

SEP - 5 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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September 5, 2001

By Hand Delivery

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Ms. Magalie R. Salas
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

**RE: WorldCom, Cox and AT&T ads. Verizon
CC Docket Nos. 00-218, 00-249, and 00-251**

Dear Ms. Salas:

Enclosed for filing on behalf of Verizon, please find 4 copies each of Verizon Virginia Inc.'s Objections to AT&T and WorldCom's Tenth Set of Data Requests.

Please do not hesitate to call me with any questions.

Very truly yours,



Christopher S. Huther
Counsel for Verizon

CH:fabbel

Enclosures

cc: Dorothy T. Attwood, Chief, Common Carrier Bureau (By Hand Delivery) (8 copies)
Jodie L. Kelley, counsel for WorldCom (By Overnight and Electronic Mail)
Kimberly Wild, counsel for WorldCom (By Overnight and Electronic Mail)
David Levy, counsel for AT&T (By Overnight and Electronic Mail)
Mark A. Keffer, counsel for AT&T (By Overnight and Electronic Mail)

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J.G. Harrington, counsel for Cox (By Overnight and Electronic Mail)
Carrington F. Phillip, counsel for Cox (By Overnight and Electronic Mail)

Jeffrey Dygert (w/o encl.)
Katherine Farroba (w/o encl.)
John Stanley (w/o encl.)

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In the Matter of)
Petition of WorldCom, Inc. Pursuant)
to Section 252(e)(5) of the)
Communications Act for Expedited)
Preemption of the Jurisdiction of the)
Virginia State Corporation Commission)
Regarding Interconnection Disputes)
with Verizon Virginia Inc., and for)
Expedited Arbitration)
)
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Petition of Cox Virginia Telecom, Inc.)
Pursuant to Section 252(e)(5) of the)
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of the Jurisdiction of the Virginia State)
Corporation Commission Regarding)
Interconnection Disputes with Verizon)
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Petition of AT&T Communications of)
Virginia Inc., Pursuant to Section 252(e)(5))
of the Communications Act for Preemption)
of the Jurisdiction of the Virginia)
Corporation Commission Regarding)
Interconnection Disputes With Verizon)
Virginia Inc.)

CC Docket No. 00-218

CC Docket No. 00-249

CC Docket No. 00-251

**VERIZON VIRGINIA INC.'S OBJECTIONS
TO AT&T AND WORLDCOM'S TENTH SET OF DATA REQUESTS**

****PUBLIC VERSION****

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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**VERIZON VIRGINIA INC.'S OBJECTIONS
TO AT&T AND WORLDCOM'S TENTH SET OF DATA REQUESTS**

In accordance with the Procedures Established for Arbitration of Interconnection Agreements Between Verizon and AT&T, Cox, and WorldCom, CC Docket Nos. 00-218, 00-249, 00-251, DA 01-270, Public Notice (rel. February 1, 2001), Verizon Virginia Inc. ("Verizon") objects as follows to the Tenth Set of Data Requests served on Verizon jointly by AT&T and WordCom on August 31, 2001.

GENERAL OBJECTIONS

1. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them seek confidential business information covered by the Protective Order that was adopted and released on June 6, 2001. Such information will be designated and produced in accordance with the terms of the Protective Order.

2. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them seek attorney work product or information protected by the attorney-client privilege.

3. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, seek information that is neither relevant to this case nor likely to lead to the discovery of admissible evidence, or otherwise seek to impose upon Verizon discovery obligations beyond those required by 47 CFR § 1.311 et seq.

4. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, are overly broad, unduly burdensome or vague.

5. Verizon objects to AT&T and WorldCom's Data Requests because the cumulative burden of responding to these 231 requests (many with multiple subparts) and more than 750 prior requests (many with subparts) unfairly and excessively interferes with Verizon's ability to prepare its case. The timing of these requests impairs Verizon's ability to prepare its case because the same Verizon personnel whose expertise is necessary for responding to these requests are currently preparing Verizon's surrebuttal testimony.

6. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, seek information from independent corporate affiliates of Verizon Virginia Inc., or from board members, officers or employees of those independent corporate affiliates, that are not parties to this proceeding.

7. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, seek information relating to operations in any territory outside of Verizon Virginia Inc. territory. According to the Arbitrator's letter of August 3, 2001, parties seeking information about Verizon's operations in other states must establish that "such information is relevant to the specific disputes over contract language presented in this proceeding."

8. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, seek discovery throughout the Verizon footprint. This proceeding involves only Verizon Virginia Inc. and relates only to the terms of interconnection and resale in Virginia.

9. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, seek information that is confidential or proprietary to a customer, CLEC or other third party. Verizon has an obligation to safeguard such information from disclosure. Thus, while Verizon may be in possession of such information, it does not have the authority to disclose that information to AT&T, WorldCom or any other entity.

10. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, are redundant of prior data requests served by AT&T or WorldCom.

11. Verizon objects to AT&T and WorldCom's Data Requests to the extent that all or any of them, when read in conjunction with the instructions and definitions contained therein, seek information that does not relate to the rebuttal testimony filed by Verizon on August 27, 2001.

The General Objections identified above shall apply to each and every Data Request below.

DATA REQUESTS

1. On Page 11 of his rebuttal testimony, Mr. Sovereign states that "several states have recommended the financial reporting lives recommended by Verizon Va's affiliates." Please list those states and provide the date and docket number of each decision.
2. On Pages 11 and 12 of his rebuttal testimony, Mr. Sovereign states that "Other states have rejected the Commission's prescribed lives and have adopted their own shorter lives." Please list those states and provide the date and docket number of each decision.
3. On Page 13 of his rebuttal testimony, Mr. Sovereign states that "Other state commissions have similarly rejected the CLEC's proposed depreciation lives." Please list those states and provide the date and docket number of each decision.
4. With reference to the analysis described at page 52, lines 20-26, of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
5. With reference to Table 1 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).

6. With reference to Table 2 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
7. With reference to Table 3 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
8. With reference to Table 4 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
9. With reference to Table 5 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
10. With reference to Table 6 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
11. With reference to Table 7 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
12. With reference to Schedule 1 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
13. With reference to Schedule 2 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
14. With reference to Schedule 3 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
15. With reference to Schedule 4 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
16. With reference to Schedule 5 of Dr. Vander Weide's Rebuttal Testimony, please provide all workpapers and source data which support the calculations in both hardcopy and electronic form (preserving all formulas in the worksheets).
17. Please provide a copy of the complete 1998 Bear Stearns study cited on page 59 of Dr. Vander Weide's Rebuttal testimony.

18. Please provide a list and copies of all articles published in peer-reviewed journals by Dr. Vander Weide on any issue since 1990.
19. Please produce any data, studies and analyses (other than Mr. West's direct testimony) on which Dr. Vander Weide relies for his testimony that "Verizon VA already faces significant facilities-based competition." (Vander Weide Rebuttal at pp. 3 and 22)
20. Please produce all data, studies and analyses on which Dr. Vander Weide relies for his testimony that facilities-based competition will intensify as "customers increasingly use Internet and wireless telephony as substitutes for Verizon VA's wireline service. (Rebuttal at 3, lines 5-8.)
21. Please produce all data, studies and analyses on which Dr. Vander Weide relies for his conclusion that facilities-based competition will intensify as "competitors build their own facilities for offering local exchange service." Rebuttal at 3, lines 5-8.
22. Please produce all studies or analyses prepared by or for Verizon during the past 12 months concerning the expected market penetration and effectiveness of facilities-based competition in the foreseeable future for local exchange service provided by Verizon in Virginia. (Studies and analyses covering facilities-based local competition in the Verizon region as a whole should also be produced, unless the analyses exclude Virginia from coverage.)
23. Please produce every public statement by Verizon (or an investment bank retained by Verizon) to Verizon's investors or the Securities and Exchange Commission that supports Dr. Vander Weide's opinion that the risk of investing in Verizon-VA's "fixed telecommunications network" is "prohibitively high." (Rebuttal testimony, page 4.) If the responsive statements are numerous, please provide the ten most recent.
24. This question refers to page 4, lines 4-12 of Dr. Vander Weide's rebuttal testimony.
 - a. What percentage of Verizon's existing customers in Virginia does Verizon expect are likely to abandon their use of the Verizon network within the foreseeable future?
 - b. By how much does Verizon expect that the number of local loops it supplies in Virginia will decline in the foreseeable future?
 - c. By how much does Verizon expect that the volume of switching services it supplies in Virginia will decline in the foreseeable future?
 - d. By how much does Verizon expect that the volume of other UNEs provided by Verizon in Virginia will decline in the foreseeable future?

