

**Exhibit No. ___ HCT (JL-1HCT)
Docket UT-100820
Witness: Jing Liu
REDACTED VERSION**

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Joint Application of

DOCKET UT-100820

**QWEST COMMUNICATIONS
INTERNATIONAL INC. and
CENTURYTEL, INC.**

**for Approval of Indirect Transfer of
Control of Qwest Corporation, Qwest
Communications Company LLC, and
Qwest LD Corp.**

TESTIMONY

OF

JING LIU

STAFF OF

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION**

September 27, 2010

HIGHLY CONFIDENTIAL PER PROTECTIVE ORDER

TABLE OF CONTENTS

I. INTRODUCTION.....1
II. BROADBAND DEPLOYMENT4
III. BROADBAND OFFERS AND PRICES.....13

EXHIBIT LIST

Exhibit No. ___ HC (JL-2HC) DSL Availability and Household Density Scatter Plot
Exhibit No. ___ HC (JL-3HC) DSL Availability at Wire Center Level

1 I. INTRODUCTION

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Q. Please state your name and business address.

A. My name is Jing Liu. My business address is 1300 South Evergreen Park Drive Southwest, P. O. Box 47250, Olympia, Washington, 98504. My business email address is jliu@utc.wa.gov.

Q. By whom are you employed and in what capacity?

A. I am employed by the Washington Utilities and Transportation Commission (Commission) as a regulatory analyst in the telecommunications section.

Q. What are your education and experience qualifications?

A. I hold a Master of Arts degree in organizational communication and a Master of Science degree in communication technology and policy from Ohio University. I also completed four years of doctoral study in public policy at Ohio State University. I worked as a graduate research associate at the National Regulatory Research Institute (NRRI) from 2005 to 2007. During that period, I authored and coauthored five papers published by the NRRI, primarily on universal service and inter-carrier compensation issues. In 2009, I provided testimony in the proceedings on United Telephone Company of the Northwest Inc.'s intrastate access charges (UT-081393) and on the acquisition of Verizon Northwest, Inc. by Frontier Communication Corporation (UT-090842). I coauthored a research paper on state high cost funds published by the NRRI in January 2010.

1 **Q. What is the scope of your testimony?**

2 A. My testimony addresses the Joint Applicants' future investment in deploying Digital
3 Subscriber Line (DSL) services in Washington. It supplements Mr. Mark Vasconi's
4 overall recommendation on the proposed transaction. While the Joint Applicants indicate
5 in the application that the proposed acquisition of Qwest Corporation and other
6 subsidiaries of Communications International, Inc. (QCII) by CenturyLink, Inc.
7 (CenturyLink) would facilitate the expansion of broadband availability and increasing
8 broadband speeds to consumers,¹ I recommend the Commission condition approval of the
9 transaction on the broadband deployment targets I specify below in order to ensure that
10 the post-transaction company will pass through merger benefits to Washington
11 consumers.

12
13 **Q. On what basis do you propose the conditions on the company's future broadband
14 deployment?**

15 A. The Joint Applicants have repeatedly emphasized that the deployment of broadband
16 services in their incumbent local exchange carrier (ILEC)² service areas as the one of the
17 major benefits of the proposed transaction. For example, Mr. Mark Reynolds states that
18 the combined company will have more financial resources to provide broadband to more
19 customers at higher speeds; rural customers will benefit from the combined companies'
20 fiber backbone with greater transport economies; more new services will be developed

¹ Joint Application at p.10, ¶19.

² The ILECs are CenturyTel of Washington, Inc., CenturyTel of Inter-Island, Inc., CenturyTel of Cowiche, Inc. and United Telephone Company of the Northwest, (collectively the CenturyLink ILECs) and Qwest Corporation (Qwest).

1 over VoIP platform.³ Mr. John Jones also emphasizes that the combined network will
2 enable the company to reach customers with a more diverse mix of product offerings, and
3 advance the deployment of high speed Internet services including triple play of
4 broadband, voice and video.⁴ While I have little doubt of the Joint Applicants' intention
5 to enhance broadband products and to maintain a strong position in the competitive
6 market, I recommend that explicit and measurable conditions be imposed on the
7 combined company to ensure its future broadband deployment corresponds with the best
8 interests of Washington consumers, especially rural consumers.

