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1 **I. Introduction**

2
3 **Q Please state your name, address, and occupation.**

4 A My name is Marci L. Norby. My business address is 2515 Warren Ave., Suite 304,
5 Cheyenne, Wyoming, 82002. I am employed as a Senior Rate Analyst with the
6 Office of Consumer Advocate.

7
8 **Q Please describe your educational background, occupation, and experience.**

9 A I received a Master of Science degree in Finance from the University of Wyoming in
10 1999. After graduating, I was employed as a financial analyst in the banking
11 industry, where my duties included accounting, capital budgeting, financial
12 budgeting, bond portfolio management and administration, institutional investing,
13 economic analysis, and financial operations. I came to the Wyoming Public Service
14 Commission in August of 2000 and then to the Office of Consumer Advocate in May
15 of 2003.

16
17 **Q Have you testified before the Commission in previous proceedings?**

18 A Yes. I have included a list of my previous testimony before the Wyoming Public
19 Service Commission as MLN Appendix A of my testimony.

20
21 **Q On whose behalf do you appear today?**

22 A I appear in this case on behalf of the Office of Consumer Advocate (OCA).

23
24 **Q As a member of the OCA, do you advocate the interests of certain groups
25 of consumers over others?**

26 A No. As a member of OCA, it is my obligation to represent the interests of all
27 Wyoming citizens and all classes of utility customers in the state.

28
29 **Q What is the purpose of your testimony in this proceeding?**

30 A The purpose of my testimony is to provide an overview of Qwest Corporation's

1 (Qwest or Company) TELRIC models and studies presented in this case. I will also
2 present the OCA recommendations and concerns with certain calculations within the
3 studies.

4
5 **Q Do you sponsor any exhibits in this proceeding?**

6 A Yes, I sponsor OCA Exhibit MLN-1 through 3 in this proceeding. I will refer to my
7 exhibits throughout my testimony.

8
9
10 **II. Overview of TELRIC**

11
12 **Q What is TELRIC?**

13 A TELRIC is an acronym for Total Element Long Run Incremental Cost. TELRIC
14 develops the cost of providing unbundled network elements (UNE) on the basis of a
15 forward-looking least cost technology and operating systems deployed in the
16 Incumbent Local Exchange Carrier's (ILEC) current wire center locations. The
17 methodology assumes that the current wire center locations are not changed.
18 However, the deployment of the network is based on the reconstruction of the
19 network in the most efficient least cost design, technology, and current as well as
20 reasonably anticipated capacity.¹

21
22 TELRIC assumes that the network is built from scratch, or from a scorched node.
23 The methodology includes the direct costs of the UNE and the shared costs² of the
24 UNE. In addition, the TELRIC methodology allows for the inclusion of a reasonable
25 allocation of common costs³. Pursuant to the Telecommunications Act of 1996
26 §252(d)(1) the state commission's determination of the just and reasonable network
27 elements rates shall be nondiscriminatory and based on costs.

1 FCC Docket No. 96-98. In the Matter of Implementation of the Local Competition Provisions in the
telecommunications Act of 1996. First Report and Order. August 8, 1996. ¶ 685.

2 Shared costs are the costs that one element shares with another element or group of elements.

3 The term common cost refers to the costs incurred in the provision of some or all of a company's services that are

1 **Q If the TELRIC studies reflect the forward-looking cost of the network, how**
2 **does Qwest recover its embedded costs of its present network?**

3 A The purpose of the studies is not an exercise to ensure the recovery the embedded
4 cost of the network. The TELRIC methodology provides a basis for a pricing system
5 under which competition will enter the market. The embedded cost of providing the
6 network is not considered and is not a part of this exercise, because the calculation
7 of the cost of services based on the embedded cost and design of the existing
8 network does not promote competition going forward.

9
10 **Q How does TELRIC promote competition?**

11 A TELRIC is based on forward-looking economic costs, which replicates the conditions
12 that would exist in operating with forward-looking efficient facilities in a competitive
13 market. The forward-looking and efficient aspects of the methodology reduce the
14 ability of a ILEC to engage in anti-competitive activities because the costs are
15 estimated so as to replicate conditions that would allow competitive entry into the
16 market. The estimation of the costs based on cost causation allows for the
17 competitors and the incumbent to compete within the market using the incumbent's
18 facilities.

19
20 **Q How can we know for certain that the Qwest TELRIC models presented in this**
21 **docket accurately reflect the proper cost of each service on a forward looking**
22 **basis?**

23 A There is no absolute right or wrong answer or perfect methodology in conducting a
24 TELRIC study. The issue is whether the models offered in any particular case offer
25 a logical estimate of the forward-looking least cost network.

26
27 **Q What are the wholesale service arrangements a competing local exchange**
28 **carrier (CLEC) can form with Qwest and how are they different?**

29 A A CLEC can currently purchase service arrangements from Qwest in the form of

not incremental to any one service (such as the salary of the CEO).

1 resale services, UNE-Platform (UNE-P), or unbundled network elements (UNE's).
2 Resale allows the CLEC to purchase the existing Qwest retail service offerings at a
3 discount. In this instance, the CLEC simply resells the Qwest retail services, under
4 its name, to the end user. The discounted retail rates paid by the reseller are
5 normally calculated by an avoided cost study in the Qwest TELRIC dockets.
6 However, no such study was performed in this docket.

7
8 A competing local exchange carrier can also purchase UNE-P⁴ from Qwest. UNE-P
9 is an arrangement where the CLEC purchases all of the components of the local
10 service at the UNE rates developed by Qwest. The Integrated Cost Model (ICM)
11 calculates the TELRIC of those elements that make up UNE-P. However, I must
12 point out that the February 4, 2005 FCC Triennial Review Order on Remand phases
13 out UNE-P 1-year after the effective date of the order (March 11, 2005). The order
14 states that the ILEC's will charge the CLEC the UNE-P priced at TELRIC plus one
15 dollar until the end of the phase out period. The CLECs are not allowed to add new
16 customers to this service during the transition period.

17
18 The CLEC can also collocate its facilities within the central office in order to provide
19 service to end user customers using its own facilities and the ILEC's UNE's. In this
20 docket, the Collocation Model calculates the TELRIC of providing collocation
21 interconnection services within Qwest's central offices.

22 23 24 **III. Recent Changes to ILEC Unbundling Obligations**

25
26 **Q Does the February 4, 2005, FCC Triennial Review Order on Remand affect**
27 **the UNE's that ILEC's must provide to other carriers?**

28 **A** Yes. The recent release of the final unbundling rules in the order changes the
29 requirement of providing some UNE's from what was included in the previous

⁴ UNE-P is the unbundled network platform. UNE's include the switching, transport, and loop facilities. When all of

1 TELRIC docket in Wyoming. Some of the UNE's that ILEC's are no longer required
2 to provided include Dark Fiber Loops⁵, UNE-P, and local circuit switching using
3 DS0⁶ capacity.

4
5 Qwest has been negotiating agreements with several competing carriers offering the
6 sale of Qwest Platform Plus (QPP). QPP replaces certain UNE-P elements that
7 Qwest is no longer required to make available. The elements can include local line
8 side and trunk side switching facilities and shared transport.

9 10 11 **IV. The Integrated Cost Model (ICM)**

12 13 **Q What is the purpose of the ICM?**

14 A The ICM includes the Expense Factors Model, Capital Cost Model, Loop Model,
15 Transport Model and Switching Model. The ICM develops the recurring TELRIC of
16 most of the unbundled network elements (UNE) offered by Qwest. The ICM runs
17 the incorporated Loop, Switching and Transport models and applies the investment
18 and expense factors to the investments developed in the incorporated models. The
19 model then allocates the applicable common costs.

20 21 **A. Capital Cost Model**

22 23 **Q What is the purpose of the Capital Cost Model?**

24 A This model calculates the capital cost factors such as depreciation expense factors,
25 capital cost recovery factor, and income tax expense factor.

26 27 **Q Did the OCA review the Company's proposed depreciation Rates?**

28 A Yes. The depreciation rates used by Qwest in this case are the Commission

the elements are combined into a complete set of end-to-end circuit, it is called UNE-P or UNE-Platform.
5 Dark Fiber is fiber that is not being used. It is dark because it is not currently lit by electronics and signals.