- e. By how much does Verizon expect the its earnings from local telephone service in Virginia will decline in the foreseeable future?
 - f. Please provide all data, studies and analysis on which the response to each of the previous parts is based.
 - g. Please produce all the data, studies and analyses responsive to the questions parts (a) through (e), that Verizon or an agent, consultant or affiliate prepared or compiled within the past 12 months.
25. This question refers to footnote 9 to pp. 22-23 of Dr. Vander Weide's rebuttal testimony. Please identify each CLEC to which Verizon has lost local market share in New York since gaining Section 271 approval in that state. If the total number of responsive CLECs is large, please identify the ten CLECs that Verizon believes have the largest market share in that state.
26. This question refers to pp. 22-23 of Dr. Vander Weide's rebuttal testimony, where he states that "competition from CLECs generally is increasing and wireless and Internet technologies are increasingly used as substitutes for Verizon VA's wireline local exchange network." Please identify, and produce, all data, studies and analyses on which Dr. Vander Weide relies for this statement (other than Mr. West's direct testimony).
27. This question refers to page 46, lines 12-20, of Dr. Vander Weide's rebuttal testimony.
- a. Please confirm that the Value Line's forecasts of the performance of the companies it covers are limited to 3-5 years in the future. If you fail to confirm without qualification, please identify fully any longer-term forecasts in Value Line.
 - b. Please produce any and all studies, analyses and empirical data that indicate that investors regard Value Line forecasts as good forecasts of the long run.
28. On Page 19, Lines 12-17, Mr. Murphy states that, "[i]n developing the Synthesis Model for its national USF Program, the Commission abandoned the CSA standard, thereby causing the Synthesis Model to design plant that may be incapable of supporting many services currently offered over basic loops (i.e., a modem speed greater than 28.8 Kbs., ISDN, DDS) and will introduce inefficiencies in incumbent local exchange carrier (ILEC) provisioning process."
- a. Please provide a description of the loop modeled by the Synthesis Model that does not rely on CSA parameters and is incapable of supporting 28.8 Kbs. Modems, ISDN and DDS.
 - b. Produce any and all documents concerning, referring or relating to the loop modeled by the Synthesis Model that does not rely on CSA

parameters and is incapable of supporting 28.8 Kbs. Modems, ISDN and DDS.

29. On Page 19, Lines 19-20, Mr. Murphy states that “[a]nalog modems, BRISDN, and DDS were designed to work within the CSA loop standards.” Does Mr. Murphy contend that analog modems, BRISDN and DDS will only operate on loops designed within CSA loop standards? If the answer is in the affirmative, produce any and all documents that support and/or contradict Mr. Murphy’s contention that analog modems, BRISDN and DDS will only operate on loops designed within CSA loop standards.
30. On Page 25, Lines 10-11, Mr. Murphy states that “[o]perational efficiency dictates that facilities remain in place when housing and business units are temporarily unoccupied.”
- a. Produce any and all documents that support and/or contradict Mr. Murphy’s assertion that “[o]perational efficiency dictates that facilities remain in place when housing and business units are temporarily unoccupied.”
 - b. Produce any and all documents reflecting the current policy of Verizon-Va. with respect to the treatment or handling of cut-through pairs in its operations.
 - c. Specify the number of connect-through pairs that were in place for Verizon-Va. for year end 1998, 1999, and 2000.
 - d. Specify the number of “break connect-through pairs” (“BCT’s”) that Verizon-Va. experienced during 1998, 1999, and 2000. For purposes of this data request, the term “break connect-through pairs” refers to those idle connect-through pairs that were broken to provide facilities for a service order or related line and station transfer.
31. On Page 26, Lines 12-16, Mr. Murphy states that, “[a]s the Verizon cost panel explained, industry standards and technical interfaces need to be developed to support using GR303 in a multi-carrier environment. Remote Terminal (“RT”) suppliers would also have to develop additional security, error detection, and other capabilities necessary to support the use of the same RT and Central Office Terminal (“COT”) by multiple carriers.”
- a. Specify all industry standards that must be developed to support using GR303 in a multi-carrier environment.
 - b. Specify all technical interfaces that must be developed to support using GR303 in a multi-carrier environment.

