

Exhibit No : _____
Issue: TELRIC rates, Landline to Mobile traffic
Witness: Robert C. Schoonmaker
Type of Exhibit: Direct Testimony
Sponsoring Party: Petitioners
Case No : IO-2005-0468, et al. (consolidated)
Date: July 21, 2005

**BEFORE THE PUBLIC SERVICE COMMISSION
STATE OF MISSOURI**

In the Matter of the Petition of)	
Alma Telephone Company)	
for Arbitration of Unresolved)	Case No. IO-2005-0468, et al.
Issues Pertaining to a Section 251(b)(5))	(consolidated)
Agreement with T-Mobile USA, Inc.)	

**DIRECT TESTIMONY
OF
ROBERT SCHOONMAKER**

Jefferson City, Missouri
July 21, 2005

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AFFIDAVIT OF ROBERT C. SCHOONMAKER

Robert C. Schoonmaker, of lawful age, being duly sworn, deposes and states as follows:

1. My name is Robert C. Schoonmaker. I am employed by GVNW Consulting, Inc. as President and Chief Executive Officer.
2. Attached hereto and made a part hereof for all purposes is my direct testimony with accompanying schedules.
3. I hereby affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief and that the information contained in the attached schedules is also true and correct to the best of my knowledge and belief.


Robert C. Schoonmaker

Subscribed and sworn to before me this 19th day of July, 2005.

 Notary Public

My Commission expires: 8-28-2006

1 DIRECT TESTIMONY OF ROBERT C. SCHOONMAKER

2
3 **Q. Please state your name and address.**

4 A. My name is Robert C. Schoonmaker. My business address is 2270 La Montana
5 Way, Colorado Springs, Colorado 80918.

6 **Q. By whom are you employed and in what capacity?**

7 A. I am President and CEO of GVNW Consulting, Inc., a consulting firm
8 specializing in working with small telephone companies.

9 **Q. Would you please outline your educational background and business**
10 **experience?**

11 A. I obtained my Masters of Accountancy degree from Brigham Young University in
12 1973 and joined GTE Corporation in June of that year. After serving in several
13 positions in the revenue and accounting areas of GTE Service Corporation and
14 General Telephone Company of Illinois, I was appointed Director of Revenue and
15 Earnings of General Telephone Company of Illinois in May, 1977 and continued
16 in that position until March, 1981. In September, 1980, I also assumed the same
17 responsibilities for General Telephone Company of Wisconsin. In March, 1981, I
18 was appointed Director of General Telephone Company of Michigan and in
19 August, 1981 was elected Controller of that company and General Telephone
20 Company of Indiana, Inc. In May, 1982, I was elected Vice President-Revenue
21 Requirements of General Telephone Company of the Midwest. In July, 1984, I
22 assumed the position of Regional Manager of GVNW Inc./Management (the
23 predecessor company to GVNW Consulting, Inc.) and was later promoted to the
24 position of Vice President. I served in that position until October 1, 2003 except

1 for the period between December 1988 and November, 1989 when I left GVNW
2 to serve as Vice President-Finance of Fidelity and Bourbeuse Telephone
3 Companies. I was elected to the position of President and Chief Executive
4 Officer effective October 1, 2003. In summary, I have had over 30 years of
5 experience in the telecommunications industry working with incumbent local
6 exchange carrier companies.

7 **Q. What are your responsibilities in your present position?**

8 A. In my current position I have overall responsibility for the management and
9 direction of GVNW Consulting, Inc. In addition, I consult with independent
10 telephone companies and provide financial analysis and management advice in
11 areas of concern to these companies. Specific activities which I perform for client
12 companies include regulatory analysis, consultation on regulatory policy,
13 financial analysis, business planning, rate design and tariff matters,
14 interconnection agreement analysis, and general management consulting.

15 **Q. Have you previously testified in regulatory proceedings?**

16 A. Yes, I have submitted testimony and/or testified on regulatory policy, local
17 competition, rate design, accounting, compensation, tariff, rate of return,
18 interconnection agreements, and separations related issues before the Illinois
19 Commerce Commission, the Public Service Commission of Wisconsin, the
20 Michigan Public Service Commission, the Iowa Utilities Board, the Tennessee
21 Public Service Commission, the New Mexico Public Regulation Commission, the
22 Public Utilities Commission of the state of South Dakota, the Public Service
23 Commission of West Virginia, and the Missouri Public Service Commission. In

1 addition, I have filed written comments on behalf of our firm on a number of
2 issues with the Federal Communications Commission and have testified before
3 the Federal-State Joint Board in CC Docket #96-45 on Universal Service issues

4 **Q. On whose behalf are you testifying in this case?**

5 A. I am testifying on behalf of Alma Telephone Company, Northeast Missouri Rural
6 Telephone Company, Chariton Valley Telephone Company, and Mid-Missouri
7 Telephone Company. I will refer to these companies as "the Petitioners".

8 **Q. What is the purpose of your testimony?**

9 A. My testimony will provide information on the forward-looking cost of switching
10 and transport and termination for each of the companies and the rationale for the
11 proposed \$0.035 rate proposed by each of the companies in this case. In addition,
12 I will provide testimony regarding the nature of calls originated by end users in
13 the companies exchanges to a wireless carrier whose customers are identified by a
14 telephone number in an exchange outside the local calling area of the company.

15 **COST OF SWITCHING AND TRANSPORT AND TERMINATION**

16 **Q. Can you describe the rate that the Petitioners propose to charge for**
17 **switching and transport and termination to T-Mobile?**

18 A. Yes. The rate as proposed is a single rate per minute of \$0.035 per minute to be
19 charged to T-Mobile for terminating their traffic on an indirect connection basis in
20 the Petitioners operating areas and reciprocally to be charged to the Petitioners for
21 traffic terminated by the Petitioners for which they are responsible to the wireless
22 carriers. This is the rate that was proposed for each of the Petitioners.

1 **Q. Can you describe how the rate that was proposed was developed?**

2 A Yes. The rate that is proposed is a rate that has been arrived with and agreed to
3 via negotiations between numerous small telephone companies in Missouri and
4 several different wireless carriers. This rate is lower than the rates approved by
5 the Commission in the wireless terminating tariffs filed by the companies and is
6 lower than the average forward-looking cost for the small Missouri companies in
7 general. In the case of the Petitioners it is also *less than* the forward-looking cost
8 for each individual company.

9 **Q. Did the Petitioners look at other alternatives before proposing this rate**
10 **which is based on their current traffic-sensitive access charges?**

11 A. Yes. Other alternatives were considered. In particular, rates based on a forward-
12 looking cost model were developed, reviewed, and considered before the final
13 rate proposal was made. This was done in recognition that the FCC rules
14 regarding pricing under arbitration require that forward-looking costs be used.
15 However, since the Petitioners had offered a rate of \$0.035 in negotiations with T-
16 Mobile to try to reach a settlement, they decided to continue to offer that rate in
17 the context of this arbitration.

18 **Q. Specifically the FCC rules require that such rates be based on Total Element**
19 **Long-Run Incremental Cost (TELRIC) with an appropriate allocation of**
20 **common costs. Are the costs that you have developed based on that type of**
21 **cost study?**

1 A Yes, they are. The HAI model which I have used in developing these costs has
2 been used in a number of states in developing the TELRIC or forward-looking
3 costs of service for incumbent local exchange companies.

4 **Q. Can you briefly summarize the reasons why you have chosen to develop the**
5 **economic costs presented in this case using the HAI Model.**

6 A. Yes. First, the model has been widely available throughout the industry and has
7 been carefully studied by industry participants, the FCC and many state
8 Commissions. Both its strengths and weaknesses are known and have been
9 evaluated. Second, the HAI Model produces results in formats that are readily
10 available to identify the cost of individual access cost elements. Third, because
11 the model includes default input values necessary to produce cost results for each
12 company, the cost of developing appropriate, or at least acceptable, cost inputs to
13 run the model are minimized. Fourth, by reviewing and modifying a relatively
14 small number of inputs, I felt we could develop adequate estimates of forward-
15 looking costs to the meet the requirements of the FCC rules.

16 **Q. Do you have any misgivings or concerns about using the HAI Model to**
17 **develop forward-looking costs for the Petitioners?**

18 A. In spite of the fact that I recommended to the Petitioners that they use this tool as
19 the best available to develop forward-looking costs for arbitration proceedings, I
20 have concerns about the validity of the results of the HAI Model I am presenting.
21 These concerns include:

22 1) A lack of sufficient time and resources to fully explore all the proposed
23 default inputs. While I proposed a number of changes to these inputs,

1 there are others, such as the cost of cable and digital loop carrier
2 equipment, which I have not had time to test against the forward-looking
3 costs of such items for small companies in Missouri. I am concerned that
4 the costs may not reflect the economic costs of the companies in all
5 respects.

6 2) A concern that the use of broad inputs and generalized formulas for all
7 companies, rather than specific inputs for individual companies, tend to
8 mask unique circumstances of individual companies, which cause
9 substantial differences in costs in the real world.

10 3) A concern that the model results for small companies from models like the
11 HAI Model produce results which vary widely from comparable actual
12 data and in a manner inconsistent with forward-looking costs raising
13 substantial questions regarding the validity of the results for individual
14 small telephone companies.

15 4) A concern that results from the model are likely to be less accurate
16 for smaller geographic areas, such as individual exchanges or small
17 companies with a few exchanges, than they are for large companies, such
18 as SWBT or Verizon who have hundreds of exchanges. This concern is
19 due both to techniques used to generate customer locations and data in the
20 model and to a recognition that the law of averages leads to offsetting
21 impacts between individual areas within a large group of exchanges that
22 may not occur in a small company or a single wire center. A review of the
23 access lines developed by the model compared to actual company lines,

1 for example, shows significant differences on an individual company
2 level.

