

**BEFORE THE**  
**WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**AT&T COMMUNICATIONS OF )**  
**THE PACIFIC NORTHWEST, INC., )**  
**COMPLAINANT )**  
**v. )**  
**VERIZON NORTHWEST INC., )**  
**RESPONDENT )**

**DOCKET NO. UT-020406**

**DIRECT TESTIMONY OF**  
**DAVID G. TUCEK**  
**ON BEHALF OF**  
**VERIZON NORTHWEST INC.**

**DECEMBER 3, 2002**

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is David G. Tucek. My business address is 1275 Century Tel Drive,  
3 Suite 306, Wentzville, MO 63385.

4

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am employed by Verizon Communications as Manager – Network Costs. In this  
7 capacity, I am responsible for supporting Verizon’s incremental cost studies for  
8 its telephone operating companies. In this proceeding I am representing Verizon  
9 Northwest Inc. (“Company” or “Verizon”).

10

11 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**  
12 **WORK EXPERIENCE.**

13 A. I have a Bachelor of Science degree in Mathematics and Economics from  
14 Southeast Missouri State University and a Master of Arts degree in Economics  
15 from the University of Missouri. I also have a Master of Business Administration  
16 degree from St. Louis University. I began my career in the telecommunications  
17 industry as a Senior Cost Analyst with Contel Service Corporation in 1979. I  
18 became an employee of GTE in 1991, at the time of the merger between GTE and  
19 Contel. I became an employee of Verizon in 2000, at the time of the merger  
20 between GTE and Bell Atlantic. During the course of my career, I have held  
21 various positions dealing with cost analysis and modeling, rate design, tariff  
22 development, carrier billing, and demand analysis. I assumed my present position  
23 in August of 1996.

1 **Q. HAVE YOU TESTIFIED BEFORE THIS OR ANY OTHER**  
2 **REGULATORY COMMISSION?**

3 A. Yes. In addition to sponsoring testimony before the Washington Utilities and  
4 Transportation Commission, I have sponsored testimony before state public utility  
5 commissions in Alabama, Arkansas, Florida, Hawaii, Illinois, Indiana, Iowa,  
6 Kentucky, Michigan, Missouri, Ohio, Nebraska, New Mexico, North Carolina,  
7 Pennsylvania, Texas, and Virginia.

8  
9 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

10 A. The purpose of my testimony is to sponsor the Company's total service long-run  
11 incremental cost (TSLRIC) studies for basic residential service and business  
12 exchange service.

13  
14 **Q. WHAT EXHIBITS ARE YOU SPONSORING?**

15 A. In addition to my direct testimony, I am sponsoring the following exhibits:

- 16 (1) Exhibit DGT-2, "Main Components of ICM's Modeled Network";  
17 (2) Exhibit DGT-3, "ICM's Modeling Process"; and  
18 (3) Exhibit DGT-4C, which consists of a CD-ROM containing Version 4.5 of  
19 Verizon's Integrated Cost Model (ICM).

20  
21 Exhibit DGT-4C contains proprietary support documentation. In addition to the  
22 Commission and the Commission Staff, a copy of this CD-ROM has been  
23 provided to all parties that have executed the appropriate protective agreement.

1 **Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?**

2 A. First, I explain generally how the retail cost studies were developed. Second, I  
3 provide an overview of ICM.  
4

5 **Q. HOW WERE THE COSTS FOR LOCAL RESIDENTIAL AND BUSINESS**  
6 **EXCHANGE SERVICE DEVELOPED?**

7 A. Local residential and business exchange service are bundled services consisting of  
8 (1) access to the public switched network, (2) local usage, (3) service-specific  
9 features, and (4) a white pages directory listing. Please note that the Company  
10 has a tariffed service called “Basic Calling Service,” which provides access to the  
11 public switched network on a separate, unbundled basis. Customers subscribing  
12 to this service pay measured usage rates for local calls, including interexchange  
13 non-toll calls.  
14

