closes; Winning Bidders Announced for Auction 78*, Public Notice, 23 FCC Rcd 12749 (WTB 2008).

⁹³ *Id.*

years.⁹⁴ The Commission awards “very small entity” bidding credits to firms that had revenues of no more than \$3 million in each of the three previous calendar years.⁹⁵ The SBA has approved these small business size standards for the 900 MHz Service.⁹⁶ The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR auction began on December 5, 1995, and closed on April 15, 1996. Sixty bidders claiming that they qualified as small businesses under the \$15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels began on October 28, 1997, and was completed on December 8, 1997. Ten bidders claiming that they qualified as small businesses under the \$15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz SMR band.⁹⁷ A second auction for the 800 MHz band was held on January 10, 2002 and closed on January 17, 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.⁹⁸

34. The auction of the 1,053 800 MHz SMR geographic area licenses for the General Category channels began on August 16, 2000, and was completed on September 1, 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band and qualified as small businesses under the \$15 million size standard.⁹⁹ In an auction completed on December 5, 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded.¹⁰⁰ Of the 22 winning bidders, 19 claimed small business status and won 129 licenses. Thus, combining all four auctions, 41 winning bidders for geographic licenses in the 800 MHz SMR band claimed status as small businesses.

35. In addition, there are numerous incumbent site-by-site SMR licenses and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than \$15 million. One firm has over \$15 million in revenues. In addition, we do not know how many of these firms have 1,500 or fewer employees, which is the SBA-determined size standard.¹⁰¹ We assume, for purposes of this analysis, that all of the remaining extended implementation authorizations are held by small entities, as defined by the SBA.

36. *Lower 700 MHz Band Licenses.* The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits.¹⁰² The Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40

⁹⁴ 47 CFR § 90.814(b)(1).

⁹⁵ *Id.*

⁹⁶ See Letter from Aida Alvarez, Administrator, SBA, to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission (filed Aug. 10, 1999) (*Alvarez Letter 1999*).

⁹⁷ See *Correction to Public Notice DA 96-586 “FCC Announces Winning Bidders in the Auction of 1020 Licenses to Provide 900 MHz SMR in Major Trading Areas,”* Public Notice, 18 FCC Rcd 18367 (WTB 1996).

⁹⁸ See *Multi-Radio Service Auction Closes*, Public Notice, 17 FCC Rcd 1446 (WTB 2002).

⁹⁹ See *800 MHz Specialized Mobile Radio (SMR) Service General Category (851–854 MHz) and Upper Band (861–865 MHz) Auction Closes; Winning Bidders Announced*, Public Notice, 15 FCC Rcd 17162 (2000).

¹⁰⁰ See *800 MHz SMR Service Lower 80 Channels Auction Closes; Winning Bidders Announced*, Public Notice, 16 FCC Rcd 1736 (2000).

¹⁰¹ See generally 13 CFR § 121.201, NAICS code 517210.

¹⁰² See *Reallocation and Service Rules for the 698–746 MHz Spectrum Band (Television Channels 52–59)*, GN Docket No. 01-74, Report and Order, 17 FCC Rcd 1022 (2002) (*Channels 52–59 Report and Order*).

million for the preceding three years.¹⁰³ A “very small business” is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.¹⁰⁴ Additionally, the lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—“entrepreneur”—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years.¹⁰⁵ The SBA approved these small size standards.¹⁰⁶ An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won a total of 329 licenses.¹⁰⁷ A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 Cellular Market Area licenses.¹⁰⁸ Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses.¹⁰⁹ On July 26, 2005, the Commission completed an auction of 5 licenses in the Lower 700 MHz band (Auction No. 60). There were three winning bidders for five licenses. All three winning bidders claimed small business status.

37. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*.¹¹⁰ An auction of 700 MHz licenses commenced January 24, 2008 and closed on March 18, 2008, which included, 176 Economic Area licenses in the A Block, 734 Cellular Market Area licenses in the B Block, and 176 EA licenses in the E Block.¹¹¹ Twenty winning bidders, claiming small business status (those with attributable average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years) won 49 licenses. Thirty three winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) won 325 licenses.

38. *Upper 700 MHz Band Licenses*. In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz licenses.¹¹² On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were

¹⁰³ See *id.* at 1087-88, para. 172.

¹⁰⁴ See *id.*

¹⁰⁵ See *id.*, at 1088, para. 173.

¹⁰⁶ See *Alvarez Letter 1999*.

¹⁰⁷ See *Lower 700 MHz Band Auction Closes*, Public Notice, 17 FCC Rcd 17272 (WTB 2002).

¹⁰⁸ See *id.*

¹⁰⁹ See *id.*

¹¹⁰ *Service Rules for the 698–746, 747–762 and 777–792 MHz Band; Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Section 68.4(a) of the Commission’s Rules Governing Hearing Aid-Compatible Telephones; Biennial Regulatory Review—Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services; Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission’s Rules; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010; Declaratory Ruling on Reporting Requirement under Commission’s Part 1 Anti-Collusion Rule*, WT Docket Nos. 07-166, 06-169, 06-150, 03-264, 96-86, PS Docket No. 06-229, CC Docket No. 94-102, Second Report and Order, 22 FCC Rcd 15289, 15359 n. 434 (2007) (*700 MHz Second Report and Order*).

¹¹¹ See *Auction of 700 MHz Band Licenses Closes*, Public Notice, 23 FCC Rcd 4572 (WTB 2008).

¹¹² *700 MHz Second Report and Order*, 22 FCC Rcd 15289.

available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block.¹¹³ The auction concluded on March 18, 2008, with 3 winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) and winning five licenses.

39. *700 MHz Guard Band Licensees.* In 2000, in the 700 MHz Guard Band Order, the Commission adopted size standards for “small businesses” and “very small businesses” for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.¹¹⁴ A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years.¹¹⁵ Additionally, a very small business is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.¹¹⁶ SBA approval of these definitions is not required.¹¹⁷ An auction of 52 Major Economic Area licenses commenced on September 6, 2000, and closed on September 21, 2000.¹¹⁸ Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.¹¹⁹

40. *Cellular Radiotelephone Service.* Auction 77 was held to resolve one group of mutually exclusive applications for Cellular Radiotelephone Service licenses for unserved areas in New Mexico.¹²⁰ Bidding credits for designated entities were not available in Auction 77.¹²¹ In 2008, the Commission completed the closed auction of one unserved service area in the Cellular Radiotelephone Service, designated as Auction 77. Auction 77 concluded with one provisionally winning bid for the unserved area totaling \$25,002.¹²²

41. *Private Land Mobile Radio (“PLMR”).* PLMR systems serve an essential role in a range of industrial, business, land transportation, and public safety activities. These radios are used by companies of all sizes operating in all U.S. business categories, and are often used in support of the licensee’s primary (non-telecommunications) business operations. For the purpose of determining whether a licensee of a PLMR system is a small business as defined by the SBA, we use the broad census

¹¹³ See *Auction of 700 MHz Band Licenses Closes*, Public Notice, 23 FCC Rcd 4572 (WTB 2008).

¹¹⁴ See *Service Rules for the 746–764 MHz Bands, and Revisions to Part 27 of the Commission’s Rules*, WT Docket No. 99-168, Second Report and Order, 15 FCC Rcd 5299 (2000) (*746–764 MHz Band Second Report and Order*).

¹¹⁵ See *id.* at 5343, para. 108.

¹¹⁶ See *id.*

¹¹⁷ See *id.* at 5343, para. 108 n.246 (for the 746–764 MHz and 776–794 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain SBA approval before adopting small business size standards).

¹¹⁸ See *700 MHz Guard Bands Auction Closes: Winning Bidders Announced*, Public Notice, 15 FCC Rcd 18026 (WTB 2000).

¹¹⁹ See *700 MHz Guard Bands Auction Closes: Winning Bidders Announced*, Public Notice, 16 FCC Rcd 4590 (WTB 2001).

¹²⁰ See *Closed Auction of Licenses for Cellular Unserved Service Area Scheduled for June 17, 2008, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 77*, Public Notice, 23 FCC Rcd 6670 (Wireless Tel. Bur. 2008).

¹²¹ *Id.* at 6685.

¹²² See *Auction of Cellular Unserved Service Area License Closes, Winning Bidder Announced for Auction 77, Down Payment due July 2, 2008, Final Payment due July 17, 2008*, Public Notice, 23 FCC Rcd 9501 (WTB 2008).

category, Wireless Telecommunications Carriers (except Satellite). This definition provides that a small entity is any such entity employing no more than 1,500 persons.¹²³ The Commission does not require PLMR licensees to disclose information about number of employees, so the Commission does not have information that could be used to determine how many PLMR licensees constitute small entities under this definition. We note that PLMR licensees generally use the licensed facilities in support of other business activities, and therefore, it would also be helpful to assess PLMR licensees under the standards applied to the particular industry subsector to which the licensee belongs.¹²⁴

42. As of March 2010, there were 424,162 PLMR licensees operating 921,909 transmitters in the PLMR bands below 512 MHz. We note that any entity engaged in a commercial activity is eligible to hold a PLMR license, and that any revised rules in this context could therefore potentially impact small entities covering a great variety of industries.