3 **Q. Given these concerns, do you still support the forward-looking costs that you**
4 **have developed?**

5 A Yes. Given the requirements in the FCC rules to develop forward-looking costs
6 and the current state of tools that are available to develop such cost results at a
7 reasonable cost to the companies, I believe the costs developed are the best
8 available forward-looking costs of these companies for meeting the requirements
9 of the FCC rules. However, I specifically have concerns about giving too much
10 reliance to individual company results when those results reflect a single
11 exchange or only a few exchanges. While individual company results have been
12 developed for each of the Petitioners, I believe it is more appropriate to use an
13 average of the companies as a proxy for each of the individual companies rather
14 than using the individual company rates themselves

15 ***OVERALL DESCRIPTION OF THE HAI MODEL***

16 **Q. Can you briefly describe the historical background of the HAI model.**

17 A. The HAI model was initially known as the Hatfield Model, developed by Hatfield
18 Associations, a consulting firm in Colorado, at the request of AT&T. The model
19 was developed with the intent of providing a tool to develop the forward-looking
20 cost of the telephone network throughout the United States as the cost basis for
21 universal service support and to develop the estimated cost of unbundled network
22 elements ("UNEs") for interconnection proceedings under Section 252 of the
23 Telecommunications Act of 1996. As the model faced scrutiny in various state

1 and federal proceedings, it underwent continued development and modification
2 through a series of versions over a several year period of time. Generally, the
3 later versions were more sophisticated in the cost development methods and
4 techniques than were earlier versions of the model. Version 5.0a of the model,
5 which has been used to develop the costs presented in this proceeding, was the
6 latest version presented in formal comments to the FCC in CC Docket #96-45, the
7 federal USF proceeding.

8 **Q. Can you briefly describe the overall design of the model?**

9 A. Yes. The model is designed in several different modules that interact and are
10 interconnected to produce the overall model results. The modules develop the
11 costs for various network elements and for the overall cost of the firm. Modules
12 include a module to develop the cost of distribution and feeder plant, a module for
13 developing the cost of switching and interoffice plant, a capital cost module and
14 an expense module. Results of all these modules are fed into a series of model
15 output reports. A much more complete description of the model design is
16 included in the Model Description manual developed by the model developers
17 which has been available in the industry and can be made available in this
18 proceeding if desired.

19 **Q. Can you briefly describe the default model inputs?**

20 A. Yes. The HAI model has well over a thousand different user changeable model
21 inputs, including physical equipment characteristics, cost relationships to
22 geographical factors, traffic characteristics, unit costs of telephone plant, costs of
23 installing telephone plant, depreciation factors, capital costs and expense ratios.

1 To assist users in being able to use the models quickly, the developers have
2 populated the model with default values that based on their research, judgment
3 and evaluation represent appropriate values for each input element. These values
4 are known as the default input values. When running the model, the user can
5 either use these default values or individually change as many of the values as the
6 user believes are appropriate. The HAI Inputs Portfolio is a document developed
7 by the model developers that describes each individual input item, the default
8 value and the model developers' rationale and support for adopting the particular
9 default value. This manual has also been widely available in the industry and can
10 be made available in this proceeding if it is desired.

11 ***DESCRIPTION OF DEFAULT INPUT CHANGES***

12 **Q. In the cost studies you present in this testimony, have you used the default**
13 **values exclusively as the input values?**

14 A. No. While we have used the default values for a large portion of the inputs, we
15 have not used them exclusively. Based on prior experience in other states and at
16 the national level using the models and based on testing individual inputs in
17 conjunction with the cost development for this case, I have modified a number of
18 the default inputs. In addition, I have modified the tandem assignment
19 information for certain companies who provide tandem functions for IXC's, but do
20 not provide that function for terminating wireless traffic. I have also modified the
21 exchanges assigned to Northeast Missouri Rural Telephone Company to include
22 the exchanges that were previously part of Modern Telecommunications which
23 has been merged into Northeast.

1 **Q. Can you make some general observations with regard to why you modified**
2 **some of the default inputs?**

3 A. Yes. There were a variety of reasons for modifying various inputs, which I will
4 describe in detail later in this testimony. In some cases, inputs were modified to,
5 in my opinion, reflect the operation of rural companies as compared to the large
6 urban Bell Operating Companies whose operations are generally reflected in the
7 default inputs. In other cases, inputs were modified to reflect the specific
8 circumstances in Missouri rural areas as compared to the wide variety of
9 geographic conditions throughout the United States. In other cases, inputs were
10 modified to reflect judgmental differences with the HAI Model proponents
11 regarding the forward-looking cost characteristics of certain inputs.

12 **Q. Did all of the input changes you propose increase the reciprocal**
13 **compensation cost results?**

14 A. While many of them resulted in reciprocal compensation cost increases, others
15 resulted in reciprocal compensation cost decreases. In each case that changes
16 were made from the default inputs, they were made with the intent of better
17 reflecting the forward-looking costs of the Petitioners based on circumstances
18 within Missouri.

19 **Q. Have you prepared a description of the default inputs that you have**
20 **changed?**

21 A. Yes. Schedule RCS-2 is a document outlining the input items that I changed from
22 the default values in the development of the forward-looking costs for this case.
23 Schedule RCS-3 is an output report from the HAI Model showing the specific

1 model inputs changed and the specific values used for each of these inputs. In the
2 following section of my testimony, I will discuss in greater detail the reason for
3 each of the changes made in the default inputs.

4 ***HAI INPUT CHANGES***

5 **Q. Would you please describe the rationale for changing the plant type**
6 **assumptions as outlined in Item #1 of Schedule RCS-2.**

7 A. Yes. The HAI Model develops costs of distribution and feeder plant in nine
8 different density zones. One of the series of input items in these density zones are
9 inputs to designate the type of plant (aerial, buried or underground) that is used
10 for feeder and distribution plant. There is a similar input for the type of plant in
11 interoffice facilities, as well. The default inputs for these items vary between
12 density zones based on the model developers' estimates of the type of plant built
13 in these zones on a nationwide basis. Even in the most rural zones, the default
14 inputs assume that a substantial amount of aerial plant will be constructed. In
15 Missouri, based on a number of factors related to geography, weather and cost of
16 construction, it has been standard practice in the smaller companies in the state to
17 build primarily buried plant for distribution plant, feeder plant and interoffice
18 plant. As one travels through the rural areas of the state served by the small
19 ILECs, it is relatively rare to see aerial plant. In most areas, buried plant is used
20 exclusively, although there are some in-town areas where underground plant is
21 constructed in some circumstances and some areas of the state where some aerial
22 plant is used.

1 Based on these observations, the costs developed for the Petitioners reflected
2 changes in the model inputs in all appropriate places to reflect a larger percentage
3 of buried plant as the method of outside plant construction from that used in the
4 default assumptions. In the five lowest density zones, buried plant has been
5 assumed to be 95% of the plant constructed, with aerial plant the remaining 5%.
6 In the remaining zones, 85% buried, 5% aerial and 10% buried plant has been
7 assumed. We believe this is more reflective of Missouri circumstances than are
8 the national default inputs.

9 **Q. Why have you set the Fraction of Buried Plant Available for Shift**
10 **parameters to zero as discussed in Item #2 of Schedule RCS-2?**

11 A. These inputs are included in the model to allow the model to change the
12 assumption regarding the amount of buried plant that would be constructed, as
13 discussed in my previous answer, based on internal cost calculations made by the
14 model. The model would substitute aerial plant for buried, if based on model
15 calculations, aerial plant was less expensive. I am proposing that this value be set
16 at zero so the model reflects the buried plant construction types as discussed
17 above. Some of the factors that lead to the large proportion of buried plant
18 construction in Missouri may not be fully reflected in the default cost
19 assumptions; and without this change, the model might not construct the full level
20 of buried plant we believe is appropriate.

21 **Q. Item #3 of Schedule RCS-2 discusses changes made in the structure sharing**
22 **default assumptions. What is meant by “structure sharing”?**

1 A. In the HAI Model, the costs of the cable and its installation are separated from the
2 cost of the structures (poles for aerial cable, trenches and plastic tubing for buried
3 cable, and conduit for underground cable) built to "carry" the cable from one
4 location to another. The structure costs are developed using separate input
5 amounts and are calculated separately. The structure sharing assumptions are
6 built into the model to reflect circumstances where these structures may be able to
7 be used by a utility other than the telephone company; and the costs of the
8 structures may be borne by these other companies, thus reducing the effective cost
9 to the telephone company.

10 **Q. Can you give some real world examples where structures might be shared?**

11 A. Yes. The most common example is probably with the use of pole lines. In many
12 locations, particularly in town locations, one utility builds a pole line and other
13 utilities rent space on the poles to place their own facilities. Where an aerial plant
14 is used by both electric and telephone utilities, they frequently share a single pole
15 line. In addition, in many "in-town" situations, a cable TV company may also
16 place its facility on some of the same pole lines.

17
18 In some new subdivision construction, trenches dug for utilities may be shared by
19 electric, telephone and cable TV companies. When electric facilities are involved
20 in sharing of trenching, there is typically a significantly increased cost to the cost
21 of the trench to meet code requirements for separation of electric cables from
22 telephone and cable TV facilities.

1 In urban locations, conduit facilities may be placed to service multiple utilities in
2 order to minimize the street disruption of placing additional facilities in the future
3 and to maximize the use of below street surface land space.
4

5 **Q. Can you, in general terms, describe the conceptual assumptions underlying**
6 **the HAI default structure sharing assumptions?**

7 A. Yes. There are several key conceptual assumptions that are inherent in the HAI
8 default assumptions regarding structure sharing. First, the modelers assume that
9 not only is the telephone network being hypothetically totally reconstructed but
10 the electric, cable TV and competitive telecommunications services networks are
11 being constructed at the same time so that structure sharing of trenches, conduit,
12 etc. can take place. Second, the modelers assume that, in the future, there will be
13 high motivations for these various utilities to share structures and build facilities
14 using the same kind of plant in the same areas. Third, the modelers assume that
15 the cost of structure construction will be unchanged from typical telephone plant
16 construction even with the addition of other utility facilities associated with the
17 structure. While this may be reasonably true for aerial construction, it is not true
18 for buried construction where code requirements for buried electric service
19 generally require significantly deeper construction for electric plant than for
20 telephone plant.

21 **Q. Can you describe the specific assumptions encompassed in the HAI Model**
22 **regarding structure sharing for buried plant?**

1 A Yes. The HAI Model default assumptions assign 33% of the cost of the structure
2 to the telephone company for buried structures in the lower density bands. This
3 presupposes that in these density bands, buried telephone company plant will be
4 accompanied by a buried electric facility and a buried cable TV facility, with no
5 increase in the cost of the facility because of the presence of the other two
6 facilities.