1 prescribed depreciation rates from Docket No. 70000-TR-97-370⁷. The OCA
2 reviewed the depreciation rates prescribed by the Commission in Sub 370 compared
3 to the depreciation rates prescribed by the FCC and a recent study conducted in an
4 Illinois TELRIC Docket.⁸

5
6 **Q Why are the depreciation rates important in this docket?**

7 **A** TELRIC studies are based on the cost of forward-looking efficient technology and
8 processes. The depreciation rates should also be based on the forward-looking
9 useful lives of those technologies in an efficient network in a market that is moving
10 toward competition.

11
12 The depreciation of any particular asset should reflect the recovery of the cost of
13 that asset over its life, or the length of time over which the asset provides a benefit.
14 In Docket No. 70000-TR-97-370, the Commission set the depreciation rates for
15 regulatory financial reporting and forward-looking cost studies. The Company has
16 since used these rates in TSLRIC and TELRIC studies.

17
18 In the study conducted in the Wyoming Sub 370 docket, a wide variety of
19 information was used to depict a competitive environment and shorter equipment
20 lives accounting for advances in technology and modernization of equipment,
21 customer demand for services, and other challenges presented by a competitive
22 environment.

23
24 The rates approved in the Sub 370 docket were appropriate for use in forward-
25 looking cost studies because the development of depreciation rates in that docket
26 was based on the period of time over which the assets were expected to provide the
27 benefits of use in a competitive environment.

6 DS0 is Digital Signal, level 0. DS0 = 64,000 bits per second.

7 In the matter of the application of US West Communications for authority to implement their 1997 State Depreciation Rate Study.

8 Illinois Docket No. 02-0864, Illinois Bell Telephone Company, Filing to Increase Unbundled Loop and Nonrecurring rates.

1 In a forward-looking TELRIC study, it is reasonable to require the life of the assets
2 that will encourage the use of efficient technologies and encourage investment in
3 infrastructure in a competitive environment. Technological advancements continue
4 at a rapid pace, which leads to earlier obsolescence. The purpose of TELRIC is to
5 develop forward-looking costs based on an efficient network that best replicates a
6 competitive market. The depreciation rates should account for the expected
7 changes in technology that accompanies the transition to a competitive environment.
8 The use of obsolete and lagging depreciation rates would hinder technological
9 advancement by discouraging investment in the network and system improvements.

10
11 **Q You mentioned that you compared the Qwest depreciation rates with a recent**
12 **Illinois study and the current FCC depreciation rates. How do those rates**
13 **compare to those prescribed by the Wyoming Commission in the 1997**
14 **docket?**

15 **A** As illustrated in Table 1 below, the Qwest Wyoming depreciation rates are within the
16 ranges of the forward looking Illinois study. This is not completely surprising
17 because the Illinois study was the same type of study conducted in Wyoming in the
18 1997 docket.

19
20 The study accepted by the Illinois commission in 2004 is based on forward-looking
21 technological changes consistent a competitive environment. The Illinois study by
22 TFI (Technologies Futures, Inc.) significantly shortened the previously prescribed
23 depreciation rates in Illinois. The Illinois study took into account the current efficient
24 equipment replacement by future technology considering the rapid replacement of
25 technology expected in the future as well as the expected line loss due to increasing
26 competitive pressure going forward. I compared the Illinois study depreciation rates
27 to the current prescribed Wyoming depreciation rates and found that the
28 “significantly shortened lives” approved by the Illinois commission in 2004 are
29 comparable to those prescribed by the Wyoming Commission in the Sub 370

1 docket. The FCC depreciation rates depicted in Table 1 do not take into
2 consideration competitive pressures and technology obsolescence in a competitive
3 market.

4

TABLE 1	Qwest Wyoming Prescribed Lives	Projected Life from Illinois TPI Study Results	FCC 1999⁹ Prescribed Lives
Digital Switch	10	9 – 12	12 - 18
Circuit Equipment	7 – 10	7 – 9	7 - 13
Aerial Cable Metallic	15	10 – 16	20 - 26
Underground Cable Metallic	15	12 – 20	25 - 30
Buried Cable Metallic	20	12 – 20	20 - 26
Underground Cable Non-Metallic	20	15 - 20	25 - 30

5

6 **Q Has the Wyoming Commission ordered Qwest to conduct subsequent periodic**
7 **depreciation studies?**

8 **A** Yes. In Docket No. 70000-TR-96-323¹⁰, the Commission stated, “We do
9 understand that the advent of local exchange service competition will sharpen the
10 debate on depreciation lives for incumbent telecommunications service providers.
11 Therefore, we believe that, on a forward looking basis, there should be a state-level,
12 Wyoming specific re-prescription every 3 to 5-years to assure that lives remain
13 accurate and forward looking. We are anxious that depreciation be neither a vehicle
14 for confiscation of US West’s property nor a method by which monopoly rents are
15 extracted from the public.”¹¹ As noted above, Qwest conducted a depreciation
16 study in Docket No. 70000-TR-97-370. It was in this prior docket (70000-TR-96-
17 323) that the Commission ordered subsequent depreciation studies. That directive
18 remains in effect.

19 **Q Does the OCA recommend that Qwest conduct a depreciation study at this**

9 FCC Docket No. 98-137.
10 In the matter of the Application of US West Communications, Inc. for Authority to Implement Phase II of its
Proposed Wyoming Price Regulation Plan for Essential and Noncompetitive Telecommunications Services.

1 **time?**

2 A No. Although the Commission directed Qwest to conduct a depreciation study every
3 3 to 5-years in Docket No. 70000-TR-96-323, the OCA is recommending that the
4 prescribed Wyoming depreciation rates remain appropriate. There is no need for a
5 re-prescription of rates at this time. However, I do recommend that the parties and
6 the Commission continue to monitor the changing market environment and
7 subsequent studies in other jurisdictions in the future to monitor their comparison to
8 the Qwest prescribed Wyoming rates.

9
10 I am not recommending that Qwest be relieved of any further obligation to conduct
11 depreciation studies going forward as ordered by the Commission. The OCA does
12 recommend that the Commission state in its order that the Company specifically
13 address this issue in future TSLRIC and TELRIC dockets. I recommend that the
14 Company explain in its application in ensuing filings, how it is monitoring its
15 depreciation rates and how the depreciation rates compare with other relevant
16 studies conducted around the nation. I also recommend that the Commission direct
17 Qwest to conduct a new study in the future within the 3 to 5 year time period from
18 the close of this docket.

19
20 Qwest has not updated the depreciation rates in accordance with the Commission
21 order in Sub 323. However, the OCA suggests that the depreciation rates are still
22 valid because they are comparable with the results of an extensive study performed
23 in Illinois that is based on forward looking shortened lives consistent with a
24 competitive environment.

25
26 **Q Did the OCA assess the reasonableness of the cost of capital in this docket?**

27 A Yes. The OCA studied the reasonableness of the forward-looking return on equity,
28 the cost of debt, and the capital structure. The result of the OCA review of the
29 return on equity analysis produced a range of reasonableness of 10.6% to 12.45%.

11 Docket No. 70000-TR-96-323, paragraph 170.

1 The return on equity used in the model is 12.35%, which is within the range of
2 reasonableness. The range of reasonableness for the weighted average cost of
3 capital calculated by the OCA is 8.40% to 9.23%. The weighted average cost of
4 capital used in the model is 9.19%, which is within the range of reasonableness.
5 The cost of capital reflects a forward-looking estimated required return. The OCA is
6 not recommending any changes to Qwest's proposed cost of capital.

7 8 **B. Expense Factors Model**

9 10 **Q What is the purpose of the Expense Factors Model?**

11 A The Expense Factors Model develops the investment and expense factors that aid
12 in the calculation of monthly or annual costs of forward-looking investment. It
13 develops investment related factors that consist of the maintenance expense
14 applicable to a particular asset. The expense related factors developed in the model
15 (such as product management, network operations and other operating taxes) are
16 applied to investment costs and other expense amounts. Qwest includes the
17 calculation of expense and investment factors that are applied to forward looking
18 investment in other models to produce the annual or monthly expense applied to the
19 investment.

20 21 **Q How are the factors calculated in the model?**

22 A The model starts with the actual operating expenses and investments for the end of
23 the year 2002 for Wyoming. Operating expenses and investments for cost savings
24 are adjusted for inflation, and other appropriate variables such as the elimination of
25 expenses attributable to nonrecurring costs (which are included in the nonrecurring
26 cost model).

