

**BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION
COMMISSION**

**IN THE MATTER OF THE CONTINUED)
COSTING AND PRICING PROCEEDING)
FOR INTERCONNECTION, UNBUNDLED) DOCKET NO. UT- 003013
ELEMENTS, TRANSPORT AND)
TERMINATION, AND RESALE)**

DIRECT TESTIMONY OF

JAMES J. CALLANAN, JR.

CONSULTANT

ON BEHALF OF

GTE NORTHWEST, INC.

SUBJECT: COLLOCATION COST STUDY METHODOLOGY

MAY 19, 2000

TABLE OF CONTENTS

I. INTRODUCTION 1

II. PURPOSE OF TESTIMONY 3

III. GTE'S EIS STUDY COMPLIES WITH FCC AND WUTC REQUIREMENTS. 4

IV. STUDY OVERVIEW 11

V. THE EIS STUDY METHODOLOGY 14

VI. STUDY RESULTS 18

VII. SUMMARY 19

1 **I. INTRODUCTION**

2

3 **Q. PLEASE STATE YOUR NAME, EMPLOYER AND BUSINESS ADDRESS.**

4 A. My name is James J. Callanan, Jr. I am employed by Network Engineering
5 Consultants Inc. ("NECI"), working on behalf of their client, GTE Northwest
6 Incorporated ("GTE"). My work location is 5 Cabot Place, Suite 3, Stoughton,
7 Massachusetts 02072.

8

9 **Q. PLEASE STATE THE CAPACITY IN WHICH YOU ARE EMPLOYED**
10 **AND YOUR QUALIFICATIONS.**

11 A. I am a consultant specializing in telecommunications cost analysis. Prior to
12 becoming a consultant, I was employed for over twenty-four years by New
13 England Telephone and NYNEX Corporation, now part of Bell Atlantic. I began
14 my employment at Bell Atlantic in the network department. After this initial
15 assignment, I held positions in forecasting and computer operations. I then spent
16 six years in the revenue matters department designing, implementing and
17 analyzing cost of service studies. My next responsibility was supervising the
18 conversion and testing of a large computer system used for Yellow Pages
19 Directory operations, marketing and billing. I then directed groups that provided
20 demand and revenue requirement forecasts for Annual Filings with the Federal
21 Communications Commission ("FCC"), pricing analyses for access services,

1 revenue budget forecasts and analyses, and product management functions. My
2 next position was in process reengineering, where I supervised a group of project
3 managers developing a large-scale information system. Since leaving Bell
4 Atlantic, I have worked as a telecommunications consultant providing regulatory,
5 forecasting, pricing and project management services.
6

7 **Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND.**

8 A. I received a Bachelor of Liberal Studies from Boston University in 1973. My
9 major field of study was economics. In 1975, I received a Master of Urban
10 Affairs from Boston University. I also attended numerous Bell System and Bell
11 Atlantic courses and seminars on forecasting, economics, product management,
12 separations, and new technologies.
13

14 **Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE ANY REGULATORY**
15 **COMMISSIONS?**

16 A. Yes. I testified on behalf of Bell Atlantic on cost of service studies before the
17 Vermont Public Service Board and the Maine Public Utilities Commission. I
18 also testified on behalf of Pacific Bell before the California Public Utilities
19 Commission on resale costs.
20

1
2
3
4
5
6
7
8
9
10
11
12
13
14

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I am a joint sponsor of GTE's Expanded Interconnection Services Cost Study ("EIS Study" or "study"). My testimony includes an explanation of how GTE's EIS Study complies with Washington Utilities and Transportation Commission (the "Commission" or "WUTC") and FCC Total Element Long Run Incremental Cost ("TELRIC") and other regulatory requirements. In support of this explanation, I have provided an overview of the study, the methodology used to develop the costs, and the results of the study. In his testimony, GTE witness Larry Richter reviews the study inputs as well as the technical aspects of provisioning collocation service.