7 **Q. Do you believe this assumption is at all realistic?**

8 A. No. My opinion is that it has little relationship to reality. To put this assumption
9 into perspective, let me first indicate for the four lowest density bands the size of
10 an average "lot" that would be inherent at the maximum level of the density band
11 assuming all households had equal size lots. They would be as follows:

12	Band 1	0-5 lines/sq. mile	128.0 acres
13	Band 2	6-100 lines/sq. mile	6.4 acres
14	Band 3	100-200 lines/sq. mile	3.2 acres
15	Band 4	200-650 lines/sq. mile	.98 acres

16
17 From my experience in talking with clients about their communities throughout
18 the mid-western and western parts of the country, there would be no cable TV
19 provider in at least the first two density bands; and the provision of cable TV
20 service in Band 3 areas would be spotty. There would probably be a cable TV
21 provider in many, though not all, of the Band 4 areas. However, in these areas, a
22 large portion of the cable TV is aerial and constructed using the electric poles.
23 The likelihood of the cable TV provider sharing buried structures with the
24 telephone company in any of these areas is remote.
25

1 As to the electric utilities, my experience in driving through rural areas is that
2 electric service is provided primarily by the use of aerial plant while the
3 telecommunications facilities use primarily buried facilities. My impression is
4 that there are strong economic reasons as well as safety reasons why electric plant
5 is generally aerial while the telephone plant is buried. I do not see any evidence
6 to suggest that in rural areas this difference in plant construction will suddenly
7 change in the electric industry. Thus, there is little reason to believe that there
8 will be any appreciable structure sharing with the electric industry.

9 **Q. Based on your observations, what assumptions have been made regarding**
10 **structure sharing?**

11 A. Based on my perception of the limited to non-existent likelihood of sharing buried
12 structures, I have assumed that the structure sharing for buried and underground
13 plant for all density zones and for interoffice plant should be set at 100%, that is
14 the full cost of the buried structures are assigned to the telephone company. For
15 aerial cable, a 100% structure sharing assumption is assumed for the first three
16 zones, but a 50% assumption is used in Zone 4 and higher where telephone
17 company aerial cable, if built, frequently shares poles with the electric company.

18 **Q. Why are you proposing to change the end office switching investment input,**
19 **Item #4 on Schedule RCS-2?**

20 A. Our analysis indicates that the default input value is not representative of the cost
21 of end office switching equipment for small companies and small switches. The
22 default switching input value that is used by the HAI modelers is based on an
23 analysis of switch costs for larger companies (Bell Operating Companies and

1 GTE) that were publicly available. The input value is used in a fairly straight line
2 formula based on number of lines. In viewing results of the default analysis, it is
3 clear that the input does not correctly estimate the cost of switching for small
4 offices.

5
6 We also did an analysis comparing the default model results with the actual
7 investments incurred by companies for COE switching in Missouri. With the
8 default inputs, the COE switching investments produced by the HAI Model were
9 about 45% less than the actual COE switching investments for the small Missouri
10 companies. I believe that is a strong indicator that the default input is generating
11 inappropriate results for these companies.

12 **Q. Are comparisons between model results and actual investments and expenses**
13 **always an appropriate test of the model results?**

14 A. No, not always. Since the model is developing a cost for a forward-looking
15 network, comparisons would not be valid if the network elements being
16 developed are of a different design than that actually being used. Since the model
17 is generating forward-looking costs, there may be differences between the model
18 and actual results because of differences in cost (either up or down) when actual
19 plant was purchased as compared to the forward-looking cost of the plant. There
20 may also be differences between costs developed by the model and actual costs
21 because the model does not develop costs for all of the functions that an actual
22 company may be performing. In making comparisons between model results and
23 actual results, all of these factors need to be taken into account.

1 **Q. What is your assessment of the validity of comparing the cost of central office**
2 **switching equipment from the model to actual costs?**

3 A. This is one area where I believe comparisons are relatively meaningful. If one
4 reviews the forward-looking technology for switching, one finds it includes
5 digital central office switches, both host and remote, that are generally equipped
6 with currently required functions and features including SS7 signaling capability.
7 When one reviews the switching equipment actually in use in the small Missouri
8 companies, one finds digital central office switches, both host and remote, that are
9 equipped with these features and functions. These switches include such recently
10 required capabilities as interchangeable NXX codes, four-digit CIC code
11 capability, intraLATA presubscription, and in most cases, SS7 signaling and the
12 features required by the Communications Assistance for Law Enforcement Act
13 ("CALEA").

14
15 Many of the small companies in Missouri are using at least their second
16 generation of digital switching equipment. The equipment is relatively new and
17 has been upgraded since installation, as needed. While it is generally believed
18 that the cost of switching equipment has been falling over time, the falling costs
19 of hardware have been at least partially offset by increasing costs of switching
20 software. Overall, it is my belief that the model costs for forward-looking COE
21 switching equipment should be relatively close to, though possibly somewhat less
22 than, actual costs. In my mind, the approximately 45% difference between the
23 model and actual costs for this equipment indicates that the model costs do not
24 truly reflect the forward-looking costs of this equipment.

1

2 **Q. What are you proposing as the default input for central office switching**
3 **investment?**

4 A. The default input for this value is \$416.11 per line. Based on my review of this
5 factor in the past and the resulting investment to actual investments, I am
6 recommending that the value be increased to \$520.14 per line. Even at this level,
7 the HAI results for small Missouri companies are about 28% less than current
8 actual investments.

9 **Q. Can you please explain your rationale for changing the default assumption**
10 **related to Item #5 on Schedule RCS-2, the percent of Total Interoffice Traffic**
11 **Fraction?**

12 A. Yes. This factor estimates the total portion of the traffic originated in the central
13 office that has to be switched to a second switching site for termination of the
14 traffic and is a significant factor in developing the cost of interoffice facilities. It
15 is also used in conjunction with estimates of toll traffic to determine the portion of
16 local traffic that is switched on an interoffice basis and impacts the cost of local
17 service. For large urban companies, this may represent traffic that is switched
18 between multiple wire centers in a single exchange. For rural companies, it
19 would represent traffic that is commonly designated as Extended Area Service
20 ("EAS") traffic that is switched between exchanges. Using the default
21 assumptions, the model estimates that 48.69% of local traffic is interoffice traffic
22 and develops and assigns costs to the USF cost to account for this usage.

23

1 Based on my knowledge of the limited availability of Extended Area Service in
2 Missouri I have reduced the total interoffice input percent from the default of 65%
3 to 40%. This produces a revised local interoffice traffic percentage of 12.03%, a
4 value much more representative of small Missouri companies than the nearly 50%
5 calculated using the default input.

6 **Q. Do you agree with the default assumptions that develop the cost of capital as**
7 **indicated in Item #6 of Schedule RCS-2?**

8 A No. I believe the cost of capital assumptions in the default scenario are not
9 appropriate. The default assumptions assume a 55% equity/45% debt ratio with a
10 cost of debt and equity generating an overall cost of capital of 10.01%. This cost
11 of capital is not reflective of a forward-looking cost of capital in today's
12 environment. As a means of increasing the cost of capital to 11.25% overall, the
13 cost of capital used by the FCC at the interstate level, I have modified the cost of
14 capital assumptions using those used by the FCC in its Synthesis Model for
15 universal service purposes.

16 **Q. Item #7 on Schedule RCS-2 discusses changing the default factor for**
17 **Network Operations Expense. Would you discuss why you are proposing a**
18 **change in this item?**

19 A. Yes. Network Operations Expense encompasses the following accounts in the
20 Uniform System of Accounts:

21	Network Operations Expense	6530
22	Power Expense	6531
23	Network Administration Expense	6532
24	Testing Expense	6533
25	Plant Operations Administration Expense	6534
26	Engineering Expense	6535

1
2 Expenditures in these areas for small companies differ significantly from larger
3 companies. For example, the plant administration expense account includes the
4 cost of overall supervision of plant operations, including overall planning,
5 developing methods and procedures, developing plant training and coordinating
6 safety programs. The account excludes immediate or first level supervision which
7 is included in the plant specific accounts. In most small companies, the second
8 level of supervision is the company manager, consequently, most small
9 companies have very little plant administration expense. Engineering expense is
10 generally less in small companies since most engineering is on a specific project
11 basis rather than of a general nature. Network administration activities in small
12 companies do not include extensive network control facilities because their
13 networks are limited.

14
15 In the HAI Model, Network Operations Expense is generated based on a
16 composite level of expenses for the ARMIS reporting companies on a per line
17 basis. The model then multiplies this expense level by the Network Operations
18 Expense factor to arrive at a final estimate of Network Operations Expense. The
19 HAI modelers in the default assumptions have assigned this factor a 50% value,
20 essentially indicating that forward-looking Network Operations Expenses
21 would/should be half of the current level. Their rationale for doing this is
22 summarized as follows:

23 "....these costs are artificially high because they reflect antiquated systems
24 and practices that are more costly than the modern equipment and
25 practices that the HAI Model assumes will be installed on a forward-
26 looking basis. Furthermore, today's costs do not reflect much of the

1 substantial savings opportunities posed by new technologies, such as new
2 management network standards, intranets, and the like."

3
4 Because small companies have very different circumstances and do not have
5 many of the systems typical in large companies, it is our belief that the types of
6 forward-looking savings the modelers are anticipating for large companies will
7 not, nor cannot, be achieved in small companies. We are, therefore, proposing
8 that the Network Operations Expense factor be set at 100% rather than 50%.

9 **Q. Item #8, Schedule RCS-2, describes changes in the Billing and Bill Inquiry**
10 **input. Would you please describe this input in great detail and your**
11 **rationale for changing it?**

12 **A.** Yes. This input is intended to capture the customer operations costs of providing
13 local service billing, collecting, bill inquiry and other inquiries regarding the
14 provision of service. The provision of these services differ in a number of
15 respects between large and small companies. Many of the customer contact
16 functions for large companies are performed in centralized centers by relatively
17 large work groups. With these work group sizes, there may be opportunities to
18 adjust the work group to fluctuating workloads on an hourly or daily basis.
19 Billing functions are typically spread throughout the month with multiple billing
20 cycles. Typically, the data processing and bill processing functions are performed
21 with in-house computer assets and in-house personnel.

