

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

**In the Matter of the Continued Costing and
Pricing of Unbundled Network Elements,
Transport, Termination, and Resale**

Docket No. UT – 003013

Part D

DIRECT TESTIMONY

OF

TERESA K. MILLION

ON BEHALF OF

QWEST CORPORATION

NOVEMBER 7, 2001

EXECUTIVE SUMMARY

My name is Teresa K. (Terri) Million and I present the cost studies associated with the various remaining issues for consideration in Part D of this Docket. My testimony provides support for the validity of Qwest Corporation's recurring and nonrecurring rates including the following:

- UNE (Unbundled Network Element) platform;
- Space Availability;
- CLEC-to-CLEC Connections;
- Channel Regeneration;
- Remote Collocation;
- Space Optioning;
- OCn Terminations;
- OC48 UDIT (Unbundled Dedicated Interoffice Transport);
- Single Strand Unbundled Dark Fiber (UDF);
- Vertical Features;
- Customized Routing;
- Common Channel Signaling;
- Unbundled Packet Switching;
- High Capacity Loops (OCn Loops); and
- Various Nonrecurring Rates.

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IDENTIFICATION OF WITNESS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Teresa K. (Terri) Million. My business address is 1801 California Street, Room 4700, Denver, Colorado 80202.

Q. PLEASE IDENTIFY YOUR EMPLOYER AND EXPLAIN YOUR POSITION AND RESPONSIBILITIES.

A. I am employed by Qwest Services Corporation as a Director, Service Costs/Cost Witness in the Policy and Law department. In this position, I am responsible for preparing testimony and presenting Qwest Corporation's cost studies in a variety of regulatory proceedings.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION?

A. Yes. I submitted direct testimony regarding the recovery of OSS (Operational Support Systems) costs in Part A of this docket, as well as direct and rebuttal testimony in Part B. In addition, I have testified before this Commission in both Parts A and B.

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PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to present Total Element Long Run Incremental Cost (TELRIC) data in support of each of the various remaining issues to be addressed in this phase of the cost docket. This data forms the basis for recurring and nonrecurring costs for the pricing proposals outlined in the testimony of Ms. Kathy Malone and Mr. Robert Kennedy. Exhibit TKM-28 summarizes the results of the TELRIC studies that Qwest is filing. The actual cost studies, models, and documentation are provided in my cost study workpapers.

TELRIC COST DATA

STUDIES FILED

Q. WHAT TELRIC DATA IS QWEST FILING AT THIS TIME?

A. Qwest is filing TELRIC studies for numerous UNEs and collocation services. These studies provide cost data underlying the pricing of many of the SGAT UNE recurring and nonrecurring rate elements. Specifically, I am sponsoring studies that provide the costs for remaining elements that were not addressed in Parts A, B or C of this docket. In addition, I am providing new nonrecurring costs for the Customer Transfer Charge (CTC) and UNE-Platform (UNE-P) for Plain Old Telephone Service (POTS) that reflect flow-throughs achieved by CLEC access to

1 Qwest's OSS. Exhibit TKM-27 contains a complete listing of these elements, along with a
2 summary of the cost study results.

3 **Q. IS QWEST FILING COPIES OF EACH TELRIC STUDY, ALONG WITH DETAILED**
4 **STUDY DOCUMENTATION?**

5 **A.** Yes. My cost study workpapers include both paper and electronic copies of each cost study. The
6 electronic documentation (provided on compact disc) is being filed as Exhibit TKM-27. This
7 exhibit includes all cost study calculations (e.g., Excel spreadsheets) and methodology descriptions.
8 In addition, the workpapers include all of the supporting investment and expense cost models
9 (along with user manuals) used to calculate investments and expenses in the studies. These cost
10 studies are individually identified by exhibit number and cost study ID number, and will provide
11 interested parties with the opportunity to analyze cost calculations and replicate or revise the Qwest
12 sponsored TELRIC results.

13 **Q. WILL YOU DESCRIBE EACH TELRIC STUDY IN YOUR TESTIMONY?**

14 **A.** No. My testimony will address the overall costing approach employed by Qwest in developing
15 costs and *highlight* certain elements related to specific studies. The study workpapers provide the
16 specific study documentation and methodology descriptions for all of the TELRIC studies filed in
17 this proceeding.

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SUMMARY OF TELRIC PRINCIPLES

Q. PLEASE PROVIDE A SUMMARY OF THE OVERALL ECONOMIC PRINCIPLES THAT ARE APPLIED IN QWEST’S TELRIC STUDIES.

A. The Qwest TELRIC studies identify the forward-looking long run direct costs that would result from the provision of an interconnection service or network element, plus the incremental cost of shared facilities and operations. These studies identify total element costs – the average incremental cost of providing the entire quantity of the element. The assumptions, methods, and procedures used in Qwest cost studies are designed to yield the realistic, most efficient forward-looking costs of replacing the entire telecommunications network (i.e. replacement costs).

Q. HAVE YOU PREVIOUSLY PROVIDED A DESCRIPTION OF QWEST’S TELRIC PRICING PHILOSOPHY IN THIS DOCKET?

A. Yes. My testimony in Part B of this proceeding, as well as Mr. Thompson’s testimony in Part A, and Qwest’s testimony in the prior cost docket (Docket Nos. UT-960369, et al.) have included descriptions of the TELRIC principles Qwest adhered to in developing the cost studies filed in this phase of the proceeding.

Q. HOW SHOULD THE QWEST TELRIC DATA BE UTILIZED IN THIS PROCEEDING?

1 A. The TELRIC data presented in my testimony should be used to set prices for UNEs and
2 interconnection services. That is, this data should be used as the basis for the UNE and
3 interconnection service prices presented in the testimonies of Ms. Malone and Mr. Kennedy.