1 **III. GTE'S EIS STUDY COMPLIES WITH FCC AND WUTC**
2 **REQUIREMENTS**

3
4 **Q. PLEASE DESCRIBE THE FCC ORDERS AS THEY RELATE TO**
5 **COLLOCATION COSTS.**

6 A. The FCC promoted competition through interconnection and collocation for a
7 number of years prior to the Telecommunications Act of 1996 (the "Act").¹ Since
8 the passage of the Act on February 8, 1996, the FCC has issued several orders
9 involving collocation that contain additional cost requirements. In the First
10 Report and Order ("Local Competition Order") released August 8, 1996, the FCC
11 stated that "[w]e conclude that we should adopt explicit national rules to
12 implement the collocation requirements of the 1996 Act."² Other collocation
13 rulings include the Second Report and Order in Docket No. 93-162 (the "Physical
14 Collocation Order") released June 13, 1997³, and more recently, the FCC Order
15 in Docket 98-147 (the "Advanced Services Order" or "ASO") released March 31,

¹One of the first orders was the *Special Access Expanded Interconnection Order* in 1992. This was followed by the *Switched Transport Expanded Interconnection Order* in 1993 and the *Virtual Collocation Order* in 1994. These orders were all issued prior to passage of the Act.

²FCC First Report and Order, In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98, and In the Matter of Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, CC Docket No. 95-185, released August 8, 1996, paragraph 558.

³FCC Second Report and Order, In the Matter of Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection Through Physical Collocation for Special Access and Switched Transport, CC Docket No. 93-162, released June 13, 1997.

1 1999.⁴ A number of these FCC Orders were appealed successfully in federal
2 courts, causing certain FCC rules to be vacated and remanded back to the agency.
3 For example, the United States Court of Appeals for the District of Columbia
4 Circuit vacated portions of the Advanced Services Order and remanded them back
5 to the FCC.⁵

6
7 **Q. WHAT IMPACT HAVE THE FCC ORDERS AND THE COURT**
8 **DECISIONS HAD ON COLLOCATION ARRANGEMENTS AND**
9 **COLLOCATION COSTS?**

10 A. The Act and multiple FCC Orders, court decisions, and interconnection
11 agreements between the ILECs and CLECs have all had significant impacts on
12 collocation by increasing both the types and the number of collocation
13 arrangements. The impacts have carried over to cost development as well, since
14 both new forms of collocation and changes to existing forms require changes in
15 cost development. Each decision has modified the previous requirements, causing
16 constant change on this issue. GTE, in order to comply with these rulings, has
17 updated and modified its collocation studies on several occasions.

18

⁴ FCC First Report and Order and FNPRM, In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, released March 31, 1999.

⁵GTE Serv. Corp. v. Fed. Communications Comm'n, 205 F.3d 416 (D.C. Cir. 2000) (“D.C. Circuit Court Ruling”).

1 **Q. PLEASE DESCRIBE THE COLLOCATION COST REQUIREMENTS**
2 **THAT WERE CREATED BY THE ADVANCED SERVICES ORDER?**

3 A. The FCC ordered ILECs to make shared cage and cageless forms of collocation
4 available, and they further ordered that when collocation space is exhausted at a
5 particular location, ILECs must permit collocation in adjacent controlled
6 environmental vaults or similar structures to the extent technically feasible. In
7 turn, ILECs were allowed to adopt reasonable security measures to protect their
8 central office equipment. Although I am not a lawyer, the D.C. Circuit Court
9 Ruling appears to strengthen an ILEC's right to undertake reasonable security
10 measures to protect its own equipment. For example, the D.C. Circuit Court
11 Ruling found fault with certain prohibitions set by the FCC in the Advanced
12 Services Order:

13 nor is there any good explanation of why LECs are
14 forbidden from requiring competitors to use separate
15 entrances to access their own equipment; nor is there any
16 reasonable justification for the rule prohibiting LECs from
17 requiring competitors to use separate or isolated rooms or
18 floors.⁶
19

20 **Q. HAS THE WUTC ADOPTED A SET OF COSTING PRINCIPLES?**

21 A. Yes. Since the Act, the WUTC has adopted TELRIC costing principles in several
22 proceedings.⁷ The WUTC also requires costs to be "premised upon open,

⁶205 F.3d at 426.