43. *Rural Radiotelephone Service.* The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service.¹²⁵ A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System (BETRS).¹²⁶ In the present context, we will use the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite), i.e., an entity employing no more than 1,500 persons.¹²⁷ There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies proposed herein.

44. *Air-Ground Radiotelephone Service.* The Commission has previously used the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite), i.e., an entity employing no more than 1,500 persons.¹²⁸ There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and under that definition, we estimate that almost all of them qualify as small entities under the SBA definition. For purposes of assigning Air-Ground Radiotelephone Service licenses through competitive bidding, the Commission has defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding \$40 million.¹²⁹ A "very small business" is defined as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding \$15 million.¹³⁰ These definitions were approved by the SBA.¹³¹ In May 2006, the Commission completed an auction of nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band (Auction No. 65). On June 2, 2006, the auction closed with two winning

¹²³ See 13 CFR § 121.201, NAICS code 517210.

¹²⁴ See generally 13 CFR § 121.201.

¹²⁵ The service is defined in 47 CFR § 22.99.

¹²⁶ BETRS is defined in 47 CFR §§ 22.757 and 22.759.

¹²⁷ 13 CFR § 121.201, NAICS code 517210.

¹²⁸ 13 CFR § 121.201, NAICS code 517210.

¹²⁹ *Amendment of Part 22 of the Commission's Rules to Benefit the Consumers of Air-Ground Telecommunications Services, Biennial Regulatory Review—Amendment of Parts 1, 22, and 90 of the Commission's Rules, Amendment of Parts 1 and 22 of the Commission's Rules to Adopt Competitive Bidding Rules for Commercial and General Aviation Air-Ground Radiotelephone Service*, WT Docket Nos. 03-103, 05-42, Order on Reconsideration and Report and Order, 20 FCC Rcd 19663, paras. 28-42 (2005).

¹³⁰ *Id.*

¹³¹ See Letter from Hector V. Barreto, Administrator, SBA, to Gary D. Michaels, Deputy Chief, Auctions and Spectrum Access Division, Wireless Telecommunications Bureau, Federal Communications Commission (filed Sept. 19, 2005).

bidders winning two Air-Ground Radiotelephone Services licenses. Neither of the winning bidders claimed small business status.

45. *Aviation and Marine Radio Services.* Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category Wireless Telecommunications Carriers (except Satellite), which is 1,500 or fewer employees.¹³² Census data for 2007, which supersede data contained in the 2002 Census, show that there were 1,383 firms that operated that year.¹³³ Of those 1,383, 1,368 had fewer than 100 employees, and 15 firms had more than 100 employees. Most applicants for recreational licenses are individuals. Approximately 581,000 ship station licensees and 131,000 aircraft station licensees operate domestically and are not subject to the radio carriage requirements of any statute or treaty. For purposes of our evaluations in this analysis, we estimate that there are up to approximately 712,000 licensees that are small businesses (or individuals) under the SBA standard. In addition, between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast licenses in the 157.1875-157.4500 MHz (ship transmit) and 161.775-162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a “small” business as an entity that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed \$15 million dollars.¹³⁴ In addition, a “very small” business is one that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed \$3 million dollars.¹³⁵ There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as “small” businesses under the above special small business size standards and may be affected by rules adopted pursuant to the Order.

46. *Advanced Wireless Services (AWS) (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3)).* For the AWS-1 bands,¹³⁶ the Commission has defined a “small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a “very small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million. For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but proposes to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.¹³⁷

¹³² See 13 CFR § 121.201, NAICS code 517210.

¹³³ U.S. Census Bur., 2007 Economic Census, Sector 51, 2007 NAICS code 517210 (rel. Oct. 20, 2009), http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-_skip=700&-ds_name=EC0751SSSZ5&-_lang=en.

¹³⁴ See generally *Amendment of the Commission’s Rules Concerning Maritime Communications*, PR Docket No. 92-257, Third Report and Order and Memorandum Opinion and Order, 13 FCC Rcd 19853, 19884–88, paras. 64–73 (1998).

¹³⁵ See *id.*

¹³⁶ The service is defined in section 90.1301 *et seq.* of the Commission’s Rules, 47 CFR § 90.1301 *et seq.*

¹³⁷ See *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, WT Docket No. 02-353, Report and Order, 18 FCC Rcd 25162, Appx. B (2003), modified by *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, WT Docket No. 02-353, Order on Reconsideration, 20 FCC Rcd 14058, Appx. C (2005); *Service Rules for Advanced Wireless Services in the 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz*

(continued...)

47. *3650–3700 MHz band.* In March 2005, the Commission released a *Report and Order and Memorandum Opinion and Order* that provides for nationwide, non-exclusive licensing of terrestrial operations, utilizing contention-based technologies, in the 3650 MHz band (i.e., 3650–3700 MHz). As of April 2010, more than 1270 licenses have been granted and more than 7433 sites have been registered. The Commission has not developed a definition of small entities applicable to 3650–3700 MHz band nationwide, non-exclusive licensees. However, we estimate that the majority of these licensees are Internet Access Service Providers (ISPs) and that most of those licensees are small businesses.

48. *Fixed Microwave Services.* Microwave services include common carrier,¹³⁸ private-operational fixed,¹³⁹ and broadcast auxiliary radio services.¹⁴⁰ They also include the Local Multipoint Distribution Service (LMDS),¹⁴¹ the Digital Electronic Message Service (DEMS),¹⁴² and the 24 GHz Service,¹⁴³ where licensees can choose between common carrier and non-common carrier status.¹⁴⁴ At present, there are approximately 36,708 common carrier fixed licensees and 59,291 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. There are approximately 135 LMDS licensees, three DEMS licensees, and three 24 GHz licensees. The Commission has not yet defined a small business with respect to microwave services. For purposes of the FRFA, we will use the SBA's definition applicable to Wireless Telecommunications Carriers (except satellite)—i.e., an entity with no more than 1,500 persons.¹⁴⁵ Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees.¹⁴⁶ The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are up to 36,708 common carrier fixed licensees and up to 59,291 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services that may be small and may be affected by the rules and policies adopted herein. We note, however, that the common carrier microwave fixed licensee category includes some large entities.

49. *Offshore Radiotelephone Service.* This service operates on several UHF television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the

(Continued from previous page) _____

and 2175–2180 MHz Bands; Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Docket Nos. 04-356, 02-353, Notice of Proposed Rulemaking, 19 FCC Rcd 19263, Appx. B (2005); *Service Rules for Advanced Wireless Services in the 2155–2175 MHz Band*, WT Docket No. 07-195, Notice of Proposed Rulemaking, 22 FCC Rcd 17035, Appx. (2007).

¹³⁸ See 47 CFR Part 101, Subparts C and I.

¹³⁹ *Id.*, Subparts C and H.

¹⁴⁰ Auxiliary Microwave Service is governed by Part 74 of Title 47 of the Commission's Rules. See 47 CFR Part 74. Available to licensees of broadcast stations and to broadcast and cable network entities, broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile TV pickups, which relay signals from a remote location back to the studio.

¹⁴¹ See 47 CFR Part 101, Subpart L.

¹⁴² *Id.*, Subpart G.

¹⁴³ See *id.*

¹⁴⁴ See 47 CFR §§ 101.533, 101.1017.

¹⁴⁵ 13 CFR § 121.201, NAICS code 517210.

¹⁴⁶ 13 CFR § 121.201, NAICS code 517210 (2007 NAICS). The now-superseded, pre-2007 CFR citations were 13 CFR § 121.201, NAICS codes 517211 and 517212 (referring to the 2002 NAICS).

Gulf of Mexico.¹⁴⁷ There are presently approximately 55 licensees in this service. The Commission is unable to estimate at this time the number of licensees that would qualify as small under the SBA's small business size standard for the category of Wireless Telecommunications Carriers (except Satellite). Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees.¹⁴⁸ Census data for 2007, which supersede data contained in the 2002 Census, show that there were 1,383 firms that operated that year.¹⁴⁹ Of those 1,383, 1,368 had fewer than 100 employees, and 15 firms had more than 100 employees. Thus, under this category and the associated small business size standard, the majority of firms can be considered small.

50. *39 GHz Service.* The Commission created a special small business size standard for 39 GHz licenses – an entity that has average gross revenues of \$40 million or less in the three previous calendar years.¹⁵⁰ An additional size standard for “very small business” is: an entity that, together with affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years.¹⁵¹ The SBA has approved these small business size standards.¹⁵² The auction of the 2,173 39 GHz licenses began on April 12, 2000 and closed on May 8, 2000. The 18 bidders who claimed small business status won 849 licenses. Consequently, the Commission estimates that 18 or fewer 39 GHz licensees are small entities that may be affected by rules adopted pursuant to the Order.

51. *Broadband Radio Service and Educational Broadband Service.* Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (MDS) and Multichannel Multipoint Distribution Service (MMDS) systems, and “wireless cable,” transmit video programming to subscribers and provide two-way high speed data operations using the microwave frequencies of the Broadband Radio Service (BRS) and Educational Broadband Service (EBS) (previously referred to as the Instructional Television Fixed Service (ITFS)).¹⁵³ In connection with the 1996 BRS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of no more than \$40 million in the previous three calendar years.¹⁵⁴ The BRS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. BRS also includes licensees of stations authorized prior to the auction. At this time, we estimate that of the 61 small business BRS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent BRS licensees that are considered small entities.¹⁵⁵

¹⁴⁷ This service is governed by Subpart I of Part 22 of the Commission's Rules. See 47 CFR §§ 22.1001-22.1037.

