

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

IN THE MATTER OF THE CONTINUED)
COSTING AND PRICING OF UNBUNDLED) DOCKET NO. UT - 003013
NETWORK ELEMENTS, TRANSPORT,) PHASE B
TERMINATION, AND RESALE)

PHASE B DIRECT TESTIMONY OF
JOSEPH ABS
MANAGER – COST MODELS

ON BEHALF OF
VERIZON NORTHWEST, INC.
Formerly Known as GTE Northwest Incorporated

SUBJECT: ICM EXPENSE MODULE

AUGUST 4, 2000

Exhibit No. _____ (JA-1T)
Docket No. UT-003013 - Phase B

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Joseph Abs. My business address is 600 Hidden Ridge, Irving, Texas, 75038.

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

A. I am employed by Verizon as a Manager-Cost Models and Methods Development. In this capacity, I am responsible for the Expense Module of the Integrated Cost Model (“ICM”) and its application in the costing of unbundled network elements (“UNEs”) and network services.

Q. **BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.**

A. I graduated from the University of Cincinnati in 1978 with a Bachelor of Business Administration Degree, majoring in Accounting. I graduated from Miami University in 1979 with a Master’s Degree in Business Administration, double majoring in Accounting and Finance. In 1979, I joined Arthur Andersen & Co. as a financial auditor. In 1981, I joined GTE’s audit staff. During my employment at GTE, I held various auditing, information systems, and costing positions with increasing responsibility. I assumed my present position in 1997.

1 I am a Certified Public Accountant ("CPA") and a Certified Information Systems
2 Auditor ("CISA")

3

4 **ON WHOSE BEHALF ARE YOU PRESENTING TESTIMONY IN THIS**
5 **PROCEEDING?**

6 I am presenting testimony on behalf of Verizon Northwest, Inc., which was formerly
7 known as GTE Northwest Incorporated. The company recently changed its
8 name after the closure of the merger between its parent company, GTE
9 Corporation, and Bell Atlantic Corporation. The merged company is named
10 Verizon Communications.

11

12 **IN YOUR TESTIMONY HOW DO YOU USE THE TERMS "VERIZON" AND "GTE"?**

13 My fellow witnesses and I use "Verizon NW" to refer to Verizon Northwest, Inc., the
14 company that is a party to this proceeding and on whose behalf we are
15 testifying. I use "GTE" to refer to the former GTE companies, which are now
16 part of the Verizon Communications companies along with the former Bell
17 Atlantic companies. This will make clear that we are talking about cost studies
18 and inputs that have been developed by and for the GTE telephone operating
19 companies and about those companies' operations, practices and procedures.

20

21 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

22 A. The purpose of my testimony is to describe and sponsor ICM's Expense Module.

1 The expense module calculates (1) the capital cost factors and operating
2 expenses used to calculate the Total Element Long Run Incremental Costs
3 (“TELRICs”) of UNEs, and (2) the common costs. The Expense Module is
4 described more fully in the “ Model Methodology - Expense Module, Book VI of
5 VII” (Tab 2) of the ICM cost study and documentation binders or on the CD ROM
6 in file “SUPPORTING DOCUMENTATION \ ICM MANUALS \
7 WASHINGTONDOC4.1b \ MODEL METHODOLOGY \ EXPENSE
8 MODULE4.1b”.

9

10 **Q. WHAT FUNCTIONS DOES THE EXPENSE MODULE PERFORM?**

11 A. The Expense Module performs three basic functions:

12

13 First, it develops *capital cost factors* that convert the investments calculated in
14 the Loop, Switch, Transport, and SS7 Modules into annual charges. These
15 factors are a function of depreciation rates and rate of return. The module
16 develops separate capital cost factors for income and property taxes.

17

18 Second, it calculates the *operating expenses* associated with the network
19 components that are used to construct a network element. For example, the
20 cost of maintaining and repairing outside distribution plant such as a utility pole
21 is an operating expense associated with an unbundled loop. The Expense
22 Module calculates this expense, which becomes part of the TELRIC of the loop.

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Finally, the Expense Module calculates the forward-looking *common costs* incurred for all elements (or services) that are not attributable to any particular element or related group of elements.