- c. Explain what “additional security” must be developed by suppliers to support use of the same RT and COT by multiple carriers.
 - d. Explain what “error detection” must be developed by suppliers to support use of the same RT and COT by multiple carriers.
 - e. Explain what “other capabilities” must be developed by suppliers to support use of the same RT and COT by multiple carriers.
 - f. Please identify all of the “suppliers” who are referred to on Page 26, Line 14.
32. On Page 22, Lines 1 –2, Mr. Murphy claims that “Verizon-Va.’s distribution facilities have been built according to industry guidelines.”
- a. Has Verizon-Va. designed its Outside Plant according to Serving Area Concept (“SAC”) design?
 - b. If the answer to subpart (a) is in the affirmative, produce any and all documents concerning, referring or relating to the policy of Verizon-Va. to comply with SAC design.
 - c. Does Mr. Murphy agree that SAC design states generally that two pairs should be dedicated per dwelling unit for residential areas? If the answer is in the affirmative, does Verizon-Va. adhere to this industry guideline (i.e. two pairs are generally dedicated per dwelling unit for residential areas)?
 - d. Describe how Verizon-Va. treats idle dedicated pairs when calculating the fill factor or utilization in practice.
 - e. Produce any and all documents concerning, referring, or relating to Verizon’s treatment of idle dedicated pairs for purposes of calculating the fill factor or utilization in practice.
33. On Page 45, Lines 18-21, Mr. Murphy states that “[t]he loop design does not adhere to the CSA standard, and thus the network modeled may not even support basic digital services such as ISDN and DDS, and would introduce inefficiencies in the ILEC’s operations.”
- a. State whether Verizon-Va. provisions ISDN and/or DDS in non-CSA standard areas.
 - b. If the answer to subpart (a) is in the affirmative, specify the number of ISDN loops that were provisioned in non-CSA standard areas by year end 2000 or for the most recent year for which data are available.

- c. If the answer to subpart (a) is in the affirmative, specify the number of DDS loops that were provisioned in non-CSA standard areas by year end 2000 or for the most recent year for which data are available.
 - d. Produce the Bell Atlantic Technical Reference Unbundled Digital Loop Technical Specifications TR72575, Issue 2, March 1999 and all subsequent updates.
34. Produce any and all documents supporting and/or contradicting Mr. Murphy's statement that "[a]n efficient, forward-looking network should include a sufficient amount of spare copper feeder cable (15 percent of total capacity) to accommodate administrative and maintenance needs" as alleged at Page 87, Lines 10-12.
35. Produce any and all documents supporting and/or contradicting Mr. Murphy's assertion at Page 87, Lines 1-6 that the installed cost of ribbon fiber cable is less than fiber cable containing loose strands.
36. On Page 104, Lines 12-14, Mr. Murphy states that "[i]n addition, when upgrading their feeder network over the past 10 years or so, ILECs have replaced copper cables with fiber facilities, and have removed the copper cable because of its salvage value."
- a. Produce any and all documents supporting and/or contradicting Mr. Murphy's statement that "when upgrading their feeder network over the past 10 years or so, ILECs have replaced copper cables with fiber facilities, and have removed the copper cable because of its salvage value."
 - b. Identify all ILECs that have so replaced copper cables with fiber facilities and removed the copper cable because of its salvage value as Mr. Murphy contends.
 - c. State all facts that serve as the basis for Mr. Murphy's statement that ILECs have replaced copper cables with fiber facilities and removed the copper cable because of its salvage value.
 - d. State whether SBC Communications Inc. and Southwestern Bell Telephone Company have, when upgrading their feeder network over the past 10 years, replaced copper cables with fiber facilities and removed the copper cable because of its salvage value. If the answer is in the affirmative, produce any and all documents that serve as the basis for this answer.
37. Produce any and all documents supporting and/or contradicting the assumption on Pages 41 and 42 of Mr. Murphy's testimony that the Synthesis Model uses a 4:1 line concentration ratio, including any and all documents produced by the FCC or

- the FCC Staff supporting and/or contradicting such assumption, and provide the citation to the Synthesis Model source code where the concentration ratio is implemented.
38. How does Verizon take into account peak day, peak hour, and busy hour traffic in engineering its network?
- 39.
- a. Please identify those switches in Virginia that are subject to the “college town” or “resort community” factors identified by Mr. Murphy at page 51 of his rebuttal testimony.
 - b. Does Verizon use criteria or standards for taking into account peak day, peak hour, or busy hour traffic for the switches identified in 2.a that are different from other switches in Virginia?
40. Does Mr. Murphy (page 49 of Murphy testimony) believe that the FCC’s use of regression analysis in determining switch investment was incorrect?
41. At pages 49-50 of his testimony, Mr. Murphy discusses busy hour traffic loads. Does Mr. Murphy have any “quantitative support” to show that the Model is not “capable of accommodating the higher traffic loads experienced during the busy season’s peak traffic periods.” If so, please provide a copy of such support.
42. To Mr. Murphy’s knowledge:
- a. does Verizon own or license rights to the Turbo Pascal software program described at page 15 of Mr. Murphy’s testimony?
 - b. over the years that he has worked for Verizon, has Mr. Murphy worked with any Verizon employees who are capable of working with the Turbo Pascal software described at page 15 of Mr. Murphy’s testimony?
 - c. does NECI own or license rights to the Turbo Pascal software program described at page 15 of Mr. Murphy’s testimony?
 - d. does NECI have one or more employees who are capable of working with the Turbo Pascal software described at page 15 of Mr. Murphy’s testimony?
 - e. is Mr. Murphy able to work with the Turbo Pascal software described at page 15 of Mr. Murphy’s testimony?
43. Has Verizon, NECI, or Mr. Murphy conducted any study or analysis to support his claim (page 25 of Murphy testimony) that the Model could not meet the

service quality standards of the Virginia Commission? If so, please provide a copy.