9
10 **Q. Is there any precedent for the Commission to require broadband deployment by**
11 **telecommunications carriers?**

12 A. Yes. The Commission conditioned its approval of several recent filings on the
13 companies' specific broadband deployment commitments in the state. These proceedings
14 include Qwest Corporation's Alternative Form of Regulation (AFOR), the merger
15 between Embarq Corporation (Embarq) and CenturyTel, Inc. (now known as
16 CenturyLink), and the acquisition of Verizon Northwest, Inc (Verizon) by Frontier
17 Communication Corporation (Frontier).

18 As illustrated in the broadband deployment requirements in the prior proceedings,
19 the Commission considers broadband to be an integral component of the public interest
20 and recognizes the critical role of ILECs in building out broadband infrastructure in the
21 state of Washington. In the Qwest AFOR proceeding, Qwest committed to spend at least
22 \$4 million to increase the availability of advanced telecommunications services in

³ Direct Testimony of Mark Reynolds at 24:3-9.

⁴ Direct Testimony of John Jones at 9:1-6.

1 underserved areas in Washington.⁵ Similarly, in the Embarq and CenturyTel merger
2 proceeding, the merged company agreed to provision broadband within three years after
3 the close of the merger to 2,200 customers previously without broadband service.⁶ In the
4 Verizon and Frontier merger, Frontier committed to a number of broadband-related
5 conditions, including spending at least \$40 million on DSL deployment, meeting specific
6 targets of DSL availability rate at the wire center level, and providing a download speed
7 of 3 Mbps to 80 percent of households in its service area by the end of 2014.⁷

8 9 II. BROADBAND DEPLOYMENT

10
11 **Q. Is the merged company likely to expand broadband deployment in Washington**
12 **after the transaction?**

13 A. Overall, I think the post-transaction CenturyLink will expand its broadband footprint and
14 improve marketing of broadband products. Joint Applicants state that the merger will
15 lead to financial strength and flexibility, a more diverse mix of product offerings, and
16 increased economies of scale and a stronger product portfolio, making the combined
17 operation more efficient.⁸ Given that the wireline industry is facing intermodal

⁵ Docket UT-061625, *In the Matter of the Petition of Qwest Corporation For an Alternative Form of Regulation Pursuant to RCW 80.36.135*, Order 06, at ¶¶29-42.

⁶ UT-082119, *In the Matter of the Joint Application of Embarq Corporation and CenturyTel, Inc. for Approval of Transfer of Control of United Telephone Company of the Northwest d/b/a Embarq and Embarq Communications, Inc.*, Order 05, Appendix 1 Settlement Agreement at Condition 8.

⁷ UT-090842, *In the Matter of the Joint Application of Verizon Communications, Inc., and Frontier Communications Corporation for an Order Declining to Assert Jurisdiction Over, or in the Alternative, Approving the Indirect Transfer of Control of Verizon Northwest, Inc.*, Order 06, Appendix A Settlement Agreement between UTC Staff and Joint Applicants at Conditions 13-18.

⁸ Joint Application at p.9, ¶18.

1 competition from both wireless providers and cable providers, I believe CenturyLink has
2 incentives to improve broadband offers and provide them at competitive prices.

3
4 **Q. If you believe that the merged company will continue to improve broadband**
5 **offerings in a competitive market, why do you recommend that the Commission**
6 **impose conditions on the company's future broadband investment in Washington?**

7 A. The rationale is two-fold. The proposed merger takes place at the national corporate
8 level. The two companies are going to merge across multiple states. Therefore, it is
9 important to make sure that CenturyLink will dedicate a fair portion of its synergy
10 savings to the state of Washington.

11 Also, there is a risk that CenturyLink will not dedicate adequate resources to rural
12 areas in Washington. Left entirely to market forces, the company may focus its
13 broadband activity on urban markets and neglect rural markets. As a result, we could see
14 a widening gap in broadband infrastructure between rural and urban areas served by
15 CenturyLink after the acquisition.