15 Here is a summary of how costs were developed for each of the four components  
16 listed above:  
17

18 Access to the public switched network. Access is provisioned via a network  
19 access channel (NAC) and a line termination on the local switch. These costs  
20 were developed using Verizon’s long-run incremental cost model, ICM. This  
21 model estimates the long-run incremental forward-looking cost of provisioning  
22 telecommunication services out of Verizon’s Washington network, based on  
23 existing wire center locations. The major assumptions underlying ICM are:

- 1 (1) the network is modeled as if it is built all at once, using all new plant  
2 and technology;
- 3 (2) the costs are based on the input prices for material, equipment and  
4 labor that Verizon expects to pay;
- 5 (3) the study sizes cable based on Verizon's engineering guidelines; and,
- 6 (4) the costs *exclude* common costs and the nonrecurring costs of  
7 initiating and terminating service.

8

9 Local usage. The local usage costs for residential exchange service are computed  
10 outside of ICM based on (a) ICM's modeled switching and transport costs and (b)  
11 inputs related to the number of calls per line and average holding time.

12

13 Service-specific features. Service-specific features are also computed by ICM,  
14 based on the corresponding right-to-use fees and processor investment, plus the  
15 cost of any needed specialized equipment.

16

17 White pages directory listing. The white pages directory listing costs include  
18 expenses recorded in account number 662260, Directory Expenses. This account  
19 includes only those Washington expenses incurred by Verizon Northwest, and  
20 excludes those costs incurred by Verizon's directory company subsidiary (e.g.,  
21 the cost of printing, binding and initial distribution). Additionally, the retail  
22 portion of the study only includes those recurring retail costs associated with  
23 white pages listings; all nonrecurring costs, wholesale expenses and Yellow Page

1 expenses are excluded from the study results. The white pages directory listing  
2 study can be found in Exhibit DGT-4C, in the subfolder “Directory Listings” in  
3 the “Other Retail Studies” folder.

4

5 **Q. PLEASE DESCRIBE ICM.**

6 A. ICM is a cost model that is used to calculate, among other things, the Total  
7 Service Long Run Incremental Cost (TSLRIC) of retail services and access  
8 services. ICM does this by designing the network all at once, using currently  
9 available, forward-looking technology and the prices for labor, material and  
10 equipment that Verizon is actually able to obtain. The modeled network is based  
11 on Verizon’s existing wire center locations in Washington. The network is  
12 modeled so that it is capable of serving one hundred percent of current demand,  
13 and includes all the components needed to provision telecommunication services  
14 in Verizon’s Washington network.

15

16 Exhibit DGT-2 provides a diagram illustrating the main components of the  
17 modeled network. ICM is more fully described in the *ICM Model Methodology*  
18 contained in Exhibit DGT-4C. Instructions for installing ICM on a desktop  
19 computer are also contained in this exhibit (see page 5 of the *ICM User Guide*).

20

21 **Q. PLEASE DESCRIBE EACH COMPONENT OF ICM.**

22 A. ICM is comprised of six modules: Loop, Switch, Interoffice Transport, Signaling  
23 System 7 (SS7), Expense, and Mapping/Reporting. These six modules design and

1 cost the forward-looking network as if it is built all at once using all new plant  
2 and technology. The designed network reflects the economies of scale of all  
3 services across Verizon's entire Washington network.

4  
5 Here is a brief summary of each module:

6  
7 ICM's *Loop Module* estimates the investments needed to construct the loop --  
8 that portion of the local exchange telephone network that extends from the Main  
9 Distribution Frame in the wire center to the Network Interface Device at the end  
10 user's location. These investments include items such as telephone poles,  
11 manholes, copper and fiber optic cables, and conduit. ICM builds the loop from  
12 existing wire center locations to customer locations determined through the use of  
13 detailed census information, actual line counts, tariffed exchange boundaries, road  
14 length data, and specialized algorithms. ICM places digital loop carrier (DLC)  
15 systems to ensure that maximum copper loop length limits are not exceeded and  
16 that the provision of advanced services is not impeded.