4 **INVESTMENT MODELS**

5 **Q. YOU MENTIONED EARLIER THAT THE INVESTMENTS FOR MOST UNES ARE**
6 **DEVELOPED USING INVESTMENT MODELS. PLEASE IDENTIFY THE MODELS**
7 **USED TO CALCULATE INVESTMENT IN THE QWEST TELRIC STUDIES.**

8 A. Qwest uses several different investment models to calculate UNE investments. UNE investments
9 represent the capital expenditures that would be necessary in order for Qwest to replace its
10 network facilities. This includes the dollars that represent the individual pieces of equipment that
11 make up the network (e.g., in the case of transport, fiber cable, conduit and electronic equipment)
12 as well as the costs to install the equipment. Although this Commission has already determined
13 rates for many UNEs including the basic loop, transport and switching elements, the models that
14 produce those rates also provide investment inputs to Qwest's other cost studies and models. For
15 example, OCn (Optical Carrier *number*) capable loop investments are developed in the Network
16 Access Channel (NAC) model using investment inputs from the Loop model. The UNE TELRIC
17 studies filed in this proceeding calculate costs using the following investment models:

- 18 • Loop Module (LoopMod);

- 1 • Switching Usage Model (SUM);
- 2 • Switching Cost Model (SCM) Features Module;
- 3 • Dark Fiber Module;
- 4 • OCn NAC Model;
- 5 • OCn Extended Unbundled Dedicated Interoffice Transport (E-UDIT) NAC Model;
- 6 • Signaling (SIS) Model;
- 7 • Wholesale Cost Program (also referred to as “WINPC3”); and
- 8 • The Enhanced Nonrecurring Cost (ENRC) Model.

9 Exhibit TKM-27 contains electronic copies of each Qwest investment model, along with the model
10 documentation. The documentation describes the methodology used in each model, along with
11 instructions on how to run the model. The documentation for each TELRIC study describes the
12 investment models used in the calculation of costs for each element.

13 **OTHER COST METHODOLOGY ISSUES**

14 **COST OF MONEY**

15 **Q. WHAT COST OF MONEY DOES QWEST UTILIZE IN THE TELRIC STUDIES YOU**
16 **ARE PROVIDING?**

17 **A.** The Qwest TELRIC studies that I am providing use the 9.63% cost of money adopted by the
18 Commission in the Eighth Supplemental Order in Docket Nos. UT-960369, et al.. and utilized by
19 Qwest in Parts A and B of this proceeding. Qwest is not proposing an adjustment to this cost of
20 money for purposes in Part D.

1 **DEPRECIATION LIVES**

2 **Q. WHAT DEPRECIATION LIVES DOES QWEST UTILIZE IN THE TELRIC STUDIES**
3 **YOU ARE PROVIDING?**

4 **A.** The Qwest TELRIC studies that I am providing utilize the depreciation lives approved by the
5 Washington Utilities and Transportation Commission on August 18, 1997, in Docket No. UT-
6 951425 as discussed at paragraph 217 of the Eighth Supplemental Order in Docket Nos. UT-
7 960369, et al. Again, Qwest is not proposing to alter the depreciation lives approved by the
8 Commission for purposes in this Part D proceeding.

9 **EXPENSE FACTORS AND COMMON COSTS**

10 **Q. HAS THE WASHINGTON COMMISSION ESTABLISHED THE LEVEL OF**
11 **QWEST'S EXPENSE RECOVERY IN PRIOR PROCEEDINGS?**

12 **A.** Yes. In Washington, the factor for investment-related operating expenses (also known as Qwest's
13 directly attributable expenses) has been approved by the Commission to be 19.62% of investment-
14 related costs.¹ The operating expenses are added to the capital costs to produce Investment based
15 and Direct costs, then the Commission-approved 19.62% is multiplied by the resulting amount to
16 produce the TELRIC for the network element.

¹ *In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination, and Resale*, Docket Nos. UT-960369, et al., Seventeenth Supplemental Order: Interim Order Determining Prices; Notice of Prehearing Conference (September 23, 1999).

1 In addition, the Commission has determined that an appropriate share of common costs to allocate
2 to the TELRIC costs to yield the total cost (TELRIC plus Common) is calculated at 4.05% of
3 TELRIC. Qwest uses these approved factors in its cost studies to develop its recurring and
4 nonrecurring costs.

5 **Q. HAS THE COMMISSION RECENTLY CONFIRMED THAT THESE ARE THE**
6 **FACTORS QWEST IS REQUIRED TO USE IN ITS STUDIES?**

7 **A.** Yes. In its Thirteenth Supplemental Order in this Docket, released January 31, 2001, the
8 Commission confirmed in its discussion of Collocation the appropriateness of these same factors.

9 **ANALYSIS OF SELECTED COST DATA**

10 **UNE-PLATFORM**

11 **Q. WHAT IS THE UNE-PLATFORM (UNE-P)?**

12 **A.** UNE-P involves the provision of UNE combinations to CLECs. The UNE platform consists of
13 either 1) UNEs already existing in combination to serve existing customers, or 2) combinations of
14 UNEs not previously combined to serve new customers. For example, UNE-P POTS service
15 includes the aggregation of UNEs that comprise basic exchange service, including the unbundled
16 loop, shared transport and switching.

1 **Q. WHY IS QWEST PRESENTING COSTS FOR UNE-P IN THIS PHASE OF THE**
2 **PROCEEDING?**

3 **A.** Qwest presented nonrecurring rates for UNE-P POTS in Part B of this docket. Since then, Qwest
4 has developed nonrecurring costs for many other types of UNE combinations. In addition, the
5 rates proposed for UNE-P POTS (existing service) in Part B were based on the Commission's
6 previously established rates for the Customer Transfer Charge, less an amount the Commission
7 allowed for resale Operational Support Systems (OSS) costs. Those rates for UNE-P POTS did
8 not reflect the flow-throughs² in the ordering process that Qwest expects to achieve. Therefore,
9 Qwest proposes to submit new rates for UNE-P in order to better reflect its forward-looking
10 expectations with regard to OSS in these nonrecurring rates.

11 **Q. WILL QWEST BE PROPOSING NEW RATES FOR THE CUSTOMER TRANSFER**
12 **CHARGE (CTC) AS WELL?**

13 **A.** Yes. As discussed during Part B of this docket, the activities required to process a customer
14 transfer in the resale environment are virtually the same as those required to convert an existing
15 POTS customer from Qwest to a CLEC via UNE-P. Therefore, Qwest will submit

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² In this context, flow-throughs represent the percentage of orders from CLECs that are received into Qwest's ordering system in electronic format and are able to be processed electronically, without the need for manual intervention from Qwest employees. The reciprocal of that represents the percentage of orders that "fall out" of the systems, requiring manual intervention from Qwest employees.

