Docket No. UT-003013, Part B
Exhibit TKM-22
February 7, 2001

EXECUTIVE SUMMARY

WASHINGTON

UNBUNDLED NETWORK ELEMENTS

RECURRING COST STUDY

USING PRESCRIBED LIVES AND COMMISSION PRESCRIBED 9.63% COM

February, 2001

MARKET SERVICES AND ECONOMIC ANALYSIS ORGANIZATION

UNBUNDLED NETWORK ELEMENTS

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MSEA
Economic Analyses
For Informed Decisions

A. PURPOSE, SCOPE, AND APPLICATION

The purpose of this study is to estimate Qwest's - 2000 total element long-run incremental costs that would be incurred to provide Unbundled Network Elements to a Co-Provider.

This study develops deaveraged and state wide average Total Element Long Run Incremental Costs (TELRIC). Costs are specific to the state of Washington and are stated on a per unit basis, unless specified otherwise. **Cost results are based on Commission Prescribed 9.63% Cost of Money (COM).**

B. DESCRIPTION OF SERVICE

A Unbundled Network Element (UNE) is a portion of Qwest's network sold to an Interconnector or Certified Local Exchange Carrier (CLEC) for use in building services for their customers. The Interconnector normally would connect to these UNEs in a Qwest wire center. The Interconnector may combine these UNEs together and/or with their own facilities or equipment for this purpose.

The Interconnector has design responsibility to insure that these elements will properly work with each other and with their facilities and equipment to meet their customer's service needs.

Several types of UNEs are available from Qwest. The following UNEs are addressed in this study:

- DS1 & DS3 Capable Loops
- DS1 Capable Feeder Loop
- Unbundled Dark Fiber Loop

DS1 Capable Loop:
A digital transmission path that transports bi-directional DS1 signals with a nominal transmission rate of 1.544 Mbps. The transmission path runs between a Qwest Serving Wire Center (SWC) Network Interface (NI) to the End User (EU) NI located at the EU's designated premises within the serving area of the SWC. The interconnector gains access to these unbundled services at the Qwest SWC through established Collocation arrangements. See Technical Publication 77384 for additional information. The investments in the DS1 Capable Loops are calculated on a statewide average basis and on a de-averaged basis in zones.

DS1 Capable Feeder Loop:
A digital transmission path that transports bi-directional DS1 signals with a nominal transmission rate of 1.544 Mbps. The transmission path runs between a Qwest Serving Wire Center (SWC) Network Interface (NI) to the Field Connection Point (FCP). DS1 Capable Loops will typically have one of the following configurations:

- Metallic-based span with High-Bit-Rate Digital Subscriber Line (HDSL) or T1 carrier equipment.
- Channel of a fiber-based system.
- Combination of both fiber and metallic-based facilities.

The interconnector gains access to these unbundled services at the Qwest SWC through established Collocation arrangements. See Technical Publication 77405 for additional information. The investments in the DS1 Capable Feeder Loops are calculated on a statewide average basis and on a de-averaged basis in zones.

DS3 Capable Loop:
A digital transmission path that transports bi-directional DS3 signals with a nominal transmission rate of 44.736 Mbps The transmission path runs between a Qwest Serving Wire Center (SWC) Network Interface (NI) to the End User (EU) NI located at the EU's designated premises within the serving area of the SWC. DS3 Capable Loops will be configured as a channel on a fiber-based system. The interconnector gains access to these unbundled services at the Qwest SWC through established Collocation arrangements. See Technical Publication 77384 for additional information. The investments in the DS3 Capable Loops are calculated on a statewide average basis and on a de-averaged basis in zones.

Unbundled Dark Fiber (UDF) Loop:
Provides a pair of optical fibers (i.e., two fibers) on which no electronic terminating equipment is provided by QWEST. The pairs go from wire center to splice, FDP, or customer location for Loop applications. A CLEC must be collocated in all wire centers where UDF terminates. The fibers will be connected to a Fiber Distribution Panel (FDP) or functional equivalent in the wire centers or customer locations. Technical Publication 77383 for additional information.

Unbundled Dark Fiber (UDF) Termination:
Two fiber termination equipment (FDP) located at the SWC or customer location.

