

Exhibit No.:
Issues: Cost of Switched Access
Witness: Ben Johnson, PhD.
Sponsoring Party: MoPSC Staff
Type of Exhibit: Surrebuttal Testimony
Case No.: TR-2001-65
Date Testimony Prepared: August 29, 2002

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

SURREBUTTAL TESTIMONY

OF

Ben Johnson, PhD.

CASE NO. TR-2001-65

Jefferson City, Missouri
August 29, 2002

****Denotes Highly Confidential Information****

NP

TABLE OF CONTENTS

Introduction	1
William Dunkel	2
Steve Brandon	12
Robert Schoonmaker	21
William Warinner	34
David Barch	35
Brian Staihr	43
<i>Stand Alone Costs</i>	<i>43</i>
<i>The Use of Non-Standard Increment</i>	<i>49</i>
<i>Local Exchange Rates and Costs</i>	<i>55</i>
<i>Variability of Common Costs</i>	<i>56</i>
<i>Marginal or Incremental Costs vs. Average Costs</i>	<i>60</i>
<i>Differing Opinions Concerning Loop Costs</i>	<i>62</i>
<i>Cost Causation</i>	<i>75</i>
<i>The Distinction Between Joint Use and Joint Cost</i>	84
Mark Harper	92

1 **SURREBUTTAL TESTIMONY**

2 **OF**

3 **BEN JOHNSON, PhD.**

4 **CASE NO. TR-2001-65**

5
6 **Introduction**

7 Q. Would you please state your name and address?

8 A. Ben Johnson, 2252 Killearn Center Boulevard, Tallahassee, Florida 32309.

9 Q. Are you the same Ben Johnson who earlier filed direct and rebuttal testimony in
10 this proceeding?

11 A. Yes, I am.

12 Q. What is your purpose in filing this surrebuttal testimony?

13 A. In this filing I will respond to some aspects of the rebuttal testimony filed by
14 witnesses for other parties to this proceeding. Given time and resource constraints, I have not
15 attempted to address each and every criticism mentioned by the other parties. Also, some of the
16 concerns which are raised in the other parties' testimony have already been dealt with in my
17 direct and rebuttal testimony. The fact that I do not discuss other portions of the rebuttal
18 testimony filed by these parties should not be construed as agreement with such testimony.

19 Q. How is your testimony organized?

20 A. I will respond to the rebuttal testimony of Mr. Dunkel, who is appearing on behalf
21 of the Office of the Public Counsel, then the rebuttal filed by Alltel Missouri, Inc.(ALLTEL)
22 (Mr. Brandon), then the rebuttal filed by Mr. Schoonmaker and Mr. Warinner on behalf of the
23 small, rural Incumbent Local Exchange Carriers (ILECs or LECs), and finally the rebuttal filed

Surrebuttal Testimony of
Ben Johnson, PhD.

1 by Mr. Barch on behalf of Southwestern Bell Telephone LP, d/b/a Southwestern Bell Telephone
2 Company (SWBT). I conclude with some comments in response to the rebuttal filed by Sprint
3 Missouri, Inc. d/b/a Sprint (Sprint) (Dr. Staihr and Mr. Harper).

4
5 **William Dunkel**

6 Q. One of the witnesses for the Missouri Office of the Public Counsel (MOPC)
7 concludes that your attempt to identify rates and costs by element “were not successful.”
8 (William Dunkel, p. 8, lines 14-15) Do you agree?

9 A. No. The effort involved in identifying and comparing costs to rates is quite
10 substantial. There are various steps in the process which involve judgment calls, and some steps
11 may involve compromises or approximations. Regardless of the minor flaws or weaknesses Mr.
12 Dunkel perceives in our studies, it doesn’t seem fair to characterize the results as being
13 “unsuccessful.”

14 In this regard, it is worth noting that Mr. Dunkel did not tell us about any of his criticisms
15 or concerns prior to the time he filed his rebuttal testimony—despite the fact that the Public
16 Counsel was given multiple opportunities to recommend improvements prior to the time Staff
17 filed its direct testimony.

18 This decision to save his comments for the very end of the process is noteworthy because
19 Staff developed an unusually open and transparent process for developing its cost studies in this
20 proceeding, in an effort to encourage cooperation amongst the parties and to minimize the
21 number of technical issues which the Commission would need to resolve. Staff was hoping that

Surrebuttal Testimony of
Ben Johnson, PhD.

1 the Commission would be able to focus its attention on the key conceptual and philosophical
2 issues which lie behind the vigorous advocacy efforts of the various parties, without having to
3 also resolve numerous minor technical disputes.

4 Staff's goal was to eliminate to the greatest extent possible the many small glitches and
5 technical debates which so often dominate regulatory reviews of cost studies. Case No. TO-
6 2001-438 (involving SWBT's cost studies for additional unbundled network elements) provides
7 a classic example of the typical process. SWBT developed and submitted its cost studies without
8 providing other parties with any opportunity to make suggestions, and the Commission was
9 subsequently forced to deal with numerous disputed issues—the great majority of which involved
10 very narrow, technical disagreements rather than major policy concerns.

11 In establishing this unusually open, multi-stage process Staff tried to encourage a more
12 collaborative approach to cost development, and wanted to ensure that parties that disagreed
13 with Staff's studies had every opportunity to submit alternative studies which could be easily
14 and directly compared to those submitted by Staff. This would allow the Commission to more
15 clearly determine the impact of each disputed issue—preferably on a consistent basis for all
16 carriers in the state.

17 For this reason, beginning in the Summer of 2001, during a series of conference calls we
18 explained the approach we were using, and offered to work with the parties and their consultants
19 on a cooperative basis. In addition, Staff provided the parties with draft copies of our cost studies
20 and workpapers in electronic format on March 1, 2002. Revised drafts were provided on April 1
21 and the final versions were submitted on May 30, a full month before the deadline for filing

Surrebuttal Testimony of
Ben Johnson, PhD.

1 direct testimony. Throughout this multi-stage process, Staff provided the parties with
2 opportunities to review and comment on our studies, and we specifically asked the parties to
3 identify any errors they perceived in our work and we solicited suggestions for improvements.

4 In the course of this lengthy process, we spent considerable time on the phone talking
5 with various parties and their consultants concerning Staff cost studies, explaining the
6 methodology we were using and discussing the rationale for various aspects of the studies
7 (including the Office of Public Counsel and Mr. Dunkel specifically). Several of the parties
8 (especially Sprint) took full advantage of this process to obtain detailed, advance knowledge of
9 the approach we were using, and they provided us with extensive feedback. In every instance
10 where someone found an error in our work, we corrected the problem in a subsequent filing.

11 Most of the feedback we received didn't concern actual errors, per se. Regardless of how
12 the comments may have been characterized, most of the feedback we received concerned
13 differences in opinion or differences in modeling philosophy. For instance, some of the parties
14 strenuously objected to including loop costs in any of the studies. In some cases, the comments
15 involved alternative ways of dealing with various technical issues. Regardless of whether or not
16 we agreed with the parties' comments, we found this transparent multi-staged process to be
17 constructive, and beneficial, as indicated by the fact that the final studies incorporated several
18 significant changes in response to various suggestions—particularly those provided by Sprint.

19 Given this unusually open process, I am somewhat perplexed by Mr. Dunkel's testimony.
20 He finds fault with various technical details of our studies, yet his criticisms have been offered
21 for the first time at the final stage of the proceeding, thereby reducing the opportunity for other

Surrebuttal Testimony of
Ben Johnson, PhD.

1 parties to evaluate and respond to them. Moreover, he has not provided the Commission with
2 any calculations to show the impact of his proposed changes or “corrections.” Yet, we provided
3 the Public Counsel and other parties with electronic copies of all of our studies and workpapers
4 last Spring, making it relatively easy for him to provide the Commission with such alternative
5 calculations.

6 Q. Up to this point, your response has been very general. Can you also provide a
7 brief response to some of his specific criticisms, beginning with the treatment of line termination
8 revenues in your rate to cost comparisons?

9 A. Yes. Mr. Dunkel agrees with my decision to include line termination costs in the
10 common line category, but he disagrees with my decision to group the line termination rate
11 element with the end office switching rate element. (Id., p. 9, lines 9-11)

12 Q. Do you agree with Mr. Dunkel’s criticism?

13 A. No. While I concede that this is a grey area, where more than one approach is
14 viable, I remain convinced that the approach we used is a reasonable one. In organizing the
15 results of our cost studies, we primarily focused on whether the costs in question were traffic
16 sensitive or non-traffic sensitive. The ports which allow loops to connect to the switch are
17 typically considered to be non-traffic sensitive in nature (meaning that these costs vary with the
18 number of loops connected to the switch, but not with the volume of traffic carried on those
19 loops). The bulk of the line termination costs are closely related to, or arise at, the physical point
20 of interconnection between loops and the switch (the ports). Hence, cost analysts typically group
21 these costs with loop costs and are part of the rationale for including a carrier common line

1 (CCL) rate element in switched access tariffs. Also, while attention is usually focused on loop
2 costs, parties that object to the carrier common line (CCL) rate element typically oppose
3 recovery of any line termination costs which can be classified as non-traffic sensitive.
4 Accordingly, I used the distinction between NTS and TS costs to determine which costs should
5 be placed into the carrier common line cost category.

6 This brings us to the question of how to treat the revenues received from the line
7 termination rate element. This is a separate rate element which is paid in addition to the CCL.
8 For the sake of uniformity and simplicity, I didn't want to deal with every rate element
9 individually; rather, I wanted to simplify the picture by grouping elements and focusing on the
10 overall pattern of the existing rate design. As part of this simplification process, I made the
11 decision to group the line termination revenues with the end office switching revenues, rather
12 than with the CCL revenues. I am not aware of any decision by this Commission regarding
13 whether the line termination rate element is intended to recover non-traffic sensitive or traffic
14 sensitive costs, and it is certainly possible that the ILECs have not been entirely consistent in
15 developing these rates. In any event, I continue to believe it is reasonable to treat the Line
16 Termination rate element as relating to those line side costs which are traffic sensitive, and to
17 assume that recovery of non-traffic sensitive line side costs is achieved through the CCL rate
18 element.

19 The CCL rate is one of the more controversial aspects of this case and many parties will
20 argue that it should be eliminated. The primary dispute underlying this controversy is the
21 appropriate treatment of non-traffic sensitive costs. The approach I have used places non-traffic

Surrebuttal Testimony of
Ben Johnson, PhD.