1 new rates for CTC that will also reflect the expected flow-throughs. The rates will differ from the
2 comparable UNE-P rates by the amount of the approved OSS cost for resale functionality that is
3 currently included in the CTC charge.

4 **Q. WHAT NONRECURRING COSTS IS QWEST PRESENTING FOR THE UNE**
5 **PLATFORM?**

6 **A.** Qwest has prepared a nonrecurring cost study that identifies the costs associated with the provision
7 of UNE-P for POTS (including Centrex, PAL and analog PBX), PBX DID Trunks, ISDN-BRI
8 and ISDN PRI. In addition, this study identifies the nonrecurring costs associated with providing
9 combinations of design type services. These costs are summarized in Exhibit TKM-28, and are
10 calculated in the ENRC study (Exhibit TKM-29, Study #5923) provided in my cost study
11 workpapers.

12 This cost study identifies the nonrecurring costs incurred by Qwest to convert *existing* customers
13 to UNE-P and the nonrecurring costs to provide *new* UNE-P service.

14 **Q. PLEASE DESCRIBE THE UNE-P POTS NONRECURRING COSTS FOR EXISTING**
15 **SERVICES.**

16 **A.** The UNE-P POTS nonrecurring cost study identifies the nonrecurring costs incurred by Qwest to
17 convert an *existing* POTS service customer to UNE-P POTS. The costs are identified separately

1 for mechanized and manual³ orders and include the order-related costs incurred by the
2 Interconnect Service Center (“ISC”). For mechanized UNE-P POTS orders, ENRC assumes
3 that orders will flow-through electronically 95% of the time.

4 **Q. ARE THE NONRECURRING COSTS FOR THE OTHER UNE-P EXISTING**
5 **SERVICES CALCULATED USING A SIMILAR METHODOLOGY?**

6 **A.** Yes. The UNE-P Existing nonrecurring costs for the PBX DID, ISDN BRI and ISDN PRI
7 elements are calculated in a similar manner, but include additional work activities in the ISC, as well
8 as the design center. For example, a small percentage of ISDN BRI orders require manual
9 handling by the design center. These elements do not have a separate manual and mechanized
10 cost, and there is no flow-through assumed for the ISC in the study. Instead, as I discuss in more
11 detail below, Qwest has assigned six minutes of order processing time in the ISC, in order to be
12 consistent with previous Commission decisions on this issue. Time estimates provided by Qwest’s
13 subject matter experts (SMEs) indicate that the amount of time in the ISC for processing orders for
14 these elements is expected to range from 25.5 to 28.5 minutes for the first element ordered. This is
15 due to the complexity of the services being ordered. Although the ENRC reflects six minutes for
16 these functions, the back-up documentation (submitted as Exhibit TKM-C30) provides detailed
17 support for the activities and estimates of time that Qwest expects it to take to process orders.

³ Mechanized orders are those orders Qwest receives from the CLECs electronically, while manual orders are those orders Qwest receives from the CLECs via fax.

1 **Q. PLEASE DESCRIBE THE UNE-P POTS NONRECURRING COSTS FOR NEW**
2 **SERVICE.**

3 **A.** The UNE-P POTS nonrecurring cost study also identifies the nonrecurring costs incurred by
4 Qwest to provide *new* service via UNE-P to a CLEC. In this case, the customer location does
5 not have existing service. The costs are identified separately for mechanized and manual orders
6 with a 95% flow-through assumption for mechanized orders. New UNE-P POTS service includes
7 the order-related costs incurred by the ISC and Loop Provisioning Center (“LPC”), along with the
8 cost to place jumpers in the central office, and to dispatch field technicians, if necessary.

9 **THE ENHANCED NONRECURRING COST STUDIES**

10 **Q. PLEASE BRIEFLY DESCRIBE THE ENRC.**

11 **A.** The ENRC is a collection of cost studies developed by Qwest designed to estimate the
12 *nonrecurring* TELRIC for all UNEs and interconnection services (Exhibit TKM-29). There are
13 some exceptions, for example, the CLEC-to-CLEC Connections study (Exhibit TKM-32, Study
14 #5928) calculates both recurring and nonrecurring costs. In addition, separate studies calculate the
15 nonrecurring charges for Remote Collocation (Exhibit TKM-35, Study #5933), Space Availability
16 (Exhibit TKM-31, Study #5931) and Space Optioning (Exhibit TKM-34, Study #5930).

1 The ENRC calculates nonrecurring costs for provisioning and installation activities based on time
2 estimates and probabilities of occurrence of the tasks performed to accomplish each function. The
3 time estimates and probabilities for each task are presented in detail in the ENRC workpapers.

4 **Q. IS QWEST PROVIDING A MANUAL THAT PROVIDES A DETAILED**
5 **DESCRIPTION OF THE ENRC?**

6 **A.** Yes. Qwest is including electronic versions of user manuals for all of its cost models with this filing,
7 including the ENRC user manual that pertains to the ENRC model, on the CD (Exhibit TKM-27).
8 The user manuals instruct the user about how the models work as well as how to make changes to
9 various inputs.

10 **Q. HOW IS THE ENRC DESIGNED?**

11 **A.** The ENRC calculates the direct nonrecurring costs for each UNE and interconnection service
12 based on time estimates to perform tasks, probabilities that tasks will be performed, and labor
13 rates associated with each job function. ENRC then applies expense factors to the direct
14 nonrecurring costs to provide the TELRIC for each UNE and interconnection service. Finally, an
15 allocation of common costs is assigned to each nonrecurring cost element. In Washington, ENRC
16 applies 19.62% to the direct costs to calculate the TELRIC, and 4.05% to TELRIC to calculate
17 the common costs used to develop the total nonrecurring cost.