16
17 **Q. Could you please elaborate on your concern regarding the risk of a rural and urban**
18 **gap in broadband investment?**

19 A. It is common sense that it is less profitable for a company to serve rural areas. Facility
20 costs to deploy broadband depend on customer density and the physical distance of
21 facilities required to connect the customers to the company's switch. In rural parts of
22 Washington, the distances to connect the customers are much longer and the densities are
23 much lower than in urban areas because households are sparsely located. Exhibit __ (JL-

1 HC2) depicts the relationship between household density (an indicator of “ruralness” of
2 the community) and current DSL availability based on combined data from Qwest and
3 CenturyLink at the wire center level. Exhibit __ (JL-HC3) is a spreadsheet containing
4 the underlying data for Qwest’s and the CenturyLink ILECs’ DSL availability. The
5 scatter plot in Exhibit __ (JL-HC2) clearly indicates that almost all the wire centers with
6 low DSL availability rates are the ones with low household density.⁹

7 Moreover, on the demand side, the income level of rural residents is typically
8 lower than that of urban residents, making broadband less affordable among rural
9 consumers. In general, median incomes are higher in Qwest service areas and lower in
10 the service areas of CenturyLink ILECs.¹⁰ Without investment in broadband
11 infrastructure the gap between urban and rural broadband deployment will be
12 exacerbated, and already economically disadvantaged rural communities will find it even
13 harder to develop their economies.

14
15 **Q. What are your specific concerns about CenturyLink’s broadband investment after**
16 **the transaction closes?**

17 A. I am concerned that if the Commission does not impose conditions to facilitate DSL
18 deployment in rural wire centers, the post-transaction company will devote more
19 resources to the urban areas (mostly Qwest service area) where profit margins are higher,
20 and neglect the broadband infrastructure in rural Washington (mostly CenturyLink ILEC

⁹ Other intervening factors such as geographical features, types and histories of community, and local economic development may explain the varying degree of broadband availability across sparsely populated rural areas.

¹⁰ According to the Washington State Office of Financial Management, only six out of 39 counties have a median household income higher than the state average. See <http://www.ofm.wa.gov/economy/hhinc/>. They are King, Kitsap, Pierce, San Juan, Snohomish and Thurston, all located in western Washington. Qwest serves a big portion of King, Kitsap, Pierce and Thurston counties. The median household income of all the other counties, including the majority of CenturyLink’s service areas, is below the state median.

1 service areas). When examining how best to distribute capital within a company,
2 managers have to choose between competing projects based on the results of business
3 cases which examine relative profitability between projects. Given the relatively high
4 development cost of expanding broadband service in rural areas, coupled with lower
5 potential revenue, rural broadband deployment is handicapped when compared with the
6 potential profitability of broadband deployments in urban areas. Therefore, the
7 Commission should pay particular attention to remote and rural communities because
8 they are the least attractive for broadband deployment yet in great need of broadband
9 access.

10
11 **Q. Could you please further illustrate the differences between the two companies’
12 service areas and the implication for future broadband deployment?**

13 A. The service areas of the CenturyLink ILECs and Qwest have very different demographic
14 and geographical characteristics. The CenturyLink ILECs’ service areas are much more
15 rural, sparsely populated, and more difficult to serve because of terrains and economic
16 conditions. The starkest contrast is shown in the household density in their individual
17 service areas. On average, there are ■ households per square mile in Qwest’s service
18 area in Washington; in contrast, the household density in several metropolitan areas is
19 higher than ■ households per square mile.¹¹ In comparison, in the CenturyLink
20 ILECs’ service areas, there are about ■ households per square mile. At the wire center
21 level, the most populated wire center served by CenturyLink has ■ households per

¹¹ See Exhibit ___ (JL-HC3), “Household Density” column.

1 square mile; ■ percent of the wire centers have a density of lower than 10 households
2 per square mile.

3 So far, CenturyLink ILECs have done a great job extending DSL to their rural
4 customers. But the costs of extending DSL facilities to remaining unserved households
5 are likely to be high. I am concerned that after the merger, the company may shift its
6 focus to Qwest's urban markets and stall on the broadband investment in the CenturyLink
7 ILECs' service areas.