CAPITAL COST FACTORS

Q. HOW DOES THE EXPENSE MODULE CALCULATE CAPITAL COST FACTORS?

A. First, the Expense Module calculates a “Depreciation and Return” factor that reflects the annual capital cost of a particular investment. For example, suppose the ICM’s Loop Module calculates the total long-run cost of purchasing and installing a two-wire loop in a given area to be \$1,531.23. (This is the same example used by Verizon NW Witness Kevin Collins in his phase B direct testimony.) This loop may have a useful life of 20 years and therefore, the total investment cost of the loop (\$1,531.23) should be recovered over this 20-year period. The Depreciation and Return factor calculates the annual charge needed to recover the total investment based on (1) how quickly the loop depreciates, which in our example is 20 years, and (2) the rate of return associated with the loop. In this way, the Depreciation and Return factor includes both a return *of* the total investment (the annual depreciation cost) and a return *on* the total investment (the rate of return). Inputs to the rate of return

1 calculation are based on the Washington Commission ordered rates. The
2 formula for this factor is set forth on page 37 of the “ Model Methodology -
3 Expense Module, Book VI of VII” (Tab 2) of the ICM cost study and
4 documentation binders or on the CD ROM file folder “SUPPORTING
5 DOCUMENTATION \ ICM MANUALS \ WASHINGTONDOC4.1b \ MODEL
6 METHODOLOGY \ EXPENSE MODULE4.1b”.

7
8 In Verizon NW Witness Kevin Collin’s example, the Depreciation and Return
9 charge associated with the \$1,531.23 two-wire loop investment is \$204.11. In
10 other words, if the owner of the network receives \$204.11 each year over the
11 estimated life of the loop, it will recover the total long-run investment cost of the
12 loop (\$1,531.23) plus a reasonable return. Again, the Depreciation and Return
13 charge will vary depending on the depreciation lives and cost of capital that are
14 put into the model. The Washington Commission ordered depreciation lives and
15 rate of return of 9.76% were used in this filing.

16
17 Finally, the Expense Module calculates separate composite income tax and
18 property tax factors associated with each investment. The Expense Module’s
19 “Composite Income Tax Factor” reflects statutory state and federal income tax
20 rates, and the formula used to create this factor is shown on page 38 of the
21 “Model Methodology - Expense Module, Book VI of VII” (Tab 2) of the ICM cost
22 study and documentation binders or on the CD ROM file folder “SUPPORTING

1 DOCUMENTATION \ ICM MANUALS \ WASHINGTONDOC4.1b \ MODEL
2 METHODOLOGY \ EXPENSE MODULE4.1b”. The “Property Tax” factor
3 reflects the ratio of Verizon NW's current annual property tax expense to the
4 current gross taxable plant balances.

5

6 **Q. ARE THESE CAPITAL COST CALCULATIONS REFLECTED IN ICM'S**
7 **OUTPUT REPORTS?**

8 A. Yes. ICM captures these capital costs (and all operating expenses, which
9 are discussed later in my testimony) and reports them in seven categories. The
10 following is an example of ICM's UNE Report for a two-wire loop, which is the
11 same example used by Verizon NW Witness Kevin Collins:

12

13 Network 14 Element	Investment	Deprec. And Return	Composite Inc. Tax	Property Tax	Maint. and Support	Marketing	B/C and Directory	TELRIC
15 16 two-wire 17 loop 18	1531.23	204.11	33.26	14.08	62.33	5.74	0.00	26.63

19 The Investment column shows the total investment cost associated with the two-
20 wire loop (\$1,531.23). The Depreciation and Return column shows the annual capital
21 charge necessary to recover the total loop investment, which, as discussed above,
22 includes both a return of and a return on the total investment (\$204.11). The Composite
23 Income Tax and Property Tax columns reflect the annual state and federal income taxes
24 and property taxes associated with the loop.