44. Please provide all supporting workpapers, documents, analyses, and other information relating to:
 - a. Table 3 at page 34 of Mr. Murphy's testimony;
 - b. the numbers and information set forth at page 35-37 of the Murphy testimony relating to DS-1 and DS-3 services;
45. In Mr. Murphy's view (page 60 of the Murphy testimony), to be consistent with TELRIC, must a model include the current number of Verizon's access trunks to "capture all of the trunk demand"?
46. Please provide the engineering information documenting all of the fiber rings implemented in Virginia including the following:
 - a. The wire centers or nodes that the fiber rings pass through indexed for each individual fiber ring; and
 - b. The size of the fiber rings (in terms of fiber counts) that correspond to each of the fiber rings identified above.
47. Please provide the engineering information documenting all of the SONET rings implemented in Virginia, including the following:
 - a. The wire centers where SONET nodes have been placed in central offices to establish the SONET rings indexed for each individual SONET ring;
 - b. The speed of these SONET rings (OC3, OC12, OC 48, OC 192); and
 - c. The type of SONET ring that has been deployed.
48. Please provide copies of each paper and/or article listed on pages 2-3 of Dr. Hausman's rebuttal testimony.
49. On page 4 of his rebuttal testimony, Dr. Hausman states that "The problem is particularly acute with the MSM model because of its extreme assumptions of replacing an entire network instantaneously, perfectly sized with the most efficient technology at the time – and then doing it all over again in a few years when prices are re-set."
 - a. Does Dr. Hausman contend that the Commission's Total Element Long Run Incremental Cost ("TELRIC") methodology is based on something

other than “replacing an entire network instantaneously, perfectly sized with the most efficient technology at the time ”?

- b. If the answer to the preceding question (subpart (a)) is anything other than an unequivocal “no,” please explain the basis for Dr. Hausman’s contention and provide all documents and other evidence that support his opinion that the TELRIC methodology is not based on the methodology described in the above quoted passage from his rebuttal testimony.
50. On page 4 of his rebuttal testimony, Dr. Hausman states that “To take account of the effect of sunk costs, the estimated TELRIC values in any instantaneous replacement model such as the MSM model (after being corrected to remedy the additional deficiencies identified by Dr. Tardiff, Mr. Murphy, and other Verizon VA witnesses) would need to be increased by factors on the order of 97% to 120%, depending on the particular element and the proportion of sunk costs to the total costs of providing the element.”
- a. Other than the four pages of workpapers previously provided, please identify all documents and analyses that Dr. Hausman is relying upon to support his opinion that the estimated TELRIC values from the Modified Synthesis Model must be increased by 97% to 120% to take account of the effect of sunk costs.
 - b. Please produce sufficient additional workpapers to enable other parties to identify each entry in the four pages of workpapers previously produced, to replicate Dr. Hausman’s analysis forward from the entry to his conclusions and backward to the ultimate source data.
 - c. If documents or analyses responsive to parts (a) or (b) exist, please produce them immediately pursuant to the prescribed schedule for filing supporting documentation for the August 27, 2001 rebuttal testimony.
51. Please confirm that Dr. Hausman’s rebuttal testimony presents in large part arguments similar to those that he made in an Affidavit attached to the USTA comments filed with the Commission in Docket No. 96-98 and referenced, *e.g.*, in paragraph 686 of the Commission’s *Local Competition First Report and Order of August 1996*.
52. On page 8 of his rebuttal testimony, Dr. Hausman states that “In particular, current 3G technology, which is now being implemented, is expected to offer high quality voice and high speed data services that may decrease demand and prices for services offered over the ILEC network during a reasonable forward-looking period.”
- a. Please quantify the “reasonable forward-looking period” to which Dr. Hausman is referring in this statement