1 **Q. DOES THE ENRC ALLOW THE USER TO MODIFY INPUTS?**

2 **A.** Yes. ENRC allows the user to view the work times, probabilities, and labor rates and to override
3 these values if desired. After all desired changes are made to the inputs, the user can easily
4 recalculate the ENRC to produce cost results based on the new user assumptions.

5 **Q. YOU MENTIONED THAT THE COSTS FOR UNE-P ARE DEVELOPED IN THE**
6 **ENRC. IS QWEST PRESENTING OTHER NONRECURRING COSTS IN PART D?**

7 **A.** Yes. Qwest is presenting a variety of nonrecurring costs developed in the ENRC that have not yet
8 been addressed by this Commission..

9 **Q. HAS QWEST MODIFIED ANY OF THE INPUTS TO THE ENRC TO REFLECT**
10 **PREVIOUS COMMISSION DIRECTIVES?**

11 **A.** Yes. Qwest reviewed its cost studies for compliance with the Commission's previous directives,
12 and adjusted the times in the current studies to reflect those required by the Commission in the
13 November 1999 filing, in compliance with the Eighth Supplemental Order.⁴ As was the case in
14 Part B, Qwest has determined to adjust the nonrecurring costs submitted in this filing so that they
15 are consistent with all of the other nonrecurring costs previously submitted in the compliance filing.
16 Qwest has made these adjustments in spite of its belief that those prior Commission requirements

1 reduced order processing times in ways that are not consistent with Qwest's actual experience. As
2 Qwest has already explained in Part B these reductions in order processing times reflect
3 hypothetical efficiencies in order processing that Qwest does not currently experience, and that
4 may never be achieved. Qwest has made these concessions in order to minimize the areas of
5 dispute over its nonrecurring costs during this phase of the proceeding.

6 **Q. WHAT SPECIFIC CHANGES HAS QWEST MADE IN DEVELOPING ITS**
7 **NONRECURRING COSTS?**

8 **A.** First, Qwest has adjusted the processing time to six (6) minutes for each of the nonrecurring
9 charges where the ISC function is included in the cost, except in the case of CTC and UNE-P
10 POTS, described above. For those elements, the current flow-throughs reflected in the ENRC
11 result in processing times well below six (6) minutes. Second, Qwest's nonrecurring charges
12 reflect a 15% probability that an order will require manual plant line assignment.⁵ Finally, for
13 disconnections, the nonrecurring costs assume that at the central office frame two (2) minutes is
14 required to analyze an order, and three (3) minutes is required to remove a jumper.⁶

⁴ Eighth Supplemental Order: Interim Order Determining Prices in Phase II; and Notice of Prehearing Conference, Docket No. UT-960369, et al. (May 11, 1998), at ¶474.

⁵ This means that 15% of the time Qwest employees will have to manually assign a line to the CLEC, while 85% of the time this function will occur mechanically with no intervention from Qwest employees.

⁶ Eighth Supplemental Order at ¶473.

1 **Q. ARE THE NONRECURRING CHARGES SEPARATED BETWEEN**
2 **INSTALLATIONS AND DISCONNECTIONS AS REQUIRED BY THE**
3 **COMMISSION?**

4 **A.** Yes.

5 **Q. DOES THE ENRC PROVIDE UNE COST RESULTS THAT REFLECT THE PROPER**
6 **APPLICATION OF TELRIC PRINCIPLES?**

7 **A.** Yes. Other than the adjustments already discussed, the ENRC contains inputs based on Qwest's
8 current experience in processing orders and provisioning network plant. The Qwest nonrecurring
9 TELRIC studies identify the forward-looking, nonrecurring costs that Qwest is likely to incur in
10 provisioning UNEs. These studies consider the actual processing and provisioning activities that
11 are either in place today or scheduled to be implemented. The studies do not "assume away"
12 Qwest's real costs by modeling theoretical provisioning methods based on future hypothetical
13 technologies or networks that are not deployed in Qwest's territory. They do include changes
14 anticipated by subject matter experts in processing and provisioning. They also include certain
15 assumptions and expectations for mechanization due to the development of OSS interfaces for use
16 by the CLECs. If the studies use these assumptions, they produce results, as delineated in Exhibit
17 TKM-28, that properly reflect the TELRIC principles. These results should be used by the
18 Commission to set nonrecurring prices for UNEs and interconnection services.

1 **Q. WHY ISN'T QWEST SUBMITTING THE ELEMENTS FOR POLES, DUCTS,**
2 **CONDUITS, AND RIGHTS OF WAY AT THIS TIME?**

3 **A.** In working with the product management group and network organization to develop costs for the
4 poles, ducts, conduits, and rights of way elements that have not yet been addressed by this
5 Commission, the cost analyst determined that updates to these elements were necessary. Product
6 management and network convened a group of SMEs to discuss the activities necessary for each
7 function, the times required to perform the activities and the probability that the activities would
8 occur. The process of gathering and analyzing data for each of these elements and determining the
9 proper forward-looking activities to include in the study was not concluded in time for this filing.
10 Therefore, Qwest is currently unable to submit costs for the remaining elements related to poles,
11 ducts, conduits, and rights of way. If Qwest is able to develop final costs for these remaining
12 elements during Part D of this docket, Qwest would welcome the opportunity to provide them in a
13 subsequent or supplemental filing.

14 **COLLOCATION STUDIES**

15 **Q. IS QWEST FILING ADDITIONAL COLLOCATION COST INFORMATION AT THIS**
16 **TIME THAT WAS NOT INCLUDED IN THE COLLOCATION MODEL FILED IN**
17 **PART A OF THIS DOCKET?**

1 **A.** Yes. At this time, Qwest is filing cost data for several elements related to collocation. These
2 elements are included in the following TELRIC studies:

- 3 • Space Inquiry Report and Space Availability Report (Exhibit TKM-31, Study #5931)
- 4 • Direct CLEC to CLEC Interconnection (Exhibit TKM-32, Study #5928)
- 5 • Channel Regeneration (Exhibit TKM-33, Study #5929)
- 6 • Space Optioning (Exhibit TKM-34, Study #5930)
- 7 • Virtual Remote Terminal Location (Exhibit TKM-35, Study #5933)
- 8 • Remote Terminal Collocation (Exhibit TKM-35A, Study #5932)

9 Exhibit TKM-28 contains a summary of the results for these cost studies. The studies, including
10 calculations and documentation, are included in my cost study workpapers. I will briefly describe
11 these studies below.