¹⁴⁸ *Id.*

¹⁴⁹ U.S. Census Bureau, 2007 Economic Census, Sector 51, 2007 NAICS code 517210 (rel. Oct. 20, 2009), http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-_skip=700&-ds_name=EC0751SSSZ5&-_lang=en.

¹⁵⁰ See *Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, ET Docket No. 95-183, PP Docket No. 93-253, Report and Order, 12 FCC Rcd 18600, 18661-64, paras. 149-51 (1997).

¹⁵¹ See *id.*

¹⁵² See Letter to Kathleen O'Brien Ham, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, SBA (Feb. 4, 1998).

¹⁵³ *Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act—Competitive Bidding*, MM Docket No. 94-131, PP Docket No. 93-253, Report and Order, 10 FCC Rcd 9589, 9593, para. 7 (1995).

¹⁵⁴ 47 CFR § 21.961(b)(1).

¹⁵⁵ 47 U.S.C. § 309(j). Hundreds of stations were licensed to incumbent MDS licensees prior to implementation of Section 309(j) of the Communications Act of 1934, 47 U.S.C. § 309(j). For these pre-auction licenses, the applicable standard is SBA's small business size standard of 1500 or fewer employees.

After adding the number of small business auction licensees to the number of incumbent licensees not already counted, we find that there are currently approximately 440 BRS licensees that are defined as small businesses under either the SBA or the Commission's rules.

52. In 2009, the Commission conducted Auction 86, the sale of 78 licenses in the BRS areas.¹⁵⁶ The Commission offered three levels of bidding credits: (i) a bidder with attributed average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years (small business) received a 15 percent discount on its winning bid; (ii) a bidder with attributed average annual gross revenues that exceed \$3 million and do not exceed \$15 million for the preceding three years (very small business) received a 25 percent discount on its winning bid; and (iii) a bidder with attributed average annual gross revenues that do not exceed \$3 million for the preceding three years (entrepreneur) received a 35 percent discount on its winning bid.¹⁵⁷ Auction 86 concluded in 2009 with the sale of 61 licenses.¹⁵⁸ Of the ten winning bidders, two bidders that claimed small business status won 4 licenses; one bidder that claimed very small business status won three licenses; and two bidders that claimed entrepreneur status won six licenses.

53. In addition, the SBA's Cable Television Distribution Services small business size standard is applicable to EBS. There are presently 2,436 EBS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities.¹⁵⁹ Thus, we estimate that at least 2,336 licensees are small businesses. Since 2007, Cable Television Distribution Services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: "This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies."¹⁶⁰ The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. To gauge small business prevalence for these cable services we must, however, use the most current census data that are based on the previous category of Cable and Other Program Distribution and its associated size standard; that size standard was: all such firms having \$13.5 million or less in annual receipts.¹⁶¹ According to Census Bureau data for 2007, there were a total of 996 firms in this category that operated for the entire year.¹⁶² Of this total, 948 firms had annual receipts of under \$10 million, and 48 firms had receipts of \$10 million or more but less than \$25 million.¹⁶³ Thus, the majority of these firms can be considered small.

¹⁵⁶ *Auction of Broadband Radio Service (BRS) Licenses, Scheduled for October 27, 2009, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 86*, AU Docket No. 09-56, Public Notice, 24 FCC Rcd 8277 (2009).

¹⁵⁷ *Id.* at 8296, para. 73.

¹⁵⁸ *Auction of Broadband Radio Service Licenses Closes, Winning Bidders Announced for Auction 86, Down Payments Due November 23, 2009, Final Payments Due December 8, 2009, Ten-Day Petition to Deny Period*, Public Notice, 24 FCC Rcd 13572 (2009).

¹⁵⁹ The term "small entity" within SBREFA applies to small organizations (nonprofits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)-(6). We do not collect annual revenue data on EBS licensees.

¹⁶⁰ U.S. Census Bur., 2012 NAICS Definitions, "517110 Wired Telecommunications Carriers" (partial definition), <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517110&search=2012>.

¹⁶¹ 13 CFR § 121.201, NAICS code 517110.

¹⁶² U.S. Census Bur., 2007 Economic Census, Subject Series: Information, Receipts by Enterprise Employment Size for the United States: 2007, NAICS code 517510 (rel. Nov. 19, 2010).

¹⁶³ *Id.*

54. *Narrowband Personal Communications Services.* In 1994, the Commission conducted an auction for Narrowband PCS licenses. A second auction was also conducted later in 1994. For purposes of the first two Narrowband PCS auctions, “small businesses” were entities with average gross revenues for the prior three calendar years of \$40 million or less.¹⁶⁴ Through these auctions, the Commission awarded a total of 41 licenses, 11 of which were obtained by four small businesses.¹⁶⁵ To ensure meaningful participation by small business entities in future auctions, the Commission adopted a two-tiered small business size standard in the *Narrowband PCS Second Report and Order*.¹⁶⁶ A “small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million.¹⁶⁷ A “very small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15 million.¹⁶⁸ The SBA has approved these small business size standards.¹⁶⁹ A third auction was conducted in 2001. Here, five bidders won 317 (Metropolitan Trading Areas and nationwide) licenses.¹⁷⁰ Three of these claimed status as a small or very small entity and won 311 licenses.

55. *Paging (Private and Common Carrier).* In the *Paging Third Report and Order*, we developed a small business size standard for “small businesses” and “very small businesses” for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.¹⁷¹ A “small business” is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$15 million for the preceding three years. Additionally, a “very small business” is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years. The SBA has approved these small business size standards.¹⁷² According to Commission data, 291 carriers have reported that they are engaged in Paging or Messaging Service.¹⁷³ Of these, an estimated 289 have 1,500 or fewer employees, and two have more than 1,500 employees.¹⁷⁴ Consequently, the Commission estimates that the majority

¹⁶⁴ *Implementation of Section 309(j) of the Communications Act – Competitive Bidding Narrowband PCS*, PP Docket No. 93-253, GEN Docket No. 90-314, ET Docket No. 92-100, Third Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 10 FCC Rcd 175, 196, para. 46 (1994).

¹⁶⁵ *See Announcing the High Bidders in the Auction of Ten Nationwide Narrowband PCS Licenses, Winning Bids Total \$617,006,674*, Public Notice, PNWL 94-004 (rel. Aug. 2, 1994); *Announcing the High Bidders in the Auction of 30 Regional Narrowband PCS Licenses; Winning Bids Total \$490,901,787*, Public Notice, PNWL 94-27 (rel. Nov. 9, 1994).

¹⁶⁶ *Amendment of the Commission’s Rules to Establish New Personal Communications Services*, GEN Docket No. 90-314, ET Docket No. 92-100, PP Docket No. 93-253, Narrowband PCS, Second Report and Order and Second Further Notice of Proposed Rule Making, 15 FCC Rcd 10456, 10476, para. 40 (2000) (*Narrowband PCS Second Report and Order*).

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *See* Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, from A. Alvarez, Administrator, SBA (Dec. 2, 1998) (*Alvarez Letter 1998*).

¹⁷⁰ *See Narrowband PCS Auction Closes*, Public Notice, 16 FCC Rcd 18663 (WTB 2001).

¹⁷¹ *See Revision of Part 22 and Part 90 of the Commission’s Rules to Facilitate Future Development of Paging Systems*, WT Docket No. 96-18, PR Docket No. 93-253, Memorandum Opinion and Order on Reconsideration and Third Report and Order, 14 FCC Rcd 10030, 10085–88, paras. 98–107 (1999) (*Paging Third Report and Order*).

¹⁷² *See Alvarez Letter 1998*.

¹⁷³ *See Trends in Telephone Service* at Table 5.3.

¹⁷⁴ *See id.*

of paging providers are small entities that may be affected by our action. An auction of Metropolitan Economic Area licenses commenced on February 24, 2000, and closed on March 2, 2000. Of the 2,499 licenses auctioned, 985 were sold. Fifty-seven companies claiming small business status won 440 licenses.¹⁷⁵ A subsequent auction of MEA and Economic Area (“EA”) licenses was held in the year 2001. Of the 15,514 licenses auctioned, 5,323 were sold.¹⁷⁶ One hundred thirty-two companies claiming small business status purchased 3,724 licenses. A third auction, consisting of 8,874 licenses in each of 175 EAs and 1,328 licenses in all but three of the 51 MEAs, was held in 2003. Seventy-seven bidders claiming small or very small business status won 2,093 licenses.¹⁷⁷ A fourth auction, consisting of 9,603 lower and upper paging band licenses was held in the year 2010. Twenty-nine bidders claiming small or very small business status won 3,016 licenses.¹⁷⁸

56. *220 MHz Radio Service – Phase I Licensees.* The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non-nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz band. The Commission has not developed a small business size standard for small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to Wireless Telecommunications Carriers (except Satellite). Under this category, the SBA deems a wireless business to be small if it has 1,500 or fewer employees.¹⁷⁹ The Commission estimates that nearly all such licensees are small businesses under the SBA’s small business size standard that may be affected by rules adopted pursuant to the Order.