27
28 The cost savings adjustment includes the use an efficiency factor used in the
29 previous TELRIC docket (70000-TA-01-700). The use of the cost savings
30 adjustment from the previous docket stems from the stipulation reached between

1 parties in that docket.

2
3 The efficiency factor reflects an estimate of the gains in efficiency due to increased
4 productivity and enhanced technologies. The operating expenses in the model are
5 decreased by the efficiency factor of 12.74% (biennially), and then increased by an
6 inflation factor of 7.20% (biennially).

7
8 The use of the biennial 12.74% efficiency factor stems from the stipulation in the
9 prior TELRIC docket. It was derived from the FCC Docket No. 99-345¹². The factor
10 calculation is from the average efficiency gains from 1986 through 1998 and the
11 efficiency gains from 1991 through 1998 in that docket.

12
13 The adjustments to expenses using the efficiency factor and the inflation rate
14 convey a forward-looking element to the base year used in the model. The ratio of
15 the expense levels to the investment levels is the cost factor for operating the
16 network, based on the experience of operating the network. In other words, the
17 factors are developed based on Qwest's experience of operating the network by
18 utilizing current expense and investment levels. The inclusion of the historical data
19 does not detract from the forward-looking nature of the studies. Rather, the
20 inclusion of the valuable experience of the Company gives the study credibility. It is
21 reasonable to estimate the cost of operating the network based on the analyses of
22 historical trends of the embedded cost of the operation and maintenance of the
23 current network.

24
25 Investment related factors are based on the proportion of maintenance and capital
26 costs related to the investment. The model calculates these factors by dividing the
27 developed operating expenses (adjusted for cost savings, inflation, and items
28 attributed to other studies) and dividing those expenses by the investment amount
29 that is adjusted by a current cost to book cost ratio.

12 FCC-99-345. In the matter of Price Cap Performance Review for Local Exchange Carriers CC Docket NO. 94-1

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The expense related factors (direct network and marketing, support assets, common costs, and uncollectibles) are calculated by dividing the operating expense, which are adjusted for cost savings, inflation, and items attributed to other studies as noted above, by the total directly attributable expenses such as total marketing support assets, common costs, and uncollectibles. The expense and investment factors are applied to investment costs and other expense amounts in other studies.

Q Why does the efficiency factor calculated in the previous Qwest TELRIC filing continue to be appropriate in this forward-looking study?

A The efficiency factor is based on the 1999 Total Factor Productivity (TFP) FCC staff study. The TFP study measures the ratio of an index of outputs (of a firm, industry, or the economy as a whole) to an index of inputs. The productivity growth is measured by calculating the changes in this ratio over a period of time.

The TFP study included a total ILEC output index and uses quantity indexes for the revenue of local, intrastate, and interstate service. These measures are aggregated for each year in the study. The input indexes include *quantity* of capital, labor and materials, as well as the labor, capital, and material prices. The calculation of the total factor productivity is the measure of the productivity component of the factor and is measured by the percentage change in the total output less the percentage change in the input quantity. The study calculates the TFP differential by taking the U.S. Nonfarm Business Sector TFP growth rate less the ILEC's TFP growth rate. The input price differential is then calculated by taking the difference in the ILEC input Price growth rate and the US Nonfarm Business Sector Input Price growth rate. The efficiency factor is calculated from the difference of the TFP differential (outputs) and the input price differential. The study has not been updated since 1999; but it is the most current data available.

Q Does the OCA agree that the inflation factor in the Expense Factors model is

and In the Matter of Access Charge Reform FCC Docket NO. 96-262.

1 **reasonable?**

2 A Yes. The basis for the Qwest inflation rate is a study performed by Joel Popkin and
3 Company (Popkin study). The study estimated a two-year inflation rate of 7.20% for
4 the years 2002 to 2004. The 7.20% two-year inflation rate is based on the annual
5 changes in the current active employee cost during this period. Qwest uses this
6 wage driven inflation rate because wages and salaries are the primary drivers of
7 operating expenses.

8

9 **C. Loop Model**

10

11 **Q What is the purpose of the Loop Model and how does it calculate the loop**
12 **investment?**

13 A The Loop Model estimates the cost of the investment in distribution and feeder
14 plant. Feeder cable is the portion of the loop that originates from the central office
15 and connects to the distribution cable. The distribution plant branches off from the
16 feeder cable to customer locations. The model includes the cost of the equipment
17 and placement activities necessary to provide the loop to the customer. To estimate
18 the cost of providing the investment, the model includes necessary stand-by
19 capacity, differing engineering loop designs based on the density of an area,
20 differing loop lengths, and type and amount of investment needed in each
21 engineering design.

22

23 **Q What is stand-by capacity?**

24 A Stand-by capacity is extra capacity of the loop. It is considered when provisioning
25 the necessary investment, using fill factors in the model. Stand-by capacity is
26 needed in the provisioning of the loop to account for forecasted growth of end-users,
27 administrative purposes, and replacement of bad lines. This extra capacity allows
28 the Company to answer increased demand as it arises.

29

30 Fill factors are used in the model to account for the relationship between the

1 capacity of the plant that would be provisioned and the amount of plant actually
2 used. The Company would not want to build the loop plant to exactly match the
3 amount of plant that would be fully utilized at the time of construction. The
4 Company must account for such variables as demand growth and bad pairs. If the
5 construction of the distribution portion of the loop only met the demand at the time of
6 construction, reinforcement of the lines would soon be necessary. Reinforcement of
7 those existing lines is costly due to the nature of placement in various areas. For
8 example, reinforcing distribution lines in a city residential area may include tearing
9 up and replacing pavement. Therefore, the design of the feeder and distribution
10 cable of the loop anticipates and accounts for growth in demand.
11

12 **Q What are the distribution fill factors?**

13 A Qwest uses a distribution fill factor of 4% for idle and dedicated lines and 8.12% for
14 additional lines. The fill factors included in the model are derived from Qwest's
15 average actual number of idle and additional lines in Wyoming.
16

17 The Company does not use fill factors in the standard distribution design, rather the
18 study assumes a two pairs per site design of the distribution portion of the loop. The
19 cable size of the distribution design reflects this assumption. The model implies the
20 fill factor because the program develops the total investment required for a given
21 distribution area, then divides this by the number of working lines.
22

23 **Q What is the feeder fill factor included in the Loop Model?**

24 A The feeder fill factor is set at a default of 65% for all wire center sizes in the model.
25 The 65% fill factor is a default Qwest value. The average fill factor for the Wyoming
26 data is 58.8%, not including idle dedicated lines. Qwest uses the 65% feeder fill
27 factor to reasonably reflect the support of the current demand as well as expected
28 future growth.
29

30 Feeder plant is managed and calculated from a fill perspective, whereas the

1 distribution investment is designed to avoid reinforcement. Qwest reflects different
2 loop designs in the model based on the density and prospect for growth within a wire
3 center.

4
5 **Q Is the feeder fill factor appropriate?**

6 **A** Yes. The feeder plant is monitored by the Company on a section-by-section basis.
7 The feeder plant needs to be flexible because the company needs the ability to re-
8 route those feeder pairs due to changing demand throughout the wire center area.
9 Through the conduit system, the feeder plant can be re-routed from one section of
10 the wire center area to another that requires more capacity.

11
12 Different sections of the feeder plant may have higher *actual* fills than other sections
13 at any point in time because the growth and demand for capacity in each area of the
14 wire center can be different. The Company monitors the each section of feeder
15 plant independently.

16 The actual fills in the outside feeder plant can be higher than 65% at various levels.
17 However, the accumulation of those cables as they are spliced into larger and larger
18 cables going back to the central office can result in the managed goal of the Main
19 Distribution Frame¹³ fill of 65%. This is the fill factor included in the model.

20
21 Commission Rule §535 states that “Observed, optimal, actual, or average fill factors
22 shall not be used in the development of the TSLRIC estimate.” The 65% feeder fill
23 factor depicts a management target between actual feeder plant utilization and the
24 point where reinforcement is required. The feeder fill factor used in the Qwest
25 model is between the actual and the optimal fill. The optimal fill is that point where
26 reinforcement is required.

27
28 Different sections of the feeder plant will be at various stages of utilization, but the
29 model utilizes the 65% management target where there is enough capacity for the

13 The main distribution frame connects the lines coming from the outside plant to the lines inside the central office.

1 projected growth over a period of time. Qwest models and manages the feeder
2 plant using the 65% fill target such that at the time of placement, the feeder plant
3 should not need reinforcement for a period of three to five years.