⁷GTE's and U S WEST's arbitrations under the Act, in the Generic Cost docket, which was a follow-on proceeding intended to replace the "interim" rates set in the arbitrations

1 reliable, and economically sound cost models and cost inputs.”⁸ GTE's study
2 meets the WUTC's requirements, as discussed in the methodology section of my
3 testimony.

4
5 **Q. HAS THE WUTC ADDRESSED COLLOCATION IN ANY OF THESE**
6 **PROCEEDINGS?**

7 A. Yes. The WUTC considered cost and pricing issues arising out of arbitrations
8 held under the Act in Dockets UT-960369, UT-960370, and UT-960371. The
9 WUTC resolved many of the cost issues in “Phase I” of that consolidated docket
10 in the 8th Supplemental Order.⁹ In addressing cost methodology and costing
11 principles, the WUTC stated,

12 Economic cost models provide a useful analytical tool for
13 evaluating the reasonableness of rates. The models
14 presented in this proceeding were designed to estimate the
15 Total Element Long Run Incremental Cost (TELRIC). We
16 agree that this is the correct costing standard, and that the
17 cost estimates should be based upon the cost of satisfying
18 the total demand for elements rather than some lesser level
19 of incremental demand.¹⁰
20

21 Phase II of Dockets UT-960369, UT-960370, and UT-960371 addressed
22 collocation costs, nonrecurring costs and pricing for GTE and U S WEST. The

(Docket Numbers UT-960369, UT-960370, and UT-960371) and the Universal Service cost docket (Docket No. UT-980311 (a)).

⁸WUTC Eighth Supplemental Order in Docket Numbers UT-960369, UT-960370, and UT-960371, dated April 16, 1998, Para. 492.

⁹WUTC Eighth Supplemental Order in Docket Numbers UT-960369, etc.

¹⁰Ibid., Para. 38.

1 WUTC issued an Interim Phase II Pricing Order on August 30, 1999 (17th
2 Supplemental Order or Phase II Order), that adopted interim collocation rates
3 based on GTE's federal tariff, with certain modifications. As a result of the Order,
4 GTE made a compliance filing on November 15, 1999 to reflect WUTC Ordered
5 changes to GTE's costs and pricing including the removal of the costs of a
6 separate entrance from its existing cost studies and the resulting figures as interim
7 collocation prices pending resolution of collocation issues in Phase III of this
8 proceeding.¹¹ The prohibition against separate entrances in the Advanced
9 Services Order has been vacated and remanded to the FCC by the D.C. Circuit
10 Court.

11
12 **Q. DID THE WUTC ORDER GTE TO FILE A NEW COLLOCATION**
13 **STUDY?**

14 A. Yes. The WUTC, adopting GTE's recommendation, ordered "U S WEST and
15 GTE must file new collocation studies in Phase III in compliance with the FCC's
16 physical collocation order."¹² The WUTC also stated that

17 the Commission directs U S WEST and GTE to submit
18 testimony in Phase III of this proceeding regarding the
19 degree to which their studies comply and are consistent
20 with the FCC's ruling [in the Docket 98-147 Order, FCC
21 99-048], as well as with those aspects of the FCC's
22 *Physical Collocation Order* not superceded by FCC 99-

¹¹ WUTC Seventeenth Supplemental Order, Docket UT-960369, etc., dated August 30, 1999, Para. 530.

¹² *Ibid.*, Para. 531.

1 048. We require both U S WEST and GTE to submit
2 cageless collocation studies in Phase III.¹³
3

4 The Commission subsequently limited Phase III to address de-averaging of rates
5 established in Phase II, and initiated this proceeding to address, among other
6 issues, collocation.¹⁴
7