57. *220 MHz Radio Service – Phase II Licensees.* The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is subject to spectrum auctions. In the *220 MHz Third Report and Order*, we adopted a small business size standard for “small” and “very small” businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.¹⁸⁰ This small business size standard indicates that a “small business” is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$15 million for the preceding three years.¹⁸¹ A “very small business” is an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed \$3 million for the preceding three years.¹⁸² The SBA has approved these small business size standards.¹⁸³ Auctions of Phase II licenses

¹⁷⁵ *See id.*

¹⁷⁶ *See Lower and Upper Paging Band Auction Closes*, Public Notice, 16 FCC Rcd 21821 (WTB 2002).

¹⁷⁷ *See Lower and Upper Paging Bands Auction Closes*, Public Notice, 18 FCC Rcd 11154 (Wireless Tel. Bur. 2003). The current number of small or very small business entities that hold wireless licenses may differ significantly from the number of such entities that won in spectrum auctions due to assignments and transfers of licenses in the secondary market over time. In addition, some of the same small business entities may have won licenses in more than one auction.

¹⁷⁸ *See Auction of Lower and Upper Paging Bands Licenses Closes*, Public Notice, 25 FCC Rcd 18164 (WTB 2010).

¹⁷⁹ *See* 13 CFR § 121.201, NAICS code 517210.

¹⁸⁰ *See Amendment of Part 90 of the Commission’s Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service*, PR Docket No. 89-552, GN Docket No. 93-252, PP Docket No. 93-253, Third Report and Order and Fifth Notice of Proposed Rulemaking, 12 FCC Rcd 10943, 11068-70, paras. 291-95 (1997) (*220 MHz Third Report and Order*).

¹⁸¹ *See id.* at 11068–69, para. 291.

¹⁸² *See id.* at 11068–70, paras. 291–95.

¹⁸³ *See* Letter to D. Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, SBA (Jan. 6, 1998) (*Alvarez to Phythyon Letter 1998*).

commenced on September 15, 1998, and closed on October 22, 1998.¹⁸⁴ In the first auction, 908 licenses were auctioned in three different-sized geographic areas: three nationwide licenses, 30 Regional Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold. Thirty-nine small businesses won licenses in the first 220 MHz auction. The second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses.¹⁸⁵

5. Satellite Service Providers

58. *Satellite Telecommunications Providers.* Two economic census categories address the satellite industry. The first category has a small business size standard of \$30 million or less in average annual receipts, under SBA rules.¹⁸⁶ The second has a size standard of \$30 million or less in annual receipts.¹⁸⁷

59. The category of Satellite Telecommunications “comprises establishments primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications.”¹⁸⁸ For this category, Census Bureau data for 2007 show that there were a total of 570 firms that operated for the entire year.¹⁸⁹ Of this total, 530 firms had annual receipts of under \$30 million, and 40 firms had receipts of over \$30 million.¹⁹⁰ Consequently, we estimate that the majority of Satellite Telecommunications firms are small entities that might be affected by our action.

60. The second category of Other Telecommunications comprises, *inter alia*, “establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.”¹⁹¹ For this category, Census Bureau data for 2007 show that there were a total of 1,274 firms that operated for the entire year.¹⁹² Of this total, 1,252 had annual receipts below \$25 million per year.¹⁹³ Consequently, we estimate that the majority of All Other Telecommunications firms are small entities that might be affected by our action.

6. Cable Service Providers

61. Because section 706 requires us to monitor the deployment of broadband using any technology, we anticipate that some broadband service providers may not provide telephone service.

¹⁸⁴ See *Phase II 220 MHz Service Auction Closes*, Public Notice, 14 FCC Rcd 605 (WTB 1998).

¹⁸⁵ See *Phase II 220 MHz Service Spectrum Auction Closes*, Public Notice, 14 FCC Rcd 11218 (WTB 1999).

¹⁸⁶ 13 CFR § 121.201, NAICS Code 517410.

¹⁸⁷ 13 CFR § 121.201, NAICS Code 517919.

¹⁸⁸ U.S. Census Bur., 2012 NAICS Definitions, “517410 Satellite Telecommunications,” <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517410&search=2012>.

¹⁸⁹ U.S. Census Bur., 2007 Economic Census, Subject Series: Information, “Establishment and Firm Size,” NAICS code 517410 (rel. Nov. 19, 2010).

¹⁹⁰ *Id.*

¹⁹¹ U.S. Census Bur., 2012 NAICS Definitions, “517919 All Other Telecommunications,” <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517919&search=2012>.

¹⁹² U.S. Census Bur., 2007 Economic Census, Subject Series: Information, “Establishment and Firm Size,” NAICS code 517410 (rel. Nov. 19, 2010).

¹⁹³ *Id.*

Accordingly, we describe below other types of firms that may provide broadband services, including cable companies, MDS providers, and utilities, among others.

62. *Cable and Other Program Distributors.* Since 2007, these services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: “This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies.”¹⁹⁴ The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. To gauge small business prevalence for these cable services we must, however, use current census data that are based on the previous category of Cable and Other Program Distribution and its associated size standard; that size standard was: all such firms having \$13.5 million or less in annual receipts.¹⁹⁵ According to Census Bureau data for 2007, there were a total of 2,048 firms in this category that operated for the entire year.¹⁹⁶ Of this total, 1,393 firms had annual receipts of under \$10 million, and 655 firms had receipts of \$10 million or more.¹⁹⁷ Thus, the majority of these firms can be considered small.

63. *Cable Companies and Systems.* The Commission has also developed its own small business size standards, for the purpose of cable rate regulation. Under the Commission’s rules, a “small cable company” is one serving 400,000 or fewer subscribers, nationwide.¹⁹⁸ Industry data that there are currently 4,600 active cable systems in the United States.¹⁹⁹ Of this total, all but nine cable operators are small under the 400,000 subscriber size standard.²⁰⁰ In addition, under the Commission’s rules, a “small system” is a cable system serving 15,000 or fewer subscribers.²⁰¹ Current Commission records show

¹⁹⁴ U.S. Census Bur., 2012 NAICS Definitions, “517110 Wired Telecommunications Carriers” (partial definition), <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517110&search=2012>.

¹⁹⁵ 13 CFR § 121.201, NAICS code 517110.

¹⁹⁶ U.S. Census Bur., 2007 Economic Census, Subject Series: Information, “Establishment and Firm Size,” NAICS code 517110 (rel. Nov. 19, 2010).

¹⁹⁷ *Id.*

¹⁹⁸ 47 CFR § 76.901(e). The Commission determined that this size standard equates approximately to a size standard of \$100 million or less in annual revenues. *Implementation of Sections of the 1992 Cable Act: Rate Regulation*, Sixth Report and Order and Eleventh Order on Reconsideration, 10 FCC Rcd 7393, 7408 (1995).

¹⁹⁹ See FCC, Cable Operations and Licensing System, <https://apps.fcc.gov/coins/> (last visited Mar. 4, 2016). CTA, Industry Data, Number of Cable Operating Companies (June 2012), <http://www.ncta.com/Statistics.aspx> (visited Sept. 28, 2012). Depending upon the number of homes and the size of the geographic area served, cable operators use one or more cable systems to provide video service. See *Annual Assessment of the Status of Competition in the Market for Delivery of Video Programming*, MB Docket No. 12-203, Fifteenth Report, 28 FCC Rcd 10496, 10505-06, para. 24 (2013) (*15th Annual Competition Report*).

²⁰⁰ See SNL Kagan Interactive, Media & Communications Data – Cable MSOs, <http://www.snl.com/Sectors/Media/MediaCommunicationsOverview.aspx> (last visited Mar. 3, 2016); SNL Kagan, “Top Cable MSOs – 12/12 Q”, <http://www.snl.com/InteractiveX/TopCableMSOs.aspx?period=2012Q4&sortcol=subscribersbasic&sortorder=desc>. We note that, when applied to an MVPD operator, under this size standard (i.e., 400,000 or fewer subscribers) all but 14 MVPD operators would be considered small. See NCTA, Industry Data, Top 25 Multichannel Video Service Customers (2012), <http://www.ncta.com/industry-data>. The Commission applied this size standard to MVPD operators in its implementation of the CALM Act. See *Implementation of the Commercial Advertisement Loudness Mitigation (CALM) Act*, MB Docket No. 11-93, Report and Order, 26 FCC Rcd 17222, 17245-46, para. 37 (2011) (*CALM Act Report and Order*) (defining a smaller MVPD operator as one serving 400,000 or fewer subscribers nationwide, as of December 31, 2011).

²⁰¹ 47 CFR § 76.901(c).

4,945 cable systems nationwide.²⁰² Of this total, 4,380 cable systems have less than 20,000 subscribers, and 565 systems have 20,000 or more subscribers, based on the same records. Thus, under this standard, we estimate that most cable systems are small entities.

64. *Cable System Operators.* The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is “a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed \$250,000,000.”²⁰³ The Commission has determined that an operator serving fewer than 677,000 subscribers shall be deemed a small operator, if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed \$250 million in the aggregate.²⁰⁴ Based on available data, we find that all but ten incumbent cable operators are small entities under this size standard.²⁰⁵ We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed \$250 million,²⁰⁶ and therefore we are unable to estimate more accurately the number of cable system operators that would qualify as small under this size standard.

