

ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Investigation into Pricing of)
Unbundled Network Elements, Phase II) Docket No. 990649-TP
)

DIRECT TESTIMONY OF

MICHAEL R. NORRIS

ON BEHALF OF

GTE FLORIDA INCORPORATED

OPERATING EXPENSES, TAXES AND COMMON COSTS

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DIRECT TESTIMONY
OF
MICHAEL R. NORRIS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Michael R. Norris. My business address is 600 Hidden Ridge Drive, Irving, Texas, 75038.

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

A. I am employed by GTE Service Corporation as a Manager - Cost Models and Methods Development. In this capacity, I am responsible for developing cost models, methodology and analysis.

Q. BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I received a Master of Business Administration degree from Southern Illinois University - Edwardsville in 1988 and a Bachelor of Science degree in Business Administration from Lindenwood College. I began my telecommunications career as a Staff Engineer with Contel in 1969. I became a GTE employee in 1991, when the companies merged. During my career, I have held various positions dealing with capital recovery, rate design, tariff development, toll settlements and cost studies, rate case preparation, regulatory accounting, and strategic planning. I accepted my current position in May 1997.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY STATE OR**
2 **FEDERAL REGULATORY COMMISSIONS?**

3 A. I have sponsored testimony before the state utility commissions of
4 Arkansas, California, Florida, Hawaii, Indiana, Michigan, New Mexico,
5 Oklahoma, South Carolina, Texas and Washington.

6
7 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

8 A. The purpose of my testimony is to describe and sponsor ICM's
9 Expense Module. My testimony also addresses issues 7(d), 7(t) and
10 7(u) of the Florida Staff issue list. The expense module calculates (1)
11 the capital cost factors and operating expenses used to calculate the
12 TELRICs of UNEs, and (2) the common costs used by GTE witness
13 Dennis Trimble to calculate UNE prices. The Expense Module is
14 described more fully in Exhibit DGT-3, Book VI.

15
16 **Q. WHAT FUNCTIONS DOES THE EXPENSE MODULE PERFORM?**

17 A. The Expense Module performs three basic functions:

18
19 First, it develops *capital cost factors* that convert the investments
20 calculated in the Loop, Switch, Transport, and SS7 Modules into
21 annual charges. These factors are a function of depreciation rates
22 and rate of return. The module develops separate capital cost factors
23 for income and property taxes.

24
25 Second, it calculates the *operating expenses* associated with the

1 network components that are used to construct a network element.
2 For example, the cost of maintaining and repairing outside distribution
3 plant such as a utility pole is an operating expense associated with an
4 unbundled loop. The Expense Module calculates this expense, which
5 becomes part of the TELRIC of the loop.

6
7 Finally, the Expense Module calculates the forward-looking *common*
8 *costs* incurred for all elements (or services) that are not attributable
9 to any particular element or related group of elements.

10

11

I. CAPITAL COST FACTORS

12

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

14

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

1 return of the total investment (the annual depreciation cost) and a
2 return on the total investment (the rate of return). Inputs to the rate of
3 return calculation are provided for in GTE witness Gregory Jacobson's
4 testimony. The formula for this factor is set forth in Exhibit DGT-3,
5 Book VII, at page 7-40.

6
7 In Mr. Tucek's example, the Depreciation and Return charge
8 associated with the \$1,531.23 two-wire loop investment is \$204.11.
9 In other words, if the owner of the network receives \$204.11 each
10 year over the estimated life of the loop, it will recover the total long-run
11 investment cost of the loop (\$1,531.23) plus a reasonable return.
12 Again, the Depreciation and Return charge will vary depending on the
13 depreciation lives and cost of capital that are put into the model. GTE
14 witness Allen Sovereign discusses GTE's forward-looking
15 depreciation lives, and GTE witness Gregory Jacobson discusses
16 GTE's forward-looking rate of return.

17
18 Finally, the Expense Module calculates separate composite income
19 tax and property tax factors associated with each investment. The
20 Expense Module's "Composite Income Tax Factor" reflects statutory
21 state and federal income tax rates, and the formula used to create
22 this factor is shown in Exhibit DGT-3, Book VII, at page 7-41. The
23 "Property Tax" factor reflects the ratio of GTE's current annual
24 property tax expense to the current gross taxable plant balances.