4
5 If the feeder plant is managed or modeled at too high a fill rate, held orders could
6 become a problem. In other words, as the feeder fill factor at the main frame
7 distribution increases, the feeder fill outside plant also increases. This outside
8 feeder plant fill will be higher than the Main Distribution Frame inside the central
9 office. When the fill factors are higher at the main frame, the flexibility of the feeder
10 plant decreases because fill factors are higher than that at the main frame. As the
11 flexibility decreases, held orders will increase.

12
13 **Q Does the Model include the investment required for different sizes of wire**
14 **centers?**

15 A Yes. The model includes four different sizes of wire centers¹⁴ by using wire center
16 groups. The groups are “very small” (1 to 2500 working lines), “small” (2501 to
17 10,000 working lines), “medium” (10,001 to 30,000 working lines), and “large” (over
18 30,000 working lines). The density of the wire centers will dictate such items as the
19 amount of investment needed, whether or not fiber will be used, and if pair gain¹⁵
20 will be needed.

21
22 **Q How does the model incorporate differing loop lengths?**

23 A The loop length varies by wire center group. The data including the length of the
24 loop is gathered from a statistical sample of loops. Specifically, Qwest states that it
25 is “a statistical sample, or a census of the universe of all loops.”¹⁶ The
26 measurement of loop length varies by wire center group and by type of service.
27 Feeder cable design uses a standard Qwest engineering design. The engineering

14 A wire center is defined by Qwest as geographic area served by a central office.

15 A transmission system that uses concentrators or multiplexers so that fewer wire pairs may be used than would otherwise be required to provide service to a given number of subscribers. A Pair Gain device uses digital technology to allow one line to carry the signals of two or more lines.

16 TELRIC Loopmod User Manual, Page 1.7.

1 design specifies items such as the size of the cable used based on the
2 characteristics of different wire center groups and type of subscriber.

3
4 **Q What are the density groups and how are they treated in the model?**

5 **A** Distribution cable designs include typical distribution profiles used in various density
6 groups (DG). The Loop Model includes distribution design for five density groups as
7 indicated in Table 2.

8

TABLE 2	Description
DG1	Very high density - high-rise structures such as offices and apartments.
DG2	High density - multi-building offices and industrial parks, campuses, condos, apartments, and town homes.
DG3	Medium density - suburban residential subdivisions
DG4	Low density - suburban large acreages
DG5	Very low density - sparsely populated urban or rural areas, ranches, and farms.

9
10 The model assumes two pairs per site¹⁷ for each density group. This is a change
11 from the previous docket where the Company included two pairs per site in DG1,
12 DG2, and DG5 and three pairs per site in DG3 and DG4.

13
14 Two pairs per site are used in DG1 and DG2, because there is more flexibility to
15 rearrange pairs in these two groups in higher density areas. For example, when
16 there are several pairs per site brought into a large building, such as an apartment
17 complex, it is unlikely that all of the apartments will use more than two pairs per site.
18 Many may only use one pair per site. Therefore, additional pairs will be available for
19 those who use more than two pairs per site.

20
21 In the previous docket, three pairs per site were used in DG3 and DG4 due to the
22 higher costs to build additional pairs per site out to each location, after the initial

¹⁷ A pair is formally defined as the two wires of a circuit, which make up a subscriber's loop from his location to the central office. A pair per site would allow for the use of one telecommunications line, or one phone. Two pairs per site would allow a consumer at that site to have two phones.

1 provisioning. Therefore, it was reasonable to include more pairs initially to allow for
2 more flexibility within the Density Groups and to avoid subsequent reinforcement of
3 the lines later. In addition, it is more likely that customers with multiple occupants
4 per household will live in these Density Groups. Therefore, in the previous docket it
5 was assumed that there was a higher probability that more lines would be needed.
6 In this docket, the loop is designed for two pairs per site for all density groups. The
7 change in DG3 and DG4 is primarily due to line losses due to competition for the
8 second and third subscriber lines. The OCA questions this change in the distribution
9 design. Making this change, ceteris paribus, decreases the overall average
10 investment in the loop by approximately 0.38%.

11
12 In DG5, the distribution is designed for two pairs per site. In this Density Group, the
13 demand characteristics for more pairs per site do not outweigh the investment. In
14 this group, customers are more dispersed; the potential growth, in most cases, is
15 most likely not as high as in DG3 and 4; therefore, if Qwest put more pairs per site in
16 this density group, there could be large investment in lines that would never be
17 used.

18
19 After the frequency of the loop length is determined (on the per wire center basis
20 and by type of subscriber) the model applies the per kilofoot investment. Basically,
21 this is a weighted average calculation that determines the incremental investment for
22 the average per wire center group loop. The statewide average loop investment is
23 produced from the model as a weighted average of the investment per month by
24 wire center group.

25
26 The design of the efficient forward-looking loop is affected by the density and
27 expected growth of the wire center. Qwest has broken down differing wire centers
28 by size and used them to group differing loop designs. The groupings are very
29 small, small, medium, and large. The wire center groupings allow for the calculation
30 of costs of different design characteristics of the loop with differing sizes of cable

1 with differing uses of fiber and pair gain. After the design characteristics for differing
2 wire center sizes are calculated in the model, a weighted average of those elements
3 allows Qwest to calculate an average loop cost for its Wyoming customers *within*
4 *each density zone*¹⁸.

5
6 **Q Does the Loop Model separate the cost of the loop between toll service usage**
7 **of the loop and the provision of basic exchange service?**

8 A No. One hundred percent of the cost of the loop is assigned to the basic exchange
9 service. It is a generally accepted economic practice in Wyoming to assign the cost
10 of the loop to the provision of basic exchange service¹⁹ because the cost of the
11 loop is not a usage-based cost. In other words, the cost of provisioning the loop
12 remains constant no matter how much usage is placed on the loop. The cost of the
13 loop is a fixed cost to the customer for access to the public switched network.

14
15 Any allocation of the cost of the loop to usage based factors such as toll services
16 would be arbitrary allocations and create subsidies simply because usage is not a
17 cost driver for the loop. Therefore, 100% of the loop costs are assigned to the
18 provision of basic exchange service.

19
20 **Q How do the costs per loop differ in the various wire center sizes?**

21 A In tab "NACInvSum" in the Loop Model Qwest presents the 2004 unbundled loop
22 average investments. The cost per unbundled loop generally decreases from the
23 very small wire center group to the large wire center group. However, the small wire
24 center group cost per loop (and length of loop) is higher than the very small wire
25 center group. This is primarily due to the use of more investment and the general
26 distribution of customers in the small wire center versus the very small wire center.
27 In the average very small wire center, customers are clustered closer to the
28 community. The average small wire center generally has more population and

18 The four density zones in the model are the base rate area (those closest to the central office) and other zones (zones 1, 2, and 3, which are progressively further from the central office).

19 In Wyoming, it is generally acceptable to assign 100% of the cost of the loop to the basic exchange service.

1 longer loops, thus more investment and higher costs.

2
3 **Q How are the costs allocated to the different zones in Qwest's results?**

4 A Based on the investment and engineering designs calculated for each Density
5 Group and wire center size, as well as other assumptions, the Loop Model can be
6 run to calculate each zone. There are differing costs in each zone based on
7 differing investment costs based on the different loop lengths, engineering designs,
8 density zones, and other assumptions. Within each zone, the model calculates the
9 average Wyoming unbundled loop cost for each zone as well as a per wire center
10 basis.

11
12 **D. Switching Model**

13
14 **Q What is the purpose of the Switching Model?**

15 A The Switching Model develops the investments for switching calls, minutes of use,
16 costs of originating and terminating calls, and features. This model has four major
17 parts:

- 18 1. The Core calculates the Average Busy Season Busy Hour (ABSBH)²⁰ per
19 unit investments and port unit investments by functional category.
- 20 2. The Calls portion of the model develops average busy hour investment by
21 type of service. The Calls portion of the model essentially calculates the
22 cost to setup and maintain a call during the busy hour.
- 23 3. The Usage portion of the model computes the investment per annual call
24 set up and conversation minute. This data is then used to develop the
25 cost per minute of use and the cost per message.
- 26 4. The Ports portion of the model develops the investment of switching

However, this issue is still somewhat controversial in other jurisdictions.
20 Average Busy Season is the months with the highest average busy hour 100 call seconds of a telephone conversation. The call volumes during this time have proven to be stable and predictable. The busy hour is that time period in which the most traffic is carried over the network, which aids in the engineering of the capacity utilize and required on the system

1 ports²¹ and terminations.