1 sensitive costs (which vary with the number of lines but not the volume of traffic flowing over
2 those lines) in the CCL category while placing traffic sensitive costs in the end office switching
3 category—regardless of whether or not those costs relate to equipment located on the line side of
4 the switch.

5 Mr. Dunkel did not provide alternative results using the approach he recommends, nor
6 did he quantify this issue. However, he admits on page 12 of his rebuttal testimony that this issue
7 is relatively insignificant, and I don't believe changing the classification of line termination
8 revenues would have any effect on my major conclusions. (Id., p. 12, lines 6-7)

9 Q. Mr. Dunkel also claims that you did not place SWBT's traffic sensitive line
10 switching costs in the end office switching rate element and inappropriately included these
11 traffic sensitive costs in the "common line" rate element. (Id., p. 12, lines 13-14) Is this a valid
12 criticism?

13 A. No. SWBT has negotiated contracts with its switching equipment vendors which
14 differ from those which have historically applied to SWBT and other carriers. Due to ** HC-
15 HC-----
16 HC----------** the
17 costs in question are not traffic sensitive for SWBT, even if they would be traffic sensitive in
18 other situations.

19 Q. To clarify this issue, would you please elaborate on SWBT's situation?

20 A. Yes. A succinct explanation is provided in SWBT's Switching Information Cost
21 Analysis Tool (SICAT) documentation:

Surrebuttal Testimony of
Ben Johnson, PhD.

1 HC HC-----
2 -----
3 -----
4 -----
5 HC-----
6 HC-----
7 -----
8 -----
9 -----
10 HC-----
11 HC-----
12 -----**
13 -----

14 Then beginning in 1988, SWBT began to negotiate **HC-----
15 HC-----** as their documentation goes on to explain;

16 ** HC-----
17 HC-----
18 HC-----
19 -----
20 -----
21 HC-----**
22 -----

23 Regardless of what Mr. Dunkel might conclude from an engineering perspective, in the
24 context of forward-looking economic cost studies, the appropriate criteria for classifying costs is
25 whether or not the costs vary with traffic volumes, and this criteria needs to be applied to the
26 actual facts—how the costs in question are actually incurred by the carrier in question. I
27 consistently applied the same logic in classifying costs incurred by SWBT and other carriers,
28 consistent with their contract terms.

29 Q. How does this difference in contractual circumstances relate to Mr. Dunkel's
30 criticism of your switching cost study? (Dunkel Rebuttal, p. 13, lines 15-26)

Surrebuttal Testimony of
Ben Johnson, PhD.

1 A. Mr. Dunkel fails to adequately consider differences between the cost structure
2 facing SWBT and the cost structure generally facing other carriers. He refers to my decision to
3 treat Line Centi Call Seconds (CCS) and Trunk CCS costs as traffic sensitive costs which belong
4 with the end office switching rate element. (William Dunkel, p. 13) However, he fails to
5 mention that this portion of my testimony is specific to the SCIS studies. I didn't use SCIS to
6 estimate switching costs for SWBT. SWBT purchases switching equipment under the terms of
7 contracts which do not contain the detailed price lists used in SCIS. To the contrary, the amount
8 SWBT pays for a switch is ** C-----

9 ** In our studies, we classified costs which are incurred primarily on a per-line basis as non-
10 traffic sensitive.

11 Mr. Dunkel apparently believes I should have allocated a portion of the costs that are
12 incurred on a per-line basis to the traffic sensitive (end office switching) category, but he doesn't
13 offer any economic justification for making such an allocation, nor has he provided the
14 Commission with any details concerning how he would go about performing such an allocation.

15 Q. Mr. Dunkel also criticizes you for excluding "getting started costs" from your
16 analysis of most of SWBT's switches. What is your response? (Dunkel Rebuttal, p.12, line 15)

17 A. I did not leave out any "getting started" costs. To the contrary, I treated SWBT's
18 costs in a manner which is consistent with the specific manner in which this carrier incurs the
19 costs in question. To the extent SWBT incurs certain costs in order to purchase a switch,
20 regardless of the size of that switch, I treated these costs as "getting started costs." However,
21 under the terms of SWBT's contracts with its switching equipment vendors, "getting started"

Surrebuttal Testimony of
Ben Johnson, PhD.

costs are only incurred under limited circumstances. Costs which would more typically be **

HC-----

HC-----**

Under its current contractual arrangements with one vendor, SWBT can purchase ** HC

HC-----

HC-----

HC-----

HC-----** under SWBT's current contractual arrangements.

Perhaps a simple analogy will help clarify the situation. Consider the situation when someone calls a taxi company and asks for a cab to pick them up at their home. From the taxi company's perspective, it incurs a "getting started" cost in order to dispatch a cab to the home. This cost is largely a function of the distance which must be driven from the cab's current location to the home. If the home is many miles from the nearest cab, the "getting started" cost may be fairly substantial. From the customer's perspective, however, the only "getting started" cost associated with the cab ride is the amount which appears on the meter when it is first dropped. If the cab drives half a block and drops the customer at their destination, the only cost incurred by the customer is likely to be the charge for the "first 1/10 mile." In studying the costs incurred by the customer, this is the relevant number. However, from the taxi company's perspective this won't be a profitable transaction, because it incurs the high cost of driving several miles to pick up the customer. Averaged over many different cab rides, the initial meter charge is probably adequate, at least in combination with the per-mile charges. However, if one

Surrebuttal Testimony of
Ben Johnson, PhD.

1 is studying the taxi company's costs, its per-trip "getting started" costs can be quite substantial,
2 and they won't necessarily be recovered from the initial meter charge on any particular
3 transaction. Similarly, in studying SWBT's costs, the relevant question is what level of "getting
4 started" costs are incurred by SWBT as a customer purchasing from the switch
5 manufacturers—not the corresponding level of fixed costs incurred by the vendors.

6 Q. Finally, Mr. Dunkel criticizes your use of the interLATA CCL rates in your
7 rate/cost comparisons. Can you explain this criticism and provide your response? (Dunkel
8 Rebuttal, p. 17, lines 11-15)

9 A. Certainly. Mr. Dunkel says that my CCL revenue analysis is overstated because
10 most intrastate access traffic is billed at the intraLATA rate, yet I used the interLATA rate in my
11 analysis. He suggests that because 16 of the 39 ILECs in our study have a lower intraLATA
12 CCL rate, my analysis overstates the current level of CCL rates, as well as the overall level of
13 switched access rates.

14 I will concede there is some merit to this criticism. Had he raised this point at an earlier
15 stage of the proceeding, I would have looked more closely at this aspect of our study, and
16 evaluated some other options. For instance, a reasonable alternative would be to use a weighted
17 average of the interLATA and intraLATA rates. Unfortunately, Mr. Dunkel hasn't provided the
18 Commission with any rate/cost comparisons using this, or another, approach. However, I
19 anticipate the impact would be relatively modest, particularly since the interLATA and
20 intraLATA rates are identical for the 4 largest ILECs in the state, and these carriers carry most of
21 the traffic in the state.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Moreover, there are data limitations which could create difficulties with some of the
2 approaches which might otherwise seem reasonable. For instance, some carriers indicated that
3 while their Missouri intrastate access tariff lists different CCLs rate elements for interLATA and
4 intraLATA access, their normal data collection processes do not keep distinguishing traffic
5 volumes on this basis. Even if the necessary data could be gathered on a systematic, consistent
6 basis, we wouldn't necessarily want to burden the ILECs with a research effort that wouldn't
7 necessarily yield significantly different results than the simplified approach we used (focusing
8 on the interLATA rates).

9
10 **Steve Brandon**

11 Q. ALLTEL witness Steve Brandon criticizes the Staff cost study because it "was
12 not based on any ALLTEL specific costing information" even though "ALLTEL prepared
13 responses to a total of (7) data requests from Dr. Johnson, in which a great deal of ALLTEL
14 specific data was provided." (Brandon Rebuttal, p. 2, lines 16-24) Is this a fair criticism?

15 A. No. I provided a general response to the criticism that our studies were not
16 sufficiently tailored to the "actual" conditions faced by each carrier in my rebuttal testimony,
17 particularly in response to Mr. Larson's direct testimony. As I explained in my direct and
18 rebuttal testimony, the Staff studies provide reasonable estimates of the actual economic cost of
19 intrastate switched access service incurred by carriers in Missouri, notwithstanding the fact that a
20 modeling approach was used, and that various simplifying assumptions and estimating
21 techniques were used.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Q. At page 2, line 24 of his rebuttal testimony, Mr. Brandon notes that ALLTEL
2 prepared responses to seven data requests from Staff, and he states that he couldn't find where
3 we had used any of this data. What is your response?

4 A. Mr. Brandon apparently did not conduct a thorough enough review of our studies.
5 Many of ALLTEL's responses to data requests were directly incorporated into our studies, while
6 other responses were carefully reviewed and were used indirectly in arriving at various
7 judgments and inputs used in the studies.

8 Q. Can you be more specific as to how certain data responses were used directly?

9 A. Yes. A straightforward example is the fact that we used information concerning
10 the actual number of subscriber lines, by common language location identifier (clic) code, and
11 the actual types of switches operated by each carrier. This data was obtained from Data Request
12 (DR) Set 1. Similarly, we obtained detailed information concerning interoffice relationships
13 from DR Set 4 which was also used in developing our studies. The process of assembling,
14 analyzing, and incorporating this data into the cost studies was a very time consuming, detailed
15 process which was accomplished in a multi-month period. To cite another example, we obtained
16 and analyzed a variety of different traffic data from the carriers, and ultimately decided to use
17 the Subscriber Line Usage (SLU) data which we obtained from DR Set 6. This data was used in
18 deriving the per-minute cost results which were presented to the Commission and in deriving the
19 stand alone cost results. The SLU data was also used in developing the fully distributed cost
20 studies.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Q. Can you be more specific as to how this data was incorporated into the ALLTEL
2 studies specifically?

3 A. Yes. For instance, line count data obtained from ALLTEL was used in
4 conjunction with regression coefficients to calculate various costs in the ALLTEL switching and
5 transport studies. Data concerning the relationships between remote switches and the
6 corresponding host switch, and the relationship between each switch and its serving tandem was
7 obtained through discovery and compared to the analogous data included in the most recent
8 version of the FCC model. Where this data matched the FCC database, no changes were made.
9 Where the FCC data was inconsistent, we relied upon the more recent, and presumably more
10 accurate, data we obtained from ALLTEL and other carriers during the discovery process. The
11 impact of this very detailed, time consuming verification process is not readily apparent in
12 reviewing the studies, and it only had an impact on the final results in those cases where the FCC
13 database was outdated or inaccurate.