12 **Q.** **PLEASE DESCRIBE THE SPACE INQUIRY REPORT.**

13 **A.** The Space Inquiry Report is a report that provides CLECs with information regarding the existing
14 collocation conditions within an office. The report provides the CLEC with (1) the number of
15 collocators in an office, (2) the amount of collocation space available in an office, (3) a description
16 of the measures under way to make additional space available for collocation, and (4) the

1 modifications in the use of space since the last report. The charge for the space inquiry report
2 applies on a “per office” basis each time a report is requested.

3 **Q. PLEASE DESCRIBE THE SPACE AVAILABILITY REPORT COST STUDY.**

4 **A.** The nonrecurring costs for the space availability report are based on costs Qwest incurs to
5 determine if collocation space is available. The study (Exhibit TKM-31, Study #5931) identifies
6 the costs associated with work performed in the Common Systems Planning Engineering Center
7 (CSPEC) and the Infrastructure Availability Center (IAC). The tasks that are involved in
8 developing and preparing these reports include verifying existing conditions in the central office,
9 identifying available space and processing the report.

10 **Q. PLEASE DESCRIBE DIRECT CLEC-TO-CLEC INTERCONNECTION.**

11 **A.** CLEC-to-CLEC Interconnection allows one CLEC to directly interconnect with another CLEC
12 within the same Qwest central office.⁷ CLEC-to-CLEC connections are also available when a
13 CLEC with multiple collocations in the same office wishes to connect those collocations. CLEC-
14 to-CLEC Interconnection may involve physical to physical, physical to virtual, or virtual to virtual
15 collocation. The types of CLEC-to-CLEC connections are described in the testimony of Robert

⁷ As described in the testimony of Mr. Kennedy, a CLEC can also order CLEC-to-CLEC cross connections, using an intermediate distribution frame. This arrangement utilizes Commission-determined rates for Interconnection Tie Pairs (ITPs), the costs of which were part of the Collocation study presented in Part A of this docket.

1 F. Kennedy. The differences between physical and virtual collocation arrangements are also
2 described in more detail in Mr. Kennedy's testimony.

3 **Q. HAS QWEST PREPARED A COST STUDY FOR DIRECT CLEC-TO-CLEC**
4 **INTERCONNECTION?**

5 **A.** Yes. Direct CLEC-to-CLEC Interconnections will include both recurring and nonrecurring costs.
6 The cost study that I am sponsoring develops costs for the following elements:

- 7 • Design Engineering and Installation (nonrecurring)
- 8 • Cable Racking (recurring)
- 9 • Virtual Connections (nonrecurring, if applicable)
- 10 • Cable Hole – (nonrecurring, if applicable)

11 Exhibit TKM-28 summarizes the results of the Direct CLEC-to-CLEC Interconnection study. The
12 study contained in Exhibit TKM-32 (Study #5928) is included in my cost study workpapers.

13 **Q. PLEASE DESCRIBE CHANNEL REGENERATION.**

14 **A.** Channel Regeneration is necessary when the distance from the leased physical space (for Caged or
15 Cageless Physical Collocation) or from the collocated equipment (for Virtual Collocation) to the
16 Qwest network is of sufficient length to require regeneration. Channel Regeneration is available as

1 an option when the CLEC requests the DS1/DS3 capable loops. The regenerator reshapes and
2 amplifies the DS1/DS3 signal to overcome losses in wiring between electronic equipment within the
3 Qwest wire center. The losses are a function of cable gauge and length. The DS1/DS3
4 regenerator UNE terminates on the ICDF frame, and can be ordered when the CLEC is combining
5 Qwest UNEs and/or connecting to its collocated equipment.

6 **Q. PLEASE DESCRIBE THE CHANNEL REGENERATION COST STUDY.**

7 **A.** The Channel Regeneration study (Exhibit TKM-33, Study #5929) identifies a nonrecurring and
8 recurring cost for DS1 and DS3 regeneration. The nonrecurring costs for Channel Regeneration
9 include the material and labor costs associated with the repeater cards and connecting cable that
10 are dedicated to the CLEC. The recurring costs include the material and labor costs associated
11 with the repeater bay and shelf, along with maintenance expense for the repeater cards and cable.

12 **Q. PLEASE DESCRIBE SPACE OPTIONING.**

13 **A.** Collocation Space Optioning will permit CLECs, Qwest, and Qwest affiliates to option space for
14 future collocation needs. Space reservation options provide the CLEC with a first right of refusal
15 on collocation space when requests are made by other parties with firm collocation orders. This
16 option allows the CLEC to guarantee that space will be available when it is needed even if the
17 CLEC has no immediate collocation plans. However, if another party then makes a firm request

1 for collocation the CLEC may decide to exercise its option and make its own firm request for
2 collocation, or give up the space if it is not able to make use of the space at that time.

3 **Q. PLEASE DESCRIBE THE SPACE OPTIONING COST STUDY.**

4 **A.** The nonrecurring costs for space optioning are based on costs Qwest incurs to administer
5 collocation space option requests. The study (Exhibit TKM-34, Study #5930) identifies costs
6 associated with application processing, feasibility determination, common space engineering,
7 records management, and administration of the first right of refusal process.

8 **Q. PLEASE BRIEFLY DESCRIBE THE VIRTUAL REMOTE TERMINAL AND**
9 **REMOTE TERMINAL COLLOCATION OFFERINGS.**

10 **A.** The Virtual Remote Terminal study provides the nonrecurring rates for the maintenance of a
11 CLEC's collocation at a remote terminal on an as-needed basis. The Virtual Remote Terminal
12 cost study (Exhibit TKM-35, Study #5933) includes a flat rate for the service order and follow up
13 for each job associated with remote collocation and half-hourly rates for engineering, maintenance,
14 installation and training.