65. The open video system (OVS) framework was established in 1996, and is one of four statutorily recognized options for the provision of video programming services by local exchange carriers.²⁰⁷ The OVS framework provides opportunities for the distribution of video programming other than through cable systems. Because OVS operators provide subscription services,²⁰⁸ OVS falls within the SBA small business size standard covering cable services, which is “Wired Telecommunications Carriers.”²⁰⁹ The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. According to Census Bureau data for 2007, there were a total of 955 firms in this previous category that operated for the entire year.²¹⁰ Of this total, 939 firms had employment of 999 or fewer employees, and 16 firms had employment of 1,000 employees or more.²¹¹ Thus, under this second size standard, most cable systems are small and may be affected by rules adopted pursuant to the Order. In addition, we note that the Commission has certified some OVS operators, with some now providing service.²¹² Broadband service providers (BSPs) are currently the only significant

²⁰² The number of active, registered cable systems comes from the Commission’s Cable Operations and Licensing System (COALS) database on Aug. 28, 2013. A cable system is a physical system integrated to a principal headend.

²⁰³ 47 U.S.C. § 543(m)(2); see 47 CFR § 76.901(f) & nn.1-3.

²⁰⁴ 47 CFR § 76.901(f); see *FCC Announces New Subscriber Count for the Definition of Small Cable Operator*, Public Notice, 16 FCC Rcd 2225 (Cable Services Bureau 2001).

²⁰⁵ See NCTA, Industry Data, Top 25 Multichannel Video Service Customers (2012), <http://www.ncta.com/industry-data>.

²⁰⁶ The Commission does receive such information on a case-by-case basis if a cable operator appeals a local franchise authority’s finding that the operator does not qualify as a small cable operator pursuant to § 76.901(f) of the Commission’s rules. See 47 CFR § 76.909(b).

²⁰⁷ 47 U.S.C. § 571(a)(3)-(4). See *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 06-189, Thirteenth Annual Report, 24 FCC Rcd 542, 606, para. 135 (2009) (*Thirteenth Annual Cable Competition Report*).

²⁰⁸ See 47 U.S.C. § 573.

²⁰⁹ U.S. Census Bur., 2007 NAICS Definitions, “517110 Wired Telecommunications Carriers,” <http://www.census.gov/naics/2007/def/ND517110.HTM#N517110>.

²¹⁰ U.S. Census Bur., 2007 Economic Census, Subject Series: Information, Table 5, Employment Size of Firms for the United States: 2007, NAICS code 5171102 (issued Nov. 2010).

²¹¹ See *id.*

²¹² A list of OVS certifications may be found at <http://www.fcc.gov/mb/ovs/csovsr.html>.

holders of OVS certifications or local OVS franchises.²¹³ The Commission does not have financial or employment information regarding the entities authorized to provide OVS, some of which may not yet be operational. Thus, again, at least some of the OVS operators may qualify as small entities.

7. Electric Power Generators, Transmitters, and Distributors

66. *Electric Power Generators, Transmitters, and Distributors.* The Census Bureau defines an industry group comprised of “establishments, primarily engaged in generating, transmitting, and/or distributing electric power. Establishments in this industry group may perform one or more of the following activities: (1) operate generation facilities that produce electric energy; (2) operate transmission systems that convey the electricity from the generation facility to the distribution system; and (3) operate distribution systems that convey electric power received from the generation facility or the transmission system to the final consumer.”²¹⁴ The SBA has developed a small business size standard for firms in this category: “A firm is small if, including its affiliates, it is primarily engaged in the generation, transmission, and/or distribution of electric energy for sale and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours.”²¹⁵ Census Bureau data for 2007 show that there were 1,174 firms that operated for the entire year in this category.²¹⁶ Of these firms, 50 had 1,000 employees or more, and 1,124 had fewer than 1,000 employees.²¹⁷ Based on this data, a majority of these firms can be considered small.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

67. The Commission proposes to prohibit the use of non-disclosure agreements that restrict parties to a BDS tariff or commercial agreement from sharing the terms of such agreements with the Commission. In the event of detariffing, the Commission proposes on requiring price cap incumbent LECs to publicly disclose the rates, terms and conditions for services currently subject to tariffing requirements and seeks comment on this proposal.

68. In order to calculate a productivity X-factor, the Commission invites comment on whether we should require price cap LECs to submit their expense matrix data from 2005 to 2015 and, if so, whether should we require that these data be reported using the categories previously required under the Commission’s rules and, if not, what categories should we specify, and whether the benefits from these data outweigh the burdens. The Commission asks whether we should require the price cap LECs to submit cost studies to help us determine business data services productivity growth and if so, what methodology should we specify for those costs studies. The Commission asks whether the benefits from relying on company-specific data from these cost studies, as opposed to economy-wide or industry-wide data, outweigh the burdens. Furthermore, the Commission proposes that if it adopts a new X-factor or otherwise requires adjustments to the price cap indices, price cap carriers would implement the associated rate decreases by submitting Tariff Review Plans (TRPs) and special access tariff revisions for all rate

²¹³ See *Thirteenth Annual Cable Competition Report*, 24 FCC Rcd at 606-07 para. 135. BSPs are newer firms that are building state-of-the-art, facilities-based networks to provide video, voice, and data services over a single network.

²¹⁴ U.S. Census Bur., 2002 NAICS Definitions, “2211 Electric Power Generation, Transmission and Distribution,” <http://www.census.gov/epcd/naics02/def/NDEF221.HTM> (last visited Oct. 21, 2009).

²¹⁵ 13 CFR § 121.201, NAICS codes 221111, 221112, 221113, 221119, 221121, 221122, n.1.

²¹⁶ See U.S. Census Bur., American FactFinder, Utilities: Subject Series - Establishment and Firm Size: Summary Statistics by Revenue Size of Firms for the United States: 2007, NAICS code 221122, http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_22SSSZ5&prodType=table (last visited Feb. 18, 2016).

²¹⁷ See *id.*

elements associated with special access and seeks comment on this proposal.²¹⁸

69. In the Further Notice, the Commission proposes to require providers of BDS subject to anchor pricing or benchmarking to publically disclose generally available terms and conditions.²¹⁹ The Commission seeks comment on whether any requirements should be imposed to ensure compliance with our proposed rules and, if so, what form they should take. The Commission seeks comment on whether we should require compliance certification from providers as well as any other requirements we should consider and the costs and benefits.²²⁰

70. The Commission also proposes a future periodic data collection that will allow the Commission to update periodically its identification of competitive and non-competitive markets. Beginning in 2018 (i.e., year-end 2017 data), the Commission proposes collecting data every three years from incumbent LEC providers to update the Commission's competitive analysis and monitor the BDS marketplace. The Commission proposes essentially a paired-down version of the *2015 Collection*. Specifically, the Commission proposes collecting data on locations with connections, fiber routes, and monthly billing information, revenues, requests for proposals, and wire center locations by regulatory type as well as new categories of information for collection, e.g., churn data, data on managed services, internal documents showing competitive pressure assessments and operational responses. Meanwhile, the Commission proposes omitting purchasers of BDS from the mandatory collection, instead proposing to hire a third-party to voluntarily survey purchaser customer classes.²²¹

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities and Significant Alternatives Considered

71. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.²²² We expect to consider all of these factors when we have received substantive comment from the public and potentially affected entities.

72. The Commission proposes to apply a Competitive Market Test to determine whether there is sufficient competition to constrain prices for BDS. The Commission proposes two alternatives for applying the Competitive Market Test, favoring one based on bright-line triggers – business density and the number of competitors – which will offer clearer rules and be administratively less burdensome for providers to present the case.²²³

73. The Commission seeks comment on whether data from various sources proposed in a staff study provide a reasonable basis for calculating a productivity-based X-factor but seeks comment on alternative sources of data that would more precisely calculate productivity increases in the provision of business data services. The Commission seeks comment on whether the additional precision associated with obtaining those data and using them to calculate a productivity-based X-factor outweigh the associated burdens.²²⁴ In particular, the Commission proposes calculating the X-factor using economy-

²¹⁸ See *supra* Part V.F.1.f.

²¹⁹ See *supra* Part V.F.2.

²²⁰ See *supra* Part V.F.2.h.

²²¹ See *supra* Part V.J.

²²² 5 U.S.C. § 603(c).

²²³ See *supra* Part V.D.

²²⁴ See *supra* Part V.F.1.

wide and industry-wide data as opposed to company-specific data from cost studies, but asks whether the added precision from company-wide data outweighs the burdens.