2
3 The Core portion of the model develops the investment costs of using the switch
4 resources by functional category of the switch with the required efficient capacity to
5 serve the demand on the system. This investment cost is separated into the various
6 functional categories of the switch to develop the cost per functional category by
7 using partitioning ratios. The demand for each end office switch is then applied to
8 the functional category. A weighted average unit investment for each functional
9 category is developed using all end office switches.

10
11 The outputs of the Core portion of the model are the inputs of the Calls portion of the
12 model. The Calls portion of the model takes the functional costs and develops the
13 cost per minute of use by calculating how much of the functional category resource
14 is required to maintain various call types. This portion of the model computes the
15 amount of functional category investment required to set up a call during the ABSBH
16 and how much investment is required for every 100 seconds of a telephone
17 conversation in the busy hour.

18
19 The Port portion of the model uses outputs of the Core model to develop the network
20 port elements such as the feature investment. The cost of the features is calculated
21 on an average *recurring* cost per feature for all features. The average cost
22 development of the features could create subsidies, but the recurring costs of each
23 feature developed in this case does not vary significantly from the average cost of
24 those features in the previous case.

25
26 **Q Is the switch investment in the Switching Model forward looking?**

27 **A** Yes. The model assumes digital switches, digital line, and forward-looking demand.
28 In the application, Qwest states that it no longer purchases the Nortel DMS10 or
29 Ericsson AXE switches. Therefore, the forward-looking switches are limited to the

21 A port is the interface device between the switch and the circuit.

1 Lucent 5ESS and Nortel DFMS100 switches.

2
3 The technology of the switches in this study indicated a realistic forward-looking
4 switching technology in that it includes the switches that Qwest has a contract to
5 purchase now and going forward.

6
7 **Q What recommendations is the OCA making regarding the Switching Model?**

8 A The OCA is not recommending alterations to the Switching Cost Model.

9
10 **E. Transport Model**

11
12 **Q What is the purpose of the Transport Model?**

13 A The Transport Model develops the transport investment requirement between two
14 end offices, and between end offices and tandem offices. The model develops the
15 investment for channel termination equipment²², SONET equipment²³, fiber,
16 conduit²⁴, and multiplexing equipment²⁵. The model assumes 100% fiber
17 backbone²⁶ that supports a Ring, Point to Point, and Back-to-Back network
18 architecture. It sorts the transport into mileage bands (over 0 to 8, over 8 to 25, over
19 25 to 50, and over 50) and reports the value for fixed and distance sensitive
20 investments.

21
22 Qwest has changed the method by which the mix of equipment configuration, fill
23 factors, and type of trunk ports used in the model is determined. The changes
24 made to the Transport Model serve to accurately reflect the efficient network
25 configuration.

26 **Q Are the investment costs in the Transport Model considered forward looking?**

22 Channel termination equipment is terminates the transmission facility on the company's side of the loop.

23 SONET stands for Synchronous Optical Network, which allows for flexibility needed to transport several digital signals with different capacities.

24 Conduit is the metal pipe in which the cable is placed.

25 Multiplexing equipment is used to transmit two or more signals over a single channel.

26 Backbone is that portion of the transmission network that carries the heaviest traffic.

1 A Yes. Qwest uses the most current technology and costs to develop the
2 investments. The model uses 100% SONET and fiber, which reflects a forward look
3 at efficient network equipment.
4

5 **Q Does the OCA recommend any changes to the Transport Model in this case?**

6 A No. The OCA agrees that the Transport Model accurately reflects a forward-looking
7 investment development for transport costs.
8
9

10 **V. Nonrecurring Cost Model**

11

12 **Q What is the purpose of the Nonrecurring Cost Model?**

13 A The Nonrecurring Cost Model (NRC) calculates the one-time costs associated with
14 establishing service to the end user. The model's inputs are the labor rate,
15 probability of occurrence of the activity, labor time, and expense factors. The model
16 calculates the nonrecurring costs associated with providing each one-time service to
17 the end user by multiplying the quantity of time required to complete each task by
18 the probability of the occurrence of the task, and then multiplies that number by the
19 labor rate. The total direct cost is then multiplied by the directly attributable expense
20 factors to get the TELRIC. The OCA is not recommending any changes to the
21 Nonrecurring Cost Model.
22
23

24 **VI. The Collocation Model (CM)**

25

26 **Q What is the purpose of the CM?**

27 A The CM calculates the TELRIC attributable to providing collocation services to
28 competing carriers. Collocation refers to the activities of locating and
29 interconnecting a CLEC's facilities with in the ILEC's central office. Collocation
30 allows a CLEC access to the local loop by locating its facilities in close proximity to

1 the place where the loop terminates (the ILEC's central office). The CM develops
2 the recurring and nonrecurring costs of providing collocation services.

3
4 The study considers the actual costs for a sample of 41 collocation projects. The
5 model takes the input from these collocation projects and applies the forward-
6 looking investment factors and then expense factors in order to derive the forward-
7 looking TELRIC costs using currently available technologies.

8
9 In order for a competitor to collocate its facilities inside the central office, several
10 functions are undertaken to ensure that the facilities to be collocated function
11 properly with the Qwest facilities and will not adversely impact the Qwest facilities.

12
13 **Q Are there different types of collocation?**

14 **A** Yes. In general, there are basically two types of collocation, virtual and physical.
15 Specifically, Qwest offers Cageless Physical Collocation, Caged Physical
16 Collocation, Common Area Splitter Collocation, Facility Connected Collocation, Field
17 Connection Collocation, Interconnection Distribution Frame (ICDF) Collocation,
18 Remote Collocation, Shared Caged Collocation and Virtual Collocation. The model
19 also develops the costs included in a Direct CLEC to CLEC Interconnection.²⁷

20
21 Physical collocation refers to the placement of a CLEC's facilities within the central
22 office. Generally, these facilities can be caged or cageless. If the facilities are
23 caged facilities, fencing is constructed around the CLEC's facilities. Typically only
24 the CLEC personnel have access to a caged facility, however access to the CLEC
25 facilities is negotiated between the interconnecting parties.

26 Virtual collocation refers to the arrangement between parties in which the collocation
27 equipment is installed and operated by the ILEC. Under this arrangement, the ILEC
28 maintains the responsibility for this equipment.

29

²⁷ A CLEC to CLEC Interconnection allows the connection of two CLEC facilities within the central office of the ILEC.

1 When a CLEC purchases a Remote Collocation product, the CLEC'S facilities are
2 collocated in a Qwest remote premise. Qwest offers Louvered Pedestal
3 Collocation, Adjacent Collocation, Physical Remote Collocation, and Virtual Remote
4 Collocation.

5
6 **Q What type of activities are associated with the different types of collocation?**

7 **A** There are some general activities associated with provisioning collocation. Those
8 elements are listed in section 8.1 of the SGAT Attachment A (see Ms. Million's
9 testimony, Exhibit TKM-01) and include Planning and Engineering, Entrance
10 Facility²⁸, Cable Splicing²⁹, Power Usage, Inspector Labor, Terminations, Security,
11 Clock Synchronization³⁰, Space Availability Report, Collocation Space Option Fee
12 and Joint Inventory Visit. In the case of Virtual, Cageless, and Caged Collocation,
13 other elements such as space construction, space rent, power cables and Quote
14 preparation fees are required.

15
16 **Q How does the Collocation Model develop the TELRIC for collocation?**

17 **A** In basic terms, the model determines the investment, categorizes those investments
18 into elements and then into nonrecurring and recurring elements. The model applies
19 the appropriate factors to the element and then adds the applicable common costs.

20
21 **Q What are some of the additional UNE's for collocation in this docket?**

22 **A** Some of the changes in the CM in this docket include the additional 48 Volt DC
23 power cables in 100 AMP through 400 AMP, the Space Availability Report, Joint
24 Testing, Collocation Decommissioning, Transfer of Responsibility, and DC Power
25 Reduction.

26
27 The Power Reduction rate elements allow the CLEC's to reduce their power load or

The purpose of this interconnection is the exchange of local traffic.