15 Remote Terminal Collocation offers space in available remote cabinets on a Standard Mounting
16 Unit (SMU) level. An SMU is a standard measurement of vertical space, in this case 1.75 inches,
17 within a hardened cabinet. The CLECs are charged a flat rate on the basis of the number of SMUs

1 their equipment occupies within a cabinet. The Remote Terminal Collocation cost study (Exhibit
2 TKM-35A, Study #5932) includes two cost elements: collocation space; and the feeder
3 distribution interface (FDI) terminations.

4 The nonrecurring collocation space element includes the cost of the cabinet space, the cost of the
5 cabinet, and all of the work and materials associated with placement of the cabinet and providing
6 access to power. The cost study identifies the cost of materials, engineering, splicing, installation
7 and rights of way. The recurring cost includes maintenance costs associated with this equipment,
8 plus a small portion of the power pedestal.

9 The nonrecurring FDI terminations (per 25 pair) element includes the costs associated with
10 augmenting the FDI to provide the requested terminations. This includes the material, engineering
11 and splicing costs associated with installing a Serving Area Interface (“SAI”) 25 pair block, and
12 the material, engineering, splicing and installation costs associated with the cable, conduit and
13 innerduct required to connect the FDI to the remote collocation cabinet. The recurring FDI
14 termination cost includes the maintenance costs associated with this equipment.

15 **Q. HOW ARE THE REMOTE TERMINAL COLLOCATION COSTS DEVELOPED?**

16 **A.** The Remote Terminal Collocation cost study identifies the material, engineering and installation
17 labor costs associated with various equipment components (e.g., the cabinet, remote DSL pad,
18 power pedestal, etc.) needed to provide the remote terminal collocation elements. Washington’s

1 Commission approved factors are applied to the direct costs to derive the TELRIC and TELRIC
2 plus Common cost.

3 **Q. IS THERE A CHARGE FOR REMOTE TERMINAL COLLOCATION POWER**
4 **USAGE?**

5 **A.** Yes. However, the Remote Terminal Collocation cost study does not identify a cost for power
6 consumption, because these costs/rates were developed in the Collocation Model submitted by
7 Qwest and approved by the Commission during Part A of this docket.

8 **Q. IS QWEST FILING A COST STUDY FOR OCN TERMINATIONS?**

9 **A.** No. Qwest is not filing a cost study for OCN terminations because Qwest has already included the
10 nonrecurring charges for OCN terminations in its recent filing of the collocation tariff. In Part A of
11 this docket the Commission ordered Qwest to make a compliance filing using Verizon's proposed
12 rates for DS0, DS1 and DS3 terminations.⁸ Although the
13

⁸ *In the Matter of the Continued Costing and Pricing of Unbundled Network Elements, Transport, and Termination*, Docket No. UT-003013, Thirteenth Supplemental Order; Part A Order Determining Prices for Line Sharing, Operations Support Systems, and Collocation, (January 31, 2001), at ¶371.

1 Commission did not specify in its order that Qwest should use Verizon's rates for OCn
2 terminations, when Qwest made its compliance filing it submitted Verizon's rates for Fiber
3 terminations, along with the rates for DS0, DS1 and DS3 terminations. Qwest believes that
4 Verizon's nonrecurring charges for Fiber terminations and OCn terminations are equivalent
5 elements, therefore, there is no need to submit a cost study for OCn terminations. However,
6 Verizon's rates for Fiber terminations do not provide any recovery for the equipment on which the
7 fibers terminate. Therefore, Qwest is submitting a cost study (Exhibit TKM-36, Study #5934) that
8 develops a rate for recovery of the cost of the fiber distribution frame (FDF) and fiber distribution
9 panel (FDP) upon which the fibers terminate, and the fiber jumpers necessary to make the
10 connections.

11 **Q. DO VERIZON'S RATES FOR DS0, DS1 AND DS3 TERMINATIONS ALLOW FOR**
12 **RECOVERY OF EQUIPMENT?**

13 **A.** Yes. For each of these other types of terminations, Verizon develops a recurring charge that
14 includes the cost of the frames upon which the terminations occur. In the case of Fiber
15 terminations, when Qwest's cost analyst examined the Verizon cost study she was unable to find a
16 comparable recurring rate that included such equipment costs. Discussions with Verizon confirmed
17 that no such recurring cost was included in the study Verizon filed in Part A, although if the study
18 we re filed today it would include costs for fiber termination equipment. Verizon's nonrecurring
19 costs include the labor necessary for terminations, but do not include any of the costs for

1 equipment. Thus, Qwest introduces an additional element in Part D of this docket that allows for
2 recovery of FDP costs not included in the rates filed in compliance with the Commission order in
3 Part A.

4 **VERTICAL FEATURES**

5 **Q. IS QWEST PROPOSING SEPARATE CHARGES FOR VERTICAL FEATURES IN**
6 **THIS PROCEEDING?**

7 **A.** No. The Commission established in the Eighth Supplemental Order,⁹ that vertical switching
8 features were included in the price of the port. The Commission determined that, based on the
9 way that it calculated switching costs (using the FCC switching investment estimate derived from an
10 analysis of ILEC switch investment depreciation studies), its estimate of the port cost included the
11 cost of providing vertical features.

12 **Q. DOES QWEST BELIEVE THAT THE COMMISSION'S METHOD OF**
13 **DETERMINING SWITCHING COSTS CAPTURED ALL OF THE COSTS**
14 **ASSOCIATED WITH PROVIDING VERTICAL FEATURES?**

⁹ Eighth Supplemental Order at ¶281.

1 **A.** No. As explained by the Commission, the \$150 investment per line used as the basis for
2 developing Qwest's switching costs originated with an FCC Staff analysis of 1995 switch
3 investments.¹⁰ That study relied on ILEC depreciation studies showing ILEC switch

4

¹⁰ Eighth Supplemental Order at ¶299.

1 investments to determine total switching costs. However, the fixed and per line cost that the
2 Commission used from the FCC Staff's study did not include Qwest's capitalized lease costs that
3 represent the right-to-use fees Qwest pays for the additional software needed to provision vertical
4 features in the switch. This is because the depreciation studies used in the FCC Staff's study
5 includes switching costs recorded as investments, while the capitalized lease costs were recorded
6 as expense at the time of the analysis. Thus, the cost of the port derived from those depreciation
7 studies excludes the capitalized lease costs for software that is critical to the functionality of the
8 vertical features.