74. For competitive areas, the Commission proposes removing significant regulatory burdens imposed on BDS providers. Specifically, the Commission proposes removing TDM-based BDS determined to be competitive under the Competitive Market Test from price cap regulation and apply a competitive regulatory framework – proposing a path to detariff TDM-based services while maintaining price caps on a detariffed basis. The Commission also seeks comment on a voluntary mechanism that would provide carriers with flexibility to adjust price cap rates for TDM-based services when replacement packet-based services are available.²²⁵

75. The Commission recognizes that applying heightened regulation to services largely unregulated previously may impose burdens on providers and purchasers. The Commission, therefore, asks commenters whether there should be an implementation period to give providers sufficient time to bring markets into compliance with the applicable regulatory obligations, and seek comment on the length of any implementation period.²²⁶

76. As noted above, in the Further Notice, the Commission seeks comment on whether we should extend the Tariff Investigation Order's prohibition on all-or-nothing provisions a general prohibition for business data services, including both tariffed offerings and commercial agreements and whether such a prohibition should be imposed in noncompetitive markets or in all markets. The Commission asks what additional management or tracking burdens would this impose on incumbent LECs and how significant would they be, whether such costs or burdens can be quantified, and how such administrative burdens compare with the benefits of added flexibility for customers in the business data services market. The Commission also asks about whether allowing customers to treat their purchases under one Ethernet commercial agreement as separate purchases impose any burdens on providers of business data services and whether the benefits of increase flexibility outweigh any such burdens.²²⁷

77. In the Further Notice, the Commission proposes to periodically collect data from incumbent LEC providers going forward to update the Commission's analysis and monitor the marketplace for BDS. The Commission took several steps to minimize the economic impact on small providers and proposes exempting purchasers from the collection requirements. The Commission proposes narrowing the scope of the collection to minimize burdens on smaller providers while providing the Commission with the data necessary to periodically update its analysis. The Commission seeks comment on whether it is possible to exclude smaller competitive LECs from the collection without adversely affecting the Commission's analysis of the BDS market. The Commission is considering excluding competitive providers below a set threshold based on either locations with connections, number of customers, or revenues and ask commenters to suggest appropriate thresholds and to quantify the potential impact of any exclusion on the Commission's analysis. The Commission proposes a collection that is significantly less burdensome than the *2015 Collection*, largely omitting questions on terms and conditions and narrative responses. The Commission proposes to omit purchasers, largely smaller entities, from the mandatory periodic collection, instead proposing to hire a third party to conduct a voluntary survey of customer classes. Furthermore, the proposed three year periodic collection period, as opposed to annual or quarterly, would minimize the burden on filers.²²⁸

78. As SBA observed, changes in special access (BDS) prices may have an impact on small carriers including small competitive carriers.²²⁹ In the Further Notice, the Commission proposes

²²⁵ See *supra* Part V.H.

²²⁶ See *supra* Part V.D.3.

²²⁷ See *supra* Part V.F.4.

²²⁸ See *supra* Part V.J.

²²⁹ See SBA 2005 NPRM IRFA Reply at 1, 3-4.

modifying the existing regulatory regime applicable to BDS. Any such actions will accrue to the benefit of all carriers, including small competitive carriers, as it will ensure the availability of business data services at just and reasonable rates.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

79. None

**STATEMENT OF
CHAIRMAN TOM WHEELER**

Re: *Business Data Services in an Internet Protocol Environment*, WC Docket No 16-143; *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247; *Special Access for Price Cap Local Exchange Carriers*, WC Docket No 05-25; *AT&T Corporation Petition for Rulemaking to Reform Regulations of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM-10593.

I have made plain – again and again – the importance of competition. Competition means that consumers are better off; that our economy gets stronger and – very importantly – that government can take a backseat to the marketplace. I have made equally plain that, where competition does not exist, then government has a job to do – protecting consumers and competition.

Today, we take an important step towards getting the Commission’s regulatory policies to match the dynamic of today’s marketplace...in order to support competition.

Business data services, historically known as special access, are little known but hugely important in our connected economy and society. Here’s one example: Wireless networks need one form of business data services, commonly known as backhaul. After all, a wireless network is mostly wired. Every cell tower needs backhaul to pass along a mobile communication to its intended destination. No backhaul – no phone call, text or web surfing from your mobile device.

So access to competitive backhaul is important to the buildout of wireless networks, to investment in wireless networks and to the creation of 5G – the next step in wireless innovation. And that’s why we’ve heard from the great swath of the wireless industry – the joint letter from Verizon and Incompas offering a proposed regulatory framework and then Sprint, T-Mobile, U.S. Cellular, and the Competitive Carriers Association urging “the Commission to adopt policies to ensure reasonable access to high capacity Business Data Services.”

The fact is – our current approach is badly, badly out of date. In fact, our ways of measuring BDS competition are so old-fashioned that the Commission actually stopped using its own test – four years ago. Four years have gone by and the marketplace is changing. For example, new entry by cable companies is bringing more competition – and that’s an outcome that needs to be encouraged.

So it’s time to act. Today’s FNPRM asks the right questions: Where is there competition and where is there not competition? What should the Commission do when facing the fact of noncompetitive markets? How can we best de-regulate in competitive markets? How can we do away with forms of governmental action, like mandatory tariffing, that I believe have outlived their usefulness? And, of course, how can we make sure that, in the future, a new regulatory framework does not become quickly obsolete?

We don’t yet know the answers, but we know the principles that will guide our inquiries:

First, competition is the best way to ensure consumers benefit.

Second, the new framework should be technology-neutral.

Third, Commission actions should encourage the transitions to an IP world.

Fourth, regulation should be constructed to meet today’s marketplace – and tomorrow’s.

Let me finish by thanking both Commissioner Clyburn and Commissioner Rosenworcel for their suggestions, which have improved the item. We ask more and better questions and we make plain what we think – and what we need to know.

When I look at the table in front of us, I see a lot of people with a lot of work to do. And expeditiously. My goal is that the Commission conclude this proceeding no later than the end of the year. With a determined effort, we can and will adopt a business data services reform Order in 2016.

**STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN**

Re: *Business Data Services in an Internet Protocol Environment*, WC Docket No 16-143; *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247; *Special Access for Price Cap Local Exchange Carriers*, WC Docket No 05-25; *AT&T Corporation Petition for Rulemaking to Reform Regulations of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM-10593.

At the core of a successful community, is a vibrant and growing business sector. Be it a large multinational corporation in need of dedicated high capacity circuits or a small local business seeking to run a handful of ATMs, they both have one thing in common: the need for dedicated wireline circuits for connectivity. These services also support public safety operations, schools and health care facilities all of which underscore the importance of reliable, robust services.

Business circuits are also a necessary input for mobile broadband service as these networks are only wireless until they hit the cell tower at which point they become reliant on wireline backhaul. A fast wireless network needs high capacity wireline connectivity when it reaches that tower. If such facilities are not in place, service could slow as soon as it reaches those backhaul facilities. And if rates for backhaul connectivity are unreasonable, providers must either pay more or offer consumers slower speeds. Either way consumers and their communities are disadvantaged. This is why we need to ensure that special access, which the Chairman has renamed Business Data Services, are both available and reasonably priced.

It should come as no surprise that our comprehensive data collection shows that where competitive pressures exist in the special access market, prices are reduced. But what is less clear, is the number of providers necessary for this to happen, and the appropriate geographic and product markets. These are all issues where I believe further stakeholder engagement is needed.

While I wish we lived in a marketplace nirvana, where competitive options are omnipresent, the reality is this does not exist. In areas that are non-competitive, I believe it is appropriate to have a simple regulatory backstop to ensure that the rates, terms and conditions for services are just and reasonable.

Agreeing on these principles is the easy part. Implementation is more challenging. We need a framework that minimizes regulation when market forces are sufficient to discipline prices but we must also have a simple and easy to administer regulatory backstop in places where competitive forces are lacking.

Make no mistake, I greatly appreciate the significant work the Bureau has put into this item, as well as the Chairman's willingness to accommodate my many, many edits. At the same time, I must confess to being concerned about the complexity of some aspects of the *Further Notice*, and how feasible it will be for the agency as well as for the entities that provision the facilities and providers that purchase these services to administer. We need to ensure that reforms are targeted and while being technology neutral is beneficial, reforms must take into account the nature of the market.

The Chairman agreed to make the item more neutral by, for example, moving away from a tentative conclusion that 50 Mbps is the appropriate metric for presuming whether a market is competitive or not, asking about the implications and feasibility of administering the reforms, and seeking comment about alternative frameworks so that we can develop a complete record which enables all parties to have the opportunity to make their best case. I must thank him for that. I also appreciate his willingness to ensure parties have sufficient time to analyze the proposals and comment.

And while a robust record is always beneficial, I believe an ideal outcome is one in which the industry comes together and proposes a solution that ensures the policy goals are realized. I know this is possible because we have seen it take place in the legacy wireline space -- from CALLS and, more recently, to the 2011 reform of intercarrier compensation and universal service -- which resulted in wins for the agency and stakeholders.

So, I support today's item, not only because we have been working for years to arrive at this point, but because we are asking how to develop a new, modern framework to govern Business Data Services. From my perspective, all options are on the table and I hope that the ultimate result will be a framework that is simple, targeted and easy to administer. In addition, I am in support of common-sense fixes in the Tariff Investigation Order that will prevent unreasonable practices that may inhibit providers from moving to IP services.

I am grateful to the dedicated and hard-working team from the Wireline Competition Bureau. You have maintained your focus and sense of purpose as you collected and analyzed an incredible amount of data. You built a tremendous record in this complex and incredibly important proceeding and, for that and more, I thank you.