28 The entrance facility is that point where cable enters the building of the central office.

29 Cable Splicing refers to the joining two or more cables.

30 Ensuring that the competing carrier's facilities are synchronized with the master clock, which ensures that transmissions arrive and depart at exact times so that information is cohesive.

1 power off completely. The Power Reduction UNE's include the nonrecurring
2 charges for labor, project management and engineering costs for powering down or
3 powering off.

4
5 The Transfer of Responsibility refers to the UNE's regarding the transfer of
6 collocation responsibility from one CLEC to another CLEC. The nonrecurring costs
7 related to the transfer of responsibility include an Assessment Fee (the labor costs
8 associated with the transfer of the site) and a Network Systems Administration Fee
9 (the labor costs associated with processing the interconnection circuits). Other
10 nonrecurring costs associated with the transfer of responsibility can include labor
11 required to transfer the loop splitting per circuit, unbundled dedicated interoffice
12 transport per circuit, unbundled loop per circuit and line sharing and line splitting per
13 circuit.

14
15 Collocation Decommissioning charges include the labor necessary to deactivate a
16 collocation site. The labor rates for decommissioning include the basic, overtime,
17 and premium labor rates for performing the tasks required to decommission a
18 collocation site. The labor and process involved in decommissioning a site can
19 include removing the entrance facilities at the point of interconnection, remove and
20 dispose of the entrance facility, removal of equipment and disconnection of CLEC-
21 to-CLEC cables.

22
23 The nonrecurring charge for the Space Availability Report covers the cost of
24 generating a report for a particular central office that includes number of collocators
25 in the central office, amount of space available for collocation, number of providers
26 waiting to collocate in that central office, any additional space measures that are
27 underway and whether there is sufficient power for collocation.

28 **A. Collocation Joint Inventory Visit**

29
30 **Q What is the purpose of the Joint Inventory Visit Study?**

1 A The study calculates the nonrecurring cost associated with a comprehensive visit
2 with the CLEC and Qwest personnel to the CLEC's collocation site within the central
3 office in order to review the equipment within the CLEC facility.

4

5 **Q How does the study develop the nonrecurring costs of the visit?**

6 A The study calculates the labor based on the time required to conduct certain
7 elements of the visit and the probability that those items will be requested as seen in
8 other nonrecurring cost studies. It then applies the investment and expense factors
9 applicable to the elements studied.

10

11 **Q Does the OCA have any concerns with this study?**

12 A No. The study is consistent with the methods and basic inputs and principles of
13 other similarly conducted TELRIC studies.

14

15 **B. Interconnection Distribution Frame (ICDF) Collocation Study**

16

17 **Q What is the purpose of the ICDF Collocation study and how does the study
18 develop costs?**

19 A This study develops the recurring and nonrecurring costs of providing collocation to
20 a CLEC via access to the Interconnection Distribution Frame.³¹ The study develops
21 the nonrecurring costs associated with the cable, panels and blocks required to
22 provide service. The recurring costs are developed for the frame space rent where
23 the panel will be placed, the maintenance of the panel and capacity utilized. The
24 study is consistent with the methods and basic inputs and principles of other
25 similarly conducted TELRIC studies.

26 **C. Louvered Pedestal Collocation**

27

28 **Q What is Louvered Pedestal Collocation and how are the costs developed in**

31 The Interconnection Distribution Frame allows for the efficient connection and redistribution of lines by the use of "jumper wires" that connect the wires from the loop to the wires on the inside facilities.

1 **the study?**

2 A Louvered Pedestal Collocation is a form of remote collocation in which the CLEC's
3 facilities are placed in a non-environmentally controlled Louvered Pedestal. The
4 study develops the recurring and nonrecurring costs for collocation pedestal space,
5 power, maintenance, and termination nonrecurring cost of connection to the Feeder
6 Distribution Interface. The study first develops the investment required to provide
7 the collocation. For example, the model derives the nonrecurring cost of the of the
8 feeder distribution interface augment by assessing the materials, engineering, and
9 splicing costs. The model then applies the investment and expense factors to
10 develop the TELRIC nonrecurring costs. The common costs are then applied for the
11 fully allocated cost. This model develops the recurring and nonrecurring costs using
12 the same principles as other studies.

13
14 **D. Collocation Line Sharing Study**

15
16 **Q What is the purpose of the Collocation Line Sharing Study?**

17 A This study identifies the recurring and nonrecurring collocation costs that Qwest
18 incurs in the act of provisioning those elements necessary to provide line sharing to
19 CLEC's. These costs include the line splitter, line splitter shelf and engineering
20 costs. This study calculates six different options of cable connections per 100 pair.

21
22 **E. Other Collocation studies**

23
24 **Q Are there other collocation studies the OCA reviewed in this docket?**

25 A Yes, the OCA reviewed the Facility Connected and Field Connection Point
26 collocation studies. Both types of collocation allow a CLEC to interconnect to Qwest
27 facilities without placement of the CLEC facilities inside the central office. The OCA
28 found these studies were conducted with consistent methodology as the other
29 studies. The OCA does not have any concerns with these studies.

30

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VII. Line Sharing

Q What is Line Sharing?

A Line Sharing is a practice where two carriers share the local loop. The line is able to be shared as the high frequency portion of the loop used to transmit data is segregated from the low frequency portion of the loop that is used to provide voice service.

Q Did Qwest conduct a line sharing study in this docket?

A No. Qwest did not conduct a recurring shared loop per line study in this filing. In its testimony, Qwest states that it no longer is required to provide Line Sharing services pursuant to the TRO order.

In it's August 23, 2003 TRO order, the FCC identified the element of Line Sharing as an element that the ILEC's are no longer required to provide as an unbundled network element. Specifically, beginning on the effective date of the August 23, 2003 TRO order the high frequency portion of the copper loop is no longer required to be provided as a UNE subject to a transitional period.

The transitional period put forth by the FCC requires that customers served by a carrier providing line sharing before the effective date of the order shall continued to provide service over the line sharing element at the same rate that the ILEC charged for the access prior to the effective date of the order.

If the ILEC provides the element of line sharing on the effective date of the TRO order or a CLEC requests line sharing up to one-year after the effective date of the order, the ILEC shall provide a requesting carrier with the ability to engage in line sharing. The requesting carrier will retain the ability to offer services through the line sharing arrangement over the copper loop for the period between the effective date

1 of the TRO order and three years subsequent to the effective date.
2

3 During the three-year transitional period, the rate from the effective date of the TRO
4 order to the end of the first year is set at 25% of the state-approved line sharing
5 recurring rate. During the second year the recurring rate is 50% of the state-
6 approved line sharing rate. During the third-year after the effective date of the TRO
7 order the recurring rate is 75% of the state-approved rate. After the three-year
8 transitional period the ILEC is no longer required to provide line sharing to
9 requesting carriers.
10
11

12 **VIII. OSS**

14 **A. OSS Line Sharing Recurring Charge Study**

15
16 **Q What is the purpose of the OSS Line sharing study?**

17 **A** OSS stands for Operational Support System, which supports the operation of the
18 network. The OSS Line Sharing study takes into account the required modifications
19 to the Qwest OSS that allow for the electronic line sharing. The model includes the
20 cost of software modifications, IT Labor and Project Management expense.
21 Qwest upgraded the OSS equipment in order to accommodate multiple provider
22 service to end-users. The OSS integrates services such as voice and data that
23 enable multiple providers to serve an end use customer. The cost of the upgrade to
24 the service was primarily a nonrecurring charge. The capital required for the
25 upgrade was substantial and is being recovered through a recurring charge because
26 the recovery of the cost through a one-time nonrecurring charge to the CLEC's
27 would most likely impede entry into the market.
28

29 **Q Has Qwest included a cost study for OSS Line sharing?**

1 A Yes. Qwest has conducted a study (#8525) in the same manner as the study in the
2 previous case. Qwest used a forecasted demand for the number of lines and
3 annual expense in its recurring charge calculation in the model. The model
4 develops a total direct cost by including the expenses incurred to modify the OSS
5 equipment in order to provide line sharing (numerator) and a forecasted demand for
6 the line sharing (denominator).

7
8 Qwest levelizes the expenses incurred to modify the equipment over a five-year
9 period by calculating a payment value for the total expenses spread over five-years
10 at a discount rate of 9.61%. The Qwest calculated levelized expenses (numerator)
11 increased from the previous study to this study because the discount rate was
12 changed from 9.188% (which is the Wyoming approved weighted average cost of
13 capital) to 9.61% in this docket.