9 **Q. HOW DO YOU PROPOSE TO ADDRESS THE CAPITALIZED LEASE COSTS IN**
10 **THIS PROCEEDING?**

11 **A.** Qwest has developed a separate study (Exhibit TKM-37, Study #5914) that estimates the
12 capitalized lease costs associated with vertical features on a "per port" basis. I propose that the
13 capitalized lease costs be added to the existing analog line-side port rate of \$1.34 per port. This
14 will result in a new port rate of \$1.85 that more appropriately reflects the costs of the port and
15 vertical features.

16 **Q. ARE YOU ALSO PROPOSING COSTS FOR A NEW PORT ELEMENT?**

17 **A.** Yes. In addition to a basic analog line-side port, Qwest proposes to offer a new premium 6-way
18 port for use primarily by Centrex customers. In addition to the costs for 6-way ports, this new

1 premium port includes costs for Centrex Management Systems (“CMS”) and certain other features
2 used for Centrex services. The premium port rate is incremental to the analog line-side port rate so
3 no additional costs for vertical features are included. However, like the analog port, the premium
4 port would also include the capitalized lease costs associated with vertical features. Thus, the
5 premium port is calculated by adding the analog port rate of \$1.85 to the incremental port rate of
6 \$2.00 for a total of \$3.85. The development of the premium port increment is presented in Exhibit
7 TKM-38 (Study #5913).

8 **Q. ARE YOU PROPOSING A SIMILAR STRUCTURE FOR THE DIGITAL LINE-SIDE**
9 **PORT?**

10 **A.** Yes. The digital line-side port, supporting BRI ISDN, will be offered in both a basic and premium
11 port. The rate for the basic digital line-side port includes a port rate of \$8.33 developed in the cost
12 study (Exhibit TKM-39, Study #5854), and the capitalized lease cost of \$0.51 developed in
13 Exhibit TKM-37 (Study #5914) for a total of \$8.83. The premium digital line-side port is
14 calculated by adding the basic port rate, including capitalized lease costs) of \$8.84 to the premium
15 increment of \$2.00 developed in Exhibit TKM-38 (Study #5913) for a total of \$10.84.

16 **Q. ARE YOU PROPOSING ANY OTHER RATES FOR VERTICAL FEATURES THAT**
17 **WERE NOT CAPTURED IN THE COMMISSION’S METHOD OF DETERMINING**
18 **SWITCHING COSTS?**

1 **A.** Yes. One additional feature, CLASS Call Trace, would not have been captured in the
2 Commission’s method of determining switching costs. The Commission’s method, which used the
3 FCC Staff’s depreciation studies for switching investment, would not have reflected the elements
4 presented in the CLASS Call Trace study (Exhibit TKM-40, Study #5912). First, the CLASS
5 Call Trace cost is developed on a “per event” basis to perform traces on calls on an as needed
6 basis; it is not a monthly recurring charge. Second, the majority of costs for this service are based
7 on the labor expenses of the people performing the traces, and the cost to store the data needed to
8 complete the trace. Finally, the amount of switching cost included in the study is related to
9 recorded announcements that Qwest does not believe is reflected in the rates determined by the
10 Commission.

11 **Q. DO YOU PROPOSE ANY NONRECURRING COSTS ASSOCIATED WITH**
12 **VERTICAL FEATURES?**

13 **A.** Yes. Certain of the vertical features require additional activities by Qwest personnel in order to
14 become activated in the switch. Therefore, nonrecurring charges have been developed in ENRC
15 (Exhibit TKM-29, Study #5923) to reflect the additional costs that result from those activities.

16 **UNBUNDLED PACKET SWITCHING**

17 **Q. PLEASE BRIEFLY DESCRIBE THE UNBUNDLED PACKET SWITCHING**
18 **OFFERING.**

1 **A.** In its Third Report and Order and Fourth Further Notice of Proposed Rulemaking, CC Docket
2 No. 96-98, released November 5, 1999, at paragraph 313, the FCC required packet switching to
3 be unbundled in certain circumstances when Qwest does not provide CLECs access to remote
4 terminal collocation. These circumstances are discussed in detail in the direct testimony of Ms.
5 Malone.

6 In the situations where Qwest is required to offer packet switching, Qwest provides unbundled
7 packet switch interface ports at either a DS1 or DS3 level in the central office. The ports are the
8 physical entry points into the Asynchronous Transfer Mode (“ATM”) Cell Relay Service Network
9 and include the electronic equipment used in connecting the channel to the ATM Cell Relay Service
10 Network. In addition, the service includes an unbundled packet switch Customer Channel that
11 provides the path from the remote Digital Subscriber Line Access Multiplexer (“DSLAM”) to the
12 interface port, including all functionality of the DSLAM. If the CLEC chooses to provide its own
13 facility from the DSLAM to the central office, Qwest offers an alternative to the Customer Channel
14 that only provides the DSLAM functionality. The recurring costs for these elements are calculated
15 in Exhibit TKM-41 (Study #5918), and the results are summarized in Exhibit TKM-28.

16 **Q.** **ARE THERE NONRECURRING COSTS ASSOCIATED WITH UNBUNDLED**
17 **PACKET SWITCHING?**

1 **A.** Yes. Nonrecurring costs for the work activities involved in provisioning the DS1/DS3 ATM switch
2 interface port(s) necessary to connect the unbundled packet switch Customer Channel are
3 calculated in the ENRC (Exhibit TKM-29, Study #5923). Nonrecurring costs are also calculated
4 in study #5923 for work activities necessary to connect the unbundled packet switch Customer
5 Channel and the distribution subloop at an established FCP arrangement. The nonrecurring
6 charges vary depending on the way the CLEC chooses to purchase the distribution subloop. Ms.
7 Malone discusses three possible alternatives the CLECs have to purchase distribution plant, either
8 from Qwest or from another CLEC.

