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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF DETERMINING PRICES FOR UNBUNDLED NETWORK ELEMENTS (UNEs) IN QWEST CORPORATION'S STATEMENT OF GENERALLY AVAILABLE TERMS (SGAT)	**CASE NO. QWE-T-01-11**

DIRECT TESTIMONY OF

DICK BUCKLEY

QWEST CORPORATION

NOVEMBER 12, 2003

TESTIMONY OF DICK BUCKLEY
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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND CURRENT POSITION.

A. My name is Dick Buckley. My business address is 1801 California St. #2040, Denver Colorado. I am employed by Qwest Corporation as a Manager-Loop Cost Analysis.

Q. PLEASE STATE YOUR BACKGROUND AND QUALIFICATIONS.

A. In 1978, I received a B.S. in Business Administration with an emphasis in Finance from the University of Northern Colorado. I joined Qwest (Mountain Bell) in 1980 in the Cost Rates and Regulatory Matters (CRRM) department as a Cost Analyst in the area of data and supplemental terminal products. In 1983, I assumed responsibility for non-recurring costing and for implementing the Dual Element non-recurring cost structure. In 1986, I moved into cost analysis of the local loop and assisted in the development of the Regional Loop Cost Analysis Program (RLCAP) and the current Qwest loop program, LoopMod. My present responsibilities include local loop cost modeling and analysis, as well as providing subject matter expert support on local loop costing in regulatory proceedings.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide information concerning the updates and changes to the Loop module (LoopMod) of the Integrated Cost model (ICM) that Qwest implemented in the release of LoopMod Version 2.1. LoopMod replaces the RLCAP

V3.5 model that Qwest (then U S WEST) filed in the 1997 Idaho AT&T Arbitration. I also discuss the rationale underlying the input assumptions that Qwest has used in developing the investments for the loop and drop portions of the local loop unbundled network element in its TELRIC study.

II. GENERAL

Q. WHY ARE COST MODELS USED, AS OPPOSED TO EMBEDDED INFORMATION, TO ESTABLISH THE COSTS FOR THE LOCAL LOOP?

A The Telecommunications Act of 1996[1] established pricing standards for the rates that may be charged by ILECs to local service competitors for interconnection and unbundled network elements. The FCC developed various pricing rules to implement the Act. Those rules dictate the use of a forward-looking economic cost methodology based on the total element long-run incremental cost (TELRIC) of the element. The TELRIC requirement precludes the use of historical costs in establishing rates. Cost models (such as Qwest's LoopMod) estimate the costs that would be incurred by an efficient provider of network elements using the costs for current technologies and the economies achievable by the ILEC.

Q. PLEASE DESCRIBE THE LOOPMOD MODEL.

A. LoopMod is an investment development program designed by Qwest. The purpose of LoopMod is to produce the investment for a subscriber loop and drop wire that can be

[1] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of Title 47, United States Code).

used as a basis for developing costs used in pricing decisions. LoopMod calculates the investments for loop and drop wire based on standard engineering loop designs, vendor prices and placement cost estimates. These investments include the costs associated with the materials, construction and engineering that are required to build loop plant from the central office to a subscriber. The investment amounts that the model uses are based primarily on data specific to Idaho. For example, the quantity of lines in service, the prices charged by contractors for outside plant construction activities and the distribution area data are unique to Idaho. After LoopMod calculates the investment, the results can be converted to monthly costs used to make pricing decisions for the unbundled loop.

Q. WHAT ARE THE KEY ELEMENTS IN QWEST'S ASSUMPTIONS RELATING TO NETWORK DESIGN THAT ARE USED IN LOOPMOD?

A. There are two key cost drivers in Qwest's network design assumptions for developing Idaho-specific loop plant investment: 1) distance and 2) population density. Feeder investments are affected directly by the amount of distance from a serving central office (CO) to an end user. Longer distances require the placement of more feeder plant than shorter distances. Population density affects the type of outside plant and placement methods that can be used and also influences the selection of the distribution design for an area. The density of the Distribution Area (DA) is a function of the size of the serving area and the number of customers within the area. Higher density provides for greater economies of scale. For example, in feeder, higher density allows the use of larger cables, while in distribution, higher density results in shorter cabling.

Q. HOW IS THE LOOP DESIGN SEGMENTED?

A. Each loop design is divided into two sections: feeder cable and distribution cable. As shown in the diagram in Exhibit 28, feeder is the main facility leaving the central office. The feeder is typically a large copper cable or a fiber facility. If the facility is fiber, it is used to connect electronics at the central office with electronics at a location on the feeder route. Feeder cables are often placed within conduit, and they are designed to be reinforced periodically. Distribution plant consists of smaller cables that connect to the feeder plant at a Serving Area Interface (SAI) or cross-connect box. As the name implies, these cables distribute pairs from the feeder plant to the customer locations. In most cases, the distribution cables are buried directly into the ground. A small percentage of the distribution cables are placed through the use of aerial plant, although the use of aerial plant has generally been on the decline in recent years. In addition to the SAI and the cables, distribution plant includes pedestals or customer terminals, drop or service wires and network interfaces. The terminals serve as a connection point between the distribution cables and the drop wire. The drop wire is the piece of distribution plant that runs directly to a customer's premises. The network interface device (NID) provides the connection between the drop and the inside wiring at a customer's premises.