14
15 The Qwest levelized demand (or number of lines) is calculated utilizing a net present
16 value analysis using the number of lines demanded in each period as the cash flow
17 during that respective period. The Company also uses a discount rate of 9.61% in
18 the calculation. In effect, the Company is calculating the net present value of the
19 demand over the five-year period then calculates a levelized payment stream using
20 the net present value of the demand as the present value of a loan over a period of
21 5 years.

22 The forecasted demand (number of lines) used in this analysis is the same value
23 used in the previous docket from a forecast (from 2001 through 2005) of the
24 demand for OSS calculated as of July 20, 2000. Qwest's calculated "levelized"
25 amount of lines demanded *decreased* in this analysis, because the Company has
26 changed the discount rate in which it calculates the levelized demand from 9.188%
27 used in the previous case to 9.61% in this case. This change in discount rate
28 decreases the denominator in the calculation of the direct expense.

29
30 The increase in the numerator and the decrease in the denominator (due to the

1 change in discount rate to 9.61%) increases the *direct monthly expense* per line
2 from \$2.27 to the Qwest proposed \$2.30 (direct cost) from the previous study in
3 70000-TA-01-700 to this docket.

4
5 **Q Does the Qwest OSS Line Sharing Study adhere to TELRIC principles?**

6 A No. The manner in which this cost study was performed does not adhere to TELRIC
7 principles because it is imposing cost recovery of a nonrecurring charge in a
8 recurring manner and is not an incremental cost calculation. There are no
9 incremental costs associated with providing the high frequency portion of the loop.
10 However, there is *value* to providing this portion of the loop and there is *value* in the
11 upgrades that Qwest made to the OSS in order to accommodate line sharing.

12
13 **Q Does the OCA have any concerns with the OSS Line Sharing Study (#8525)?**

14 A Yes. The estimation regarding the direct costs utilizes a discount rate (9.61%) in the
15 Company's levelizing calculation that is inconsistent with that used in the other
16 models presented in this docket (which is the Wyoming Commission approved
17 Qwest weighted average cost of capital of 9.188%).

18
19 The discount rate used in the study is identical to Qwest's Arizona Commission
20 ordered weighted average cost of capital. However, the Arizona determined
21 weighted average cost of capital has not been proven as the appropriate weighted
22 average cost of capital in Wyoming. The 9.61% discount rate should, therefore, be
23 changed to the Wyoming approved cost of money (9.188%) in this study to be
24 consistent with the other Wyoming studies.

25
26
27 **Q What recommendations is the OCA making regarding the OSS Line Sharing
28 calculation?**

29 A The OCA recommends that the appropriate discount rate used in the direct cost
30 calculations is 9.188% as approved by the Wyoming Commission. The result of the

1 OCA change in discount rate is a direct expense of \$2.27, or \$2.53 fully allocated
2 recurring per line per month cost versus the Qwest proposed \$2.30 direct expense,
3 \$2.56 fully allocated cost (OCA Exhibit MLN-1).
4

5 **B. OSS Ongoing Operational Support Study**

6
7 **Q What is the purpose of the OSS ongoing operational support model (#8526)?**

8 A The study calculates a per order nonrecurring charge per customer request for
9 ongoing maintenance operation of interfaces. The purpose of the study is to recover
10 ongoing operational costs associated with the electronic interfaces that provide the
11 avenue in which providers can access the Qwest OSS.
12

13 **Q How is the nonrecurring charge calculated in the model?**

14 A The model uses the forecasted maintenance and operation expenses as well as
15 service order demand from 2003 through 2012. In order to levelize, or smooth, the
16 demand, the model calculates the net present value of the forecasted demand by
17 using the demand numbers as cash flows and a discount rate of 9.61%. The result
18 is the direct cost of \$1.037 (\$1.04) per order. The Qwest calculated fully allocated
19 cost is \$1.156 per order.
20

21 **Q Does the OCA have any concerns with this methodology?**

22 A Yes. The OCA is concerned that the Company has levelized the maintenance
23 operation expense and demand using a calculation of net present value that
24 includes a discount rate (9.61%) that is different than that used in other models.
25 Qwest also does not provide any analysis that illustrates the discount rate used in
26 the analysis is appropriate.

27 **Q What recommendations is the OCA making regarding the calculations and the
28 final result in this model?**

29 A The OCA is recommending a slight decrease in the calculated direct cost. The OCA
30 has recalculated the direct expense rate using the Wyoming Commission approved

1 discount rate of 9.188%. The result of the calculations is a fully allocated
2 nonrecurring cost of \$1.151 per order instead of the Qwest calculated \$1.156 per
3 order (OCA Exhibit MLN-2).
4

5 **C. OSS Development & Enhancements Study**

6
7 **Q What is the purpose of the OSS Development and Enhancements study?**

8 A The study develops the per order nonrecurring cost incurred by Qwest in offering the
9 OSS development and enhancement capital and expense in connection with
10 providing access to the OSS interconnection.
11

12 **Q How does the study develop the nonrecurring rate per order?**

13 A The study uses the 2002 and 2003 expense and capital outlay (calculated at the
14 future value, for 2004) and a “levelized” demand projected over a 10-year period.
15 This is similar to other methodology for OSS calculations noted above. The Qwest
16 study takes the calculated future value of the investment and expenses and divides
17 that number by the computed “levelized” demand calculated as the net present
18 value over a 10-year period. Qwest is proposing a fully allocated nonrecurring
19 charge of \$5.80 per order.
20

21 **Q Does the OCA have concerns with the methodology in the calculation?**

22 A Yes. The OCA’s concerns in this study are similar to those concerns in the
23 preceding OSS studies noted above. The OCA is concerned that Qwest has utilized
24 the net present value calculation using a discount rate of 9.61% over a period of ten
25 years instead of the Wyoming Commission approved cost of money of 9.188%.

26 **Q What recommendations is the OCA making in regard to the methodology in
27 the study?**

28 A The result of the OCA calculation of the model using the 9.188% is an OCA
29 recommended fully allocated nonrecurring cost per order of \$5.63 instead of the
30 Qwest initial proposal of \$5.80 per order (OCA Exhibit MLN-3).

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IX. The Avoided Cost Study

Q What is the purpose of an Avoided Cost Study?

A An Avoided Cost Study is a top down approach of calculating resale discounts of Qwest’s retail services via the avoided costs of offering resale. The FCC requires ILEC’s to “offer to any requesting telecommunications carrier any telecommunications service that the incumbent ILEC offers on a retail basis.”³² The OCA is concerned that an Avoided Cost Study was not filed in this docket.

Q Did Qwest include an Avoided cost study in this docket?

A No. The Company states in its testimony that this study was not filed because the rates were found to be “reasonable and consistent with discount rates in other states, and compliant with the provisions of the Telecom Act” in Docket No. 70000-TA-01-700. In this previous docket, the avoided costs were part of the stipulated agreement between the parties.

Q Is Qwest proposing to eliminate those TELRIC costs in this docket?

A No. Ms. Million states in her testimony that the Company will continue to provide the resale discounts.

Q What are the OCA’s recommendations regarding the omitted Avoided Cost study?

A It is important to ensure that the discount rates stay comparative to the other wholesale offerings and that those rates reflect a forward-looking avoided cost. The OCA recommends that Qwest be required to submit a study in its next TELRIC docket that illustrates whether the avoided retail cost discount rates continue to be appropriate or need to be changed.

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X. High Capacity

Q What is the purpose of a HICAP Study?

A The HICAP Study develops the TELRIC for DS1 and DS3 Capable Loops and DS1 Capable Feeder Loop.

Q Has Qwest filed a HICAP Study in this docket?

A No.

Q Is the OCA concerned that a HICAP Study was not filed in this docket?

A Yes. The OCA is concerned that a HICAP study was not filed in this docket. The FCC will still require the ILEC's to provide high capacity DS1³³ and DS3³⁴ UNE's per the February 4, 2005 Order on Remand.

The Company did not file the high capacity DS1 and DS3 UNE studies or rates in this docket due to the fact that the final FCC UNE rules in the February 4, 2005 were not yet issued. However, DS1 and DS3 are required UNE's and Qwest should be required to submit a study for review.