Unbundled Dark Fiber (UDF) Cross Connect:
Two fiber patch cords to connect FDP to FDP located at the SWC or customer location.

C. STUDY METHODOLOGY

DS1 / DS3 Capable Loop – Loop investments are calculated using a Microsoft Excel® spreadsheet based model called the NAC (Network Access Channel) model. The NAC

model estimates the installed investment associated with circuits between a SWC and an End User's NI. Detailed description of this model can be found in the Integrated Cost Model (ICM) NAC documentation.

The TELRIC Windows Personal Computer Cost Calculator (WINPC3) was used to convert installed investments to TELRIC by applying appropriate investment and expense factors to the installed investment.

D. Description OF TOTAL ELEMENT LONG RUN INCREMENTAL COSTS

Total Element Long Run Incremental Cost (TELRIC) studies are performed by Qwest to estimate the economic cost of providing network elements. The Qwest TELRIC studies identify the forward-looking costs associated with the provision of the total quantity of a network element in the long run. The *forward-looking* Qwest TELRIC studies identify the costs that are likely to be incurred in the future, and consider the latest forward-looking technologies and methods of operation that are currently available. These studies are *not* embedded or historical, and do not measure the impact of prior investment decisions by the corporation. The Qwest TELRIC studies also identify the *long run* costs associated with providing a network element—reflecting a time period over which all inputs (including changes in the size of facilities, levels of investment, etc.) can be adjusted.

Qwest TELRIC studies identify recurring and nonrecurring costs. *Recurring costs* are the ongoing costs associated with providing a network element. Recurring costs are generally investment-related and include both capital costs and operating expenses. These costs are often presented as a cost per month or per unit of usage (e.g., minute of use) and are incurred throughout the time period the network element is provided to a customer. *Nonrecurring costs* are the one-time costs that are incurred at the time a customer establishes, disconnects or changes service. These costs normally result from a customer order, and are predominantly labor-related.

The Qwest recurring and nonrecurring TELRIC studies identify costs on a unitized basis and disaggregates the cost results into the following components:

Total Direct Costs are the forward-looking costs that are caused by offering the network element in the long run. These costs would not be incurred if the network elements were not offered. Total Direct Costs reflect the per-unit forward looking cost associated with providing the entire network element in the most efficient manner, holding constant the production of all other network elements produced by the firm. For recurring element costs Total Direct Costs include the capital costs (e.g., depreciation, return, taxes) and maintenance costs associated with the investment required to provision a network element, along with other network element-specific costs such as product management expense. For non-recurring costs, Total Direct Costs include the labor-related expenses associated with the provision of a network element, along with other network element-specific costs such as product management expense.

Directly Attributed Costs include network administration and engineering costs and various administrative costs such as the cost of general-purpose computers and accounting and finance expenses. These costs are not directly associated with a specific

network element. However, these costs vary with the provision of all network elements, and are not common to the entire firm.

Total Element Long Run Incremental Costs (TELRIC) represent the sum of Total Direct Costs and Directly Attributed Costs. This measure of costs includes the forward-looking costs incurred in the provision of a network element. This measure of costs is consistent with TELRIC as defined by the FCC.

Common Costs are associated with the enterprise as a whole. These costs do vary based on the total size of the firm, but do not vary with the provisioning of individual network elements. These costs are avoidable only with the elimination of the entire firm, and are sometimes referred to as *general overhead costs.*

Fully Allocated Costs represent the sum of Total Element Long Run Incremental Cost plus Common Costs (TELRIC + CC).

E. STUDY ASSUMPTIONS

a. Costs are based on a least cost scorched node scenario and represent the cost of fully replacing the network required to provision the service, beginning from the existing grid of network nodes used by Qwest today.

b. It is assumed that facilities are placed given today's actual field conditions. This leads to a greater percent of facilities placement under difficult conditions than would occur with an assumption of "green field" (i.e., easy placement) conditions.

c. Additional assumptions used in the NAC models may be found in the documentation of that model.

d. Cost results are based on Commission Prescribed Lives and 9.63% Cost of Money (COM).