8
9 **Q. What is the status quo of the two companies' broadband availability?**

10 A. Currently, Qwest has made DSL available to about ■ percent of the households
11 residing within its service area.¹² Given this level of availability, Qwest has exceeded its
12 commitment in the AFOR, which was set at 83 percent.¹³ In the aggregated CenturyLink
13 ILECs' service areas, they have made DSL available to ■ percent of the households.¹⁴

14
15 The specific breakdown of wire center counts in terms of DSL availability rate is
16 presented in Table 1. So far, in the two companies' combined service area, there are still

¹² See Exhibit __ (JL-3HC), "DSL Availability Rate" column. The source of the data is Qwest's Responses to UTC Staff Data Requests Nos. 32, 135 and 142.

DSL availability rate used in this testimony is calculated by dividing the number of households where DSL is available (regardless of whether the household subscribes to the company's telephone service) by the total number of households in a wire center.

¹³ In the AFOR proceeding, Qwest calculates the DSL availability rate differently. It is measured as the number of households with a working telephone number where DSL is available divided by the total number of households with a working telephone number. In other words, it committed to make DSL available to 83 percent of its current customers. So far, it has exceeded this target. Following Qwest's way of calculation, the DSL availability among its current customers is 88 percent, coinciding with the DSL availability rate among all households.

¹⁴ See Exhibit __ (JL-3HC), "DSL Availability Rate" column. The source of the data is CenturyLink's Response to UTC Staff Data Request No. 32.

1 ■ wire centers that do not have DSL available; ■ wire centers with a DSL
 2 availability rate below 50 percent; and ■ with a DSL availability rate below 90 percent.
 3

Table 1. Counts of Wire Centers With Regard To DSL Availability Rate

	Number of Wire Centers with No DSL Available	Number of Wire Centers with DSL Available to <50% of the Households	Number of Wire Centers with DSL Available to 50-90% of the Households	Number of Wire Centers with DSL Available to >90% of the Households	Total Number of Wire Centers
Qwest	■	■	■	■	112
CenturyTel of Cowiche	■	■	■	■	3
CenturyTel of Inter-Island	■	■	■	■	4
CenturyTel of Washington	■	■	■	■	78
United Tel Co of the NW ¹⁵	■	■	■	■	26
Total	■	■	■	■	223

¹⁵ The wire center count does not include the Columbia exchange. The data show that there are no residential households in Columbia, therefore there are no residential phone lines or DSL lines.

1 **Q. Do you think there is still unmet demand to justify future investment in rural areas?**

2 A. I think so given the current broadband adoption rate in Washington. Based on the
3 statistics released by the Federal Communications Commission (FCC), 61 percent of
4 Washington households subscribed to high speed Internet (including DSL, cable modem
5 and other technologies) by the end of 2008.¹⁶ Also as a reference point, the Pew Internet
6 & American Life Project survey shows that 66 percent of American adults have a
7 broadband Internet connection at home in 2010 and 5 percent of people continue to use
8 dial-up service.¹⁷ These figures indicate that the broadband market is far from saturation.

9 Rural residents appear to have a demand for broadband that is similar to, if not
10 stronger than, their counterparts in urban areas. The existing dial-up customer base is a
11 good indicator for the demand of rural residents. FCC statistics reveal a consistent
12 contrast of rural versus urban demand in terms of Internet access subscribership: rural
13 customers have a slightly lower subscribership to Internet access service; however, a
14 much larger percent of rural households continue to rely on dial-up service.¹⁸ Rural
15 customers still resort to the slow dial-up Internet access either because DSL is not
16 available in their area or because the price is too high for them.

17

18 **Q. Do you think there is unmet demand in the Qwest and CenturyLink ILECs service**
19 **areas in Washington?**

¹⁶ Federal Communications Commission, *High-Speed Services for Internet Access: Status as of December 31, 2008* (Released February 2010), Table 21.

¹⁷ Smith, A. *Home Broadband 2010*. Pew Internet & American Lifeline Project, released August 11, 2010.