- b. Do Dr. Hausman or Verizon contend that the “decrease [in] demand and prices for services offered over the ILEC network during a reasonable forward-looking period” as a result of competition from 3G technology is likely to be nontrivial? If so, produce all data and analyses that support your response.
- 53. At page 11 of his rebuttal testimony, Dr. Hausman states that “The MSM model calculations makes the following assumptions: (1) the investment is always used at planned capacity,”
 - a. Please define what Dr. Hausman means by the phrase “planned capacity.”
 - b. Is it Dr. Hausman’s contention that the utilization or fill factors employed in the Modified Synthesis Model reflect the maximum engineering or design utilization of the plant modeled?
- 54. At page 14 of his rebuttal testimony, Dr. Hausman states that “the AT&T/WorldCom model takes account of ‘regulatory depreciation,’ but it does not take account of the economic depreciation caused by the change in the price of capital goods used in telecommunications.”
 - a. Assuming for the sake of argument that the depreciation charges used in AT&T and WorldCom’s runs of the Modified Synthesis Model differ from the depreciation charges that fully reflect economic depreciation, please confirm that any such difference can be corrected by substituting appropriate economic depreciation lives for the depreciation lives that AT&T and WorldCom have employed in the Modified Synthesis Model.
 - b. If you fail to confirm without qualification, please explain fully, and produce all data and analyses on which you rely.
 - c. Is it Dr. Hausman’s contention that the most recent FCC projection lives prescribed for Verizon Virginia are not based on economic depreciation?
 - d. For each depreciation life or other depreciation-related input used in AT&T and WorldCom’s runs of the modified Synthesis model in this case, please specify what input value would properly reflect economic depreciation. Produce all data and analyses on which your answer relies.
- 55. On page 14 of his rebuttal testimony, Dr. Hausman states that “prices for central office switches and fiber optic carrier systems have been decreasing over the past five years.”
 - a. Please provide Dr. Hausman’s best estimate of the rate at which prices for central office switches have been decreasing over the past five years.
 - b. Please provide Dr. Hausman’s best estimate of the rate at which prices for fiber optic carrier systems have been decreasing over the past five years.

- c. Please produce all data and analyses relied upon in answering parts (a) and (b).
 - d. Please state whether Verizon believes that prices for central office switches and fiber optic carrier systems will decrease over the *next* few years and, if so, by how much.
 - e. Produce all data and analyses relied upon in answering part (d).
56. On page 15 of his rebuttal testimony, Dr. Hausman states that “omitting the economic factor δ can lead to a significant underestimate of costs.”
- a. Please provide Dr. Hausman’s best estimate of the economic factor δ for the central office switches, fiber optic carrier systems, and other depreciable capital goods used by Verizon to provide unbundled network elements in Virginia.
 - b. Produce all data and analyses underlying your response.
57. For each variable and parameter in equation (1) at the top of page 16 of Dr. Hausman’s rebuttal testimony, please specify what Dr. Hausman contends is the appropriate value for Verizon-Virginia in this case, and provide all data and analyses on which each values is based.
58. At page 17 of his rebuttal testimony, Dr. Hausman states that “Using parameters for LECs and taking into account the decrease in capital prices due to technological progress and because the expected change in (real) prices of most telecommunications services is also negative given the decreasing capital prices, I calculate the value of m to be approximately 3.2-3.4.”
- a. Please identify each “parameter for LECs” used in the calculation that Dr. Hausman describes in this passage and provide all documents and analyses that support the parameter values.
 - b. Please identify each decrease in capital price due to technological progress that Dr. Hausman assumed in performing this calculation and provide all documents and analyses that support the presumed forward-looking decrease in capital price.
 - c. Which, if any, of the decreases in capital prices due to technological progress identified in the response to subpart (b) above has Verizon VA reflected in the UNE cost studies filed in this arbitration?
59. At fn. 12 of his rebuttal testimony, Dr. Hausman states that “Some components of loops, *e.g.*, poles, have increased in price over time.”
- a. Please identify each capital price for local exchange communications equipment, including but not limited to loop components, that has

increased in price over the timeframe that Dr. Hausman had in mind in making this statement.

- b. Please provide all documents and analyses that support Dr. Hausman's further statement in fn. 12 that "While these price increases cause decreased economic depreciation, they increased the markup factor m , using this result."

60. On page 18 of his rebuttal testimony, Dr. Hausman states that a "markup for economic depreciation of capital goods must be included" as a "markup over the corrected MSM" to "do unbundled element pricing correctly."

- a. Please specify what markup (or markups) for economic depreciation Dr. Hausman recommends in this case. Provide all data and analyses on which the answer relies.
- b. If Dr. Hausman has recommended a similar "markup for economic depreciation" in any prior adjudication or rulemaking proceeding dealing with UNE prices charged by any local exchange carrier, please identify the proceeding by tribunal, docket number, case name, and the date of Dr. Hausman's testimony.