14 Q. You also indicated that some responses were only used indirectly in the course of
15 your research. Can you elaborate on this point?

16 A. Certainly. For example, some of our questions asked what types of studies and
17 models ALLTEL might submit in this docket. This was used in evaluating our options for using
18 carrier-specific models in lieu of other modeling tools. Another request concerned price out
19 (billing determinants) for a particular month. This data was used in evaluating the importance of
20 various switched access rate elements and helped us with our initial planning efforts. We also
21 considered, but ultimately did not rely upon, this data at other points in our research efforts.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Another example involved our requests for information concerning purchases of central office
2 equipment during recent years. We extensively evaluated the responses to this request, and
3 considered using it more extensively, either in lieu of, or in conjunction with, the SCIS-based
4 cost data that we ultimately relied upon. However, we ultimately decided not to rely upon these
5 discovery responses due to various delays or failures to provide complete responses. In the case
6 of the switching investment data specifically, we were also influenced by the paucity of data
7 concerning very recent switch purchases from those carriers that did provide complete and
8 timely responses. Hence, we ultimately concluded that the data received in response to this
9 discovery request was not a viable alternative to the SCIS data which we ultimately used in
10 estimating switching costs for ALLTEL and the small ILECs. I will further discuss this
11 particular data request as part of my response to the rebuttal testimony of Mr. Schoonmaker.

12 Q. You have indicated that there were problems with various discovery responses.
13 Can you please elaborate on the problems associated with these data requests?

14 A. Yes. We were very sensitive to the fact that many of the parties to this proceeding
15 (especially the CLECs and the small LECs) have limited resources and a small customer base.
16 Hence, we tried to limit the amount of discovery sent to these smaller carriers, and we tried to
17 structure the requests in a manner which would minimize the burden of preparing responses.
18 Each discovery request was carefully thought out, and we tried to limit the requests sent to the
19 smaller carriers to focus on topics which seemed to be particularly important, and/or which we
20 believed would be relatively easy for the carriers to provide.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Despite these efforts, many of the parties failed to provide complete and timely responses
2 to our discovery requests. When confronted with gaps and delays, we sometimes concluded that
3 it would be better to abandon the discovery effort rather than pushing the carriers even harder to
4 provide complete responses. As a result, some of the data submitted by some carriers ultimately
5 was not used, since the analogous data requested from other carriers was never received.

6 Q. I'd like you to be a little more specific in describing the difficulties you
7 encountered in the discovery process. Who were the data requests sent to?

8 A. Data requests were sent to four major categories of carriers in the state of
9 Missouri: The Big 5 (comprised of ALLTEL, Spectra d/b/a CenturyTel (Century Tel), Sprint,
10 SWBT, and GTE Midwest, Inc. d/b/a Verizon Midwest (Verizon), Competitive Local Exchange
11 Carriers (CLECs), small ILECs (sometimes referred to as Small Independents) and
12 Interexchange Carriers (IXCs) (major purchasers of switched access service).

13 Q. How many sets of data requests were sent?

14 A. Eight sets of data requests were sent to the Big 5 group, three sets were sent to the
15 CLECs, four sets were sent to the small ILECs, and two sets were sent to the 3 largest IXCs
16 (AT&T Communications of the Southwest, Inc. (AT&T), MCI Worldcom Communications, Inc.
17 (Worldcom) and Sprint).

18 Q. Do you have any exhibits summarizing the response rates?

19 A. Attached to my testimony are three schedules which summarize the response rates
20 for the Big 5 companies, the CLECs, and the ILECs, respectively. These schedules show the
21 number of parties to whom sets of requests were sent, and whether a response was received. If a

Surrebuttal Testimony of
Ben Johnson, PhD.

1 response was ultimately received, I have further indicated whether the response was timely and
2 complete.

3 Q. What parameters were used in determining if a response was timely?

4 A. According to the MoPSC discovery guidelines, all responses were to be received
5 within 20 calendar days of the date of the request. For purposes of this analysis, I added a
6 five-day grace period. Thus, if our records indicate that a response was received within 25 days
7 of the date of the request, it was classified as timely.

8 Q. What criteria were used in determining if a response was complete?

9 A. The response to each question was evaluated, and a judgment was made whether
10 the response seemed to fully and accurately answer the question. If there were gaps in a
11 response (e.g. some questions were not answered) it was classified as “incomplete.” If the
12 response indicated that a request did not apply to a given carrier given its circumstances, it was
13 classified as “not applicable”.

14 Q. How has this response data been organized?

15 A. For each set of data requests, the responses of the individual carriers were
16 classified into three categories: “Complete”, “Incomplete”, and “No Response”. Where a
17 response was received, it was further categorized as being either “Timely” or “Untimely”. Each
18 schedule summarizes the results of this analysis, showing the percentage of responses within
19 each of these categories.

20 Q. Would you please summarize the response rates for the Big 5 companies?

Surrebuttal Testimony of
Ben Johnson, PhD.

1 A. Yes. In general, the response rate from the Big 5 companies (as well as the large
2 IXC's) was more than adequate. As indicated on Schedule 1, the Big 5 companies responded to
3 92.5% of our requests. Furthermore, 75% of these responses were complete. Overall, 59.5% of
4 their responses were both complete and timely.

5 Q. Would you please summarize the response rates for the CLECs?.

6 A. Yes. A review of Schedule 2 shows that most of the CLECs responded to our
7 requests. However, the responses we received were often tardy or incomplete. It is also worth
8 noting that, of a total of 161 responses, 72 were determined to be "not applicable" because the
9 respondents were only operating as resellers or they were not actually doing business as CLECs
10 in Missouri, despite having qualified to do so.

11 Q. Would you please summarize the response rates for the small ILECs?

12 A. Yes. A review of Schedule 3 shows that the response level from the small ILECs
13 was very poor. We received complete and timely responses to less than 7% of the requests sent
14 to the small ILECs. Moreover, we received no response to 68.1% of our requests, despite the fact
15 that the Commission made these carriers parties to this proceeding, and despite the fact that the
16 attorneys representing these carriers did not formally object to any of our requests.

17 Regardless of how you look at the data, the response rate from the small ILECs was very
18 poor. If Staff had invested enough time and effort (e.g. filing motions to compel discovery and
19 submitting multiple rounds of follow-up requests) it might have been feasible to obtain more of
20 the data we needed from these small carriers. However, I decided this course of action would not

Surrebuttal Testimony of
Ben Johnson, PhD.

1 have been a wise use of Staff's limited resources. Furthermore, I was concerned that a more
2 aggressive data-gathering effort might be unduly burdensome for the smallest carriers.

3 Q. We began this discussion in the context of Mr. Brandon's criticisms of your
4 failure to use all of the data requested from ALLTEL. Can you explain how the response rates of
5 the smaller carriers relates to this issue, as well as other issues raised in the rebuttal testimony of
6 other witnesses in this proceeding?

7 A. Yes. Our inability to obtain detailed, accurate, timely data from most of the small
8 carriers placed us in a very difficult position. Rather than burden Staff and the carriers with an
9 even more aggressive data gathering effort, I made the decision to modify our modeling
10 approach and to rely more heavily on estimating techniques and approximations. The most
11 notable example was my decision to use regression coefficients derived from data we had
12 obtained from some of the larger ILECs in order to estimate switching and transport costs for
13 ALLTEL and the smaller ILECs. I fully realized that this decision would leave us open to
14 criticism. But, the only viable alternatives were to rely more heavily on embedded cost data (the
15 approach advocated by the small ILECs) or to burden the small ILECs with an even more
16 intensive data gathering effort. I remain convinced that the approach we selected was superior to
17 either of these alternatives.

18 One final point should be made in this context. Earlier in this proceeding we specifically
19 offered to work collaboratively with the consultants to the small ILECs in refining and
20 improving the Staff cost studies, particularly with a view towards more fully reflecting the
21 unique characteristics of the small ILECs. Although some of the consultants expressed an

Surrebuttal Testimony of
Ben Johnson, PhD.

1 interest in doing this, the hoped for collaborative effort never materialized—perhaps because they
2 didn't receive the necessary budget authorization from their clients. Similarly, although
3 ALLTEL is a relatively large, national carrier, its management did not choose to expend any of
4 its consulting budget on working collaboratively with the Staff in this proceeding.

5 Q. One final point. Mr. Brandon claims that you are inconsistent in your treatment of
6 ALLTEL, because you categorize it as a large ILEC in some contexts yet consider it a small,
7 rural ILEC in other contexts. Do you agree that you have been inconsistent? (Id., p. 2. line 25)

8 A. No. For some purposes, I grouped ALLTEL with the larger ILECs (SWBT,
9 Verizon and Sprint) because ALLTEL's Missouri operations are part of a growing
10 telecommunications firm which has a national presence in 26 states, providing over 3 million
11 wireline customers with local service. Furthermore, ALLTEL is a provider of long distance,
12 wireless and other telecommunications service in numerous markets throughout the country. In
13 fact, ALLTEL is the dominant provider of wireless service in Tallahassee, Florida where my
14 business and home are located (Sprint is the dominant provider of wireline service). Hence, I
15 believe it was reasonable to classify it with the other large national carriers when developing our
16 cost of capital calculations and when grouping and summarizing our cost and rate data.

17 However, it is equally true that ALLTEL serves relatively low density, rural areas in
18 Missouri. Also, ALLTEL has not developed any forward looking cost studies for its Missouri
19 operations, and thus with regard to certain types of cost data it was more like the small ILECs
20 than the other members of the Big 5. Rather than being inconsistent in our approach, I believe
21 we have consistently dealt with ALLTEL in each aspect of this case, as the facts warranted.

Robert Schoonmaker

Q. Small Telephone Company Group (STCG) witness Schoonmaker argues that the forward looking cost models you used do not represent “actual costs” and give no consideration to the costs of the small Missouri companies. (Schoonmaker, Rebuttal Testimony, p. 4, line 16 through p. 5, line 15) Do you agree that the Staff cost studies are incorrect because they are not based on “actual” data?

A. No. As I explain in my direct testimony and my rebuttal testimony, the Staff studies provide reasonable estimates of the "actual" economic cost of intrastate switched access service in Missouri, consistent with the Commission's directives. I have already dealt with this issue in my rebuttal testimony at page 2, in response to the same criticism by Missouri Independent Telephone Group (MITG) witness Larson, which I will not repeat here.