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OPERATING EXPENSES

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10 **Q. WHAT ARE OPERATING EXPENSES?**

11 A. Operating expenses are, in large part, the recurring expenses associated with
12 maintaining, repairing, and supporting the local network. For example, when
13 Verizon NW buys a utility pole, it incurs the cost of purchasing and installing the
14 pole. This is a *capital cost*, and the capital carrying cost is reflected in the
15 Depreciation and Return factor discussed above. But once the pole is installed, it
16 must be maintained and repaired. The costs of maintaining or repairing the pole are
17 called *operating expenses*, and these expenses are calculated by ICM's Expense
18 Module. The operating expenses associated with a particular UNE is captured in the
19 TELRIC of that UNE, as shown in the illustration above.

20

21 **Q. HOW DOES THE EXPENSE MODULE CALCULATE FORWARD-**
22 **LOOKING OPERATING EXPENSES?**

1 A. Operating expenses are calculated using two separate but interrelated costing
2 methodologies: the cost pool methodology and the Activity Based Cost (“ABC”)
3 methodology. The total annual operating expenses calculated by these
4 methodologies are reported in the “Maintenance and Support”, “Marketing”, and
5 “B/C and Directory” columns of ICM’s UNE Report.

6

7 **Q. PLEASE DESCRIBE THE COST POOL METHODOLOGY.**

8 A. The *cost pool methodology* develops a ratio of expenses to investment (the
9 “maintenance and support” factor) for each of the network cost pools, which reflect
10 different network functions or network components. These maintenance and support
11 factors are applied to the appropriate forward-looking investment costs calculated by
12 the Loop, Switch, Transport, and SS7 Modules to produce the annual operating
13 expenses associated with these investments.

14

15 For example, suppose we want to calculate the annual operating expenses associated
16 with a utility pole. To do this, we would apply the maintenance and support factor
17 of the appropriate cost pool – in this example, the “Pole” cost pool – to the
18 investment cost of the pole as calculated by the Loop Module. The operating
19 expenses for a given UNE (e.g., a two-wire loop) is simply the sum of the operating
20 expenses of each network component needed for that UNE.

21

1 **Q. HOW DOES ICM DEVELOP COST POOLS AND CALCULATE THE**
2 **MAINTENANCE AND SUPPORT FACTOR FOR EACH POOL?**

3 A. ICM develops cost pools and calculates the maintenance and support factors through
4 a thirteen-step process, which is illustrated in Exhibit JA-2, “The Cost Pool
5 Methodology Roadmap,” and explained on page 36 of the “ Model Methodology -
6 Expense Module, Book VI of VII” (Tab 2) of the ICM cost study and documentation
7 binders or on the CD ROM file folder “SUPPORTING DOCUMENTATION \ ICM
8 MANUALS \ WASHINGTONDOC4.1b \ MODEL METHODOLOGY \ EXPENSE
9 MODULE4.1b”.

10

11 In general, however, the cost pool methodology can be distilled to three principal
12 steps: First, the Company created twenty-one separate cost pools based on existing
13 ARMIS classifications and internal work center classifications. Second, it assigns
14 forward-looking operating expenses and forward-looking investments to each cost
15 pool (e.g., the “Pole” cost pool reflects the annual expenses and total investment
16 associated with utility poles). These forward-looking expenses and costs are based,
17 in part, on adjusted 1998 ARMIS cost data. Third, it calculates the maintenance and
18 support factor for each pool by dividing the annual expenses by the total investment
19 cost.

20

21 **Q. PLEASE EXPLAIN THE DEVELOPMENT OF THE COST POOLS.**

22 A. The Company developed cost pools by grouping network functions and network

1 components into logical categories that reflect the actual operation of a local network.
2 It began this process by examining the GTE annual ARMIS Joint Cost Report (43-
3 03), which reflects the real-world costs needed to maintain and support a local
4 network. These costs are segregated into individual FCC Part 32 accounts in the
5 ARMIS Report. Part 32 utilizes separate accounts for investments and expenses. For
6 example, there are separate investment and expense accounts for “Poles,” “Digital
7 Electronic Switching” and “Underground Cable.”

8
9 The Company also examines its operating expenses at the internal work center level
10 of detail, which track and report expenses in much greater detail than that available
11 at the ARMIS expense account level. In fact, there are about 1,300 GTE operating
12 expense work centers, as compared to about 50 ARMIS Part 32 expense accounts.