¹⁸ Federal Communications Commission, *Trends in Telephone Service*. Released August 2008. Table 2.9. As of October 2007, 58.3 percent of rural households subscribe to Internet service (dial-up and high-speed Internet access) as compared to 62.6 percent subscription rate among urban households. However, 19.3 of rural households subscribe to dial-up Internet service as compared to 8.5 percent of urban households that subscribe to dial-up service. Also see the reports in prior years.

1 A. Yes. As of June 2010, Qwest has [REDACTED] dial-up customers; and the CenturyLink ILECs
2 have [REDACTED] dial-up customers.¹⁹ These dial-up customers are high-potential DSL service
3 adopters once the price or availability circumstances change. Not coincidentally, in some
4 areas with low DSL availability, we also see a relatively big percentage of customers
5 using dial-up. For example, in the CenturyTel of Washington, Inc.'s Clearwater
6 exchange, DSL is only available to [REDACTED] out of [REDACTED] households.²⁰ In that area, [REDACTED]
7 households, or [REDACTED] percent, subscribe to dial-up service.²¹ In addition, as reflected in the
8 FCC data I referenced earlier, about 39 percent of Washington households do not
9 subscribe to any broadband service. I believe many households in these two companies'
10 service areas do not have access to reliable and affordable broadband service.

11
12 **Q. What is your recommended target for the two companies' future broadband**
13 **deployment?**

14 A. I recommend that within four years after the close of the proposed transaction, the
15 CenturyLink ILECs and Qwest shall make DSL available to at least 92 percent of
16 residential households located in their respective service areas²² in Washington. I also
17 recommend that within four years after the close of the proposed transaction, each

¹⁹ The source of the data is Qwest's and CenturyLink's Responses to UTC Staff Data Request No.143. These figures only include customers who choose Qwest and CenturyLink as the dial-up Internet service provider (ISP). Customers who subscribe to Qwest and CenturyLink's telephone service but use other ISPs are not counted here. Therefore, they are an underestimate of the actual number of dial-up customers in the two companies' service areas.

²⁰ See Exhibit __ (JL-3HC), "DSL Availability Rate" column. The source of the data is CenturyLink's Response to UTC Staff Data Request No. 32.

²¹ The source of the data is CenturyLink's Response to UTC Staff Data Request No. 143.

Again, this does not count the customers who subscribe to CenturyLink's telephone service but use other ISPs for dial-up service.

²² Namely, separate service areas of CenturyTel of Washington, Inc., CenturyTel of Inter-Island, Inc., CenturyTel of Cowiche, Inc., United Telephone Company of the Northwest, and Qwest Corporation.

1 CenturyLink ILEC and Qwest shall make DSL available to no less than 85 percent of all
2 residential households in each wire center in Washington.

3
4 **Q. What do you recommend to enable the Commission to properly oversee the**
5 **company's broadband deployment after the transaction closes?**

6 A. I recommend the Commission require CenturyLink to submit an initial plan for
7 broadband deployment within 90 days of the transaction closing date. The company will
8 consult with Staff regarding the geographic scope of the broadband deployment
9 (including the specific wire centers that will be included) and the timelines for its
10 implementation.

11
12 **Q. Do you have a recommendation on the company's reporting obligations to the**
13 **Commission following the close of the transaction?**

14 A. Yes. I recommend that the Commission require each CenturyLink ILEC and Qwest file
15 an annual progress report on broadband deployment with the Commission no later than
16 May 1 of each succeeding year following the date the transaction closes until all goals
17 specified in the approval order are achieved. The annual report must contain information
18 on a wire center basis as of December 31 of the previous year. The following wire center-
19 specific information shall be included:

- 20 a. The number of residential households and businesses, respectively;
- 21 b. The number of retail residential and business telephone subscriber lines,
22 respectively, served by the company;
- 23 c. The number of broadband-capable subscriber lines shown by technology (DSL,
24 FTTP and others);

- 1 d. The number of broadband subscribers by technology, including both subscribers
2 of stand-alone broadband services and subscribers of bundles that contain
3 broadband services; and
- 4 e. Total capital expenditures associated with new broadband deployment in the
5 previous calendar year by technology.
- 6

7 **III. BROADBAND OFFERS AND PRICES**

8

9 **Q. What will be the appropriate objective for a minimum broadband speed?**

10 A. In its National Broadband Plan, the FCC has identified a national target of 4 Mbps
11 download and 1Mbps upload for broadband speed based on technical and demand
12 analysis.²³ The broadband-related conditions the Commission imposes on the post-
13 transaction company should be consistent with the national objective.