Q. Mr. Schoonmaker goes on to argue that your studies give no consideration to the costs differences that may be incurred by the small Missouri companies in comparison to the large companies “to reflect such considerations as economies of scale and scope, company size, geographic diversity, manufacturer availability and volume discount availability.” (Id at p. 5, lines 7-11) Is this criticism valid?

A. No, except to a very limited degree. Contrary to his assertion, the Staff cost studies do give considerations to economies of scale and scope, as well as geographic diversity including differences in line density, customer location, soil conditions, and other factors. To confirm that consideration of these differences had a very significant impact on the Staff’s cost results one need look no further than the estimated monthly loop costs of the Missouri small

1 telephone companies in comparison with the analogous costs for SWBT. The rural costs are
2 much higher than SWBT's precisely because our models do take into consideration differences
3 in customer density, and corresponding differences in economies of scale (among other things).

4 Q. But Mr. Schoonmaker says your regression techniques do not consider these
5 factors. Is this a fair criticism? (Id., p. 12, line 15 through p. 13, line 4)

6 A. No. For instance, the structure of our regression coefficients allows economies of
7 scale to be considered—the estimated switch investment per line for carriers with small wire
8 centers is higher than the analogous investments estimated for carriers with larger wire centers.
9 As well, when costs are developed on a per-unit basis (cost per minute) additional consideration
10 is given to economies of scale and scope. One indication of the fact that our regression-based
11 cost estimates take into consideration differences in economies of scale and scope is the fact that
12 both our transport costs and our switching costs are substantially higher per minute for the small
13 ILECs than for SWBT (the carrier that serves the state's largest urban areas and enjoys
14 economies of scale and scope to the greatest degree).

15 Q. What about differences in manufacturer availability and volume discounts?

16 A. It is certainly possible that there are buying power differences between the small
17 and large carriers in the state. However, Mr. Schoonmaker has offered no evidence concerning
18 the magnitude or significance of any differences in buying power which might exist. Also, it is
19 important to remember that the markets for switching equipment, fiber optic cable, and fiber
20 electronics all function on a national (and international) level, and these markets are generally
21 quite competitive. The larger and more competitive a market is, the less likely it is that large

Surrebuttal Testimony of
Ben Johnson, PhD.

1 buyers will enjoy a substantial advantage over small buyers. Admittedly, some manufacturers,
2 such as Nortel and Lucent, may claim that they offer deep discounts to their largest buyers.
3 However, it is also a fact that these firms are extraordinarily secretive about the prices they
4 charge and the various discounts they offer. Perhaps one of the reasons for this extraordinary
5 secrecy is that the special “deals” they are offering their largest customers aren’t as favorable as
6 they would like their customers to believe. In a highly competitive atmosphere, even a small
7 customer who isn’t locked into a particular manufacturer or technology choice, and has a real
8 ability to choose between multiple vendors, can potentially get as good a deal as a much larger
9 buyer—depending upon how hungry the seller is for the business, and how worried the vendor is
10 that a rival may be offering a better price.

11 Furthermore, although we have used cost data from Verizon and Sprint to estimate
12 switching equipment costs for the small ILECs and CLECs, these firms aren’t limited in their
13 actual purchasing decisions. In addition to Nortel and Lucent, they can and do purchase
14 switching equipment from firms like Mitel and Redcom. In some cases, the offerings of these
15 smaller manufacturers are extremely cost effective for small carriers. This is partly because their
16 switches are optimized for use in small wire centers (as little as a few hundred lines in the case
17 of Mitel and as few as a few dozen lines in the case of Redcom). As well, because these firms
18 don’t have the market share or “cachet” of Nortel and Lucent, they may be willing to sell at
19 lower prices, or earn lower profit margins, in order to gain business. Thus, there is no basis for
20 assuming that the switch cost we developed through our regressions of large ILEC data will

1 necessarily be biased below the actual level of costs that a small ILEC in Missouri faces when
2 considering the purchase of a new switch.

3 These same points also apply to fiber optic cable and electronics. If the largest vendors
4 aren't eager to compete for the business of the small ILECs, there are other manufacturers who
5 will eagerly bid for the business—at prices which may be very close to, or actually less than, the
6 “discounted” prices offered by the largest vendors to the largest national carriers.

7 Q. Mr. Schoonmaker argues that the cost differences between the switches of
8 Verizon and Sprint and the switches of the small companies are not taken into account in the
9 Staff studies and that the sample you chose for regression purposes may not be representative of
10 the small company switches (Id at pp. 12-14). Is this a fair criticism?

11 A. No. The “sample” in question includes all of the SCIS data provided by Verizon
12 and Sprint. We did not selectively remove some of this data, nor did we limit our analysis to a
13 portion of the data. I believe the decision to exclude consideration of the corresponding
14 switching cost data provided by SWBT was appropriate, both because so many of the SWBT
15 switches are much larger than those deployed by the small ILECs and because that data was not
16 produced by SCIS and was not directly comparable to the SCIS data.

17 While it is certainly possible that differences exist between the Verizon and Sprint
18 switches and those of the smaller ILECs, quantifying any such differences was not a viable
19 option, given the practical constraints in this proceeding. As I mentioned earlier in my
20 testimony, we encountered great difficulty in trying to obtain detailed, accurate information
21 concerning the switches operated by the small ILECs.

1 Q. Can you elaborate on the discovery problems you encountered with regard to
2 switching costs of small ILECs specifically?

3 A. Yes. I have prepared two additional schedules related to the third and fourth sets
4 of data requests we sent to the ILECs. As shown on Schedule 4, DR Set 3, requesting switch
5 investment data, was sent to 38 small LECs. Just 11 of the responses were complete, two were
6 incomplete, and responses were never received from 25 of the small ILECs. We prepared a
7 follow up set of questions (Set 4) which requested additional information concerning the switch
8 manufacturer and specific models operated by the small rural LECs. As shown on Schedule 5,
9 just a few of the responses we received were complete, and the great majority of the small ILECs
10 (27) did not respond to our request. The practical problems we encountered in trying to identify
11 and quantify any differences that might potentially exist in the switching costs incurred by the
12 small LECs should be kept in mind in evaluating whether Staff's regression-based approach was
13 a reasonable one to use in this proceeding.

14 Q. Does your regression analysis generate a smaller Central Office Equipment
15 (COE) investment than the actual investment of the small companies as purported by witness
16 Schoonmaker in Schedule RCS-10? (Id at p. 16, lines 7-12)

17 A. That is certainly the point Mr. Schoonmaker is trying to make. But the two
18 columns of data are fundamentally different, and thus his comparison is not persuasive. Most
19 notably, he is comparing 1998 embedded data, which logically should be much higher than the
20 forward-looking investments we developed.

21 Q. Why should embedded investments be higher than forward-looking investments?

1 A. Because the cost of switching equipment, like all types of computerized
2 electronic equipment, has been rapidly declining. In recent years, we have seen an explosion of
3 technological improvements as the industry has evolved away from analog technology into
4 digital technology. There have been tremendous improvements in the areas of fiber optic cables,
5 digital multiplexing and transmission systems, operations support computers, digital cross
6 connect systems, digital central office switches, and more. Not only do these technologies permit
7 substantial reductions in labor and maintenance costs, but the prices of the equipment itself has
8 been declining. As these new technologies are increasingly utilized by carriers, their impact
9 becomes increasingly significant. All of these technologies allow carriers to generate more
10 output (e.g., minutes of use and numbers of access lines in use), per unit of input (e.g., hours of
11 employee time expended). The benefits of new technology combine with the benefits of
12 economies of scale and scope to create an environment in which unit costs have been rapidly
13 declining.

14 If one were to compare the cost of a color television purchased in 1998 or earlier years
15 with the forward-looking cost of buying a comparable quality television today, the latter figure
16 would undoubtedly be much lower than the former. A similar pattern can be expected in a
17 comparison of the cost of video recorders, stereo equipment, and—most dramatically—personal
18 computers and the peripheral equipment associated with those computers (e.g. hard drives and
19 printers). There is every reason to expect that the electronic switching equipment used by
20 telephone companies would also be subject to a sharp downward trend in prices in recent years.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Q. Mr. Schoonmaker also criticizes some of the factors used in the Staff switching
2 studies because they aren't based upon individual company data. Specifically, he criticizes your
3 use of a uniform assumption of 254 minutes per line for multiple companies (Schoonmaker, page
4 16, lines 21-23). How do you respond?

5 A. We used the actual minutes per line whenever this data was available. To the
6 extent particular carriers didn't provide usable data in response to our discovery requests, as
7 many did not, we used an estimate of minutes per line. The 254 minute estimate was based upon
8 the best Missouri-specific data available to us--the average number of minutes per line from the
9 carriers who provided complete, usable responses to our discovery requests.

10 Q. Witness Schoonmaker states that in the past local switching rates have been
11 designed to recover both the traffic sensitive switching costs and the non-traffic sensitive costs
12 identified by BJA as "port" costs and, therefore, any conclusion that current rates should be
13 reduced because they exceed BJA's estimates of stand alone costs are flawed since current rates
14 were intended to recover costs not included in the BJA study. (Id., p. 17, lines 13-23) Do you
15 agree?

16 A. No. I discussed this issue in my response to Public Counsel witness Dunkel. Mr.
17 Schoonmaker is arguing essentially the opposite viewpoint from that of Mr. Dunkel--he
18 apparently believes the port costs should be entirely aligned with the remainder of the switching
19 costs, and that the CCL category should not include anything other than loop costs. For the
20 reasons I set forth earlier, I believe it is appropriate to segregate costs into the end office

Surrebuttal Testimony of
Ben Johnson, PhD.

1 switching and CCL categories on the basis of whether or not the costs are traffic sensitive, rather
2 than on some other basis.

3 Q. Mr. Schoonmaker also criticizes the BJA analysis of transport costs for small
4 companies because it rests on a “regression analysis of costs per circuit for Verizon, Sprint,
5 SWBT and Century/Spectra.” Mr. Schoonmaker argues that because the BJA study does not
6 totally recognize the greater cost per circuit in urban areas and the differences in the size of trunk
7 groups in rural areas, the study is flawed and “substantially understates the transport costs of the
8 small companies.” (Id at p. 18-21) Do you agree?

9 A. There may be some merit to this concern. In fact, if Mr. Schoonmaker had offered
10 this criticism in response to the draft studies, and if he had worked with the Staff in gathering the
11 necessary data from the small ILECs to confirm his argument, we probably would have modified
12 the inputs we used in this regard. However, in the absence of concrete data concerning the size
13 of the small ILEC trunk groups, or the volume of traffic on the average trunk, I have no basis for
14 modifying the Staff studies in this area.