**STATEMENT OF
COMMISSIONER JESSICA ROSENWORCEL**

Re: *Business Data Services in an Internet Protocol Environment*, WC Docket No 16-143; *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247; *Special Access for Price Cap Local Exchange Carriers*, WC Docket No 05-25; *AT&T Corporation Petition for Rulemaking to Reform Regulations of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM-10593.

We can call them special access services or call them business data services—but we should acknowledge they are important. These are the high-capacity dedicated services that sustain our wireless networks, facilitate commercial transactions, and underpin communications that American businesses rely on every day.

Four years ago, the Commission suspended aspects of its special access policies. The agency determined that its turn of the millennium rules designed to provide greater flexibility for these services were not working as intended. In fact, they were leading to some strange results. Consider, for instance, that under our old policies more competitive flexibility was available in Flint, Michigan than New York City. Somehow our framework was both overinclusive and underinclusive at the same time. Something was not right.

So the Commission set off to update and modernize special access policy. To do so we collected data—lots and lots of data. In fact, we have assembled perhaps the single largest dataset in the history of the Commission. But that was the easy part. Now comes the hard part—finding a way forward.

Today we set this process in motion. We adopt an order that finds specific special access tariff provisions—like excessive early termination fees—unlawful. Then we move to a broader rulemaking to modernize special access policy.

As we proceed, I believe three principles should guide us. First, our policies must feature incentives for providers to build and invest in networks. Infrastructure matters—we need to encourage its deployment. Second, our policies must enhance competition. Competition benefits consumers and leads to greater innovation. Third, our policies must be capable of administration. It is simple to draw complex conclusions from the data before us. But we must modernize special access in a way that is both smart and practical.

I look forward to the record that develops and thank the Wireline Competition Bureau for its efforts.

**DISSENTING STATEMENT OF
COMMISSIONER AJIT PAI**

Re: *Business Data Services in an Internet Protocol Environment*, WC Docket No. 16-143; *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247; *Special Access for Price Cap Local Exchange Carriers*, WC Docket No. 05-25; *AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM-10593.

After finishing her adventures in Wonderland, the eponymous Alice travels through the looking-glass to find a world where nothing makes sense. To go anywhere, Alice must walk in the opposite direction. To keep in the same place, Alice must run as fast as she can.¹ Reading today's *Notice*, it appears the Commission has followed Alice through the looking-glass. Because practically nothing in it makes any sense.

Let's start with the basics. "Special access" is a term as vague as this 193-page *Notice* is arcane. But the concept is simple: Some businesses want high-capacity data services. Many of those businesses are themselves communications companies, like big wireless carriers and publicly traded, middle-mile transport companies. And some of them are non-communications companies, from big department stores to coffee chains. For many years before the Internet age, the FCC took an intrusive approach to regulating these telecommunications services. It micromanaged the rates and terms of service offered by incumbent telephone companies, with the result that we essentially had not-so-competitive, regulated monopolies. But during the Clinton Administration, the FCC decided to spur competition by getting rid of central planning. It hoped that a market-based approach would incentivize greater competition.

Today, those efforts have borne fruit. Here are some undisputed facts. Many, many companies are competing in the enterprise data services market—491 facilities-based competitors to be exact.² Traditional telephone companies once dominated the market with DS1s and DS3s. But today, enterprise customers are quickly abandoning those services for unregulated, higher-capacity next-generation networks. In 2013, enterprise customers spent \$18.9 billion, or 42.2% of total revenues, on unregulated Ethernet and other packet-based services.³ That year alone saw a 31.6% increase in Ethernet bandwidth provisioned by competitive providers compared to a 5.3% increase for incumbents.⁴ And by 2013, competitors had deployed competing facilities in 83.92% of census blocks and 85.8% of buildings with enterprise customers.⁵ Since then, competition has only become more intense. Revenues for enterprise data services grew almost \$2 billion over the next two years, but incumbents didn't see a new dime. Instead, their revenues dropped by \$3.3 billion, or by 5.1% on average.⁶ The bottom line of all this? The Clinton-era framework has led to much more competition in the business broadband market than ever before. Incumbents have lost significant market share to new entrants. Special access customers are on the leading edge of the IP transition as they choose faster, more reliable IP-based services over slower, fading technologies. This is ultimately a good thing for every individual consumer, whether you're buying a wireless service plan or a cup of coffee.

¹ LEWIS CARROLL, *THROUGH THE LOOKING-GLASS, AND WHAT ALICE FOUND THERE* (1871).

² Dr. Marc Rysman, *Empirics of Business Data Services* at 12 (Apr. 2016) (Rysman White Paper). Dr. Rysman's paper is attached as Appendix B of the *Notice*.

³ *Id.* at 7.

⁴ Drs. Mark Israel, Daniel Rubinfeld, & Glenn Woroch, *Competitive Analysis of the FCC's Special Access Data Collection* at 24 (Jan. 26, 2016).

⁵ *Notice* at Table 5.

⁶ Rysman White Paper at 8.

But in the world of the looking-glass, everything is backwards. Incumbents are losing customers and revenues every year—and so they must have market power. The competitive supply of unregulated Ethernet services is taking off—and so those and other next-generation services must now be regulated.⁷ The *Notice* claims “competition is best”⁸—but then proposes to “reset” incumbents’ prices below competitive levels.⁹ Despite the Chairman’s repeated promises over the last 16 months that *ex ante* broadband rate regulation was off the table, the *Notice* makes new *ex ante* rate regulation the main course. In short, after almost two decades of success with the Clinton Administration’s deregulatory policies, the *Notice* concludes that it is “time for a new start.”¹⁰

Perhaps most nonsensical of all is the treatment of new entrants. Recall the poem of *The Walrus and the Carpenter*, which Tweedledee recited to Alice. In that poem, a walrus and a carpenter invite a seabed of oysters to walk with them along the beach. Although the oldest oyster refuses, the younger ones rush to the shore, only to be eaten by their hosts a short while later.

So too here. Over the last several years, the FCC has implored cable operators to upgrade their networks and compete for enterprise customers.¹¹ Many cable operators obliged, investing billions in new fiber facilities and new technologies like Ethernet over hybrid fiber-coaxial cables¹² and successfully competing for new contracts every year at a rapid clip.¹³ But now, what is the reward for taking those risks, for entering those markets? How does the agency treat those new entrants who accepted our invitation? By regulating them in the apparently *au courant* style of Ma Bell. As the oysters in the poem cried, what “a dismal thing to do.”

Our goal should be ubiquitous competition, not universal rate regulation. Our guide should be the data—wherever it leads us—not an ideological drive to regulate.¹⁴ Our focus should be furthering the public interest in next-generation broadband deployment, not advancing the private interests of particular competitors. And our framework should be one that promotes competitive entry, not punishes it. Just as in 2012, I cannot support the *Notice*’s sentence-first, verdict-afterward nonsense,¹⁵ and I accordingly dissent.

⁷ See Dr. Hal Singer, Economists Incorporated, *Assessing the Consequences of Additional FCC Regulation of Business Broadband: An Empirical Analysis* (Apr. 7, 2016) (showing that price regulation is likely to reduce investment in fiber and Ethernet services by several billion dollars each year).

⁸ *Notice* at para. 5.

⁹ *Compare Notice* at paras. 404–15 (explaining how the Commission could cut price-cap rates by up to 13.54%, up to 20.30%, or up to 21.88% depending on the methodology used), *with* Rysman White Paper at 19–20 (explaining how competition within a census block reduces DS1 and DS3 “prices” by 3.9% to 11.4%).

¹⁰ *Notice* at para. 4.

¹¹ See, e.g., *Petition for Declaratory Ruling to Clarify 47 U.S.C. § 572 in the Context of Transactions Between Competitive Local Exchange Carriers and Cable Operators, Conditional Petition for Forbearance from Section 652 of the Communications Act for Transactions Between Competitive Local Exchange Carriers and Cable Operators*, WC Docket No. 11-118, Order, 27 FCC Rcd 11532, 11545–47, paras. 28–31 (2012).

¹² See *Notice* at para. 221.

¹³ Mari Silbey, Moffett: Business Services Critical to Cable Growth, LightReading (Dec. 1, 2015) (reporting 20% compound annual growth in cable-operator revenues in the business data services market), <http://ubm.io/1Ox8Tvm>.

¹⁴ See *Special Access for Price Cap Local Exchange Carriers et al.*, WC Docket No. 05-25, RM-10593, Report and Order and Further Notice of Proposed Rulemaking, 27 FCC Rcd 16318, 16443 (2012) (Statement of Commissioner Ajit Pai, Approving in Part and Dissenting in Part).

¹⁵ See *Special Access for Price Cap Local Exchange Carriers et al.*, WC Docket No. 05-25, RM-10593, Report and Order, 27 FCC Rcd 10557, 10650 (2012) (Dissenting Statement of Commissioner Ajit Pai).

**DISSENTING STATEMENT OF
COMMISSIONER MICHAEL O'RIELLY**

Re: *Business Data Services in an Internet Protocol Environment*, WC Docket No. 16-143; *Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans*, WC Docket No. 15-247; *Special Access for Price Cap Local Exchange Carriers*, WC Docket No. 05-25; *AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, RM-10593.