13
14 After reviewing all this data, the Company created 21 cost pools, which are listed on
15 pages 33 to 35 of the “ Model Methodology - Expense Module, Book VI of VII” (Tab
16 2) of the ICM cost study and documentation binders or on the CD ROM file folder
17 “SUPPORTING DOCUMENTATION \ ICM MANUALS \
18 WASHINGTONDOC4.1b \ MODEL METHODOLOGY \ EXPENSE
19 MODULE4.1b”. These pools group network functions and network components into
20 logical categories that reflect the actual operation of a local network. For example,
21 there are separate cost pools for Cable, Poles, Conduit, Aerial Non-Metallic
22 Facilities, Aerial Metallic Facilities, Transmission, Switching, and Access.

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Q. HOW DID THE COMPANY CALCULATE AND ASSIGN FORWARD-LOOKING OPERATING EXPENSES TO EACH COST POOL?

A. Forward-looking expenses were calculated and assigned as follows:

First, the Company reviewed the annual expenses reported in the GTE ARMIS Joint Cost Report (43-03), which reflects the real-world expenses needed to maintain and support a local network. The Company made several accounting normalization adjustments to this data for each Part 32 account to develop its “baseline” ARMIS data.

Second, the Company mapped this adjusted ARMIS expense data to the cost pools using the more granular work center data as a guide. The annual expenses captured in a given pool serve as the *numerator* for that cost pool’s maintenance and support factor.

Third, the Company made three categories of adjustments to the baseline ARMIS data: (1) Removal of all the costs that are captured in other Verizon NW cost studies (e.g., the Verizon NW NRC Study); (2) Removal of all the costs captured by the ABC methodology; and (3) Removal of all costs reported in ARMIS that are not related to forward-looking investment (e.g., analog switch expenses).

1 **Q. HOW DID THE COMPANY CALCULATE AND ASSIGN FORWARD-**
2 **LOOKING INVESTMENT COSTS TO EACH COST POOL?**

3 A. The Company used the forward-looking investment costs produced by ICM’s Loop,
4 Switch, Transport, and SS7 Modules, and assigned these costs to the 21 cost pools
5 in the same manner it assigned operating expenses. For example, if the Loop
6 Module’s total forward-looking investment cost of pole facilities is \$100x, then the
7 investment cost in the Pole cost pool – which serves as the *denominator* of that
8 pool’s maintenance and support factor – also is \$100x.

9
10 The Company calculates and assigns these forward-looking investment costs through
11 a three-step process: First, the Company reviewed the gross investment costs
12 reported in the GTE ARMIS Part 32 asset accounts and adjusted these costs to
13 remove non-forward-looking investments (e.g., analog switch investment). Second,
14 it applied a C.A. Turner index to each Part 32 account to adjust the average plant
15 balance, which is based on historical cost, to current reproduction cost (C.A. Turner
16 indices are available to the industry and are designed to allow a company to restate
17 current book investment amounts to current replacement values). Third, it applied
18 a calibration factor that converts the C.A. Turner amount to the forward-looking
19 investment cost produced by ICM’s Loop, Switch, Transport, and SS7 Modules.

20
21 **Q. WAS THIS PROCESS APPLIED TO ALL INVESTMENT COSTS?**

22 A. Yes, with one exception: the *investment costs* associated with “General Support

1 Facilities” are captured and treated as an annual *expense*.

2

3 General Support Facilities are facilities that support several different network
4 functions or components, such as motor vehicles, general-purpose computers, and
5 furniture. The investment costs of these facilities are reported in FCC Part 32
6 accounts 2111-2124, and the operating expenses associated with these facilities are
7 reported in FCC Part 32 accounts 6112-6124. ICM assigns General Support Facility
8 expenses to each cost pool, and includes in these expenses a “capital carrying cost”
9 that reflects the *investment cost* of each General Support asset. In this way, the total
10 annual expenses include the capital costs – expressed as an annual carrying charge
11 – of all General Support assets.