In its order, the FCC's final rules require an ILEC to provide a requesting carrier with nondiscriminatory access to a DS1 loop, on an unbundled basis to any building not served by a wire center of at least 60,000 business lines and including at least four fiber-based collocators. The rules also require an ILEC to provide a requesting carrier with nondiscriminatory access to a DS3 loop, on an unbundled basis to any building not served by a wire center of at least 38,000 business lines and including at least four fiber-based collocators. Once a wire center exceeds these thresholds, the ILEC is no longer required to unbundled and offer these items.

32 47 CFR § 51.605
33 Digital Signal, Level1 (1.544 million bits per second).
34 Digital Signal, level 3 (equivalent to 28 T-1 channels, which is 44.736 million bits per second).

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Q What recommendations is the OCA making regarding the omitted Qwest HICAP study?

A The OCA recommends that the Commission require that the study be filed in a subsequent docket, no later than three months from the effective date of the order in this docket.

XI. Retail versus Wholesale Cost Comparison

Q Why is the comparison of retail costs versus wholesale costs relevant?

A The relationship between the wholesale and retail rates is important. The wholesale rates should not encourage one form of entry over another, the CLEC should not have a competitive advantage or disadvantage with respect to the incumbent, and the incumbent should not have a competitive advantage or disadvantage with respect to the CLEC. In addition, if the wholesale and retail rates are properly set, Qwest will recover the forward-looking efficient network costs of providing wholesale elements, yet it will not be at a competitive disadvantage in offering its own retail services.

Q How do the TELRIC costs and the TSLRIC prices compare?

A Although it is difficult to do a side-by-side comparison of the different scenarios due to the inherent differences among the UNE-P, retail prices, and discounted retail rates, I compared the entry scenarios in table 3 below versus the Qwest retail price for basic service. I compared the Qwest retail price of the basic service with the resale discount price, the estimated UNE-P³⁵ Price, and the estimated Qwest Platform Plus.

³⁵ UNE-P is the unbundled network platform. UNE's include the switching, transport, and loop facilities. When all of the elements are combined into a complete set of end-to-end circuit, it is called UNE-P or UNE-Platform.

Table 3 - Basic Service Estimate Excluding Features					
QPP		Avoided	1FR		
Effective	UNE-P	Cost	Qwest	Total	
1/1/2005		Discount	Retail	SLC	Retail
		@ 13% ³⁶	Price		
\$ 27.42	\$ 29.76	\$ 26.60	\$ 23.10	\$ 6.50	\$ 29.60

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Q In your opinion, does the comparison of the rates above encourage one form of market entry over another?

A No. The comparison above illustrates that the current UNE-P price and the retail discount price in the same *general* range. I should point out that effective March 11, 2005, the UNE-P price will increase by one dollar. My estimates do not include the FCC mandated extra one dollar for the UNE-P over the next year.

XII. Other Studies Not Presented in this Docket

Q What are some of the studies Qwest has not presented in the docket that are no longer required by the FCC?

A Qwest has not presented a study that calculates the TELRIC of providing Dark Fiber³⁷ loop. The study will not be provided because it is no longer a required element per the TRO order. The cost of Dark Fiber to the CLEC will be priced at the higher of 115% of the price the CLEC paid as of June 15, 2004 or 115% of the rate the state commission establishes, if any, between June 16, 2004 and the effective date of the Triennial Review Remand Order (February 4, 2004), which is March 11, 2005. The decision of the DC Circuit on March 2, 2004 vacated the FCC earlier decision that ILEC's are required to provide Dark Fiber loops on a UNE basis.

UNE-P, local circuit switching using DS0 capacity loops, and call related

³⁶ Includes the \$6.50 Subscriber Line charge (SLC).
³⁷ Dark Fiber is fiber that is not being used. It is "dark" because it is not currently lit by electronics and signals.

1 databases³⁸ are also examples of items the ILEC's are no longer required to
2 provide. As I stated earlier, UNE-P will be phased out over a period of a year. The
3 FCC stated in its order that the charge for UNE-P will be the TELRIC plus one dollar
4 during the twelve months from March 11, 2005 through March 11, 2006. The call
5 related databases will also be phased out over a period of 12 months.
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8 **XIII. Other OCA Concerns**

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10 **Q What other recommendations is the OCA making in this docket?**

11 **A** The OCA recommends that the Commission require Qwest to submit an updated
12 TELRIC filing no later than two years from the effective date of the order. The filing
13 should include all applicable UNE's required by the FCC. Although the studies
14 reflect forward-looking development of the cost to provide UNE's in Wyoming, the
15 TELRIC studies and inputs should be reviewed and updated on a periodic basis to
16 ensure that the costs that Qwest charges the CLEC's are not outdated, so that
17 neither Qwest or the CLEC's operate at an unfair disadvantage.
18

19 The Commission rules and the Wyoming Telecom Act require Qwest to update its
20 TSLRIC studies and models on a periodic basis. Without a corresponding revisit of
21 the TELRIC studies and models, the relationship between the wholesale and retail
22 rates can easily become largely disparate. In each of the TSLRIC and TELRIC
23 cases, the methodologies require a forward-look at the network and operating
24 systems. The forward-looking nature of the cost studies and models have and will
25 change over time as technology and processes change. Therefore, it is imperative
26 that the Commission require Qwest to update its TELRIC studies and models.
27

28 The OCA is recommending an updated TELRIC filing within two years of the

38 Call related databases are databases, other than OSS, that are used in signaling networks for billing and collection, or the transmission, routing, or other provision of a telecommunications service.

1 conclusion of this docket. It would be ideal to have an annual TELRIC filing that
2 coincides with Qwest's annual TSLRIC filing. However, there have been occasions
3 in which the Commission has reviewed the TSLRIC studies less frequently than
4 annually. These occasions have been no less frequently than biennially. The OCA
5 recommends that the Commission direct Qwest to file an updated TELRIC study no
6 later than two years from the effective date of the order in this docket.

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8 **Q Are there considerations that the Commission must make in this docket that**
9 **are currently before the Commission in the TSLRIC filing in Docket No. 70000-**
10 **TA-04-999 and 70000-TA-04-1045?**

11 **A** Yes. The considerations brought forth by a party to the TSLRIC filings that are
12 proceeding concurrently with this docket concerning the disaggregation of costs.
13 The Commission must also consider those items in this docket. Many of the models
14 such as the Loop Model do not change from TELRIC to TSLRIC. If the Commission
15 made changes to the disaggregation of costs in the TSLRIC studies and did not
16 make those changes in this docket, there would be a clear misalignment of the
17 TSLRIC and TELRIC costs. This could create a disadvantage for either Qwest or
18 the competitors in the market, thereby tilting the playing field. The OCA
19 recommends that any considerations or decisions regarding the disaggregation of
20 costs in the TSLRIC costs should affect, where applicable, the TELRIC docket.

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23 **XIV. Conclusions**

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25 **Q Please summarize your recommendations in this case.**

26 **A** The OCA recommends that the parties and the Commission continue to monitor the
27 changing market environment and subsequent studies in other jurisdictions in the
28 future to monitor the current Wyoming prescribed Qwest depreciation rates. I am
29 not recommending that Qwest be relieved of any further obligation to conduct
30 depreciation studies going forward as ordered by the Commission in Docket No.

1 70000-TR-96-323. The OCA does recommend that the Commission state in its
2 order that the Company specifically address this issue in future TSLRIC and TELRIC
3 dockets. I recommend that the Company explain in its subsequent applications how
4 it is monitoring its depreciation rates and how the depreciation rates compare with
5 other relevant studies conducted around the nation. I also recommend that the
6 Commission direct Qwest to conduct a new study in the future within the 3 to 5 year
7 time period from the close of this docket.

8
9 The OCA is also recommending that the Commission require Qwest to change the
10 cost of money (weighted average cost of capital) in its three OSS (OSS Line
11 Sharing, Development & Enhancements and Ongoing Operational Support) studies
12 to reflect the current approved Wyoming weighted average cost of capital. The OCA
13 recommends that the Commission approve the OCA calculated OSS rates in OCA
14 Exhibits MLN-1 through 3.

15
16 The OCA recommends that the Commission require Qwest to submit a study
17 illustrating the reasonableness of the avoided costs regarding the retail discounts in
18 its next TELRIC application. I also recommend that the Commission require Qwest
19 to submit an updated TELRIC filing no later than two years from the effective date of
20 the order, in this docket.

21
22 **Q Does this conclude your testimony?**

23 **A** Yes it does.