Q. HOW DOES THE MODEL ARRIVE AT AN APPROPRIATE FEEDER DESIGN?

A. The model employs an economic mix of copper and fiber facilities based on user-selected breakpoints. The breakpoints determine the distances at which the model transitions between technologies and placement assumptions. Each route in each wire center is analyzed to determine the amount of demand and the distance that demand is from the serving central office. This approach in LoopMod is an enhancement from the average wire center group feeder designs used in RLCAP V3.5. This route-specific information is used in conjunction with the breakpoint between copper and fiber to size the required electronics and cable facility. The design inputs determine the appropriate distances at which outside plant is placed in conduit systems versus buried placement in both urban and rural settings. The model also allows the user to differentiate costs for urban-buried placement versus rural-buried placement. Urban-buried feeder utilizes trenching activities appropriate for a more densely populated area, while the model uses a greater degree of lower cost plowing techniques to place rural-buried feeder. After the feeder plant is determined for each route, the quantity for each equipment type and the length by cable demand (fibers or pairs) and placement mode is added to the study total. Once all plant requirements are determined, the model applies the cable sizing factors to the demand to select the appropriate cables. The model then develops investments for the total feeder plant and divides the total investment by the working lines to determine an investment amount per line.

Q. HOW DOES THE MODEL ARRIVE AT AN APPROPRIATE DISTRIBUTION DESIGN?

A. Qwest developed distribution plant profiles based on the Qwest Network distribution architectures. The guidelines for these architectures conform to the industry "serving area concept" design. The distribution area is a concise geographic area. It has a single interface point, and it typically serves 200 to 600 locations. The distribution cabling is a single gauge and is free of multiple assignments. The primary pairs are permanently assigned to a location and are cut off beyond the assignment point. LoopMod incorporates five distribution designs or density groups. Exhibit 29 provides a visual representation of the type of densities reflected in these distribution density groups.

These designs represent: (1) high rise buildings, (2) multi-building / multi-tenant scenarios, (3) single family homes with standard lot sizes, (4) single family homes with larger lots and (5) rural serving areas. Each individual Idaho Distribution Area (DA) is mapped to one of the Density Group (DG) designs based on the size of the DA (area in square miles) and the number of customer locations and based on information relating to the size and type of terminals included in the DA. The area information is also used to adjust the cable length data for the distribution designs that are lot size oriented (DG3, DG4 and DG5). The adjusted distribution designs thus reflect the unique density that exists within each DA. After the model processes each DA, it weights the DA investments together based on their proportionate share of total working lines. By using this weighting, the actual Idaho-specific occurrence of distribution designs is reflected in the loop investments. This is another enhancement from the RLCAP V3.5 model used earlier in Idaho. The investments for the distribution plant are added to the feeder investments to determine the total outside plant investments. To arrive at the total investment for an unbundled loop, ICM also adds investments associated with loop unbundling at the central office.

Q. WHAT ARE THE KEY INPUTS ASSOCIATED WITH THE MODEL?

A. There are numerous inputs that have an impact on the final investment developed by LoopMod, but three of the key cost drivers are:

- Cable placing activities
- Structure sharing percentages
- Plant mix

These inputs are discussed more fully later in my testimony. Care must be taken to ensure consistency in the assumptions made with regard to these inputs. In addition, the assumptions must reflect the reality of what costs a carrier will face if it were replacing the Idaho telephone network in the world as it exists today - - with buildings, houses, roads, and other structures still in place. It would make little sense to develop a business case on building a network and ignore the environment in which it will be built. The numbers would not provide the information necessary to make an intelligent decision on the profitability of the project.

Q. HAS QWEST ATTEMPTED TO VALIDATE THE COST ESTIMATES THAT LOOPMOD PRODUCES?

A. Yes. There have been a variety of steps taken to validate the LoopMod results. First, the Law and Economics Consulting Group (LECG), under the guidance of Dr. Robert Harris, conducted an extensive review of the model's economic rationales, program logic, and level of documentation. LECG recommended the addition of documentation such as cell notes and explanations of the sources for various model inputs. In general, they agreed with the modeling approach utilized by LoopMod. In addition, the LoopMod results were compared to various other studies of local loop investment in an effort to determine if they are within a range of reasonableness. The comparative investments are summarized below:

Investment

Qwest TELRIC[2]	$1292
LoopMod - Loop only	$1249
Revised HAI Model 5.0a - Loop only	$1520[3]
BCPM (Capped) - Loop only	$1474
BCPM (Uncapped) - Loop only	$2069

The data provides evidence that Qwest's studies produce reasonable estimates of the average investment for a local loop.