9

HIGH CAPACITY LOOPS

10 **Q.** **DID QWEST FILE COST STUDIES FOR HIGH CAPACITY LOOPS IN PART B OF**
11 **THIS DOCKET?**

12 **A.** Yes. Qwest filed cost studies in Part B for DS1 and DS3 capable loops to address the costs of
13 providing high capacity loops as required by the FCC in its UNE Remand Order.¹¹ As part of its
14 ongoing 271 Workshop process, Qwest has also agreed to provide CLECs with rates for OCn
15 capable loops. Thus, in Part D, Qwest will address the costs associated with providing this
16 additional category of high capacity loops.

¹¹ *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, CC Docket No. 96-98, released November 5, 1999, at ¶176.

1 **Q. PLEASE BRIEFLY DESCRIBE OCN LOOPS.**

2 **A.** OCn capable loops are digital transmission paths that transport bi-directional high capacity
3 SONET (Synchronous Optical Network) signals at varying rates of signaling capacity. For
4 example, OC3 is a SONET channel equal to three DS3s. The transmission path runs from a
5 Qwest Serving Wire Center (SWC) Network Interface (NI) to the end user NI located at the end
6 user's premises within the serving area of the SWC. The installed investments for OCn loops are
7 calculated in the NAC model with investment inputs for fiber from LoopMod. The cost study for
8 OCn capable loops is included as Exhibit TKM-42 (Study #5889).

9 **MISCELLANEOUS ADDITIONAL ELEMENTS**

10 **Q. THE ATTACHMENT A TO THE COMMISSION'S TWENTY-SIXTH**
11 **SUPPLEMENTAL ORDER IN THIS PROCEEDING LISTS ISSUES FOR PART D. IS**
12 **QWEST SUBMITTING COST STUDIES FOR ALL OF THOSE ISSUES?**

13 **A.** No. For example, the Attachment A lists "Category 11 mechanized record charge" as an issue for
14 consideration, however, Qwest is not submitting a cost study for this element at this time. The
15 reason for not submitting this study at this time is that Qwest's cost analyst is working with product
16 management to change the cost study to reflect changes and updates to the product going forward.
17 Therefore, Qwest's position is that this study should be deferred to a later docket. Qwest also

1 believes that the study for “Daily Usage Record File” should be deferred to a later proceeding.
2 This study is undergoing changes, as well.

3 **Q. IS THIS THE SAME REASON THAT QWEST IS NOT SUBMITTING A COST**
4 **STUDY FOR THE “TROUBLE ISOLATION CHARGE”?**

5 **A.** No. As explained in greater detail in Mr. Kennedy’s testimony, there is no separate cost study for
6 trouble isolation. The rates for trouble isolation are the same as the rates that are developed under
7 “Miscellaneous Charges” in my exhibit TKM-28 (Study #5923).

8 **Q. WHAT IS QWEST’S REASON FOR NOT SUBMITTING COST STUDIES FOR “DS0,**
9 **DS1 AND DS3 BASIC INSTALLATION WITH COOPERATIVE TESTING” AS**
10 **LISTED IN THE COMMISSION’S ATTACHMENT A?**

11 **A.** Again, as described by Mr. Kennedy, Qwest has developed or proposed rates in previous
12 proceedings for basic installation with performance testing that are the same rates that apply for
13 basic installation with cooperative testing.

14 **Q. IS QWEST SUBMITTING COST STUDIES FOR “DIRECTORY ASSISTANCE” AND**
15 **“CALL BRANDING” LISTED IN THE COMMISSION’S ATTACHMENT A?**

1 **A.** No. As discussed by Qwest in Part B of this docket, the question of what it means for Qwest to
2 provide nondiscriminatory access to these elements is a matter of legal interpretation of the Act.
3 Qwest believes that the FCC's UNE Remand Order exempts Operator Services and Directory
4 Assistance from TELRIC pricing as an unbundled network element so long as Qwest provides
5 CLECs with access to customized routing.¹² If an element is exempt from TELRIC pricing under
6 the FCC's rules, Qwest believes that it has the right to price such services at market rates.

7 In the Part B proceeding, Qwest also argued that the FCC did not specify in its order that access
8 to customized routing had to be provided at standard TELRIC rates. In fact, the custom nature of
9 customized routing makes a solid case for ICB (individual case basis) rates. Nevertheless, in Part
10 D, Qwest is submitting standard nonrecurring rates for developing line class codes on a per-line-
11 class-code basis, and installing line class codes into switches on a per-switch basis. These charges
12 are developed in the ENRC, Exhibit TKM-29, Study #5923. It will be up to the CLEC to
13 determine how many line class codes are necessary and in how many switches it wants them
14 installed. All other customized routing will continue to be priced as ICB. With standard TELRIC
15 pricing of customized routing in place, it is difficult to imagine how the rates for Operator Services
16 and Directory Assistance could still be a matter for debate.

17 **Q.** **ARE THERE ADDITIONAL STUDIES THAT QWEST IS SUBMITTING THAT YOU**
18 **HAVE NOT DISCUSSED IN THIS TESTIMONY?**

¹² UNE Remand Order at ¶441.

1 elements based on the TELRIC data summarized in the TELRIC Cost Summary (Exhibit TKM-
2 28) to my testimony.

3 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

4 **A.** Yes, it does.

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

**In the Matter of the Continued Costing and)
Pricing of Unbundled Network Elements,)
Transport, Termination, and Resale)
)
)
)
)
)
)**

Docket No. UT -003013

Part D

**EXHIBITS OF
TERESA K. MILLION
ON BEHALF OF
QWEST CORPORATION**

NOVEMBER 7, 2001

INDEX OF EXHIBITS

| <u>EXHIBIT</u> | <u>DESCRIPTION</u> | <u>STUDY #</u> |
|----------------|---|----------------|
| TKM-27 | Compact Disc with Cost Studies, Models and Workpapers | |
| TKM-28 | Summary of Study Results | |
| TKM-29 | Nonrecurring Study | 5923 |
| TKM-C30 | Nonrecurring Back-up Documentation (paper copy only) | |
| TKM-31 | Space Inquiry (Space Availability Report) | 5931 |
| TKM-32 | CLEC-to-CLEC | 5928 |
| TKM-33 | Channel Regeneration | 5929 |
| TKM-34 | Space Reservation Option | 5930 |
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