17  
18 The *Switch Module* calculates the investment needed to provide the circuit  
19 connections for completing telephone calls. The switch module designs a  
20 network based on Verizon's existing wire center locations, host/remote  
21 relationships, and the digital switch types that Verizon deploys in its network.  
22 Costs are based on the current prices Verizon pays for initial switch placements  
23 and expansions.

1       The *Interoffice Transport Module* designs the facilities needed to carry traffic  
2       among Verizon's offices and between its Washington network and the rest of the  
3       public switched network. These facilities consist of specialized transmission  
4       equipment within wire centers and outside plant facilities that carry  
5       communication signals between hosts, remotes, and tandem offices. ICM models  
6       the investments associated with these facilities using the most efficient fiber optic  
7       equipment and technologies.

8  
9       The *SS7 Module* calculates the investments needed for a stand-alone signaling  
10      network. This signaling network, via connections at end office and tandem  
11      switches, governs the operation of the switched telephone network by setting up  
12      calls and ensuring efficient utilization of facilities.

13  
14      The *Expense Module* performs two primary functions. First, it determines the  
15      factors and ratios used to calculate the costs of operating the modern, efficient  
16      telephone network modeled by the four modules described above. For example,  
17      the cost of maintaining and repairing outside distribution plant such as a pole is an  
18      operating expense associated with residential local exchange service. The  
19      Expense module calculates the factor used to model this expense, which becomes  
20      part of the TSLRIC of the residential NAC. Second, the Expense module  
21      develops the capital cost factors that convert the investments calculated in the  
22      Loop, Switch, Transport, and SS7 modules into annual charges. These factors are  
23      a function of the rate of return, depreciation lives and salvage values, and of



1 income and property tax rates. The nonrecurring costs of establishing or  
2 terminating service and common costs are not included in the development of the  
3 expenses included in the cost estimates.

4

5 The *Mapping/Report Module* applies the factors and ratios developed in the  
6 Expense Module to the investments generated by the other four modules. This  
7 module also aggregates the costs of basic network functions (e.g., network access  
8 channels, line terminations, call setup and minutes of use) to the per-unit  
9 TSLRICs and develops detailed output reports. Basic network function reports  
10 are also generated, which include a cost for every network function. Output  
11 reports can be aggregated at the wire center level, groups of wire centers, or at  
12 statewide average level.

13

14 Each of the six modules of ICM is described more fully in the *ICM Model*  
15 *Methodology* contained in the Company's filing. Also, ICM's overall modeling  
16 process is depicted in Exhibit DGT-3.

17

18 **Q. HOW DO ICM'S MODULES WORK TOGETHER TO CALCULATE THE**  
19 **FORWARD-LOOKING INCREMENTAL COST OF A SERVICE?**

20 A. The first four ICM modules identify the forward-looking investments associated  
21 with the various telecommunication services, and the Expense Module calculates  
22 the factors needed to convert these investments into monthly recurring costs.

23 These monthly recurring costs fall into two broad categories, capital costs and

1 operating expenses. The capital costs include: (1) both a return of and a return on  
2 the investment; (2) property taxes associated with the investment; and, (3) income  
3 taxes associated with the return component of capital costs. In the current filing, a  
4 9.76 percent overall rate of return, as established in Docket UT-931591, is used.  
5 The filing uses the Commission-authorized depreciation lives and salvage values;  
6 these lives and salvage values correspond to the selection of “Book Lives” in the  
7 ICM user settings.