22
23 In small companies, these functions are generally performed by only a few
24 individuals with staffing required during the normal business hours to provide

1 service availability to customers. There are relatively few opportunities to adjust
2 work group levels to variations in the customer contact workload. Billing is
3 typically performed once a month so there are greater variations in the work flow
4 than in larger companies. Oftentimes, service bureaus are used by small
5 telephone companies, at a minimum, to provide software support and often
6 provides full bill processing functions using investments made by the service
7 bureau. Thus, the expense and investment levels of small companies may vary
8 significantly from larger companies.

9
10 After comparing the results of the default assumptions for customer service
11 expense with actual data (including taking into account customer service
12 functions that are toll related), I have adjusted this input to \$2.30 per line. We
13 believe this result is more representative of the cost of these functions in small
14 Missouri companies and have thus incorporated this estimate in the forward-
15 looking cost studies we have performed. The revised input is still considerably
16 less than the \$3.62 per line used by the FCC in its inputs for non-rural companies.

17 **Q. Item #9, Schedule RCS-2, describes changes in the model inputs for central**
18 **office switching expense. Please describe the derivation of the default input**
19 **value and the value that you have used in the development of forward-**
20 **looking costs.**

21 **A.** In developing expenses for most of the plant specific expense categories, the HAI
22 Model uses recent ARMIS data from around the country to develop ratios
23 between current expenses and investments as a basis for developing projected
24 forward-looking expense levels. However, in the case of central office switching

1 expense, this data is overridden by an alternative expense ratio. The input levels
2 for these items are based on a 1993 incremental cost study performed by New
3 England Telephone Company in New Hampshire and are considerably lower than
4 current levels experienced even by the Bell Operating Companies.

5
6 The inputs I have used are developed based on recent ratios of expenses to
7 investment for these expense/investment categories for the small Missouri
8 telephone companies. Since the type of investment included in these accounts is
9 generally reflective of forward-looking technology, it is reasonable to expect that
10 the ratios currently experienced by the Missouri companies are reflective of the
11 forward-looking costs they can expect to experience.

12 **Q. Please describe the changes you made in economic lives for development of**
13 **depreciation rates as described in Item #9 on Schedule RCS-2?**

14 A. For several years the MPSC staff has made available a schedule of economic lives
15 and depreciation rates developed on a generic basis for use by small telephone
16 companies within the state. The economic lives in the HAI model have been
17 modified to reflect the economic lives contained in the staff's generic depreciation
18 rate schedule.

19 **Q. Can you describe in greater detail why changes were made in the tandem**
20 **locations for some small companies?**

21 A. Yes. Some of the Petitioners have established tandem switching locations to
22 serve their wire centers. Under access tariff requirements, IXCs are required to
23 deliver their traffic to the tandem locations for termination in the end office

1 subtending the tandem switch. The files developed for use by the HAI model in
2 developing interoffice transport costs reflect this type of network configuration.
3 However, wireless companies are not under these same obligations and almost
4 exclusively deliver their terminating traffic destined for the Petitioners to a SWBT
5 or Century tandem. SWBT (or Century) then transmits the traffic over their
6 common trunk groups, intermingled with other types of traffic, to the STCG end
7 offices. The network design for this traffic is different and thus the forward-
8 looking cost of transport will differ.

9 **Q. How were these changes reflected in the HAI model?**

10 A Information regarding the tandem assignment and distances to reach the
11 interoffice network for each wire center in the state is contained in an Excel file
12 used by the model. I have changed the tandem assignments and the distances to
13 reach the interoffice network for certain of the Petitioners who have tandems for
14 IXC services to reflect the modified network configuration associated with
15 wireless traffic. The mileages used conform to the assumptions used by the
16 model developers for other wire centers as detailed in the HAI documentation
17 manuals.

18 **Q. Can you briefly describe the reasons for the changes made as described in**
19 **Item #12?**

20 A Yes. In the model there are two inputs that reflect the percent of intraLATA and
21 interLATA traffic respectively that are switched through a tandem switched rather
22 than being direct trunked to an end office. The default inputs for these items is
23 20% for each of them, reflecting estimated amounts of RBOC traffic that is routed

1 through a tandem switch rather than being direct trunked to the appropriate
2 carrier. While these factors may be reflective of RBOC traffic, they are not
3 reflective of small ILEC traffic. In general, this traffic is routed on common trunk
4 groups to a tandem switch and is not put on direct trunks to the interexchange
5 carrier. I have therefore changed the input for this item to reflect an assumption
6 of 100% of the intraLATA and interLATA toll traffic being routed to a tandem
7 switch.

8 **Q. With these assumptions modified from the default values, how did you obtain**
9 **results for the Petitioners?**

10 A. The HAI model was run for each of the Petitioners. Access rate results were
11 obtained from one of the cost detail worksheet included in the model output report
12 file, an Excel spreadsheet with the exception of the Common Transport rate. In
13 the case of this rate, the costs and billing units presented on this output sheet were
14 used to develop the appropriate rate. The result presented in the model itself uses
15 the costs presented, but divides that based on an assumed number of minutes per
16 trunk, a result which is not normally achieved in small company situations, and
17 which is higher than the actual minutes used in the model. The rate presented is
18 thus, lower, sometimes considerably, than a rate calculated using the actual costs
19 and minutes presented in the schedule. These rates were then summarized for
20 each of the companies and combined into a weighted average for the companies.
21 Schedule RCS-1 shows the actual forward-looking costs for each of the
22 companies and a summary of the costs for the companies included in this
23 proceeding.

1 **Q. What were the results of making the comparisons shown on Schedule RCS-**
2 **1?**

3 A. In reviewing the costs as shown in Schedule RCS-1, there are differences in the
4 costs developed using the forward-looking cost model from the \$0.035 rate per
5 minute proposed by the Petitioners. The comparisons show that for the
6 Petitioners the HAI developed costs are higher than the proposed rates. For the
7 Petitioners, a numeric average of the forward-looking HAI costs results in an
8 average cost of \$0.0583.

9 **Q. Are these costs a reasonable estimate of the forward-looking cost of the**
10 **Petitioners?**

11 A I believe they are and that if anything, they tend to underestimate the transport
12 cost for the companies. You will note that there is no cost estimate for the
13 dedicated transport element. One can make a good case that the cost that the
14 model develops for and describes as dedicated transport should be included in the
15 cost associated with transport and termination, particularly when the model inputs
16 are set, as they are in this analysis, to assume that all interLATA and intraLATA
17 traffic is routed through a tandem switch. I did not include the direct transport
18 cost in this analysis because of the press of time in providing the information to
19 T-Mobile and because the Petitioner's costs are higher than the rates proposed
20 even excluding the direct transport cost.

21 **Q. How did these results impact the decision that was made by the Companies**
22 **to propose rates for arbitration based on the rates that have been agreed to**
23 **with other wireless providers?**

1 A. In this case, the cost results, since they are higher than the proposed rate, had
2 relatively little impact on the decision. The Petitioners offered the \$0.035 rate,
3 which they and other small ILECs in the state have agreed to with other wireless
4 companies, in the course of negotiations with T-Mobile in the hopes that it would
5 lead to a settlement of issues and avoid the need for arbitration. Since the model
6 results were higher than the rates agreed to with other wireless providers, it was
7 believed that they would be less acceptable to T-Mobile than would the proposed
8 \$0.035 rate.

9 **Q. How does this proposal fit with the FCC's rules regarding the development**
10 **of rates in an arbitration proceeding?**

11 A. The FCC's rules, contained in §51.705(a) require that such rates be based upon
12 the forward-looking cost of such services. The rate that is proposed is not
13 specifically equivalent to the forward-looking cost, but is substantially *less than*
14 the forward-looking costs indicate. Because the rate is less, we believe that it
15 would be acceptable for the Commission to adopt that rate.

16 **Q. If the Commission determines that it must adopt a rate based on forward-**
17 **looking cost, what evidence have you presented regarding those forward-**
18 **looking costs?**

19 A. As indicated earlier, Schedule RCS-1 shows the composite average forward-
20 looking cost for the Petitioners of \$0.0583. The Petitioners recommend the use of
21 this average for the rate for each company is more appropriate than forward-
22 looking rates developed on an individual company basis because of the concerns
23 about the use of forward-looking models for limited geographic areas. However,

1 if the Commission feels that rates set on the individual company forward-looking
2 costs are more appropriate, those costs are shown on Schedule RCS-1.

3
4 **WIRELINE TO WIRELESS TRAFFIC**

5 **Q. Could you describe the development of local calling areas, toll calling, and**
6 **the basic features of the network that distinguish between local and toll calls?**

7 A. Yes. Throughout the past decades, state commissions have had the responsibility
8 for establishing local calling areas and distinguishing calls within those areas
9 from calls which went outside those areas. Those calls that left the local calling
10 areas were known as toll calls. With the advent of direct distance dialing several
11 decades ago, the 1+ prefix was used to distinguish toll calls from local calls and to
12 provide a "signal" to the end user that they were dialing a toll call which would
13 bear a toll charge. In Missouri, local calling areas have been established by each
14 company and specified in their filed tariffs. Calls outside those areas have been
15 treated as toll calls.

16
17 At the time of the AT&T divestiture, the business relationships related to toll
18 calling were modified to reflect the exchange access business relationship where
19 local exchange carriers sold the use of their exchange access facilities to
20 interexchange carriers (IXCs) who provided toll service. These IXCs charged end
21 users for the provision of toll service and compensated the originating and
22 terminating LECs for the use of their exchange access facilities pursuant to both
23 interstate and intrastate access tariffs approved by the Federal Communications

1 Commission and the Missouri Public Service Commission respectively. Under
2 these arrangements the IXC's provided toll service to end users. In the intraLATA
3 environment, some LECs also chose to provide toll services and to act as
4 interexchange carriers in the access charge environment.

5 **Q. When the LEC is selling its services under the provisions of its access tariffs,**
6 **is it providing a retail service to an end user customer?**

7 A. No, it is not. The service provided under these access tariffs is to provide
8 facilities to IXC's who use those facilities to transmit messages for their end user
9 customers. The LECs are not responsible for the transmission of messages under
10 their access tariffs. Section 2.1.1(A) of both the National Exchange Carrier
11 Association (NECA) interstate access tariff and the Oregon Farmers intrastate
12 access tariff, with which all the petitioners concur, states specifically that, "The
13 Telephone Company does not undertake to transmit messages under this tariff."