14

15 **Q. What are the available broadband speeds currently offered by Qwest and the
16 CenturyLink ILECs?**

17 A. Currently, CenturyLink ILECs can provide [REDACTED] customers in Washington with
18 broadband access to 4 Mbps or greater download speeds. In other words, only [REDACTED] percent
19 of the households where CenturyLink ILECs offer DSL can enjoy a download speed of 4
20 Mbps or greater.²⁴ Qwest can provide [REDACTED] living units in Washington with
21 broadband access to 4 Mbps or greater download speeds, about [REDACTED] percent of its potential

²³ Federal Communications Commission, *Connecting America: The National Broadband Plan (2010)*. Available at www.broadband.gov.

²⁴ The source of the data is CenturyLink's Response to Public Counsel Data Request No. 43.

1 DSL subscribers.²⁵ This status quo is far below the national objective envisioned by the
2 FCC.

3
4 **Q. Do you have a recommendation with regard to the speed of broadband offered by**
5 **the post-transaction company?**

6 A. Yes. Consistent with the objective laid out in the FCC's National Broadband Plan, I
7 recommend the Commission require each CenturyLink ILEC and Qwest to make
8 available retail broadband Internet access service with a minimum speed of 4 Mbps
9 download and 1 Mbps upload to 85 percent of residential households located in their
10 respective service areas by the end of 2015.

11
12 **Q. Do you have any concerns about the CenturyLink ILECs' and Qwest's future DSL**
13 **offerings in Washington?**

14 A. The Joint Applicants state that immediately upon completion of the transaction, the
15 companies will continue to offer the service products with the same rates, terms and
16 conditions as immediately prior to the transaction.²⁶ However, the Joint Applicants also
17 state that after the transaction, the companies will change prices and product mixes over
18 time to respond to changes in market, technology and business demands.²⁷ These two
19 statements are somewhat contradictory. While being flexible in prices and product mixes
20 is normal business practice, such changes may cause confusion to customers during the

²⁵ The source of the data is Qwest's Response to Public Counsel Data Request No. 43.

²⁶ Joint Application at p.5, ¶7.

²⁷ Joint Application at p.5, footnote 8.

1 transitional period, disrupt the service contracts customers entered into before the merger,
2 and even diminish the value of the services if the company chooses to raise the price.

3
4 **Q. What do you recommend in terms of the prices, terms and conditions of the**
5 **company's DSL-related products?**

6 A. To guarantee some degree of continuity in the services Qwest and CenturyLink ILECs
7 customers are currently are receiving, and to ensure that customers are not harmed as a
8 result of the transaction, I recommend that the post-transaction company offer stand-
9 alone DSL; and rates for DSL services, either as stand-alone DSL service or DSL as part
10 of a services bundle, offered by CenturyLink ILECs or Qwest shall not be increased
11 above pre-transaction levels for 36 months following the closing date of the transaction.

12
13 **Q. Please summarize your testimony.**

14 A. I recommend the Commission impose the following the conditions on the post-
15 transaction company: (1) make DSL available to at least 92 percent of residential
16 households in each CenturyLink ILEC's and Qwest's service areas in Washington within
17 four years after the transaction closes; (2) at the wire center level, make DSL available to
18 no less than 85 percent of all residential households in each wire center in Washington
19 within four years after the transaction closes; (3) submit an initial broadband deployment
20 plan within 90 days of the date the transaction closes and an annual progress report
21 thereafter; (4) provide a minimum speed of 4 Mbps download and 1 Mbps upload to 85
22 percent of residential households in each CenturyLink ILEC's and Qwest's service areas
23 in Washington by the end of 2015; (5) offer stand-alone DSL; and (6) cap the rates of

1 existing DSL-related service plans at the current level for 36 months after the transaction
2 closes.

3

4 **Q. Does this conclude your testimony?**

5 A. Yes.

6

7