8 **Q. HAS GTE FILED A COST STUDY IN COMPLIANCE WITH THE PHASE**
9 **II ORDER?**

10 A. Yes. GTE filed its new Version 4 cost study on January 31, 2000 to reflect
11 changes made with the FCC on December 6, 1999. GTE subsequently modified
12 its FCC study and filed revised costs and rates with the FCC on April 14, 2000.
13 The FCC tariffs associated with this filing went into effect on April 29, 2000
14 without opposition. On April 28, 2000, GTE submitted an updated Washington
15 cost study as Version 5, under Advice No. 921, in order to be consistent with the
16 changes made in the federal filing. Version 5 results are also filed in the current
17 docket as Exhibit LR-2C and are summarized in Exhibit JJC-2C. GTE requests
18 that the WUTC replace the Version 4 EIS Study with the Version 5 EIS Study. A
19 comparison of Version 4 and Version 5 results is described in Section V of my
20 direct testimony and included as columns D, E and F in Exhibit JJC-2C. In both

¹³Ibid., Para. 281. It should be noted again here, however, that the prohibition against separate entrances in the Advanced Services Order has been vacated and remanded to the FCC.

¹⁴WUTC Eighteenth Supplemental and Nineteenth Supplemental Orders in Docket Numbers UT-960369, etc., dated November 1, 1999 and November 9, 1999, respectively.

1 cases, the January 31, 2000 EIS Study (Version 4) is compared to the May 19,
2 2000 EIS Study (Version 5).

3

4 **Q. IS GTE'S EIS STUDY IN COMPLIANCE WITH THE FCC'S AND THE**
5 **WUTC'S REQUIREMENTS?**

6 A. Yes. Table 1 below summarizes the FCC's and WUTC's requirements. GTE's
7 Version 4 and Version 5 EIS Studies meet all of these requirements.

Table 1
FCC and WUTC Cost Requirements

Item	Commission	Order	Cost Requirement
1	FCC	Advanced Services Order (3/31/99)	Shared, Cageless and Adjacent required; virtual not required
2	FCC	Advanced Services Order (3/31/99)	Security Arrangements specified
3	FCC	Advanced Services Order (3/31/99)	Space preparation cost allocation specified
4	WUTC	17 th Supplemental Order (Phase II) (8/30/99)	Remove separate entrance facility costs
5	WUTC	17 th Supplemental Order (Phase II) (8/30/99)	Submit testimony on degree that study meets Advanced Services Order Requirements
6	WUTC	17 th Supplemental Order (Phase II) (8/30/99)	Submit testimony on degree that study meets Physical collocation requirements not superceded by ASO
7	WUTC	17 th Supplemental Order (Phase II) (8/30/99)	Submit cageless studies

IV. STUDY OVERVIEW

Q. PLEASE PROVIDE AN OVERVIEW OF GTE'S EIS STUDY.

A. GTE's EIS Study analyzes collocation cost activities, grouping them on a cost element basis. The study is based on TELRIC principles. The TELRIC cost of a network element is the amount that GTE's cost will change in the long run using currently deployed technology due to an element being offered. In this context, "long run" simply means that all costs are variable.

1 **Q. PLEASE DESCRIBE THE TYPES OF COLLOCATION FOR WHICH**
2 **GTE DEVELOPED COSTS.**

3 A. Consistent with the FCC's requirements in the Advanced Services Order, the
4 Version 5 EIS Study addresses five forms of collocation – Single Cage, Shared
5 Cage, Subleased Cage, Cageless, and Adjacent collocation. A Competitive Local
6 Exchange Carrier ("CLEC") requesting collocation in a GTE central office will be
7 referred to as a collocator throughout this description. The five forms of
8 collocation studied by GTE can be grouped into three categories: caged, cageless,
9 and adjacent collocation.

10
11 **Q. PLEASE DESCRIBE CAGED COLLOCATION.**

12 There are three types of physical collocation that enable a CLEC to locate its own
13 equipment in a segregated portion of GTE's central office. These are Single
14 Cage, Shared Cage, and Subleased Cage. The cage is located in a secured area of
15 the central office, and the collocator has direct access to the collocation area to
16 install, maintain and repair its equipment. In the Single Cage form, a single
17 collocator occupies the cage. In a shared environment, two or more collocators
18 agree to share a caged area with one of the collocators considered the Host
19 collocator ("HC"). The other collocator(s) sharing the same area with the Host
20 collocator are referred to as Guest collocators ("GC"). Although GTE will
21 provide the HC with the prorated cage preparation, power and floor space cost
22 amounts for each CLEC, the HC is responsible for the collection of the cage-

