

1 **DETAILS OF DEVELOPMENT OF THE HHI ANALYSIS**

2 **Q:** How do the Merger Guidelines define the market in which the HHI is measured?

3 **A:** The Merger Guidelines define the market across two attributes. These attributes
4 are the geographic market and the product market.

5 **Q:** **What is the geographic market?**

6 **A:** The geographic market is that region in which the firms compete. The Merger
7 Guidelines specify that if a potential monopolist cannot sustain a price increase
8 due to entry of firms from outside the region, then the definition of the region
9 must be enlarged. Developing experimental data that could prove that a particular
10 area is the geographic market may be difficult. In this proceeding, however, the
11 interest of the Commission should be limited to the events within the Qwest-
12 Washington (hereinafter referred to as “Qwest”) service territory. Because the
13 price of residential basic service that Qwest offers is the same throughout the
14 service territory, and that is the price that potential competitors must be able to
15 match in order to be successful, it is reasonable to start with the premise that the
16 Qwest service territory is the geographic market.

17 **Q:** **What is the product market?**

18 **A:** The product market is a product or group of products (or in the case of
19 telecommunications, a service or group of services) “such that a hypothetical
20 profit-maximizing firm that was the only present and future seller of those

1 products (“monopolist”) likely would impose at least a “small but significant and
2 non-transitory” increase in price.”¹

3 **Q: What product market will you be discussing?**

4 **A:** My discussion below will focus on the primary residential basic service market.

5 **Q:** Why did you designate residential primary telecommunications services as a
6 service separate from other residential services?

7 **A:** The primary residential service provides the essential communication path from
8 the home to the rest of the world. It allows consumers to reach E911. It allows
9 everyone who is connected to a telecommunications network to communicate
10 with each other. This possibility generates benefits to everyone on the network.
11 The provision of this service is considered part of the universal service package
12 that federal and state commission policies support through a variety of
13 mechanisms. Studies of the demand for this service show that consumers are
14 unwilling to give up this service unless forced to do so by falling incomes.
15 Therefore, this service is different from other telecommunications services.

16 **Q: How would you estimate the HHI for the primary-line residential market?**

17 **A:** To determine the exact HHI, it is necessary to know the total size of the market
18 and the market share of each competitor. To determine whether the industry is
19 highly concentrated, however, it is only necessary to know the shares of the
20 largest providers. Knowledge of the rest of the industry is useful to determine
21 whether the market leader’s ability to increase price can be disciplined by the

¹ Merger Guidelines, page 6.

1 other market participants. In this proceeding, the Qwest's (the market leader)
2 impact on the HHI can be determined precisely. Quantification of the impact of
3 the competitive fringe on the HHI requires making several assumptions associated
4 with applying national averages to Washington and the Qwest service territory.

5 **Q: Can you determine the total size of the residential primary line market?**

6 **A:** I can determine the approximate size of the residential primary-line market by
7 using public domain data. The data sources that I used were the FCC's report,
8 Telephone Penetration By Income and By State, the filings of the National
9 Exchange Carrier Association (NECA) with the FCC, and Qwest's Automated
10 Reporting Management Information System (ARMIS) reports to the FCC.

11 **Q: How did you approximate the total size of the primary-line residential**
12 **market?**

13 **A:** My approximation is based on the following steps. First, I set the total size of the
14 Washington residential telephone market equal to the total number of households
15 with telephones. For 2005, the size of this market is estimated to be 2,362,589.²
16 Next I reviewed the Qwest percentage of total incumbent local exchange carrier
17 lines in Washington for the years 1996 to 2005. I found that this percentage
18 decrease from 68.43 to 65.91 over that time period.³ Because local competition

² Alexander Belifonte, Telephone Penetration by Income by State (Data through March 2005), Industry Analysis and Technology Division, FCC, released: May 2006, Table 5: Total Number of Households with Telephone Service.

³ www.fcc.gov/wcb/iad/neca.html/

1 was almost non-existent in 1996, I used Qwest's percentage of total 1996
2 Washington incumbent carrier lines as an estimator of the current percentage of
3 Washington households that are in the Qwest service territory. Using the 1996
4 percentage is better than using the current percentage because the current
5 percentage would be affected by a differential amount of competition among the
6 different study areas in the state. Thus, I multiplied the 1996 percentage, 68.43,
7 by the total Washington households, 2,362,580, to determine the Qwest service
8 territory telephone households equal to 1,539,833. Next I subtracted the number
9 of Qwest lifeline customers, 76,898. This group of customers is in a different
10 highly subsidized market. Only five CLECs in the state receive lifeline support
11 funds, and only two of 73 CLECs operating in the Qwest service territory receive
12 lifeline support funds.⁴ Because CLECs do not appear to serving lifeline
13 customers, including these households and these lines would, therefore,
14 unnecessarily inflate Qwest's dominant position relative to the other carriers.