25

1 Q. ARE THESE CAPITAL COST CALCULATIONS REFLECTED IN
2 ICM'S OUTPUT REPORTS?

3 A. Yes. ICM captures these capital costs (and all operating expenses,
4 which are discussed later in my testimony) and reports them in seven
5 categories. Following is an example of ICM's UNE Report for a two-
6 wire loop, which is the same example used by Mr. Tucek:

7

8 <u>Network</u>	<u>Investment</u>	<u>Deprec.</u>	<u>Composite</u>	<u>Property</u>	<u>Maint. &</u>	<u>Marketing</u>	<u>B/C and</u>	<u>TELRIC</u>
<u>Element</u>		<u>& Return</u>	<u>Inc. Tax</u>	<u>Tax</u>	<u>Support</u>		<u>Directory</u>	
9 2-wire loop	1531.23	204.11	33.26	14.08	62.33	5.74	0.00	26.63

10

11 The Investment column shows the total investment cost associated
12 with the two-wire loop (\$1,531.23). The Depreciation and Return
13 column shows the annual capital charge necessary to recover the
14 total loop investment, which, as discussed above, includes both a
15 return *of* and a return *on* the total investment (\$204.11). The
16 Composite Income Tax and Property Tax columns reflect the annual
17 state and federal income taxes and property taxes associated with the
18 loop.

19

20 In addition to these capital costs, ICM also reports the *operating*
21 *expenses* associated with the two-wire loop and other UNEs. These
22 expenses are calculated and reported based on three general
23 categories: "Maintenance and Support," "Marketing," and "Billing,
24 Collection and Directory." The following section of my testimony
25 explains how these expenses are calculated.

1 **II. OPERATING EXPENSES**

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

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

14
15 **Q. HOW DOES THE EXPENSE MODULE CALCULATE FORWARD-
16 LOOKING OPERATING EXPENSES?**

17 A. Operating expenses are calculated using two separate but interrelated
18 costing methodologies: the cost pool methodology and the Activity-
19 Based Cost (ABC) methodology. The total annual operating
20 expenses calculated by these methodologies are reported in the
21 "Maintenance and Support," "Marketing," and "B/C and Directory"
22 columns of ICM's UNE Report.

23
24 **Q. PLEASE DESCRIBE THE COST POOL METHODOLOGY.**

25 A. The *cost pool methodology* develops a ratio of expenses to

1 investment (the “maintenance and support” factor) for each of the
2 network cost pools, which reflect different network functions or
3 network components. These maintenance and support factors are
4 applied to the appropriate forward-looking investment costs calculated
5 by the Loop, Switch, Transport, and SS7 Modules to produce the
6 annual operating expenses associated with these investments.

7
8 For example, suppose we want to calculate the annual operating
9 expenses associated with a utility pole. To do this, we would apply
10 the maintenance and support factor of the appropriate cost pool – in
11 this example, the “Pole” cost pool – to the investment cost of the pole
12 as calculated by the Loop Module. The operating expenses for a
13 given UNE (e.g., a two-wire loop) are simply the sum of the operating
14 expenses of each network component needed for that UNE.

15
16 **Q. HOW DOES ICM DEVELOP COST POOLS AND CALCULATE THE**
17 **MAINTENANCE AND SUPPORT FACTOR FOR EACH POOL?**

18 A. ICM develops cost pools and calculates the maintenance and support
19 factors through a thirteen-step process, which is illustrated in Exhibit
20 MRN-1, “The Cost Pool Methodology Roadmap,” and explained in
21 Exhibit DGT-3, Book VI.

22
23 In general, however, the cost pool methodology can be distilled to
24 three principal steps: First, GTE creates twenty-one separate cost
25 pools based on existing ARMIS classifications and GTE’s internal

1 work center classifications. Second, GTE assigns forward-looking
2 operating expenses and forward-looking investments to each cost
3 pool (e.g., the "Pole" cost pool reflects the annual expenses and total
4 investment associated with utility poles). These forward-looking
5 expenses and costs are based, in part, on adjusted 1998 ARMIS cost
6 data. Third, GTE calculates the maintenance and support factor for
7 each pool by dividing the annual expenses by the total investment
8 cost.

9
10 **Q. PLEASE EXPLAIN HOW GTE DEVELOPED ITS COST POOLS.**

11 **A.** GTE developed cost pools by grouping network functions and network
12 components into logical categories that reflect the actual operation of
13 a local network. GTE began this process by examining its annual
14 ARMIS Joint Cost Report (43-03), which reflects the real-world costs
15 needed to maintain and support a local network. These costs are
16 segregated into individual FCC Part 32 accounts in the ARMIS
17 Report. Part 32 utilizes separate accounts for investments and
18 expenses. For example, there are separate investment and expense
19 accounts for "Poles," "Digital Electronic Switching" and "Underground
20 Cable ."