15 Q. On page 23 of his rebuttal testimony witness Schoonmaker discusses the
16 development of common costs in the BJA cost studies. Do you agree that the actual common
17 costs of the small companies have not been appropriately reflected in the BJA cost studies?

18 A. This is certainly an area where further improvements are possible. However, I
19 believe the Staff studies are adequate for purposes of this phase of this proceeding. This is an
20 area which could be explored in greater depth in a future proceeding, or future phase of this

1 proceeding. In fact, recovery of common costs through rates is often a subject which is dealt
2 with in the context of final pricing and rate design decisions.

3 Q. Mr. Schoonmaker states that the FCC adopted a recommendation by the Rural
4 Task Force (RTF) that the federal USF should be based on a modified embedded cost approach
5 rather than the use of the FCC Synthesis Model for five years, and he claims that the FCC
6 recognized "...it is not possible to determine forward-looking costs for rural carriers at this
7 time...". (Id at p. 9, lines 9-15) Can you respond to these comments?

8 A. Yes. There are currently some limitations in the degree of accuracy which can be
9 achieved in estimating forward-looking costs for rural carriers. The most serious of these
10 problems result from the lack of readily available, fully accurate customer location data for many
11 rural areas. Due to these limitations, it is understandable that the FCC decided not to apply its
12 model to the small rural carriers at this time. Yet, it is worth remembering that the FCC
13 continues to use its model to estimate forward-looking costs for numerous rural areas, and to use
14 this data in evaluating differences between urban and rural costs across the country. The main
15 difference is that the rural areas in question are served by very large ILECs, rather than by small
16 ILECs. The weaknesses that exist in the FCC's process are largely the same weaknesses which
17 convinced the FCC that it wasn't yet appropriate to use its model in determining the level of high
18 cost compensation to provide to the small ILECs.

19 Since the FCC continues to apply its model to rural areas served by large ILECs, but it
20 decided not to apply it to the analogous rural areas served by small ILECs, this difference in

1 FCC policies is probably more a function of differences in the respective firm's ability to absorb
2 the financial impact of modeling errors than it is due to any inherent problems with their model.

3 All cost estimating techniques are subject to some degree of error, including embedded
4 cost allocation techniques like those put forth by the witnesses for the small ILECs. The Staff
5 cost studies provide reasonable estimates of the forward-looking costs of providing switched
6 access service in all parts of Missouri, including the areas served by the rural carriers. I am
7 willing to concede that these estimates fall short of perfection, but they are certainly adequate for
8 purposes of this docket. In fact, despite the many differences in methodology and data sources
9 between the Staff cost studies and the embedded cost allocation studies put forward by the small
10 ILEC witnesses, it is interesting to note that most of the results are strikingly similar. For
11 instance, averaging the results for all of the small ILECs (shown toward the bottom of Schedule
12 WJW-2) the allocated total embedded cost ranges between 7.93 cents and 10.60 cents per
13 minute, depending upon the allocation procedure used. This compares to a range of between 8.32
14 cents and 12.23 cents per minute for the Staff allocated forward-looking cost studies.

15 Q Mr. Schoonmaker also criticizes the use of models because the results may vary
16 substantially with input differences that reflect different views of forward-looking costs. In
17 particular, Mr. Schoonmaker points to the differences in the loop costs calculated by Ben
18 Johnson Associates, Inc. (BJA) and Sprint witness Farrar using the same cost model. (Id at pp.
19 10-11) Does the fact that different inputs will derive different results make the use of cost
20 models inappropriate in this proceeding?

1 A. Certainly not. One of the advantages of an economic model is that it provides the
2 ability to easily ascertain the impact of different assumptions, theories, philosophies, or facts.
3 One of the ways these differences can be captured in a model is by varying the inputs, which is
4 what Mr. Farrar has done. In this case, much of the difference between Mr. Farrar's estimates
5 and the Staff estimates is due to different assumptions concerning the actual location of
6 customers. For reasons I briefly alluded to in my direct testimony, as a result of work my firm
7 has performed on behalf of the Kansas Corporation Commission and the Idaho Public Utilities
8 Commission, I believe the FCC's default customer location input data overstate the degree to
9 which customers are dispersed—especially in rural areas. To correct for this bias, I recommend
10 changing the distribution routing variable. With an understanding of this issue, the differences
11 between Staff's results and Mr. Farrar's results is much more easily understood.

12 Q. Can you please explain the routing variable again?

13 A. Certainly. The FCC model provides adjustable input parameters that allow the
14 modeler to increase or decrease the amount of cable deployed in each wire center. Accordingly,
15 if there is a problem with the model or its inputs which would potentially generate an excessive
16 estimate of feeder cable, this problem can be offset by reducing the feeder routing input below
17 its default value of 1. Similarly, if the model deploys too much distribution cable, the
18 corresponding distribution routing input can be reduced below 1. If both types of cable are being
19 overdeployed, both inputs would need to be reduced. In turn, the model will develop smaller
20 cable quantities and the cost estimates will be reduced correspondingly.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 For example, in the Staff studies, we reduced the distribution routing inputs to 0.85
2 which has the effect of reducing the total distribution route mileage and cable quantity by
3 approximately 15%. As I briefly mentioned in my direct testimony, due to flaws in the
4 underlying customer location data set, as revealed through very detailed work we performed in
5 Kansas and Idaho, I believe the FCC model significantly overestimates the need for distribution
6 cable. To correct for this discrepancy, I recommend using a lower distribution routing input
7 (0.85) rather than the default value of 1.

8 Q. How does this relate to Mr. Schoonmaker's testimony?

9 A. If you'll notice on Mr. Schoonmaker's Schedule RCS 11 (HC), the average
10 difference between Farrar's monthly loop costs and the analogous costs attributed to the cost
11 studies I provided is almost exactly 15%. This reflects the net effect of a series of small changes
12 to the default inputs which we included in the Staff studies. These adjustments go in both
13 directions, and they tend to partially cancel out, although the impact will vary from carrier to
14 carrier. As it turns out, the net effect is often a difference of roughly 15%, which undoubtedly
15 corresponds in large part to the 15% difference in the distribution routing variable. To the extent
16 this difference in results can fairly be characterized as "significantly different" as Mr.
17 Schoonmaker claims in his testimony (Schoonmaker Rebuttal, p. 11) that is largely because the
18 customer dispersion problem is significant, and it is worth fixing—as we have done in the Staff
19 studies.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Q. You seem convinced based upon your work in other jurisdictions that the default
2 inputs to the FCC model result in a tendency to over-estimate cable quantities. Are you aware of
3 any other studies confirming this tendency?

4 A. Yes. The white paper published by the Rural Task Force (RTF) which was
5 referenced by Mr. Schoonmaker in his rebuttal testimony presents some national data which is
6 consistent with this same conclusion.

7 Q Can you describe the analysis conducted in the RTF study?

8 A. Yes. The RTF conducted a study that

9 involved comparing the route mileage from the model (feeder and
10 distribution plant footage) to actual plant route mileage as reported
11 by the sample companies for 231 wire centers. Comparisons were
12 made with the recognition that actual data might include some
13 interoffice facilities and therefore might be biased toward being
14 larger than model results. **This data shows an underestimation**
15 **of route miles in 32 percent of wire centers and an**
16 **overestimation in 68 percent, with 12 percent being**
17 **overestimated by more than 200 percent.** (A Review of the
18 FCC's Non-Rural Universal Service Fund Method and the
19 Synthesis Model for Rural Telephone Companies, Rural Task
20 Force, White Paper 4, September, 2000, p. 29-30)[Emphasis
21 added.]
22

23 This RTF white paper suggests that the problems we identified in Idaho and Kansas are
24 not unique to those states. Unless the problem is dealt with by gathering more accurate customer
25 location data in the field (e.g. using GPS technology), or by adjusting the routing inputs, there
26 will be a systematic tendency to overstate loop costs in rural areas).
27
28

William Warinner

Q. William Warinner on behalf of Holway, KLM, IAMO and Green Hills Telephone Companies criticizes the Staff cost studies because “there are too many variables and judgment items involved in the underlying cost studies to allow the models to be used as a ‘standard’ for the smaller ILECs.” He seems to be particularly concerned that his clients might be required to “continually update” the forward-looking cost studies with new data. (Warinner Rebuttal, p. 11, lines 15-22) Can you respond?

A. Yes. I agree that it would be difficult to update these types of highly detailed cost studies on a frequent basis. However, I don’t anticipate any circumstances in which a continual updating process would be required. The Staff study was prepared in response to the Commission’s directives in this particular investigation. It is not meant as a road map to be followed on a frequent or routine basis.

Q. Mr. Warinner is also concerned that the data used in the cost study methodologies you have used can be easily manipulated to get a desired result. Is this a potential problem?

A. It is unfortunately true that all types of cost studies can be manipulated to some degree. The opportunity for manipulation diminishes the more one relies upon objective, consistent data sources, and the more the Commission requires parties to explain and defend their assumptions. That is one of the reasons why I believe the Commission would be well served by relying heavily on the FCC’s default inputs, as Staff has done, rather than allowing each carrier to put forward its own unique set of inputs and assumptions. If carriers are given the freedom to put forward whatever set of inputs they desire, provided they are labeled as

1 “company specific” the opportunity for manipulating results to achieve a particular end result is
2 greatly enhanced. And, if carriers are not required to demonstrate how their inputs compare to
3 those offered by other carriers, and they are not required to show the impact of their preferred
4 inputs not only in the context of their studies, but also in the context of other carriers’ studies,
5 the opportunity for manipulation is further magnified.

6
7 **David Barch**

8 Q. SWBT witness Barch criticizes your use of a 10% overall cost of capital for
9 SWBT. Why have you used 10% instead of the 12.19% figure he advocates? (Barch Rebuttal, p.
10 4, line 18 through p. 5 line 9)

11 A. As I stated in my direct testimony, the 10% cost of capital I have used for SWBT
12 (as well as the other large LECs in the state) is similar to the 10.36% capital cost determined by
13 the Commission in Case Nos. TO-97-40 and TO-97-67. In those proceedings, the Commission
14 determined Southwestern Bell’s cost of capital was 10.36%, based upon a 42% debt/58% equity
15 ratio. I would note that current debt and equity cost levels are somewhat lower than those which
16 existed at the time of that earlier decision.

17 Q. Witness Barch disagrees with your chosen economic depreciation lives for digital
18 switching and digital circuit equipment and claims that your study uses “somewhere-in-the-
19 middle-of-the-road” depreciation lives which would “result in a substantial amount of
20 unrecovered costs.” (Barch Rebuttal, p. 6, lines 3-7) Can you please briefly respond?