15 **Q: What types of firms are currently operating in the residential primary line**
16 **market?**

17 **A:** The largest and most active firm is Qwest. In addition, a number of competitive
18 local exchange carriers (CLECs) also provide this service. To a limited extent,
19 other carriers such as cable, Voice over Internet Protocol (VoIP) providers, and
20 wireless carriers also participate in the market. Cable, VoIP and wireless carriers

⁴ FCC Monitoring Report, Table 2-5, and Qwest Response to PC 02-003.

1 are called Intermodal competitors. Intermodal carriers are defined as those
2 carriers that do not rely on the incumbent carriers to provide the last mile of
3 service to the customer. While this is not true for VoIP providers (these providers
4 rely either on the incumbent's last mile facilities to provide service over
5 broadband access or on cable facilities), VoIP providers are usually included in
6 discussions of Intermodal competition.

7 **Q: To what extent does the Cable Industry participate in the primary**
8 **residential market?**

9 **A:** My estimation of the number of residential lines provided by cable operators in
10 the Qwest service territories is a three-step process. First, I estimate the number
11 of cable lines in Washington as the product of the number of CLEC lines in
12 Washington and the percentage of CLEC lines using coaxial cable. The FCC only
13 reports a national average 16.08 percent of CLEC lines use coaxial cable.⁵ It does
14 not provide a state by state estimate of that percentage. The number of cable
15 telephony lines is therefore, 82,371 (514,149 CLEC lines times 16.08 percent).
16 Second, I determined the number of cable lines in the Qwest study area by
17 multiplying the number of Washington cable lines by the percent of Washington
18 households that are in the Qwest service territory. Third, the number of cable
19 lines includes both residential and business customers. I developed an indicator
20 for the residential share of the cable telephone market as the ratio of the

⁵ FCC Local Competition Report, Table 5.

1 residential cable modem customers to total cable modem customers. This ratio is
2 0.965.⁶ My estimate of residential cable lines, 54,399, is the product of the
3 residential share ratio and the number of cable lines in the Qwest service territory.

4 **Q: To what extent does VoIP participate in the primary residential market?**

5 **A:** The VoIP industry must be divided into two parts. The first part includes carriers
6 that are independent of the cable provider and of the incumbent telephone carrier.
7 These carriers, such as Vonage, use the public Internet to complete calls. Their
8 customers must purchase either DSL service (or another high-speed connection)
9 from the incumbent telephone carrier or cable modem service to reach the
10 Internet. The second part of the industry is made of the cable companies and
11 incumbent telephone carriers. These carriers use Internet Protocol as a way to
12 transmit the call. However, the call is usually carried through a private network
13 rather than through the public Internet. The number of lines in the first part of the
14 industry is considered to be less than one percent of the telephone lines, while the
15 number of lines in the second part of the VoIP industry are combined with the
16 lines of the cable and incumbent carriers that provide that service. In estimating
17 independent VoIP customer in the Qwest service territory, I have allowed the
18 percent of lines using that service to increase to 3 percent. Even so, the current
19 impact of the VoIP on the residential market is also meager.

⁶ FCC High-speed Report, Tables 1 and 3.

1 **Q: To what extent does the Wireless industry participate in the primary**
2 **residential market?**

3 **A:** The wireless industry is a large and growing industry both nationally and in
4 Washington. There are now 4,177,196 wireless subscribers in Washington.
5 However, the existence of wireless customers does not mean that wireless is
6 competing with the wire line service, or that wireless is participating in the
7 primary residential market. Wireless service can also be a complement to wire
8 line service. That is, the services work together to create an enhanced ability to
9 communicate. Now it is possible to communicate with a person not only in her
10 home but as she walks down a garden path or travels in a car or relaxes on a
11 beach.

12 To establish the number of wireless phones that are part of the residential primary
13 line market, it is necessary to determine how many of the wireless phones are
14 used by persons who no longer rely on the wire line network. To determine this
15 number, I rely on a national estimate of the number of households without wire
16 line service produced by the Centers for Disease Control and Prevention. That
17 estimate is taken from a 2005 National Health Interview Survey. The
18 administrators of the survey need to contact an unbiased sample of Americans. If
19 their sample is biased because they do not contact households without wire line
20 service, then the usefulness of the survey would be diminished. Because of this
21 need, the expectation is that the results of the survey would be unbiased and, more
22 importantly, would not be biased in favor of any particular group in the telephone

1 industry that might desire to under-or over-estimate the number of households
2 without wire line service. Based on a sample taken in the second half of 2005, the
3 survey found that 7.8 percent of households no longer have wire line service.⁷
4 Other analysts have estimated that as many as 8 percent of the households have
5 cut-the-cord.⁸ Multiplying 8 percent by the number of Washington households
6 by the percent of Washington lines that are in the Qwest service territory (the
7 proxy for the percent of Washington households that are in the Qwest service
8 territory) results in 123,187 wireless lines that could be included in the residential
9 market.