8  
9 The operating expenses consist of the costs of maintaining and operating the  
10 network, including the costs of general support assets such as motor vehicles and  
11 general-purpose computers. Also included are the expenses of any marketing,  
12 billing and collection activities associated with a given service. The  
13 Mapping/Report Module calculates the capital costs and operating expenses,  
14 using the factors produced by the Expense Module and the investments identified  
15 by the other four modules. The Mapping/Report Module also maps the costs of  
16 the network components to individual services and produces reports showing the  
17 recurring costs of each service.

18  
19 **Q. PLEASE PROVIDE AN EXAMPLE OF HOW THE MAPPING/REPORT**  
20 **MODULE WORKS.**

21 A. I can do this using the costs of the loop. The investments associated with the  
22 loop, or NAC, portion of residential local exchange service are modeled by the  
23 Loop Module and include both (1) the material costs of loop facilities, such as the

1 feeder cable, distribution cable, and drop wire; and, (2) the cost of installing these  
2 facilities, such as trenching and pole-placement costs. After the Mapping/Report  
3 Module calculates the capital costs and the operating expenses of each network  
4 component and maps these recurring costs to the residential NAC, it reports these  
5 costs in seven categories. Here is an illustrative example of one of the ICM's  
6 Reports for the residential NAC:

7

Network Service	Investment	Deprec. and Return	Composite Inc. Tax	Prop. Tax	Maint. and Support	Marketing	B&C and Directory	TSLRIC
Residential NAC	1285.56	144.49	21.69	9.55	58.25	12.58	0.00	20.55

8

9 **Q. PLEASE EXPLAIN THE COSTS SHOWN IN EACH COLUMN.**

10 A. The Investment column shows the total investment associated with the residential  
11 NAC, which includes the material cost of the loop facilities, as well as the cost of  
12 installing the facilities. In the above example, the total investment cost equals  
13 \$1285.56.

14

15 The Depreciation and Return column shows the annual capital charge necessary  
16 to recover the total investment. This charge includes both a return of the total  
17 investment (the annual depreciation cost) and a return on the total investment (the  
18 rate of return). As illustrated in our example, if the owners of the network receive  
19 \$144.49 (after taxes and other operating expenses) each year over the estimated  
20 life, they will recover the total long-run investment, \$1285.56, plus a reasonable  
21 return. The Depreciation and Return charge will, of course, vary depending on

1 the depreciation lives and cost of capital inputs that are used in the model. Longer  
2 depreciation lives or a lower cost of capital will produce a lower annual charge  
3 associated with the loop investment and *vice versa*.

4  
5 The Composite Income Tax and Property Tax columns reflect the annual state and  
6 federal income taxes, and the property taxes associated with the investment.

7  
8 The Maintenance and Support column reflects the annual maintenance expenses,  
9 such as the costs of maintaining and repairing poles, conduits, and other outside  
10 plant required for the residential NAC. Additionally, this column reflects the  
11 costs associated with general support assets unless the user has opted to exclude  
12 them. The next two columns show the annual operating expenses associated with  
13 marketing activities, billing and collection activities, and directory-related costs, if  
14 any. All of these capital costs and operating expenses are calculated using ICM's  
15 Expense Module.

16  
17 The last column shows the monthly forward-looking incremental cost of the  
18 residential NAC, which is simply the sum of all the annual costs divided by 12:

19

1	Depreciation and Return	\$144.49
2	Composite Income Tax	21.69
3	Property Tax	9.55
4	Maintenance and Support	58.25
5	Marketing	12.58
6	B&C and Directory	<u>0.00</u>
7	Total	\$246.56 / 12 = 20.55

8

9 Note that B&C and directory costs are not reported as part of the residential NAC  
10 cost by ICM, but are included in the TSLRIC for local residential exchange  
11 service.

12

13 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

14 A. My testimony shows that Verizon calculated the TSLRIC of certain services using  
15 a cost model that reflects generally accepted long-run costing principles. As  
16 discussed by other Verizon witnesses, the results of this cost study support  
17 Verizon's position that the current prices for basic residential service are below  
18 TSLRIC and should be increased.

19

20 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

21 A. Yes.