12

13 An example will help illustrate this calculation. Motor vehicle assets are General
14 Support assets that support many different network functions or components. The
15 investment costs associated with motor vehicles are reported in ARMIS asset account
16 2112, and the expenses are reported in ARMIS expense account 6112. These
17 investment costs (expressed as an annual capital carrying cost) and associated
18 expenses are assigned to cost pools based on relative use, e.g., if \$100x in motor
19 vehicle costs are attributable to central office zone technicians, then \$100x in cost is
20 assigned to the Switching cost pool. Again, the Company uses its more detailed
21 work center data to help assign these costs to the appropriate pools. The principal
22 point here, however, is that the investment costs of General Support Facilities are

1 captured as an annual expense. The Company treats these investment costs as
2 expenses to more accurately match the costs of General Support Facilities to the
3 network functions or components they support.

4

5 **Q. ARE THE COSTS OF THESE GENERAL SUPPORT FACILITIES**
6 **FORWARD-LOOKING?**

7 A. Yes. In developing these costs, the Company started with the gross investment costs
8 reported in its ARMIS Part 32 asset accounts. It then applied a C.A. Turner index
9 to each Part 32 General Support Asset account to adjust the gross book cost to a
10 forward-looking reproduction cost.

11

12 Again, neither ICM nor any other cost model calculates the forward-looking costs of
13 General Support Facilities such as motor vehicles, furniture, and computers, and
14 therefore Verizon NW develops these costs and assigns them to cost pools using the
15 methodology described above.

16

1 **Q. HOW DID THE COMPANY CALCULATE THE MAINTENANCE AND**
2 **SUPPORT FACTOR FOR EACH COST POOL?**

3 A. As I discussed earlier, the factor itself is simply the forward-looking expenses in each
4 cost pool divided by the forward-looking investment cost. This factor is applied to
5 the investment costs produced by ICM to arrive at the annual expenses. These annual
6 expenses are reported in the “Maintenance and Support” column of ICM’s UNE
7 Report.

8
9 **Q. PLEASE DESCRIBE THE ABC METHODOLOGY.**

10 A. The *ABC methodology* is based on special studies that (a) examine certain activities
11 performed by people and systems in each work center, and (b) determine more
12 precisely the network elements (or services) supported by these activities. This
13 activity-based approach allowed the costs of certain activities to be assigned with
14 even greater precision to the elements (or services) the activities support. The costs
15 captured by these ABC studies were excluded from the ARMIS reports used in the
16 cost pool methodology to ensure costs were not double-counted. Here again, the
17 Company developed its forward-looking expenses based on real-world activities and
18 costs, and mapped these expenses to the appropriate network components.

19

1 **Q. WHAT CATEGORIES OF EXPENSES DO THE ABC STUDIES CAPTURE?**

2 A. The ABC studies capture three categories of expenses: (1) billing, collection, and
3 directory expenses, which are reported in a separate column of ICM’s UNE Report;
4 (2) sales, marketing, and advertising expenses, which also are reported in a separate
5 column of the UNE Report; and (3) service assurance expenses (e.g., expenses
6 related to monitoring, maintaining and repairing network operations), which are
7 reported in the “Maintenance and Support” column of the UNE Report. (In other
8 words, the annual expense charge reported in the Maintenance and Support column
9 reflects two sets of expenses: the maintenance and support expenses calculated by the
10 cost pool methodology, and the service assurance expenses calculated by the ABC
11 methodology.)

12
13 **Q. PLEASE SUMMARIZE HOW THE EXPENSE MODULE CALCULATES**
14 **AND REPORTS THE ANNUAL OPERATING EXPENSES ASSOCIATED**
15 **WITH EACH UNE.**

16 A. Each UNE includes several components. For example, the two-wire loop UNE may
17 consist of utility poles, conduit, aerial copper distribution facilities, and buried fiber
18 feeder facilities. The Expense Module calculates the annual expenses for each
19 component through two separate but interdependent methodologies: the cost pool
20 methodology, which calculates expenses based on the ratio of forward-looking
21 expenses to forward-looking investment; and the ABC methodology, which relies on
22 several studies that track expenses associated with certain activities. The sum of the

1 annual expenses of each component equals the total annual expenses for the UNE
2 being studied. These expenses are reported by ICM in three separate categories:
3 “Maintenance and Support,” “Marketing,” and “B/C and Directory.”

4

5 **Q. DOES THIS CONCLUDE YOUR PHASE B DIRECT TESTIMONY?**

6 A. Yes.