1 related nonrecurring charges and for ordering and payment of all shared cage
2 charges ordered from GTE. Each collocator establishes a separate account with
3 GTE for Local Service Request activity to request UNEs. In the Sublease form, a
4 collocator determines that it has surplus space in its contracted cage space and
5 GTE agrees to permit the contracting HC to sublease the surplus space to the GC.
6

7 **Q. PLEASE DESCRIBE CAGELESS COLLOCATION.**

8 A. Cageless collocation is an arrangement (bay/relay rack or cabinet) utilizing an
9 area in a GTE central office with direct access to the collocation area for the
10 collocator(s) to install, maintain and repair its equipment. One or more
11 collocators may jointly occupy the Cageless collocation area.
12

13 **Q. PLEASE DESCRIBE ADJACENT COLLOCATION.**

14 A. Adjacent collocation is only utilized when no physical space exists in the
15 requested GTE central office for any of the other forms of collocation. Adjacent
16 collocation utilizes a separate structure on GTE's property in which the collocator
17 will install, repair and maintain its equipment. Access to GTE's central office is
18 not necessary in this case since all of the collocator's equipment is located in the
19 adjacent structure and the work the collocator performs related to interconnecting
20 to GTE's central office is completed there.
21

1 **V. THE EIS STUDY METHODOLOGY**

2
3 **Q. PLEASE DESCRIBE HOW COSTS WERE DEVELOPED FOR**
4 **COLLOCATION ACTIVITIES.**

5 A. All GTE work activities associated with collocation were identified, and these
6 were organized into cost elements. These elements were separated into
7 nonrecurring and recurring based on how the costs will be recovered. GTE
8 Witness Robert Tanimura addresses collocation cost recovery in his testimony.
9 The cost methodology used for each element is described in Exhibit JJC-2C to my
10 testimony and in the cost support attached to Mr. Larry Richter's testimony as
11 Exhibit LR-2C.

12
13 **Q. PLEASE DESCRIBE THE CHANGES THAT WERE MADE TO GTE'S**
14 **EIS STUDY (VERSION 5).**

15 A. GTE's EIS Study, Version 4, was filed on January 31, 2000. Version 5 is being
16 provided in the current filing as Exhibit LR-2C with a summary of the results and
17 methodology in Exhibit JJC-2C.

18
19 The EIS Study filed January 31, 2000 inadvertently calculated costs at a cost of
20 capital of 12.74%. The correct cost of capital of 9.76%, as authorized by the
21 WUTC, is used in the current filing. Version 5 results also reflect the replacement
22 of national GTE depreciation rates and other factors with Washington-specific

1 values, as well as several changes made to GTE's federal filing on April 14, 2000,
2 which went into effect unopposed on April 29, 2000. Several site preparation and
3 security items were deleted in Version 5, and the environmental conditioning cost
4 estimate was reduced and its recovery changed from nonrecurring to monthly
5 recurring. The recovery method of several costs associated with establishing a
6 cage was also changed from a nonrecurring basis to a recurring basis.

7
8 **Q. PLEASE DESCRIBE HOW THE EIS STUDY COST METHODOLOGY**
9 **CONFORMS TO TELRIC PRINCIPLES.**

10 A. TELRIC principles, as described in the Local Competition Order, state that the
11 study should be based on the entire quantity of the network element provided, that
12 all costs associated with providing the element should be included, and that long
13 run, currently deployed technology will be utilized. In this context, "long run"
14 simply means that all costs are variable.¹⁵ GTE's study follows TELRIC
15 principles by examining current collocation costs, which provide the best
16 indicator of the costs that GTE will incur to provide collocation on a forward-
17 looking basis.¹⁶

18

¹⁵Local Competition Order, Para. 690-692.

¹⁶The FCC agrees that in the context of collocation, "current costs ... approximate forward-looking costs...." In the Matter of GTE Telephone Operating Companies Transmittal No. 1234 Revisions to Tariff FCC No. 1, GTE Systems Telephone Companies Transmittal No. 304 Revisions to Tariff FCC No. 1, CC Docket No. 00-36 (rel. Feb. 28, 2000) ¶ 23.