21
22 GTE also examines its operating expenses at the internal work center
23 level of detail, which tracks and reports expenses in much greater
24 detail than that available at the ARMIS expense account level. In fact,
25 GTE has about 1,300 operating expense work centers, as compared

1 to about 50 ARMIS Part 32 expense accounts.

2

3 After reviewing all this data, GTE created 21 cost pools, which are
4 listed in Exhibit DGT-3, Book VI, at pages 7-36 to 7-38. These pools
5 group network functions and network components into logical
6 categories that reflect the actual operation of a local network. For
7 example, there are separate cost pools for Cable, Poles, Conduit,
8 Aerial Non-Metallic Facilities, Aerial Metallic Facilities, Transmission,
9 Switching, and Access. There are also separate cost pools for
10 common costs, which I discuss in Part III of my testimony.

11

12 **Q. HOW DID GTE CALCULATE AND ASSIGN FORWARD-LOOKING**
13 **OPERATING EXPENSES TO EACH COST POOL?**

14 A. Forward-looking expenses were calculated and assigned as follows:
15 First, GTE reviewed the annual expenses reported in its ARMIS Joint
16 Cost Report (43-03), which reflects the real-world expenses needed
17 to maintain and support a local network. GTE made several
18 accounting normalization adjustments to this data for each Part 32
19 account to develop its “baseline” ARMIS data.

20

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

25

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

7

8 **Q. HOW DID GTE CALCULATE AND ASSIGN FORWARD-LOOKING**
9 **INVESTMENT COSTS TO EACH COST POOL?**

10 A. GTE used the forward-looking investment costs produced by ICM’s
11 Loop, Switch, Transport, and SS7 Modules, and assigned these costs
12 to the 21 cost pools in the same manner it assigned operating
13 expenses. For example, if the Loop Module’s total forward-looking
14 investment cost of pole facilities is \$100x, then the investment cost in
15 the Pole cost pool – which serves as the *denominator* of that pool’s
16 maintenance and support factor – also is \$100x.

17

18 GTE calculates and assigns these forward-looking investment costs
19 through a three-step process: First, GTE reviewed the gross
20 investment costs reported in its ARMIS Part 32 asset accounts and
21 adjusted these costs to remove non-forward-looking investments
22 (e.g., analog switch investment). Second, GTE applied a C.A. Turner
23 index to each Part 32 account to adjust the average plant balance,
24 which is based on historical cost, to current reproduction cost (C.A.
25 Turner indices are available to the industry and are designed to allow

1 a company to restate current book investment amounts to current
2 replacement values). Third, GTE applied a calibration factor that
3 converts the C.A. Turner amount to the forward-looking investment
4 cost produced by ICM's Loop, Switch, Transport, and SS7 Modules.

5

6 **Q. DID GTE APPLY THIS PROCESS TO ALL INVESTMENT COSTS?**

7 A. Yes, with one exception: the *investment costs* associated with
8 "General Support Facilities" are captured and treated as an annual
9 *expense*.

10

11 General Support Facilities are facilities that support several different
12 network functions or components, such as motor vehicles, general
13 purpose computers, and furniture. The investment costs of these
14 facilities are reported in FCC Part 32 accounts 2111-2124, and the
15 operating expenses associated with these facilities are reported in
16 FCC Part 32 accounts 6112-6124. ICM assigns General Support
17 Facility expenses to each cost pool, and includes in these expenses
18 a "capital carrying cost" that reflects the *investment cost* of each
19 General Support asset. In this way, the total annual expenses include
20 the capital costs – expressed as an annual carrying charge – of all
21 General Support assets.

22

23 An example will help illustrate this calculation. Motor vehicle assets
24 are General Support assets that support many different network
25 functions or components. The investment costs associated with

1 motor vehicles are reported in ARMIS asset account 2112, and the
2 expenses are reported in ARMIS expense account 6112. These
3 investment costs (expressed as an annual capital carrying cost) and
4 associated expenses are assigned to cost pools based on relative
5 use, e.g., if \$100x in motor vehicle costs are attributable to central
6 office zone technicians, then \$100x in cost is assigned to the
7 Switching cost pool. Again, GTE uses its more detailed work center
8 data to help assign these costs to the appropriate pools. The
9 principal point here, however, is that the investment costs of General
10 Support Facilities are captured as an annual expense. GTE treats
11 these investment costs as expenses to more accurately match the
12 costs of General Support Facilities to the network functions or
13 components they support.

14

15 **Q. ARE THE COSTS OF THESE GENERAL SUPPORT FACILITIES**
16 **FORWARD-LOOKING?**

17 A. Yes. In developing these costs, GTE started with the gross
18 investment costs reported in its ARMIS Part 32 asset accounts. GTE
19 then applied a C.A. Turner index to each Part 32 General Support
20 Asset account to adjust the gross book cost to a forward-looking
21 reproduction cost.