61. At pages 18-19 of his rebuttal testimony, Dr. Hausman states that "For switching and ports, Verizon VA estimates that about 40% of the investment is for costs such as engineering, furnishing, and installing, which are all sunk costs, and that about 50% of the investment in switching material is also sunk. Taken together, then, Verizon VA estimates that sunk costs represent 0.70 (70%) of the estimated total investment for switching and ports."

- a. Please identify the person or persons at Verizon VA responsible for performing the analysis that Dr. Hausman describes in this statement.
- b. To what extent, if any, did Dr. Hausman provide direction or supervision to this Verizon VA analysis?
- c. If Dr. Hausman had any involvement whatsoever in this analysis, please describe the instructions that he gave to Verizon VA's personnel who performed the analysis and provide any documents that memorialize these instructions.
- d. Please provide all documents and analyses that support the contentions that "engineering, furnishing, and installing ... are all sunk costs" and that "about 50% of the investment in switching material is also sunk."

62. In Table 1 at page 19 of his rebuttal testimony, Dr. Hausman reports an estimate that 52% of loop costs are sunk costs and calculates a markup factor of 2.2 for loops.

- a. Please identify the person or persons at Verizon VA responsible for performing the loop analysis that Dr. Hausman describes in this table.
 - b. To what extent, if any, did Dr. Hausman provide direction or supervision to this Verizon VA analysis?
 - c. If Dr. Hausman had any involvement whatsoever in this analysis, please describe the instructions that he gave to Verizon VA's personnel who performed the analysis and provide any documents that memorialize these instructions.
 - d. Please provide all documents and analyses that support the contention that 52% of loop costs are sunk costs.
63. Regarding the following statement on page 6-7 of Dr. Tardiff's Rebuttal Testimony, "...thereby ensuring that the Synthesis Model produces unrealistically low UNE cost estimates that benefit AT&T/WorldCom, but will inhibit the development of economically efficient competition in Virginia," provide the number of customers of local exchange telecom service that Verizon-VA has lost to CLECs over the past five years. Provide the customer class, i.e. residential, business etc, the services that the customer purchased from Verizon-VA, the revenue Verizon received, and the date(s) on which the customers switched providers.
64. On page 14 of his rebuttal testimony, Dr. Tardiff states that "One of the primary reasons the Modified Synthesis Model produces unattainably low cost estimates is its purely hypothetical assumption that a brand new, 'fully functioning' network is built instantaneously and dropped into place at a single point in time."
- a. Does Dr. Tardiff contend that the Commission's Total Element Long Run Incremental Cost ("TELRIC") methodology is based on something other than "a brand new, 'fully functioning' network is built instantaneously and dropped into place at a single point in time"?
 - b. If the answer to the preceding question (subpart (a)) is anything other than an unequivocal "no," please explain the basis for Dr. Tardiff's contention and provide all documents and other evidence that support his opinion that the TELRIC methodology is not based on the methodology described in the above quoted passage from his rebuttal testimony.
65. Relative to his discussion at page 12, is it Dr. Tardiff's understanding that Verizon uses the loop and/or switching cost models it has presented in this proceeding as its primary means of obtaining cost estimates for projects involving building new facilities in its network or maintaining its existing network?
66. Does Verizon instruct its engineers or project managers to use the loop and/or switching cost models it has presented in this proceeding as a means of obtaining

cost estimates for projects involving building new facilities in its network or maintaining its existing network? If Verizon claims that the answer to this request is anything other than an unqualified “no,” please supply documentation describing how Verizon’s employees are instructed to use those cost models.

67. Does Verizon instruct its financial planners to use the loop and/or switching cost models it has presented in this proceeding as a means of obtaining cost estimates for projects involving building new facilities in its network or maintaining its existing network? If Verizon claims that the answer to this request is anything other than an unqualified “no,” please supply documentation describing how Verizon’s employees are instructed to use those cost models.
68. Does Verizon use the loop and/or switching cost models it has presented in this proceeding in any capacity as a part of making network operations business decisions relative to its local exchange service network in Virginia? If Verizon claims that the answer to this request is anything other than an unqualified “no,” please supply documentation describing how Verizon’s employees are instructed to use those cost models.
69. Please provide a complete explanation of how Dr. Tardiff believes Verizon would typically incur and record costs associated with each of the following factors as discussed at pages 14-15 of his testimony:
 - a. Demand changes over time, it increases in some places and for some services and declines for others.
 - b. Demand uncertainty, both as to place and time (it cannot be determined in advance which services customers will order, when they will order these services, which customers will move, or when they will move)
 - c. Changing technology and market conditions require periodic upgrades to software and hardware.
 - d. Practical, real-world considerations call for network-engineering practices that account for administrative spare capacity, churn, demand fluctuations, and assure compliance with service quality standards.
70. Please provide a complete explanation of specifically how Dr. Tardiff believes Verizon captured costs associated with each of the following factors as discussed at pages 14-15 of his testimony in the loop and switching cost models that Verizon filed in this docket:
 - a. Demand changes over time, it increases in some places and for some services and declines for others.