Surrebuttal Testimony of
Ben Johnson, PhD.

1 A. Yes. As I explained in my direct testimony, I believe these are the most
2 appropriate lives to use in this context. The mere fact that some of these lives are longer than
3 those proffered by SWBT doesn't provide any basis for concluding that a problem with
4 "unrecovered costs" would arise.

5 Q. Witness Barch argues that the treatment of land and building costs and five other
6 Automated Reporting Management Information System (ARMIS) investment accounts (6112,
7 6114, 6122, 6123, and 6124) by BJA in their entirety as "common costs" is incorrect. Should a
8 portion of these costs be attributed to direct costs as proposed by Mr. Barch? (Id at pp. 7-8)

9 A. It is not unusual to classify these types of costs as "common costs" and to handle
10 them on a simplified basis. To gain any real benefit from classifying some of these costs as
11 "direct" costs to be dealt with at other points in the studies, it would be necessary to substantially
12 expand the level of detail included in the modeling process. For instance, to more accurately
13 estimate building costs for switching equipment, it would be desirable to develop estimates of
14 the number of square feet of building space required by the "getting started" portions of the
15 switch, as well as the various traffic sensitive components of the switch. I am not aware of any
16 studies which carry out this approach; certainly, SWBT's studies do not. I fail to see any benefit
17 which would be gained from classifying these types of costs as "direct" if they are still going to
18 be handled on a highly simplified basis, as SWBT does in its studies.

19 Q. Mr. Barch disagrees that common costs should be included in a LRIC study and
20 criticizes the "downward adjustment" made to the ARMIS data relied upon by BJA for common
21 cost development. (Barch Rebuttal, p. 8) Can you briefly respond?

Surrebuttal Testimony of
Ben Johnson, PhD.

1 A. It is not unusual to exclude common costs from a TSLRIC study. In fact, this was
2 the approach we used in the initial draft studies submitted to the parties for comment. Some of
3 the parties seemed to be disturbed by this treatment, perhaps since it seemed to imply that there
4 would not be any opportunity to recover the common costs. Needless to say, even if common
5 costs are left out of a study, they cannot be completely ignored in the rate development process.
6 A firm that doesn't recover its common costs won't stay in business for long. The adjustments
7 we made to the ARMIS data were appropriate given the nature of this embedded data, and the
8 manner in which we used it in our studies.

9 Q. Mr. Barch claims that you suffer from a misunderstanding of what drives a
10 central processor's costs and that "there is no justification for its exclusion in TSLRIC cost
11 development." (Barch Rebuttal, p. 9, line 21 through p. 10, line 5) Do you suffer from such a
12 misunderstanding?

13 A. No. As I explained in response to the testimony of Mr. Dunkel, my treatment of
14 these costs relates directly to the structure of SWBT's contracts with its switch vendors. If
15 anything, Mr. Barch seems to be the one misunderstanding the concept of "getting started" costs,
16 at least as this term is generally used. In this regard, I would point to the documentation provided
17 by Sprint which states as follows:

18 Getting Started Investment (GSI) is the fixed investment of
19 establishing a new Host/Standalone office including the **initial**
20 **processor community** along with spares, breakage, maintenance,
21 test and miscellaneous equipment. (Switching Cost Study -
22 Methods, September 1, 2001, page 6)[Emphasis added]
23

Surrebuttal Testimony of
Ben Johnson, PhD.

1 The magnitude of the “getting started” investment depends on the technical characteristics of the
2 equipment, as well as the pricing structure adopted by the switch manufacturer. The key
3 characteristic of “getting started” costs is that these are approximately the same regardless of the
4 size of the number of lines and trunks terminated on the switch, and regardless of the amount of
5 traffic which will be processed by the switch. As such, these costs remain roughly constant
6 whether or not intrastate switched access service is offered and regardless of how much
7 intrastate switched access traffic is handled by the switch.

8 To clarify this point, it might be useful to use a more familiar analogy: the components of
9 a personal computer. These include the case, the motherboard and the central processor chip
10 (e.g. a Pentium chip), as well as the hard drive and memory (RAM). Any given type of personal
11 computer requires some minimum configuration, imposing costs which are unavoidable as long
12 as you want to have a computer. These unavoidable costs, which don’t vary regardless of
13 whether you plan to use the computer 5 minutes a day, or 8 hours a day, can fairly be classified
14 as “getting started” costs. Precisely which costs would be classified as “getting started” might
15 vary depending upon various nuances of how you plan to use the computer. But in the typical
16 situation, the motherboard and most—if not all—of the cost of the central processor would
17 properly be classified as “getting started” costs, and would not vary with the volume of traffic
18 handled by the computer (e.g. the number of minutes per day the computer is actively used). In
19 contrast, the size and cost of the hard drive would tend to vary with the level of usage
20 anticipated, because of the greater data storage needs that are likely to be encountered on a
21 computer that is kept busy crunching numbers 8 hours a day.

1 Similarly, in a central office switch, the minimum size configuration of the central
2 processor is typically, and correctly, classified as a “getting started” cost. Hence, this lumpy
3 investment in central processor capacity will largely or entirely “drop away” from a properly
4 conducted TSLRIC study. In other words, if the TSLRIC study is prepared in a manner which is
5 purely consistent with the definition of TSLRIC, the central processor costs will have relatively
6 little (or no) impact on the final TSLRIC cost results. Of course, an exception exists if the
7 manufacturer chooses to price his equipment in a way that changes the structure of the costs
8 from the switch purchaser’s perspective. For instance, if there is no separate charge for the
9 central processor, and this is bundled into the price of the trunks, then the cost would no longer
10 be incurred as a single lump sum, but instead it would be incurred on a per-trunk basis. In that
11 case, central processor costs would only be attributable to traffic which is handled over trunks,
12 and none of the costs would be attributed to intraoffice traffic.

13 Q. Mr. Barch criticizes the changes made by BJA for host and remote switches.
14 (Barch Rebuttal, p. 11, lines 8-14) Can you explain these changes?

15 A. Yes. Mr. Barch is referring to changes which resulted from our review of
16 responses received from SWBT during the discovery process. We began our investigation with a
17 database which is included with the FCC model which shows host-remote relationships and
18 access tandem relationships by clli code. Through discovery, (Set 4) we attempted to confirm
19 the validity of this data source.

20 Q. Did the companies respond?

1 A. Yes. With the exception of SWBT, all of the Big 5 companies provided detailed
2 responses in the format we requested, allowing us to efficiently confirm the FCC database, and
3 to make corrections where warranted. SWBT provided us with maps (which were part of our
4 discovery request) and directed us to certain cryptic documents and obscure websites. In effect,
5 we were asked to “figure it out on your own.”

6 Q. Did you make any effort to determine whether or not you were successful
7 deducing all of these various relationships?

8 A. Yes. We submitted a supplemental request to SWBT (Supplemental DR 4-1)
9 dated October 8, 2001 in which we asked SWBT to please “review and indicate whether SWBT
10 believes Staff has correctly matched SWBT’s wire centers with their associated access tandems.”
11 SWBT responded with some minor corrections, which we subsequently incorporated into our
12 work. Mr. Barch hasn’t described any specific problems with the relationships used in our
13 studies, nor were any problems identified in response to the draft studies which were submitted
14 to SWBT last Spring.

15 Q. Mr. Barch suggests that your comparison of an ILEC purchasing in the
16 competitive fiber cable market to buying and selling in agricultural commodity markets is
17 inappropriate. (Barch Rebuttal, pp. 13-14) Can you please comment?

18 A. Using my example of large and small buyers paying relatively similar amounts
19 per bushel of wheat was not meant to suggest that the market for fiber optic cable is as purely
20 competitive as the wheat market. By using this pure (or extreme) example I was trying to
21 convey the fact that the more highly competitive a market is, the more likely it is that large and

Surrebuttal Testimony of
Ben Johnson, PhD.

1 small buyers will pay similar amounts. While smaller LEC's don't have as much buying power
2 as the larger carriers, this doesn't necessarily translate into a large difference in costs, because
3 even the small carriers can choose between multiple vendors who are eager to obtain their
4 business.

5 Q. Mr. Barch presents a quote from William J. Baumol concerning the difficulties
6 involved in calculating stand alone costs. (Barch Rebuttal, p. 15, lines 5-10) What is your
7 response?

8 A. Mr. Barch seems to miss the central thrust of this quote. Dr. Baumol isn't
9 dismissing the theoretical relevance or validity of stand alone cost; rather he is recognizing that
10 because it is an unfamiliar and somewhat hypothetical concept, there may be practical
11 difficulties involved in quantifying this important concept, and that this may discourage its
12 acceptance by regulators.

13 When this concept [stand alone cost] has been proposed before regulatory
14 agencies some concern has been expressed about problems in the
15 calculation of stand alone cost. After all, if no firm in an industry has ever
16 specialized in the production of just one of its outputs, let alone served one
17 of its customers in isolation, how can one hope to obtain any *reliable*
18 estimate of the cost that would be incurred in this unlikely situation?
19

20 Whatever the practical difficulties associated with this concept, they do not diminish its
21 theoretical soundness or relevance. As I stated earlier, while admittedly not perfect, I believe the
22 Staff cost studies are sufficiently reliable and accurate to warrant full consideration in this
23 proceeding. I will discuss the stand alone cost issue further in response to Dr. Staihr's testimony.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Q. On page 19 of his rebuttal testimony Mr. Barch criticizes any consideration of
2 loop costs as part of the cost of providing switched access service. In support of his position he
3 quotes a Kansas Order (Order Approving Stipulation and Agreement, Docket 01-GIMT-082-
4 GIT). Is there anything in this Order which might cause you to change your opinions in this
5 controversial area?

6 A. Absolutely not. In fact, in this Order the KCC acknowledged that a portion of the
7 costs of the loop is attributable to access service.

8 The stipulating parties and this Commission could handle this
9 matter, as the FCC did, with its EUCL charge, by specifying a new
10 special fixed charge for **that portion of loop cost attributable to**
11 **access services** and adding it to the consumer's local telephone
12 bill. The net effect is the same, the fixed cost for having that
13 phone line, with potential access to a variety of services, has gone
14 up. (Before the State Corporation Commission of the State of
15 Kansas, In the Matter of a General Investigation into the
16 Reformation of Intrastate Access Charges, Docket No.
17 01-GIMT-082-GIT, Order Approving Stipulation and Agreement,
18 ¶ 27)[Emphasis added]
19

20 Q. Mr. Barch contends that the price for a given service does not have to exceed its
21 stand alone cost in order for it to subsidize another service. Do you agree? (Barch Rebuttal, p.
22 22)

23 A. While this might be true, one cannot draw any clear cut conclusions about which
24 service is "subsidizing" another service unless the service in question is priced above its stand
25 alone cost. In other words, there can be situations in which a service falls below the relevant
26 floor, and thus is being subsidized, but no services fall above the relevant ceiling, and thus one is
27 unable to unequivocally state where the subsidy is flowing from.