1 **Q. PLEASE DISCUSS THE UNITS USED TO DEVELOP THE ELEMENT**
2 **COSTS.**

3 A. The GTE study presents cost results on a unit basis. Units are appropriate
4 measures related to each element, such as linear feet of cable or square feet of
5 floor space. This approach provides the pricing group with maximum flexibility
6 to create rate elements that respond to customer needs while permitting GTE to
7 recover its costs to provision collocation.

8

9 **Q. HOW DOES THE DEVELOPMENT OF FLOOR SPACE IN THE GTE EIS**
10 **MODEL MEET TELRIC AND WUTC STANDARDS?**

11 A. The average investment and cost per square foot of a sample of GTE central
12 offices located in the State of Washington served as the basis for the floor space
13 calculations. GTE recognizes the reality that collocation will occur in buildings
14 that exist today in Washington, and has reflected this in its methodology. The
15 same buildings that supported mechanical and electronic switching equipment in
16 the past have been brought up to date and now support the digital technology
17 being deployed by GTE today.

18

19 It is clear from the ASO that the FCC recognizes this fact as well.

20 [F]or example, if an incumbent LEC implements cageless
21 collocation arrangements in a particular central office that
22 requires air conditioning and power upgrades, the

1 incumbent may not require the first collocating party to pay
2 the entire cost of site preparation.¹⁷
3

4 It is clear from this statement that the FCC envisioned collocators occupying
5 existing central offices, and developed rules to determine the costs associated with
6 modifying existing buildings to meet collocation requirements.
7

8 **Q. HOW DOES THE DEVELOPMENT OF CAGE ENCLOSURE COSTS IN**
9 **THE GTE EIS MODEL MEET TELRIC AND WUTC STANDARDS?**

10 A. Cage enclosure costs were calculated based on actual GTE collocation
11 implementation experience in California and Texas. These sites were selected
12 because the material cost of commodity items like fencing fabric and posts do not
13 vary significantly from state to state. Factors such as installation labor rates,
14 taxes, and shipping, which are applied to cage enclosure costs, do vary by state
15 and are appropriately adjusted through the use of Area Modification Factors
16 published by the National Construction Cost Estimator. These factors modify the
17 national data to the specific conditions found in Washington.
18

¹⁷ASO, Para. 51.

1 **VI. STUDY RESULTS**

2
3 **Q. DESCRIBE THE SUMMARY RESULTS PAGES.**

4 A. The EIS Study Results are presented in Exhibit JJC-2C of my testimony. Page 1
5 contains those costs recovered by monthly recurring rates, and pages 2 and 3
6 contain those costs recovered by nonrecurring rates. Column A contains the cost
7 groups, such as Floor Space. The elements associated with each group are
8 presented below it in Column B. For the Floor Space item on page 1, this would
9 be the cage, relay rack, and cabinet cost elements. The units in which the
10 elements are measured appear next to each element in Column C. The Version 4
11 cost (filed on January 31, 2000), the Version 5 cost (contained in the instant
12 filing), and the percent change between versions 4 and 5 are located next to each
13 cost element in Columns D, E, and F, respectively. The methodology used to
14 develop the element costs, and the form of collocation that they apply to, are
15 included next to each element as Columns G through K.

16
17 **Q. HOW DO THESE COSTS COMPARE TO THOSE CONTAINED IN THE**
18 **JANUARY 31, 2000 FILING?**

19 A. For the most part, costs decreased between Version 4 filed on January 31, 2000
20 and Version 5 contained in the instant filing. As discussed in the methodology
21 section, the primary reasons for the decreases are the use of Washington-specific
22 factors, the removal of major portions of site modification, HVAC and security

1 costs from the study, and the recovery of other portions through recurring rates
2 rather than nonrecurring rates.

3

4

VII. SUMMARY

5

6 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

7 A. I have presented GTE's EIS Study for the State of Washington. I have explained
8 what the FCC and WUTC requirements are for collocation cost studies, and I have
9 shown how GTE's study meets these requirements. I have provided the study
10 results and a methodology description in support of those results.

11

12 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

13 A. Yes.