22

23 Again, neither ICM nor any other cost model calculates the forward-
24 looking costs of General Support Facilities such as motor vehicles,
25 furniture, and computers, and therefore GTE develops these costs

1 and assigns them to cost pools using the methodology described
2 above.

3

4 **Q. HOW DID GTE CALCULATE THE MAINTENANCE AND SUPPORT**
5 **FACTOR FOR EACH COST POOL?**

6 A. As I discussed earlier, the factor itself is simply the forward-looking
7 expenses in each cost pool divided by the forward-looking investment
8 cost. This factor is applied to the investment costs produced by ICM
9 to arrive at the annual expenses. These annual expenses are
10 reported in the "Maintenance and Support" column of ICM's UNE
11 Report.

12

13 **Q. PLEASE DESCRIBE THE ACTIVITY-BASED COSTING (ABC)**
14 **METHODOLOGY.**

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

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

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

15

16 **Q. PLEASE SUMMARIZE HOW THE EXPENSE MODULE**
17 **CALCULATES AND REPORTS THE ANNUAL OPERATING**
18 **EXPENSES ASSOCIATED WITH EACH UNE.**

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

1 methodology, which relies on several studies that track expenses
2 associated with certain activities. The sum of the annual expenses of
3 each component equals the total annual expenses for the UNE being
4 studied. These expenses are reported by ICM in three separate
5 categories: "Maintenance and Support," "Marketing," and "B/C and
6 Directory."

7

8

III. COMMON COSTS

9 **Q. WHAT ARE COMMON COSTS?**

10 A. As Mr. Trimble explains, common costs are costs that cannot be directly
11 assigned to a particular network function or component. For this reason,
12 common costs are not reflected in the TELRIC of UNEs. Mr. Trimble's
13 testimony also details the recovery of common costs.

14

15 **Q. HOW DOES GTE CALCULATE ITS FORWARD-LOOKING COMMON
16 COSTS?**

17 A. GTE calculates common costs as part of its cost pool process. There are
18 three categories of cost pools that reflect common costs: (1) the billing
19 and collection cost pool; (2) the lines of business cost pools (consumer,
20 business, and carrier); and (3) the common cost pool. The sum of the
21 costs in each of these pools equals GTE's total forward-looking common
22 costs.

23

24 Again, the cost pool process begins with the costs captured in GTE's
25 ARMIS Report. These costs are adjusted to eliminate costs that are not

1 forward-looking and to include costs that are. GTE's calculations are
2 shown in detail in Binder12, Tab 23; Binder 13, Tab 24; and Binder 14,
3 Tabs 25 through Tabs 29.

4

5 **Q. WHAT ARE GTE'S TOTAL FORWARD-LOOKING COMMON COSTS?**

6 A. GTE's total common costs are \$192.3 million per year, as shown on
7 page 29 010 in Binder 14. Mr. Trimble allocates these common costs
8 to specific UNEs to arrive at the total monthly recurring charge for each
9 UNE.

10

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

12 A. Yes.

13

14

15

16

17

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Expense Module

Cost Pool Methodology Road Map

(1) ARMIS Data

- (2)** •Adjustments to ARMIS:
 - Normalization Entries
 - Clearing Acct Redistribution

(3) Adjusted ARMIS Data

(4) Assignment of Cost

6XXXXX
Work Center

----- **Cost Pools** (21) -----

Cable	OSP Pools, Aerial, Buried, Switch, etc.	Other Direct	Special Studies, Operator, Access, etc	Common
-------	---	--------------	--	--------

Dollars

(5) Cost Pool Fractions

Pool Fractions = Expense Cost Pool amount / Expense Account Balance total

2XXXXX

Dollars

Adjustments to Cost

	<u>Adjust 1</u>	<u>Adjust 2</u>	<u>Adjust 3</u>	(7)	(8)						
6XXXXX	Avoided Cost (wholesale)	ABC	Account Elimination	=	Adjusted Expense Amount	+	General Support Expense	x	Cost Pool Fractions	=	Expense Cost Pool Amount
plus / less:	B & C									+	Direct Other Distribution
	NRC									+	Cable Pool Distribution
	Directory / RTU									=	Total Expense by Cost Pool
	etc.										(9)
											(10)

(11)

2XXXXX	C.A. Tumer Indices	Account Elimination	=	Adjusted Investment Balance						
times:		Calibration Factor								
								÷	Adjusted Investment Balance	(12)
								=	(Expense to Investment) Factors	(13)