1 **Brian Staihr**

2 *Stand Alone Costs*

3 Q. Sprint witness Brian Staihr takes issue with your inclusion of stand alone cost
4 estimates in your direct testimony and in the Staff cost studies. Can you please respond?

5 A. Yes. Dr. Staihr cites on p. 4, lines 17-19 of his testimony, a March 14, 2002 order
6 in which the Commission explained this proceeding would be an investigation of “all of the
7 issues affecting exchange access service, including particularly the actual costs incurred in
8 providing such service ...” (Order Adopting Procedural Schedule, Clarifying the Scope of this
9 Proceeding, and Concerning Motion to Waive Service Requirement and Motion to Compel
10 Discovery, p.1) Note the ellipse at the end of Dr. Staihr’s quote. The remainder of the
11 Commission’s sentence is just as important as the portion he does quote, because it explains the
12 purpose for gathering the cost data. It is in part because of my understanding of that purpose that
13 I decided to prepare stand alone cost estimates for this proceeding—along with allocated/average
14 cost estimates and pure TSLRIC estimates.

15 In the remainder of the sentence, the Commission explained that its reason for examining
16 cost data was “in order to establish a long-term solution which will result in just and reasonable
17 rates for this [exchange access] service.” (Id.) The Commission made clear that it isn’t
18 investigating costs as a purely academic exercise, nor is it limiting its consideration to those
19 costs which are the easiest to measure, or the most familiar. To the contrary, the Commission
20 indicated that it was gathering cost data in an attempt to resolve the long-standing controversies

1 surrounding access rates—whether they are too high, and what level of intrastate switched access
2 rates would be “just and reasonable.”

3 As the Commission is undoubtedly aware, some of the parties fervently believe these
4 rates are currently too high, and that intrastate access rates should be greatly reduced (e.g. to
5 interstate levels). It would be impossible to fully evaluate the cost evidence supporting or
6 contradicting this claim without giving at least some consideration to stand alone costs.

7 One of the primary arguments justifying the belief that current rates are too high is the
8 contention that intrastate access rates “subsidize” other rates—particularly basic local exchange
9 rates. It isn’t the purpose of this phase of this proceeding to determine whether certain local rates
10 are too low, or to implement any specific changes to access (or any other) rates. But it certainly
11 is within the scope of this phase of the proceeding to analyze the actual costs of providing access
12 service, so the Commission can determine whether or not it should start the process of reducing
13 these rates. As well, this is the appropriate forum for developing detailed cost evidence which
14 the Commission could use in any subsequent proceedings focused on rates.

15 Given this context, stand alone costs are of crucial importance for two reasons. First, this
16 is the type of economic cost which can most appropriately serve as an indication of the “ceiling”
17 or maximum level of fair and reasonable rates. Second, claims that certain rates are
18 “subsidizing” another service (at least as this term is used in the technical economic literature)
19 cannot be valid unless the rates in question exceed stand alone cost. Consequently, while stand
20 alone costs are by no means the only information worth considering in this proceeding, I

Surrebuttal Testimony of
Ben Johnson, PhD.

1 strongly disagree with Dr. Staihr's claim that this type of cost information is "not particularly
2 useful or appropriate in this proceeding." (Staihr, Rebuttal Testimony, p. 4, lines 14-15)

3 Q. Dr. Staihr seems to dispute your claim that stand alone costs can serve as an
4 appropriate price ceiling. Would you please explain his argument in this regard?

5 A. Yes. Dr. Staihr devotes approximately five pages of his rebuttal testimony to
6 setting up and making one basic point: that an "individual price greater than stand-alone cost is a
7 *sufficient* condition but not a *necessary* condition for cross-subsidization." (Id., p. 10, lines 1-2)
8 Dr. Staihr presents an example of a three product firm wherein two products are collectively
9 subsidizing a third product. In this case, Dr. Staihr attempts to show that "a price ceiling of
10 stand-alone cost for each service does not prohibit subsidization in this three-product firm." (Id.,
11 p. 7, lines 18-19)

12 Q. Do you disagree with his example?

13 A. Not really. But it doesn't prove his point. His example doesn't prove that stand
14 alone costs are irrelevant, or that they should be discarded or ignored. His example logically fails
15 to support his contention because Dr. Staihr ignores two key points. First, a single measure of
16 stand alone cost isn't necessarily sufficient to determine whether a service is subsidized, or to
17 identify which particular service is being subsidized. Nevertheless, stand alone cost data can be
18 vitally important because it can potentially identify the source of a subsidy. Second, the stand
19 alone cost methodology is not limited to individual services. If a service isn't priced above its
20 stand alone cost, that doesn't make this cost data irrelevant, nor does it preclude the possibility

Surrebuttal Testimony of
Ben Johnson, PhD.

1 that this service might be part of a combination of services which collectively provide the
2 subsidy in question.

3 The solution to the seeming paradox posed by Dr. Staihr's example isn't to throw out the
4 stand alone cost data for services A and B individually. Rather, the solution is to expand the
5 analysis to consider the stand alone cost of the combination of services A and B. While Dr.
6 Staihr has ignored the option of calculating stand alone costs for the AB combination, this
7 possibility is clearly anticipated in the costing rules adopted by the Colorado Commission, which
8 I attached to my direct testimony. Note the words I have emphasized with italics in the following
9 definition of stand alone cost:

10 The total cost incurred by a firm to produce a given volume of a
11 service *or group of services* as if it were the sole service *or group*
12 *of services* produced by that firm. (Statement of Adoption of
13 Rules, Docket No. 92R-596T, June 1, 1993, p. 7) [emphasis
14 added.]
15

16 I also discussed the potential need to look at combinations of services in my response to the
17 rebuttal testimony of Mr. Barch above.

18 In Dr. Staihr's hypothetical example, Product C is assumed to be priced below its
19 TSLRIC, and thus by assumption we know a subsidy exists. However, with the TSLRIC data
20 alone we cannot know which service is providing the subsidy. In establishing the parameters of
21 his example, Dr. Staihr tells us that neither service individually exceeds its stand alone cost.
22 Armed with this information, and since the firm only produces these three products, we know
23 that the revenues from A and B must be above the stand alone cost of providing this combination

1 of services. By stand alone cost, we mean what it would cost to produce both A and B standing
2 alone—without C.

3 On page 8, lines 13-15 of his rebuttal testimony, Dr. Staihr contends that “in the case of a
4 multi-product firm it is relatively easy to come up with situations where a service can be priced
5 below its particular stand-alone cost and provide a subsidy.” If by this statement he means that
6 one can mathematically prove the service in question is the source of a subsidy without stand
7 alone cost data, this simply isn’t true. The economics literature demonstrates that if we want to
8 make unequivocal statements about the source and magnitude of an economic subsidy, we are
9 limited to what the stand alone cost evidence shows. Depending upon the circumstances, we may
10 only be able to state with confidence that a certain combination of products provides a subsidy,
11 without being able to make any firm statements about any particular service within that
12 combination.

13 While I don’t necessarily agree with everything in the book by Drs. William Baumol and
14 Gregory Sidak which I cited in my direct testimony, these authors provides a succinct summary
15 of why stand alone cost data can be useful as a price ceiling, and why it helps confirm or refute
16 claims that a particular service “subsidizes” another service.

17 Specifically, when the firm earns no more and no less than the
18 competitive rate of return, if each of the firm’s prices is above its
19 (TSLRIC) average-incremental cost, then each of those prices *must*
20 be below its stand-alone cost, and vice versa. This result can
21 simplify the administration of price floors and ceilings. (*Toward*
22 *Competition in Local Telephony*. Cambridge (MA): MIT Press,
23 1994, p. 58-59)
24

Baumol and Sidak's also provide an example of why regulators may want to consider various combinations of services in evaluating the reasonableness of particular price levels.

Like price floors, the price-ceiling standard applies not only to the products of the firm considered one at a time, but to every combination of the services of the firm.

In the case of price ceilings, the reason is more straightforward than it is for price floors. A potential producer of X is not constrained to produce only X. The prospective entrant can choose among product combinations, selecting the one most likely to be profitable. Suppose it decides to produce products W, X, and Z and to refrain from producing the incumbent's two other products, V and Y. Then the entry venture can be profitable only if the incumbent has priced W, X, and Z so that their combined revenues exceed the stand-alone cost of producing W, X, and Z, but with zero outputs of V and Y. Obviously, such prices of W, X, and Z could not survive the threat of entry in a perfectly contestable market. Hence, because those prices fail that combined stand-alone cost test, they too must be rejected by a regulator who follows the competitive-market model.

The combinatorial cost test, then takes account of the likelihood that a prospective entrant will also be a multiproduct firm and that, like the incumbent, it will be able to benefit from any economies of scope that the technology of the arena makes possible. If the entrant can benefit from economies of scope, the stand-alone cost ceiling for the pertinent output combinations will ensure that the incumbent does not use such economies to achieve earnings that would not be permitted to it by the forces of an effectively competitive market.

To summarize, the combinatorial stand-alone price ceiling means that the prices of every combination of the firm's products must yield combined revenues not exceeding the corresponding stand-alone cost of the combination of products in question. (Id., p. 78)

From this quote, it should be clear why regulators should ask for more stand alone cost data, rather than rejecting this data completely, in situations where the available stand alone cost evidence seems ambiguous.

1 Stand alone cost evidence can be useful in identifying the source of a subsidy which is
2 believed to exist. As well, in situations where some ambiguity exists concerning whether or not a
3 subsidy actually exists, stand alone cost evidence may help us confirm or refute the existence of
4 the alleged subsidy. For instance, if we determine that products A and B collectively generate
5 revenues in excess of their collective stand alone cost, this will allow us to mathematically prove
6 that product C is subsidized (priced below its TSLRIC), even without performing a TSLRIC cost
7 study for that product. Alternatively, the stand alone cost evidence could be used to verify the
8 existence of a subsidy which has been identified through a TSLRIC study, and this evidence can
9 also help us identify the particular services which are providing the subsidy.