10 **Q: How did you calculate the HHI for the primary-line residential market?**

11 **A:** The calculation of the HHI proceeds according to the following steps. First, I
12 estimated the share of each competitor by dividing that competitor's residential
13 line count by total Qwest service territory household. Second, I squared each
14 calculated share and multiplied the squared numbers by the HHI convention of
15 10,000. Finally, I summed the adjusted squared shares.

16 **Q: How did you estimate the contribution of Qwest to the HHI value?**

17 **A:** I used the number of primary-line residential customers for Qwest.⁹ This number
18 excludes both Lifeline lines and non-primary lines. The exclusion of non-primary

⁷ 2005 CDC National Health Interview Survey, May 2006. This appears to be the same measure used by Qwest witness Mr. Teitzel in this case.

⁸ Michael D. Pelcovits and Daniel E. Haar, Consumer Benefits from Cable-Telco Competition, Micra,. The term "cord-cutter" may be somewhat imprecise. The group of consumers with no wireline phone includes some who would not ordinarily have had a wireline phone in any event, e.g. students, including those using parental wireless plans but living away from home. Other "cord-cutters" may use only a wireless phone but continue to use wireline broadband internet access..

1 lines means that I am only counting one line per household. On the other hand, I
2 count all the cable and CLEC lines because I do not know how many of their lines
3 are non-primary lines. To the extent that CLEC and cable providers sell more than
4 one line per-household, this estimation technique over-estimates the market shares
5 of CLECs and cable providers in the primary-line market.

6 Based on the primary line count and the number of households, Qwest market
7 share is 75.22 percent or an HHI value of 5,658.

8 **Q: How did you estimate the contribution of cable providers to the HHI value?**

9 **A:** I estimate the cable provider as one competitor. This assumption is based on the
10 fact that even though there are multiple cable providers in the Qwest service
11 territories, most cable franchises have unique territories and, therefore, most
12 consumers can only purchase the service from one cable provider. The cable
13 market share is 3.53 percent, the number of cable lines divided by the number of
14 Qwest service territory households. The cable HHI value is 12.48.

15 **Q: How did you estimate the contribution of wireless providers to the HHI**
16 **value?**

17 **A:** The contribution of wireless carriers to the HHI calculation used wireless market
18 share data combined with total Qwest service territory data. My estimate of the
19 wireless market share and number of wireless carriers providing service in the
20 Qwest service territory is based on the FCC's wireless competition report.

⁹ ARMIS 43-01 Report for 2005.

1 According to the report, there are approximately four carriers in a large portion of
2 the Qwest service territory, and in the Seattle-Tacoma-Bremerton region, the
3 wireless HHI is 2,600.¹⁰ Combining market information implies that there are
4 two firms with 30 percent of the market and two firms with 20 percent of the
5 market ($30^2+30^2+20^2+20^2=2,600$). I determined market share for each firm by
6 multiplying the total wireless “cut-the-cord” residential lines in the Qwest service
7 territory by each firm’s share of the wireless market and then dividing that
8 product by the total number of Qwest service territory households. The wireless
9 market share is 8 percent and its HHI value is 16.64.

10 **Q: How did you estimate the contribution of non-cable CLECs to the HHI**
11 **value?**

12 **A:** The contribution of the non-Cable CLEC to the HHI estimate is based on CLEC
13 line estimates, the residential percentage of CLEC lines, cable residential lines,
14 and Qwest’s wholesales to CLECs. First, I determined the number of CLEC
15 residential lines in the Qwest service territory as the product of total CLEC lines
16 in Washington, the CLEC residential line ratio for Washington, and the
17 percentage of Washington households in the Qwest service territory.¹¹ Second, I
18 calculated the non-cable CLEC lines as the difference between total CLEC
19 residential lines and cable residential lines. Third, I allocated the non-cable

¹⁰ In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, Eleventh Report, WT Docket No. 06-17, FCC 06-142, released September 29, 2006, Appendix A, Table 3: Economic Area Penetration Rates, and Appendix B, Map 1.

1 CLEC lines to each CLEC operating in the Qwest territory on the basis of the
2 relative number of wholesale lines (sum of UNE-L, UNE-P, QPP and resold lines)
3 each CLEC purchases from Qwest. That allocation determines the number of
4 residential lines each CLEC serves. Fourth, I divided the lines served by each
5 CLEC by the number of Qwest service territory households, determining each
6 CLEC's market share. Fifth, I squared the shares and summed the square shares
7 to determine the HHI value. The combined market share of the non-cable CLECs
8 is 2.86 percent and the HHI value is 0.90.

9 **Q: How did you estimate the contribution of independent VoIP providers to the**
10 **HHI value?**

11 **A:** My estimate of the VoIP providers' contribution is based on my assumption that
12 these providers serve three percent of the market and that there are three major
13 carriers in the market, with one carrier providing seventy percent of the service.
14 The HHI value for the VoIP providers is 4.86.

¹¹ FCC, Local Competition Report, Tables 11 and 12.