14 **Q. When wireless providers began providing service, how did calls to such**
15 **carriers fit into the local and toll calling patterns?**

16 When wireless providers began providing service, they sought and received
17 central office codes (NPA-NXX codes) or purchased the use of telephone
18 numbers in telephone company central office codes for their customers and
19 associated those codes with telephone company local exchange areas. Calls to
20 those wireless customers from within the telephone company local calling area
21 were, and are, treated as local calls. Calls to wireless customers with NPA-NXX
22 codes outside the local calling area were, and are, treated as toll calls. Local

1 switching systems are programmed pursuant to approved tariffs to complete toll
2 calls using a 1+ prefix.

3
4 Pursuant initially to AT&T divestiture requirements and associated FCC orders,
5 and more recently to the Telecommunications Act of 1996 (the Act), dialing
6 parity and presubscription procedures have been established so that end user
7 customers can direct all 1+ calls to the IXC(s) of their choice. Pursuant to these
8 legal and regulatory requirements, LECs direct 1+ dialed calls to their end user
9 customer's presubscribed carriers who provides the toll call for the customer. The
10 IXCs continue to use the LECs exchange access facilities in order to provision the
11 service to their end user customers.

12 **Q. Prior to the passage of the Act were calls to CMRS end user customers**
13 **treated as toll calls for dialing and carrier responsibility purposes based on**
14 **the local calling areas established by the state commissions?**

15 **A.** Yes they were, as I described in my previous answer. For example, a call from an
16 end user in Northeast Missouri Rural Telephone Company who called a wireless
17 customer with a Kansas City NPA-NXX code would dial that call using the 1+
18 prefix and that customer's IXC would be responsible for carrying the call. If
19 Sprint is the IXC that provisions and completes the call then Sprint would charge
20 the end user customer and pay Northeast Missouri its originating access charges.
21 It would also compensate the terminating wireless carrier based on the business
22 relationships established by the terminating wireless carrier.

1 **Q.** **Would such a call be a call between a local exchange carrier and a wireless**
2 **carrier?**

3 A. Clearly it would not. From a carrier standpoint the call is between Sprint and the
4 wireless carrier. In relationship to this call, the end user is Sprint's end user, not
5 the LEC's end user.

6 **Q.** **Has this dialing arrangement changed since the passage of the Act?**

7 A. No it has not. It certainly hasn't changed in Missouri either in regard to the
8 Petitioners or to the other companies in the state. I am not aware that these
9 dialing arrangements have been changed anywhere in the country to treat calls
10 from a customer responsibility and dialing standpoint to CMRS providers
11 differently from before the Act.

12 **Q.** **Can you briefly summarize the business relations that exist between end**
13 **users, LECs, and IXCs in relation to a presubscribed 1+ toll call?**

14 A. Yes. The end user chooses a presubscribed IXC to handle its 1+ calls and
15 establishes a business relationship with that IXC. The IXC, through the
16 purchasing of access services from the LECs' access tariff, arranges to use the
17 LECs' facilities to "access" its end user to provide toll services to that end user.
18 When an end user makes a call by dialing 1+, the IXC, using the LEC facilities
19 which it has purchased, and its own facilities, fulfills its obligation to the end user
20 to complete the toll call, possibly to a CMRS provider within the MTA. It then
21 charges the end user for the provision of that service.

22 **Q.** **In this relationship is the call the end user makes a call "between a LEC and**
23 **a CMRS provider"?**

1 A. It is not. The call is between the IXC and the CMRS provider. The LECs
2 involvement is that of a seller of facilities to the IXC so that the IXC can complete
3 its obligation to its end user. The fact that the IXC's end user is also the LECs
4 end user for the provision of local service is irrelevant in regard to the specific toll
5 call between the IXC and the CMRS provider.

6 **Q. Are you aware of any discussion in the FCC's Report and Order in CC**
7 **Docket No. 96-98 (the interconnection order) that discussed any changes in**
8 **carrier responsibilities or customer dialing procedures related to the**
9 **implementation of the Act?**

10 A. No. I have reviewed relevant portions of that order and saw no such discussion.

11 **Q. Are there statements in that Order that suggest that the FCC did not intend**
12 **to change such arrangements?**

13 A. Yes. Paragraph 1043 of the FCC interconnection order states as follows:

14 Based on our authority under section 251(g) to preserve the current
15 interstate access charge regime, we conclude that the new transport
16 and termination rules should be applied to LECs and CMRS
17 providers so that CMRS providers continue not to pay interstate
18 access charges for traffic that currently is not subject to such
19 charges, and are assessed such charges for traffic that is currently
20 subject to interstate access charges.

21
22 This indicates to me that the FCC intended that calls to CMRS providers that were
23 currently being provided by IXCs and for which access charges applied would
24 continue to be given the same treatment.

25 **Q. Are there subsequent rulings by the FCC that calls carried by IXCs would**
26 **continue to be subject to access charges?**

1 A Yes. In a decision issued in 2000 related to a compensation complaint between a
2 paging carrier and an ILEC, the FCC made the following statement:

3 Pursuant to Section 51.703(b), a LEC may not charge CMRS providers for
4 facilities used to deliver LEC-originated traffic that originates and terminates
5 within the same MTA, as this constitutes local traffic under our rules. Such
6 traffic falls under the reciprocal compensation rules if carried by the
7 incumbent LEC, and under our access charge rules if carried by an
8 interexchange carrier.¹ [emphasis added]
9

10 Q. Before exploring the issues related to implementation of the Act could you
11 briefly describe the context in which the FCC implemented rules related to
12 the Act?

13 A. Yes. The Act became law on February 8, 1996. Pursuant to requirements of the
14 Act the FCC had six months in which to develop and implement rules on a host of
15 technical, financial, and policy issues related to the new requirements of the Act
16 providing for local interconnection, reciprocal compensation, dialing parity, and
17 the pricing for such services. The FCC had a total of fifteen months to address
18 and implement rules regarding universal service issues. These time frames put
19 tremendous pressure on the FCC and its staff to review thousands of pages of
20 comments on a large number of issues and to develop policies, procedures, and
21 rules to implement the Act. The two Orders in CC Docket 96-98 issued on
22 August 6, 1996, (dealing with interconnection issues) amounted to a total of 833
23 pages and incorporated some 70 pages of new rules. Given this time frame and
24 the overwhelming number of issues that had to be dealt with, the FCC's focus was
25 primarily on implementation as it related to the Bell Operating Companies
26 (BOCs) and the large metropolitan areas of the country since they comprised both

¹ *TSR Wireless, LLC v. U S West Communications, Inc.*, Memorandum Opinion and Order, Released June 21, 2000 FCC 00-194 ("*TSR Wireless Order*"), paragraph 31.

1 the vast majority of the LEC customers and particularly the areas where
2 competition was expected first. Thus, in establishing rules and in the
3 implementing text, it is not always clear how the rules apply in the case of small
4 companies, whose operations are often different than the BOCs. I believe that it
5 is important that this Commission keep that in mind as it reviews the FCC's
6 discussion and rules related to LECs and CMRS providers.

7 **Q. What particular rules and Orders are relevant to the discussion of the extent**
8 **that reciprocal compensation is applicable in the core situation that you**
9 **described?**

10 A. The FCC's First Report and Order, discussed earlier, is the Order that addressed
11 the implementation of the Act in regard to these issues. Particularly relevant to
12 this issue is the discussion in paragraphs 1033 to 1045. In the FCC rules, the
13 pertinent section is Section 51.701, particularly 51.701(b) in which the FCC
14 defines telecommunications traffic for reciprocal compensation purposes.

15 **Q. Are there places in the paragraphs you mentioned above that indicate that**
16 **the FCC was focusing primarily on BOC circumstances rather than small**
17 **company circumstances when it addressed these issues?**

18 A. Yes. In the middle of paragraph 1043 the FCC states, "Under our existing
19 practice, most traffic between LECs and CMRS providers is not subject to
20 interstate access charges unless it is carried by an IXC...." This statement was
21 likely true for the BOCs where calls between the BOC and CMRS providers were
22 primarily either in large metropolitan areas with large local calling areas, or
23 intraLATA toll calling areas where the BOC provided virtually all intraLATA toll

1 calling at the time. For small companies, such as the Petitioners, there was very
2 little existing LEC to CMRS traffic that was not subject to access charges.

3
4 In paragraph 1034 the FCC contrasts the access charge regime where the
5 originating LEC, terminating LEC, and an IXC are involved in a call with the
6 intended use of reciprocal compensation which, according to the FCC is intended
7 for, "...the situation in which two carriers collaborate to complete a local call."
8 For the Petitioners, hardly any calls between CMRS providers and the Petitioners
9 fall in this description of the intended use of reciprocal compensation, while most
10 fall under the access charge regime for wireline originated calls. For wireless
11 originated calls very few involve only two carriers to complete the calls to the
12 Petitioners, with most calls involving a third carrier, often a large LEC, to
13 complete the call.

14 **Q. Upon what basis in this Order do you believe T-Mobile derives its opinion**
15 **that the Petitioners are responsible for compensation to CMRS providers for**
16 **traffic terminated within the MTA even if it is carried by an IXC?**

17 A. I would presume that it bases its position upon Paragraph 1036 of the FCC's First
18 Report and Order. The FCC begins this paragraph by stating that it is defining,
19 "...local service areas for calls to or from a CMRS network for the purposes of
20 applying reciprocal compensation obligations under section 251(b)(5)². [emphasis
21 added] After discussing varying types of wireless service areas and indicating
22 that it will choose the largest of these areas, the paragraph is concluded with the
23 following statement: "Accordingly, traffic to or from a CMRS network that

² The First Report, para. 1036.

1 originates and terminates within the same MTA is subject to transport and
2 termination rates under section 251(b)(5), rather than interstate and intrastate
3 access charges.”