The Commission, industry, and Congress have been grappling with special access for more than a decade—a fact well known to me as I have worked on the issue more than most, and have dealt with the various permutations over the years. In all candor, I am somewhat sympathetic to the argument that a previous Commission went too far in one direction. However, that does not mean that the Commission should swing to the opposite side of the pendulum, casting aside logic, precedent, and basic economic principles in a quest to check off another special interest box by the end of this year. If there is anything that all stakeholders in this proceeding agree on, it is that getting special access regulation wrong could cause significant harm to the marketplace. And, a lot of proposals in this item would qualify as “wrong”.

Undeterred by the prospect of distorting competition and investment incentives, the Commission puts forth a brand new plan, seemingly with the mindset that it’s so crazy it just might work. It won’t. This is plain, old fashioned rate regulation, repackaged with a new narrative. One of the best ways to ensure that providers invest to meet the growing demand for backhaul is to free them from legacy rules that hamstring competition. We cannot regulate our way to deployment.

This “technology-neutral” framework is really just another massive power grab by the Commission. If the agency proceeds down the current path, I expect it will be challenged and ultimately overturned. That may not matter to those who are only seeking a quick win, but it will further damage the agency’s credibility.

The Commission begins by abrogating specific terms and conditions in incumbent LECs’ pricing plans. I am not surprised given this Commission’s propensity to meddle with contracts—from declaring that certain terms of service violate the Telephone Consumer Protection Act (TCPA) to eliminating Joint Sales Agreements (JSAs). This latest intervention is unwarranted as well. The provisions are clear and purchasers entered into them with full knowledge of the consequences for not fulfilling the terms of the deal. Additionally, purchasers had a number of options to buy service without these terms. They may not have received the corresponding benefits—more flexibility or deeper discounts—but that was their choice to make.

Furthermore, these are agreements between sophisticated and well-represented buyers and sellers. Those purchasers, in turn, serve some of the largest banks, health care providers, and big box retailers in the country. It is hard to see the need to intervene in contractual disputes on behalf of some of the major companies represented here, and I am surprised that this is the position of the Commission majority. At the same time politicians are vilifying our nation’s bankers, especially big banks—which own tens of thousands of ATMs nationwide¹—the Commission seems intent on using regulatory process to lower these companies’ cost of operations. Oh, the irony.

It is even more vexing that the Commission determines these provisions to be unlawful on their face without having made any determinations about how common these provisions are across providers,

¹ Bankrate, These 10 Banks Have the Most ATMs, <http://www.bankrate.com/finance/banking/banks-have-the-most-atms-1.aspx> (last visited Apr. 28, 2016).

whether there is competition in a given market, and what impact that should have on the analysis. In places where there is competition, one would think that would substantially reduce the need to scrutinize ILECs' pricing provisions as purchasers could select amongst the providers and choose the most favorable rates, terms, and conditions. You know, along the lines of the "competition, competition, competition" slogan. Notably, in the very next section, the Further Notice proclaims that the "Commission seeks to enter a new era where regulatory determinations are made based on whether a market is competitive". It asks whether to apply the order's requirements to other offerings in non-competitive markets, acknowledging that competition could be relevant to the lawfulness of these provisions. Yet somehow these ILEC provisions are stuck in the "old" era. Any subsequent determinations will come too late to impact the ILEC terms that have been declared unlawful. So much for a "technology-neutral" framework.

Moreover, in unwinding these terms, the Commission is giving one side an undue advantage after the fact. The order determines that early termination and shortfall penalties—common in many parts of the economy, including the housing industry where most people cannot just pay off their mortgage whenever they desire without a prepayment penalty—cannot exceed the amount the customer would have paid otherwise. The agency views any amounts in excess of such "expectation damages" to be "punitive" and a "windfall" to the incumbents, as if they are ill-gotten gains, rather than mutually agreed upon payments. The Commission seeks to avoid penalties that are "so extravagant...as to show that compensation was not the object aimed at or as to imply fraud, mistake, circumvention, or oppression". However, prohibiting any amount that is more than a carrier's opportunity cost arbitrarily forecloses reasonable penalties above that amount that are neither excessive nor coercive, and that parties freely agreed to as part of the deal. That is the very definition of a penalty, designed to act as a legal and reasonable financial deterrent, not just make a provider financially whole.

With respect to the so called "all or nothing" provisions, the concern seems to be that they might constrain purchasers that did not adequately plan ahead for the possibility of falling demand or switching providers. Those purchasers could have selected different plans or options that might have provided more flexibility at the end of the term, but instead, they made certain commitments in exchange for flexibility during the term. ILECs put evidence in the record that purchasers have a number of options, that many customers did not use these plans, and that those that did were able to move circuits or change their commitment levels. Nonetheless, the Commission rejects one provider's evidence—in a footnote—before proceeding to seek comment on how to unwind the provisions. It is unclear how ILECs that already made good on their obligation to provide circuit portability will receive the benefit of the bargain if customers are able remove circuits of their choosing, and without incurring the specified shortfall or early termination penalties. Given how the Commission is handling the penalty provisions, I have no confidence that the outcome here will be fair or reasonable.

Not content to stop there, in the Further Notice, the Commission proposes a brand new scheme to rate regulate *anyone* who provides enterprise-level broadband service. I cannot stress enough how radical a departure this is from history and precedent. For years, special access has focused on regulating ILECs' provision of DSn services through the dominant carrier safeguards of tariffing and rate regulation. Over time, as competition developed, price cap carriers received certain relief, including pricing flexibility and even forbearance from many of the dominant carrier safeguards for enterprise broadband service. Meanwhile, consistent with Commission precedent dating back to 1980, and embodied in the 1996 Act, facilities-based competitors have been largely unregulated, in part to encourage entry and promote competition. As the Further Notice rightly points out: "The great entry success story has been that of cable."

Now the Commission would roll back the relief for price cap carriers despite plenty of evidence already in the record that pricing flexibility was not only warranted but insufficient, and that enterprise forbearance led to more competition and lower Ethernet prices. And it attempts to do so despite the fact that forbearance cannot be reversed and the services cannot be re-regulated simply by changing their

name. Moreover, all of this is premised on the notion that markets—that have not yet been defined—are not competitive. This may be labeled a Further Notice but it seems pretty clear that the outcome is predetermined. As a preview of things to come, this final version has significantly walked back earlier suggestions that markets could be defined in rational ways and that at least some could be found to be competitive.

At the same time that the Commission's new mantra is to streamline regulation of ILECs, who were bestowed certain benefits by the government in the past, it plans instead to regulate every provider, even new entrants. In particular, the Commission would expand the universe of regulated providers to include cable companies—new competitors that already risked capital to deploy service without any warning that they might be “rewarded” for their success with restrictions on how they price and market their products. With the incumbents having already received forbearance for many packet-based services, there would have been no reason to think that their own comparable services would ever be subject to that type of regulation. Indeed, the Commission does not have authority to do so, and labeling it a “technology-neutral” approach cannot solve that threshold problem. What possible incentive would a cable provider have to pursue an aggressive business broadband deployment strategy only to get regulated coming and going by the Commission? Just awful.

In other words, the agency has a lot of explaining to do. I will reserve the bulk of my critiques until it has done so. However, I do want to highlight a few additional points and inconsistencies in the meantime.

First, I want to call attention to the fact that the principle of competitive or technological neutrality does not mean what you or I may think it means. Instead, it has devolved into whatever the Commission wants it to mean in a given item. In universal service, the Commission has defined it as a prohibition on “treating competitors differently in ‘unfair’ ways”, and it has used this interpretation to justify rules that actually *favor* providers of certain technologies over all others. Here, the Commission says it wants to treat all technologies the same, so it invokes the principle to justify regulating new providers, regardless of whether that would be “fair”. But even here it is not actually neutral because TDM-based services would continue to be regulated under the price cap system while packet-based services would fall under a benchmarking regime.

Second, I have been struck by the lack of consistency when it comes to measures of inflation and productivity at the Commission. This Further Notice proposes to continue to use the Bureau of Economic Analysis' chain-weighted gross domestic product price index, or GDP-PI, and re-set the X-factor using one of several methods proposed in the item. The goal, of course, is to significantly lower rates. In general, chain-weighted inflation measures yield lower inflation rates than standard inflation rates, but as this item notes, they are “significantly more accurate”.

In contrast, in certain universal service programs, where the Commission wants to be more generous, it has used other methodologies with no accompanying productivity adjustments. In E-rate, the Commission selected the gross domestic product chain-type consumer price index, or GDP-CPI, but determined that in times of deflation, it would hold the budget constant. More recently, in the Lifeline reform order, the Commission picked a completely different inflationary measure with no explanation at all: the Bureau of Labor Statistics' consumer price index for all urban consumers, or CPI-U, which is not chained. In the rate-of-return reform order, however, there was no adjustment for inflation whatsoever.

Perhaps there is some justification that escapes me for different measures for different rules, but the Commission should at least explain the rationale. Instead, it appears that the Commission, shockingly, chooses the measures that best fit the desired outcome, even if it means approving the use of chain-weighting, something that Democrats have strongly opposed in other contexts. Whether the selected measure makes sense from an economic standpoint seems to be a secondary consideration at best.

For all of these reasons, I dissent.