- b. Demand uncertainty, both as to place and time (it cannot be determined in advance which services customers will order, when they will order these services, which customers will move, or when they will move).
 - c. Changing technology and market conditions require periodic upgrades to software and hardware.
 - d. Practical, real-world considerations call for network-engineering practices that account for administrative spare capacity, churn, demand fluctuations, and assure compliance with service quality standards.
71. Is it Dr. Tardiff's opinion that it is appropriate install "plant with enough capacity to meet short-run demand growth (e.g., two to three years for new switches) and to implement growth jobs and upgrades over the life of the plant," if, on a net present value basis, the price for implementing growth jobs at a future point is not less than the cost of installing greater capacity initially? If Dr. Tardiff's answer to this request is anything other than an unqualified "no," please explain the basis for that answer.
72. Dr. Tardiff states on page 17 that,
- ... real firms must grow to meet demand as it materializes over time (growth) and must be structured to respond to shifts in demand at particular locations (due to churn, fluctuations, and growth) without having to augment or replace facilities constantly. Firms in the real world, including incumbents and new entrants alike, add capacity over time, taking into account the trade-off between the lower per-unit costs of bigger modules (e.g., larger switches, larger cable sizes), the costs incurred to install additional capacity (a particularly significant factor for outside plant ("OSP") facilities), as well as the costs of carrying unused capacity. The Modified Synthesis Model completely ignores these and other real-world trade-offs.
- a. Relative to this assertion, is it Dr. Tardiff's position that the relevant (for the purpose of calculating UNE loop costs) forward-looking cost of a 100-pair cable originally placed 20 years ago is identical to the cost of an additional 100-pair cable placed to serve additional demand on that route next month? Please explain the basis for your reply.
73. Is it Dr. Tardiff's position that relevant cost to Verizon of one 20-year old 100-pair cable and one 10-year old 100-pair cable deployed as part of the same feeder route is identical to the value of one new 200-pair cable placed in that same route? Please explain the basis for your reply.
74. Is it Dr. Tardiff's opinion that a 20-year old 100-pair cable would have the same cost in Verizon's books of account as a 10-year old 100-pair cable? Please explain the basis for your reply.

75. Relative to his assertions regarding utilization factors at page 18, please provide all studies conducted by or other material reviewed by Dr. Tardiff that form the basis of his understanding regarding which utilization factors in loop and switching plant are reasonable and which utilization factors would be “extremely high.”
76. In Dr. Tardiff’s opinion, if Verizon had conducted a study 4 years ago using then current demand and that study included an estimate of distribution facility costs for facilities sized with sufficient spare capacity to meet expected “ultimate demand” requirements, would it be appropriate to re-estimate the size of distribution facilities using the same model logic in a new study conducted this year based on now current demand? Please explain the basis for your reply.
77. If loop plant distribution facilities are originally built with capacity to meet ultimate demand (to avoid the cost “to dig up a street twice to add one additional unit of OSP capacity” (Tardiff Rebuttal at 19) is it not necessarily the case that the fill level of those facilities will increase over the life of the plant in proportion to any increase in demand for those facilities over their service life?
78. If Dr. Tardiff has conducted or reviewed any empirical analysis that supports his assertion at 19-20 that “[i]n a competitive environment” Verizon will require more spare capacity than it required as a monopoly provider, please provide a copy of each such analysis.
79. Please identify each error or conceptual modeling problem that Dr. Tardiff attributes to the Modified Synthesis Model that he also believes applies to the loop and/or switching cost studies supplied by Verizon in this proceeding.
80. Is it Dr. Tardiff’s belief that the loop and switching studies submitted by Verizon in this proceeding produce outputs that have been validated against real-world results? Please provide a copy of each such validation study that Dr. Tardiff was aware of at the time his testimony was filed. Please specify if any of the identified validations use anything other than booked Verizon cost data as the “validation” source.
81. Please provide a copy of each such validation study of the Verizon loop and switching cost analysis that Dr. Tardiff has reviewed subsequent to filing his testimony. Please specify if any of the identified validations use anything other than booked Verizon cost data as the “validation” source.
82. Is it Dr. Tardiff’s opinion that the documentation supplied by Verizon in this proceeding related to its loop and switching studies adequately documents and explains all formulas?