4 **Q. Can these statements be properly understood without putting them in the**
5 **broader context of the remainder of the FCC’s decision on this subject?**

6 A. No. Taken on their face and out of context from the remainder of the First Report
7 and the rules adopted in that order, these sentences seem to say that all calls to a
8 wireless carrier within the MTA are not subject to access charges. However, the
9 rules adopted by the FCC are more specific and limiting than this paragraph.
10 They do not talk about all calls with the MTA, but a more limited set of calls. In
11 §51.701(a) (adopted in the First Report) the FCC defines the scope of the rules for
12 reciprocal compensation for the transport and termination of local
13 telecommunications traffic as follows:

14 **(a) The provisions of this subpart apply to reciprocal compensation for**
15 **transport and termination of local telecommunications traffic between**
16 **LECs and other telecommunications carriers.**

17
18 This clearly limits the application of the subpart to calls between LECs and other
19 telecommunications carriers and not to calls between IXCs and such carriers.

20 This distinction from Paragraph 1036 is also made clear in the specific FCC
21 definition of telecommunications traffic, found in §51.701(b) of the FCC’s rules
22 which states:

23 (b) *Telecommunications traffic.* For purposes of this subpart, telecommunications
24 traffic means:

25
26 (1) Telecommunications traffic exchanged between a LEC and a
27 telecommunications carrier other than a CMRS provider, except for
28 telecommunications traffic that is interstate or intrastate exchange access, information

1 access, or exchange services for such access (see FCC 01–131, paras 34, 36, 39, 42–
2 43); or

3
4 (2) Telecommunications traffic between a LEC and a CMRS provider that, at
5 the beginning of the call, originates and terminates within the same Major Trading
6 Area, as defined in § 24.202(a) of this chapter.

7
8 In regard to traffic where a CMRS provider is involved, the rule refers specifically
9 and only to telecommunications traffic “between a LEC and a CMRS provider”.

10 Thus, traffic, for example, between an IXC and a CMRS provider is not local
11 telecommunications traffic under the FCC’s rules.

12 **Q. Is this distinction further clarified in another paragraph of the First Report?**

13 **A.** Yes. Between paragraphs 1036 and 1043 of the First Report there is clarification.

14 In Paragraph 1043 the FCC states:

15 We reiterate that traffic between an incumbent LEC and a CMRS network that
16 originates and terminates within the same MTA...is subject to transport and
17 termination rates under section 251(b)(5), rather than interstate or intrastate
18 access charges.

19
20 The FCC states here that they are reiterating a previous statement. If one reviews
21 the intervening paragraphs it is clear that this reference can only be to Paragraph
22 1036 where it spoke on this subject. In that Paragraph, however, it was not as
23 specific in its reference to “...calls between an incumbent LEC and a CMRS
24 network.” This is emphasized by the following sentences where the FCC
25 recognizes that most traffic between LECs and CMRS providers are not subject to
26 access charges, unless they are carried by an IXC. The paragraph concludes with
27 the following statement:

28 Based on our authority under section 251(g) to preserve the current
29 interstate access charge regime, we conclude that the new transport and
30 termination rules should be applied to LECs and CMRS providers so that
31 CMRS providers continue not to pay interstate access charges for traffic that

1 currently is not subject to such charges, and are assessed such charges for
2 traffic that is currently subject to interstate access charges.

3
4 This statement indicates the FCC's intent to preserve the interstate access regime
5 for such calls to CMRS providers.

6 **Q. In the discussion in this part of the First Report and in the rules that the**
7 **FCC adopted is there any indication that these rules applied for any purpose**
8 **beyond the determination of compensation?**

9 A. No there is not. The discussion throughout this section discusses compensation
10 for calls between LECs and CMRS providers. Section 51.701(A) cited above
11 specifically indicates that it applies to compensation for those calls. There is
12 nothing, either in the rules, or in the discussion in the Order that indicates any
13 intent to require changes in network arrangements or dialing patterns. For
14 example there is no discussion of removing interexchange carriers from carrying
15 calls within the MTA by eliminating 1+ dialing on calls to wireless carriers within
16 the MTA. It appears to me that the FCC was very careful to establish this
17 relationship for reciprocal compensation purposes while not disturbing existing
18 network calling patterns and existing network relationships.

19 **Q. Are there other parts of the FCC's discussion in these paragraphs that**
20 **highlight the differences between reciprocal compensation and access charge**
21 **compensation?**

22 A. Yes. In Paragraph 1033 the FCC specifically notes that, "The Act preserves the
23 legal distinctions between charges for transport and termination of local traffic
24 and interstate and intrastate charges for terminating long-distance traffic." In
25 Paragraph 1034 the FCC states:

1 ...reciprocal compensation for transport and termination of calls is intended for a
2 situation in which two carriers collaborate to complete a local call. In this case,
3 the local caller pays charges to the originating carrier, and the originating carrier
4 must compensate the terminating carrier for completing the call. [emphasis added]
5

6 Further in Paragraph 1034 the FCC states:

7 We note that our conclusion that long distance traffic is not subject to the
8 transport and termination provisions of section 251 does not in any way disrupt
9 the ability of IXC's to terminate their interstate long-distance traffic on LEC
10 networks... We find that the reciprocal compensation provisions of section
11 251(b)(5) for transport and termination of traffic do not apply to the transport or
12 termination of interstate or intrastate interexchange traffic.
13

14 These three statements indicate the intent of the FCC to maintain the access
15 regime and to apply reciprocal compensation rules only in situations where two
16 carriers are directly connected. They also confirm that reciprocal compensation
17 and access are two separate and mutually exclusive compensation systems.

18 **Q. Can you summarize why you believe that the Petitioners have no local traffic**
19 **that they are exchanging with CMRS providers?**

20 A. Yes. The traffic leaving the Petitioners exchanges for CMRS providers is traffic
21 between an IXC and a CMRS provider, not traffic between the LEC and the
22 CMRS provider. The LEC has no responsibility for that traffic and under the
23 FCC's definition that traffic is not telecommunications traffic subject to reciprocal
24 compensation rules.

25 **Q. So what is the fundamental conflict between your position and that of the T-**
26 **Mobile?**

27 A. In spite of the fact that the IXC contracts through an access tariff to use the LECs'
28 facilities to originate a toll call and pay them for it, in spite of the fact that the end
29 users, through their presubscription choices, choose a specific IXC to provide toll

1 service, in spite of the fact that the IXC contracts with an end user through its toll
2 tariffs or pricing contracts to complete that call and receives revenue from the end
3 user for doing so, in spite of the fact that the IXC carries the call on its own
4 network to the terminating end without expecting compensation from the
5 originating LEC, and in spite of the fact that the IXC takes responsibility for
6 paying whatever terminating charges are due the CMRS provider, T-Mobile
7 argues that the LEC who provides local service to the end user is responsible to
8 pay the terminating CMRS provider for the call.

9 **Q. How do they attempt to justify this?**

10 A. From my viewpoint they do several things. One, they ignore the requirements
11 placed on a local exchange carrier by its local tariffs to distinguish between local
12 and toll calls. Second, they ignore all of the contractual relationships established
13 by local and toll tariffs and somehow try to construe that because a call originates
14 from an IXC end user which is also a LEC end user for local service that the call
15 originates from the LEC itself.

16 **Q. T-Mobile seems to take the position that it doesn't matter whether an IXC is**
17 **involved in a call, but only where the beginning and ending points of the call**
18 **are located. Is this statement consistent with the FCC's definition of**
19 **telecommunications traffic?**

20 A. No. First of all, in the situations I have described where the IXC is the carrier, it
21 is not just the intermediate carrier, but the originating carrier as well. Secondly,
22 the FCC's definition that I quoted above was specific to LECs and CMRS

1 providers only and did not state that traffic between an IXC and a CMRS provider
2 was telecommunications traffic subject to reciprocal compensation.

3 **Q. Are the wireless carriers consistent in their position that traffic between**
4 **wireless carriers and LECs is solely the responsibility of those carriers**
5 **regardless of whether an interexchange carrier handles the call?**

6 A. No, they are not. While T-Mobile claims that the originating LEC should pay the
7 wireless carrier for traffic carried by an IXC to the wireless carrier, when the
8 direction of the traffic is reversed, they have a different perception. Frequently
9 wireless carriers, including T-Mobile, use IXCs to terminate their traffic to LECs,
10 rather than using SWBT's or another LEC's transiting service. In that case, T-
11 Mobile does not expect to pay terminating reciprocal compensation to the LECs.

12 **Q. If the Commission included such IXC traffic within the scope of the Traffic**
13 **Termination Agreements in this arbitration, what revenues would T-Mobile**
14 **be entitled to receive for these calls?**

15 A. As a CMRS provider, T-Mobile would be entitled to revenues from its end user
16 customers that receive these calls. CMRS providers typically charge end users
17 both to originate and terminate calls. Second, T-Mobile would be entitled to
18 terminating compensation from the IXC based on their existing arrangements.
19 Third, T-Mobile would be entitled to receive reciprocal compensation from
20 Petitioners.

21 **Q. So would T-Mobile be entitled to receive two different forms of terminating**
22 **compensation for the same call?**

1 A. Yes, depending on their compensation arrangements with the IXC, T-Mobile
2 could be entitled to both terminating compensation from the IXC and terminating
3 reciprocal compensation from the ILEC in addition to the revenues they receive
4 from their end users.

5 **Q. Do you believe this would be appropriate?**

6 A. No. I don't think it is appropriate for a carrier to be entitled to receive two
7 separate and distinct types of compensation from two different carriers for the
8 same call.

9 **Q. Has the Commission had occasions to address this issue in other**
10 **proceedings?**

11 A. The Commission has not directly decided the question specifically in terms of
12 whether a CMRS provider is entitled to receive terminating reciprocal
13 compensation from the ILEC in whose exchange the IXC call originated.
14 However there have been several Commission decisions suggesting that the rural
15 ILEC Petitioners here are not responsible for this traffic.