Q. WHAT CHANGES DID QWEST MAKE TO UPDATE LOOPMOD?

A. The changes include simple updates of data (such as material prices, loop quantities), mechanical adjustments (sharing percentages, placement activities by Density Group), and changes to make the model more user friendly. These changes will be discussed in detail later in my testimony. I have listed below the most notable of these adjustments.

- Updated user screens
- Increased user variability of inputs
- User adjustable sharing percentages
- Updated investments and contract placing costs
- Route-specific feeder modeling
- State-specific distribution design weightings
- Distribution designs adjusted to each DA

[2] This number includes central office Main Distribution Frame investments in addition to the loop facilities.

[3] The HAI data was developed using the HAI Model 5.0a with the inputs revised to more closely reflect those utilized in the LoopMod program.

- Buried placement cost by Density Group and Feeder location
- Elimination of cost calculations (now in the Integrated Cost Model)

III. PLACEMENT COSTS

Q. WHAT ARE CABLE PLACEMENT COSTS?

A Cable placement costs are the costs of placing cable in the ground or on poles. These costs, along with the costs of splicing and other labor-related activities, are the single largest component of outside plant costs. On average, more than 60% of Qwest's total investment in buried cable is related to the cost of placing the cable.

Q. WHAT TYPES OF WORK ACTIVITIES ARE INVOLVED IN CABLE PLACEMENT?

A Consistent with actual engineering practices, LoopMod includes four methods for placing buried cable. These methods are trenching, plowing, boring, and cut and restore. Trenching involves digging a trench, placing the cable directly into the trench and back-filling the trench. The plowing method places cable by directly plowing it into the ground without digging a trench. Boring involves the use of equipment that literally bores through the ground and pulls the cable through the opening in situations where, for example, cable must pass underneath a road, a sidewalk or a yard. The advantage of directional boring is that it avoids the costs and disruption that arise from tearing up roads, sidewalks, yards, and other structures. "Cut and restore" involves placing cable by digging up roads, yards, and other structures and then restoring those structures after the cable has been placed.

In addition, LoopMod includes subcategories that further differentiate these activities. For trenching, LoopMod identifies different costs for trench and backfill, rocky trench and hand dig. For plowing, LoopMod includes different costs for standard plowing, rocky plowing and plowing with hydro/broadcast seed restoration. The "cut and restore" category has different costs for concrete, asphalt, and sod.

Q. WHAT DETERMINES WHICH TYPE OF PLACEMENT ACTIVITY WILL BE USED WHEN BUILDING OUTSIDE PLANT FACILITIES?

A. The primary determinant is typically density. For instance, if buried cable is being placed in a low-density area, along a county road with few obstacles, it is very likely that the construction crew will be able to plow the cable. In a new subdivision, before curbs, gutters and landscaping are placed, trenching machines can be used for standard trench and backfill placement. Once the density increases (e.g. a mature suburban neighborhood), placement activities such as boring need to be used to avoid damaging streets, sidewalks and landscaping. If boring is not used, then cut and restore techniques must be used to repair areas disturbed during the trench work.

Q. WHAT CHANGES DID QWEST MAKE TO THE MODEL RELATING TO BURIED CABLE PLACEMENT ACTIVITIES AND COSTS?

A. LoopMod V2.1 contains two significant changes from earlier versions relating to the placement of buried cable. First, the program now recognizes the use of contractors to place cable in the buried environment. (The activity costs contained in the program are taken from the current network contracts with vendors who perform placement of buried plant in Idaho.) The second change is the disaggregation of the placement costs by Density Group and by Feeder-Urban versus Feeder-Rural. (This reflects the impact that density has on the placement methods that an engineer would choose.) Accordingly, each of the categories of buried plant (Density Group 1 (DG1), DG2, DG3, DG4, DG5, Feeder-Urban and Feeder-Rural) now has its own placement activity matrix, and therefore, reflects the percentage of trenching, boring, cut and restore asphalt, etc. that is reasonable for the associated density. The default values in LoopMod Version 2.1 are attached as Exhibit 27 to my testimony.

Q. DID QWEST MAKE CERTAIN ASSUMPTIONS WHEN IT DERIVED THE PLACEMENT COSTS USED IN THE LOOPMOD MODEL?

A. Yes, Qwest assumed that the model should reflect the cost of:

1. extending service to all of its current Idaho customers; and
2. using the type of cable placing techniques that an outside plant engineer would use to build a replacement network in Idaho.

As the first assumption suggests, the model is designed to determine the forward-looking costs of all loops, not just those placed in any given year.

Q. HOW DO THESE ASSUMPTIONS AFFECT CABLE PLACEMENT COSTS?

A. In developing the forward-looking cost of a telecommunications network designed to serve all customers, the model must recognize the world as it currently exists. The model includes all the current lines in service so as to recognize the economies of scale that would be achieved by a single service provider. The model also uses the latest