16 **Q. Could you briefly review these decisions?**

17 A. Mid-Missouri Cellular and SBC submitted an interconnection agreement to
18 arbitration in TO-99-279. Mid-Missouri Cellular wanted compensation from SBC
19 for landline to mobile calls terminating to Mid-Missouri Cellular customers with
20 NPA NXXs that were not in the local calling area of SBC. The Commission
21 ruled:

22 "The Commission agrees with SWBT that a call from a SWBT landline
23 subscriber to an MMC cellular subscriber is properly rated as a local call
24 only where: (1) the landline and cellular exchanges are locally
25 interconnected; and (2) the V&H coordinates of the cellular exchange lie

1 within the local calling area of the landline exchange. ... The Commission
2 agrees with SWBT that local rating without local interconnection is
3 inappropriate because the interexchange facilities of SWBT and of Sprint,
4 a stranger to this action, would necessarily be employed in completing
5 such calls.”
6
7

8 **Q. Do you think that decision is pertinent here?**

9 A. Yes. The only difference is that the interexchange carriers involved here are
10 traditional IXCs, not SBC or Sprint. The rest of the rationale applies. Petitioners
11 are not locally interconnected with T-Mobile. The V&H coordinates of T-
12 Mobile’s cellular exchange are not within Petitioners’ local calling areas. As such
13 these calls are not within the scope of reciprocal compensation and should not be
14 included in a reciprocal compensation agreement.

15 **Q. What is the next pertinent Commission decision you recall?**

16 A. Missouri small rural ILECs filed wireless termination service tariffs which
17 were opposed by wireless carriers. This was the Mark Twain tariff Case No. TT-
18 2001-139. The wireless carriers opposed the tariff partly on the claim that the
19 tariffs did not recognize or credit the wireless carriers with compensation already
20 paid via “defacto bill and keep” for landline to mobile IXC carried traffic. In its
21 Order the Commission stated:

22
23 "At present, with the termination of the PTC Plan, it is the norm that traffic
24 between the small LECs and CMRS carriers is one-way traffic. This is because
25 traffic to CMRS subscribers from the small LECs' subscribers is transported by
26 IXCs and treated as toll traffic. ... [I]f the traffic is being carried by an IXC, the
27 IXC must compensate the CMRS carrier for the termination of the call."
28
29

1 **Q. Is this decision similar to that in the Mid-Missouri Cellular arbitration?**

2 A. Yes, it is pretty much the same. As the landline to mobile calls are toll
3 calls, it is the IXC, not the rural LEC in whose exchange the call originated in,
4 that is responsible to pay T-Mobile.

5 **Q. Did the Commission enter a similar order in approving the wireless**
6 **termination tariff of a CLEC?**

7 A. Yes. In TT-2001-646 the Commission reached the same decision for CLECs:

8 "All of Mark Twain's traffic that is destined for the NXXs of wireless carriers
9 operating in Missouri, including AT&T Wireless and Sprint PCS, is currently
10 dialed: (a) on a 1+ basis and carried by Mark Twain's customers' presubscribed
11 interexchange carrier ("IXC"); or (b) on a 101XXX basis and carried by an IXC."

12
13 **Q. Are there any other Commission decisions which you believe are instructive?**

14 A. Complaint case TC-2002-1077 was brought by rural ILECs against T-Mobile. T-
15 Mobile claimed they did not owe under wireless termination tariffs because the
16 landline to mobile IXC traffic was "equivalent in volume" to wireless to landline
17 traffic. The Commission stated:

18 "The Wireless Respondents maintain that the intraMTA traffic that they exchange
19 with the Complainants is symmetrical, that is, that equivalent volumes flow in
20 both directions. ... The record shows, and the Commission finds, that the
21 Complainants routed all traffic originating on their networks and intended for
22 subscribers of the Wireless Respondents through an IXC."

23
24 Also, when the Commission recently adopted the Enhanced Record Exchange
25 Rule, it rejected wireless carrier opposition to the CPN requirement on the ground
26 the rule did not require the same of landline to mobile IXC traffic. The
27 Commission rejected this argument because the wireless carriers failed to
28 establish "any instance where rural carriers transmit compensable calls to wireless
29 carriers."

1 **Q. How do you interpret these last two decisions?**

2 A. To me they mean that rural ILECs are not responsible to pay compensation to
3 wireless carriers for landline to mobile IXC traffic.

4 **Q. Does this conclude your direct testimony?**

5 A. Yes..

Company Name	Alma Telephone Company	Chariton Valley Telephone Co	Mid-Missouri Telephone Co	Northeast Missouri Rural Tel Co
Excluding Tand. Sw. & Ded. Transport - Common Based on Displayed Units				
End Office Switching	\$ 0.0107	\$ 0.0103	\$ 0.0114	\$ 0.0099
ISUP Signaling	\$ 0.0056	\$ 0.0035	\$ 0.0049	\$ 0.0042
Dedicated Transport	\$ -	\$ -	\$ -	\$ -
Common Transport	\$ 0.0749	\$ 0.0394	\$ 0.0523	\$ 0.0430
Tandem Switching	\$ -	\$ -	\$ -	\$ -
Total Access	\$ 0.0912	\$ 0.0532	\$ 0.0685	\$ 0.0571

Forward Looking Cost of Petitioners
Composite Weighted Average

	Total Cost	Billing Units	Composite Rate
End Office Switching	\$ 2,303,578	221,942,690	\$ 0.0104
ISUP Signaling	\$ 901,424	221,942,690	\$ 0.0041
Dedicated Transport	\$ -	-	\$ -
Common Transport	\$ 4,219,696	96,184,190	\$ 0.0439
Tandem Switching	\$ -	-	\$ -
Total Access	\$		\$ 0.0583

Small Telephone Company Group
Proposed Default Input Changes
HAI Model 5.0a

1. Plant type assumptions - the HAI default assumes varying levels of buried, aerial, and underground plant in the different density zones. Because of the high predominance of buried plant construction in rural Missouri areas, the model default inputs have been modified for drops, distribution plant, and feeder plant to reflect a much larger percentage of buried plant and a smaller percentage of aerial plant than the default.

2. Fraction of buried plant available for shift - These fractions allow a portion of buried plant that has been identified using the normal plant algorithms to be shifted to aerial plant on a least-cost basis. These percentages have all been set to zero so the constructed plant is unchanged from the plant type assumptions provided for each density zone.

3. Structure sharing assumptions - Model default inputs assumes a significant portion of the cost of structures (pole lines, trenches for buried cable, trenches & conduit for underground cable) will be assigned to users other than the telephone company. These assumptions vary based on cable type and density zone and range from 100% to 25%. The STCG has assumed much less structure sharing than is assumed in the default inputs.

4. End Office switching investment, small ICO - Based on analysis of model results to actual investment data, the STCG has increased the default constant COE switching investment term from \$416.11 per line to \$520.14 per line.

5. The Total Interoffice Fraction Percentage has been changed from a default value of 65% to 40% to more accurately reflect traffic patterns of rural carriers.

6. Inputs for calculating the cost of capital have been revised to reflect an overall return of 11.25%. The specific inputs used in the model are the same as those adopted by the FCC in its development of forward-looking cost results in its USF docket.

7. The forward looking network operations expense factor has been increased from the default 50% of current expense levels to 100% of current expense levels.

8. Billing/Billing Inquiry per line per month. This input was changed from default value of \$1.22 to \$2.30 to better reflect Missouri costs of providing such services.

9. The alternative central office switching expense factor has been changed from the default value of 2.69% to 4.75% to reflect costs experienced by small Missouri companies.

1
2 10. Economic lives for the determination of depreciation rates have been modified to
3 reflect the MPSC staff generic depreciation lives.
4

5 11. Assignments of tandem locations for STCG companies who provide tandem
6 switching service for IXCs, but do not do so for terminating wireless traffic have been
7 modified to reflect the terminating wireless tandem locations.
8

9 12. Inputs for the percent of intraLATA and interLATA traffic that is routed through a
10 tandem switch have been increased from the default of 20% to 100% reflecting how these
11 calls, including wireless calls, are generally routed by small Missouri telephone
12 companies.
13

14
15

Petitioners Forward-Looking Cost Study Inputs
Changes from HAI Default Inputs

Module/Table	Scenario Input	Scenario Value	Default Value
Distribution	Buried Fraction - 0	0.95	0.75
Distribution	Buried Fraction - 5	0.95	0.75
Distribution	Buried Fraction - 100	0.95	0.75
Distribution	Buried Fraction - 200	0.95	0.7
Distribution	Buried Fraction - 650	0.95	0.7
Distribution	Buried Fraction - 850	0.85	0.7
Distribution	Buried Fraction - 2550	0.85	0.65
Distribution	Buried Fraction - 5000	0.85	0.35
Distribution	Buried Fraction - 10000	0.85	0.05
Distribution	Aerial Cable Fraction - 0	0.05	0.25
Distribution	Aerial Cable Fraction - 5	0.05	0.25
Distribution	Aerial Cable Fraction - 100	0.05	0.25
Distribution	Aerial Cable Fraction - 200	0.05	0.3
Distribution	Aerial Cable Fraction - 650	0.05	0.3
Distribution	Aerial Cable Fraction - 850	0.05	0.3
Distribution	Aerial Cable Fraction - 2550	0.05	0.6
Distribution	Aerial Cable Fraction - 5000	0.05	0.85
Distribution	Aerial Cable Fraction - 10000	1	0.5
Distribution	Buried Drop Sharing Fraction - 0	1	0.5
Distribution	Buried Drop Sharing Fraction - 5	1	0.5
Distribution	Buried Drop Sharing Fraction - 100	1	0.5
Distribution	Buried Drop Sharing Fraction - 200	1	0.5
Distribution	Buried Drop Sharing Fraction - 650	1	0.5
Distribution	Buried Drop Sharing Fraction - 850	1	0.5
Distribution	Buried Drop Sharing Fraction - 2550	1	0.5
Distribution	Buried Drop Sharing Fraction - 5000	1	0.5
Distribution	Buried Drop Sharing Fraction - 10000	1	0.5
Distribution	Buried Drop Fraction - 0	0.95	0.75
Distribution	Buried Drop Fraction - 5	0.95	0.75
Distribution	Buried Drop Fraction - 100	0.95	0.75
Distribution	Buried Drop Fraction - 200	0.95	0.7
Distribution	Buried Drop Fraction - 650	0.95	0.7
Distribution	Buried Drop Fraction - 850	0.95	0.7
Distribution	Buried Drop Fraction - 2550	0.95	0.7

Module/Tab	Scenario Input	Scenario Value	Default Value
Distribution	Buried Drop Fraction - 5000	0.95	0.4
Distribution	Buried Drop Fraction - 10000	0.95	0.15
Distribution	Buried fraction available for shift - 0	0	0.75
Distribution	Buried fraction available for shift - 5	0	0.75
Distribution	Buried fraction available for shift - 100	0	0.75
Distribution	Buried fraction available for shift - 200	0	0.75
Distribution	Buried fraction available for shift - 650	0	0.75
Distribution	Buried fraction available for shift - 850	0	0.75
Distribution	Buried fraction available for shift - 2550	0	0.75
Feeder	Copper Aerial Fraction - 0	0.05	0.5
Feeder	Copper Aerial Fraction - 5	0.05	0.5
Feeder	Copper Aerial Fraction - 100	0.05	0.5
Feeder	Copper Aerial Fraction - 200	0.05	0.4
Feeder	Copper Aerial Fraction - 650	0.05	0.3
Feeder	Copper Aerial Fraction - 850	0.05	0.2
Feeder	Copper Aerial Fraction - 2550	0.05	0.15
Feeder	Copper Aerial Fraction - 5000	0.05	0.1
Feeder	Copper Buried Fraction - 0	0.95	0.45
Feeder	Copper Buried Fraction - 5	0.95	0.45
Feeder	Copper Buried Fraction - 100	0.95	0.45
Feeder	Copper Buried Fraction - 200	0.95	0.4
Feeder	Copper Buried Fraction - 650	0.95	0.3
Feeder	Copper Buried Fraction - 850	0.85	0.2
Feeder	Copper Buried Fraction - 2550	0.85	0.1
Feeder	Copper Buried Fraction - 5000	0.85	0.05
Feeder	Copper Buried Fraction - 10000	0.85	0.05
Feeder	Fiber Aerial Fraction - 0	0.05	0.35
Feeder	Fiber Aerial Fraction - 5	0.05	0.35
Feeder	Fiber Aerial Fraction - 100	0.05	0.35
Feeder	Fiber Aerial Fraction - 200	0.05	0.3
Feeder	Fiber Aerial Fraction - 650	0.05	0.3
Feeder	Fiber Aerial Fraction - 850	0.05	0.2
Feeder	Fiber Aerial Fraction - 2550	0.05	0.15
Feeder	Fiber Aerial Fraction - 5000	0.05	0.1
Feeder	Fiber Buried Fraction - 0	0.95	0.6
Feeder	Fiber Buried Fraction - 5	0.95	0.6
Feeder	Fiber Buried Fraction - 100	0.95	0.6
Feeder	Fiber Buried Fraction - 200	0.95	0.6
Feeder	Fiber Buried Fraction - 650	0.95	0.3

Module/Tab	Scenario Input	Scenario Value	Default Value
Feeder	Fiber Buried Fraction - 850	0.85	0.2
Feeder	Fiber Buried Fraction - 2550	0.85	0.1
Feeder	Fiber Buried Fraction - 5000	0.85	0.05
Feeder	Fiber Buried Fraction - 10000	0.85	0.05
Feeder	Buried fraction available for shift - 0	0	0.75
Feeder	Buried fraction available for shift - 5	0	0.75
Feeder	Buried fraction available for shift - 100	0	0.75
Feeder	Buried fraction available for shift - 200	0	0.75
Feeder	Buried fraction available for shift - 650	0	0.75
Feeder	Buried fraction available for shift - 850	0	0.75
Feeder	Buried fraction available for shift - 2550	0	0.75
Feeder	Buried fraction available for shift - 5000	0	0.75
Feeder	Buried fraction available for shift - 10000	0	0.75
Feeder	Constant EO Switching Investment Term, small ICO	520.14	416.11
Switching	Total Interoffice Traffic Fraction	0.4	0.65
Switching	Tandem-routed Fraction of Total IntraLATA Traffic	1	0.2
Switching	Tandem-routed Fraction of Total InterLATA Traffic	1	0.2
Switching	Local Call Attempts	9424	0
Switching	Call Completion Factor	0.7	0
Switching	IntraLATA Calls Completed	564	0
Switching	InterLATA intrastate Calls Completed	567	0
Switching	InterLATA interstate Calls Completed	1207	0
Switching	Local DEMs, thousands	41593	0
Switching	Intrastate DEMs, thousands	8880	0
Switching	Interstate DEMs, thousands	8768	0
Switching	Fiber Investment, buried fraction	0.95	0.6
Switching	Fiber, aerial fraction	0.05	0.2
Switching	Fraction of Aerial Structure Assigned to Telephone	0.5	0.33
Switching	Fraction of Buried Structure Assigned to Telephone	1	0.33
Switching	Fraction of Underground Structure Assigned to Telephone	1	0.33
Expense	Cost of Debt	0.088	0.077
Expense	Debt Fraction	0.442	0.45
Expense	Cost of Equity	0.1319	0.119
Expense	Corporate Overhead Factor	0.104	0.104
Expense	Billing/Bill Inquiry per line per month	2.3	1.22
Expense	Forward-looking Network Operations Factor	1	0.5
Expense	Alternative CO Switching Factor	0.0475	0.0269
Expense	Distribution Aerial Shring Fraction - 0	1	0.5
Expense	Distribution Aerial Shring Fraction - 5	1	0.33

Module/Table	Scenario Input	Scenario Value	Default Value
Expense	Distribution Aerial Shring Fraction - 100	1	0.25
Expense	Distribution Aerial Shring Fraction - 200	0.5	0.25
Expense	Distribution Aerial Shring Fraction - 650	0.5	0.25
Expense	Distribution Aerial Shring Fraction - 850	0.5	0.25
Expense	Distribution Aerial Shring Fraction - 2550	0.5	0.25
Expense	Distribution Aerial Shring Fraction - 5000	0.5	0.25
Expense	Distribution Aerial Shring Fraction - 10000	0.5	0.25
Expense	Distribution Buried Shring Fraction - 0	1	0.33
Expense	Distribution Buried Shring Fraction - 5	1	0.33
Expense	Distribution Buried Shring Fraction - 100	1	0.33
Expense	Distribution Buried Shring Fraction - 200	1	0.33
Expense	Distribution Buried Shring Fraction - 650	1	0.33
Expense	Distribution Buried Shring Fraction - 850	1	0.33
Expense	Distribution Buried Shring Fraction - 2550	1	0.33
Expense	Distribution Buried Shring Fraction - 5000	1	0.33
Expense	Distribution Buried Shring Fraction - 10000	1	0.33
Expense	Distribution Underground Shring Fraction - 5	1	0.5
Expense	Distribution Underground Shring Fraction - 100	1	0.5
Expense	Distribution Underground Shring Fraction - 200	1	0.5
Expense	Distribution Underground Shring Fraction - 650	1	0.4
Expense	Distribution Underground Shring Fraction - 850	1	0.33
Expense	Distribution Underground Shring Fraction - 2550	1	0.33
Expense	Distribution Underground Shring Fraction - 5000	1	0.33
Expense	Distribution Underground Shring Fraction - 10000	1	0.33
Expense	Feeder Aerial Shring Fraction - 0	1	0.5
Expense	Feeder Aerial Shring Fraction - 5	1	0.33
Expense	Feeder Aerial Shring Fraction - 100	1	0.25
Expense	Feeder Aerial Shring Fraction - 200	0.5	0.25
Expense	Feeder Aerial Shring Fraction - 650	0.5	0.25
Expense	Feeder Aerial Shring Fraction - 850	0.5	0.25
Expense	Feeder Aerial Shring Fraction - 2550	0.5	0.25
Expense	Feeder Aerial Shring Fraction - 5000	0.5	0.25
Expense	Feeder Aerial Shring Fraction - 10000	0.5	0.25
Expense	Feeder Underground Shring Fraction - 0	1	0.5
Expense	Feeder Underground Shring Fraction - 5	1	0.5
Expense	Feeder Underground Shring Fraction - 100	1	0.4
Expense	Feeder Underground Shring Fraction - 200	1	0.33
Expense	Feeder Underground Shring Fraction - 650	1	0.33
Expense	Feeder Underground Shring Fraction - 850	1	0.33

Module/Tab	Scenario Input	Scenario Value	Default Value
Expense	Feeder Underground Shring Fraction - 2550	1	0.33
Expense	Feeder Underground Shring Fraction - 5000	1	0.33
Expense	Feeder Underground Shring Fraction - 10000	1	0.33
Expense	Feeder Buried Shring Fraction - 0	1	0.4
Expense	Feeder Buried Shring Fraction - 5	1	0.4
Expense	Feeder Buried Shring Fraction - 100	1	0.4
Expense	Feeder Buried Shring Fraction - 200	1	0.4
Expense	Feeder Buried Shring Fraction - 650	1	0.4
Expense	Feeder Buried Shring Fraction - 850	1	0.4
Expense	Feeder Buried Shring Fraction - 2550	1	0.4
Expense	Feeder Buried Shring Fraction - 5000	1	0.4
Expense	Feeder Buried Shring Fraction - 10000	1	0.4
Expense	Motor Vehicles - Economic Life	1	0.4
Expense	Garage Work Equipment - Economic Life	9.28	8.24
Expense	Other Work Equipment - Economic Life	11.04	12.22
Expense	Buildings - Economic Life	13.47	13.04
Expense	Furniture - Economic Life	47.82	46.93
Expense	Office Support Equipment - Economic Life	17.1	15.92
Expense	Company Comm. Equipment - Economic Life	11.58	10.78
Expense	General Purpose Computer - Economic Life	7.69	7.4
Expense	Digital Electronic Switching - Economic Life	6.36	6.12
Expense	Operator Systems - Economic Life	16.66	16.17
Expense	Digital Circuit Equipment - Economic Life	9.33	9.41
Expense	Public Telephone Terminal Equipment - Economic Life	10.07	10.24
Expense	Poles - Economic Life	8.26	7.6
Expense	Aerial Cable - metallic - Economic Life	15.92	30.25
Expense	Aerial Cable - non metallic - Economic Life	16.75	20.61
Expense	Underground Cable - metallic - Economic Life	22.24	26.14
Expense	Underground Cable - non metallic - Economic Life	21.14	25
Expense	Buried - metallic - Economic Life	23.08	26.45
Expense	Buried - non metallic - Economic Life	19.9	21.57
Expense	Intrabuilding Cable - metallic - Economic Life	23.86	25.91
Expense	Intrabuilding Cable - non metallic - Economic Life	15.71	18.18
Expense	Conduit Systems - Economic Life	23.62	26.11
Expense		50.92	56.19