10
11 *The Use of Non-Standard Increment*

12 Q. Beginning on page 12 of his testimony, Dr. Staihr argues that you have
13 improperly treated customers as an increment rather than services. Is this a fair criticism?

14 A. No. Incremental cost is a flexible concept which can be applied in many different
15 ways. It is simply the change in total cost resulting from a specified increase or decrease in
16 output. In mathematical terms, incremental cost equals total cost assuming the increment of
17 output is produced, minus total cost assuming the increment is not produced. Incremental cost is
18 typically stated on a per-unit basis, with the change in cost divided by the change in output. A
19 wide variety of different increments can be specified, including the service provided to a
20 particular customer or group of customers, the services included within a particular tariff or
21 group of tariffs, and so forth. While some increments may be more “standard” than others,

Surrebuttal Testimony of
Ben Johnson, PhD.

1 nothing precludes use of non-standard increments where this is helpful in resolving a particular
2 issue. In considering whether or not a particular incremental is valid in a given context, it is
3 crucially important to determine whether or not the specified increment is relevant to the specific
4 issues at hand.

5 Q. Were the allegedly “non-standard” increments you discussed in Kansas and New
6 Jersey appropriate to the specific context in which these discussions appeared?

7 A. Yes, they were.

8 Q. What was the context in the New Jersey proceeding?

9 A. I was providing an example of how flexible incremental costing can be:

10
11 For instance, if one wants to know whether low income customers
12 purchasing local service under a special program are being
13 subsidized, one needs to focus on the specific increase in total
14 costs that results from serving this particular group of customers.
15 Similarly, if one wants to test a particular rate element (e.g., toll
16 calls in a particular mileage band at night) for the presence or
17 absence of a subsidy, it is necessary to focus on the increase in
18 costs that occurs when this particular usage occurs. (Ben Johnson,
19 Direct Testimony, Docket TX95120631, August 15, 1996, p. 12,
20 lines 19-25)
21

22 There is no requirement that all incremental cost studies focus on the output which is billed
23 pursuant to particular tariff sections; sometimes, it is helpful to look at other increments of
24 output, like the quantity of services provided to particular geographic areas, or particular
25 customers.

26 In my New Jersey testimony, I gave another example of how the output provided to
27 business customers (e.g. business local exchange service) can be the focus of a TSLRIC analysis:

1 The TSLRIC is also equal to the costs that would be avoided if the
2 network were scaled back from the larger size which is needed to
3 serve the defined increment to the smaller size which would be
4 sufficient to serve everyone except the defined increment. For
5 instance, by comparing the total cost of a network which serves
6 both business and residence customers with the smaller total cost
7 of a network which only serves business customers, the model
8 estimates the costs which would be avoided if residence customers
9 aren't served. This is the TSLRIC of serving residence customers
10 on a network which would serve business customers in any event.
11 (Id., p. 30, lines 19-27)

12
13 Q. What was the context of the “non-standard” increments you discussed in the
14 Kansas proceeding?

15 A. The proceeding concerned development of a universal support mechanism for
16 high cost rural areas. I testified that zones (low cost and high cost geographic areas within a wire
17 center) can be studied on several different bases—including an incremental or stand alone basis. I
18 explained that an incremental cost approach was one of the options (not necessarily one I would
19 endorse). I explained in my testimony,

20 If zone identities have been established on the basis of appropriate
21 criteria (e.g., distance from the central office, or density), it would
22 be very useful to analyze the cost of the high and low cost areas on
23 a stand alone basis. For instance, if zone 2 includes the relatively
24 high cost areas, it would be interesting to know the stand alone
25 cost of serving these areas—as if they were not part of a broader
26 network. However, of even more interest would be the stand alone
27 cost of serving zone 1—as if the network didn't include zone 2.
28 The latter cost could be subtracted from the cost of a network that
29 serves both areas, thereby generating an estimate of the
30 incremental cost of serving zone 2. This type of data could answer
31 such questions as the following: Given the cost of a network
32 serving only zone 1, what is the additional (incremental) cost of
33 building out that network to serve zone 2 as well? Questions like
34 this lie at the heart of the issue of universal service support.
35 Furthermore, an incremental approach reduces the need to rely

Surrebuttal Testimony of
Ben Johnson, PhD.

1 upon allocation factors to deal with costs that are shared between
2 zones (e.g. cable that serves both zones). (Ben Johnson, Direct
3 Testimony, Docket 99-GIMT-326-GIT, April 27, 1999, p. 54, lines
4 2-17)

5
6 Q. Dr. Staihr states that the Kansas Corporation Commission did not adopt your
7 incremental costing approach. Is this a correct statement? (Staihr Rebuttal, p. 14, lines 5-8)

8 A. Yes, but what he fails to mention is that I never recommended using an
9 incremental costing approach in that proceeding. In the first phase I mentioned in passing that it
10 would be possible to analyze the costs of zone 1 as an increment to zone 2, or vice versa, but I
11 didn't recommend doing so. My recommendation was to use a wire center-based approach, or
12 possibly use a zone approach, based upon average/allocated costs. At the conclusion of the first
13 phase, the KCC adopted the former recommendation:

14 Costs should be determined at the wire center level. Testimony supported
15 that the FCC model can calculate cost by wire center. By breaking down
16 cost to the wire center level, the KUSF support can be targeted to those
17 areas that truly are high cost, rather than averaging such support over a
18 larger geographic area. (Order 10: Adopting a Forward Looking Cost
19 Methodology for Purposes of Determining KUST Support and Selecting
20 the FCC's Proxy Cost Model, Docket 99-GIMT-326-GIT, September 30,
21 1999, §56)

22
23 This ruling was fully consistent with my recommendations in that phase. In my direct testimony
24 I recommended:

25 initially using the wire centers of the incumbent LECs for administering the
26 KUSF. This provides an administratively simple unit for analyzing and targeting
27 support, which should be adequate during the near future. Customers know what
28 wire center they are in. The first three digits of their seven digit phone number
29 identify the wire center. Also, the Commission has meets and bounds data on file
30 which identify the boundaries of wire centers.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Although wire centers should be the primary basis used, I believe a
2 limited amount of additional disaggregation may be desirable and appropriate, at
3 least in some cases. More specifically, it would be reasonable to identify up to
4 two zones within each wire center, since loop lengths and circuit densities can
5 vary substantially within some single wire centers. (Ben Johnson, Direct
6 Testimony, Docket 99-GIMT-326-GIT, p. 107, lines 3-13)
7

8 With regard to the second option of a two-zone method, I included the following *caveat*.

9 I would note, however, that the two-zone approach will tend to increase the size
10 of the fund, and it will require additional effort during the cost modeling process.
11 Even if the two-zone approach is not implemented immediately, it may be
12 necessary to deal with this added complexity in future years, once competition
13 increases. The FCC model does not currently offer a convenient method of
14 implementing this two-zone approach, but I am confident the FCC model can be
15 adapted to accommodate it, if the Commission decides it wants to do this. (*Id.*, pp.
16 107-108, lines 25-26, 1-5)
17

18 In Order 10, the KCC required the Staff and other parties to submit studies showing costs
19 geographically deaveraged below the wire center level. Our firm assisted the KCC Staff in
20 complying with this requirement. The approach we recommended was summarized by the
21 Commission as follows:

22 Dr. Johnson described two specific methods of using zones to develop support
23 payments. Under the “primary zone” method, the Commission would take the
24 support amounts developed based on the wire center’s average per-line cost, and
25 distribute support within the wire center based on the zone-specific cost
26 information. *Id.* at 84. Zone data would be used only to target support to the
27 highest cost portion of the wire center, not to determine the size of the fund. *Id.*
28 Under the “alternative zone” approach, the Commission would provide support
29 for all eligible lines in each zone to the extent the average cost per line in that
30 zone exceeds the statewide benchmark. *Id.* In this way, support would be
31 provided to all high-cost zones, regardless of whether the respective wire center’s
32 overall average costs exceed the benchmark. *Id.* at 85. Dr. Johnson characterized
33 the primary zone approach as a compromise. Rebuttal Testimony of Johnson at
34 16. It targets support more tightly than the wire center approach, but does not go
35 as far as the alternative approach in relying on zone-specific data, thereby
36

Surrebuttal Testimony of
Ben Johnson, PhD.

1 increasing the size of the KUSF. *Id.* (Order 16: Determining the Kansas-Specific
2 Inputs to the FCC Cost Proxy Model to Establish a Cost-Based Kansas Universal
3 Service Fund, Docket 99-GIMT-326-GIT, December 29, 1999, §127)
4

5 The KCC adopted our approach to development of average/allocated costs for zones within wire
6 centers, stating as follows:

7 The Commission adopts the “primary zone” methodology that Dr. Johnson
8 proposes for allocating support between high and low-cost zones within each wire
9 center. As outlined above, this means the total support amount, calculated on the
10 basis of the wire center’s average cost per line, would be directed to the high cost
11 zones in that wire center. Zone data would be used only to target support to the
12 highest cost areas of the wire center, not to determine the size of the KUSF. (*Id.*,
13 §133)
14

15 The methodology we used was described in my testimony as follows:

16 The clusters are sorted into zones, and the investments related to
17 distribution and customer premises for each cluster are
18 accumulated for each zone within each wire center. Rather than
19 rely upon the feeder investment amounts reported by the FCC
20 model for each cluster, the spreadsheet takes the total feeder
21 investment for each wire center and allocates this amount to the
22 two zones based upon the square root of the area within each zone.
23 This provides a more reliable and stable measure of the feeder
24 investment attributable to each zone. The total of these investments
25 represents the loop investment in each zone.(Ben Johnson, Direct
26 Testimony, Docket 99-GIMT-326-GIT, date, pp. 81-82, lines 22-
27 27, 1-2)
28

29 From this description it is clear that we used an allocation approach to deal with costs that are
30 shared by both zones 1 and 2.

1 *Local Exchange Rates and Costs*

2 Q. Dr. Staihr also makes some claims about local exchange rates, suggesting that
3 they are subsidized. Would you please briefly respond?

4 A. Yes, and I will be very brief. Since a detailed discussion of local exchange service
5 is well beyond the scope of this proceeding, I will not respond to this testimony in any depth. Dr.
6 Staihr compares an estimate of the monthly cost of serving a residential or business line in
7 Sprint's Missouri territory to the weighted average R1/B1 (basic residential/basic business) rate
8 paid by Sprint's Missouri customers in 2001. (Staihr Rebuttal, p. 11, lines 16-18) The cost figure
9 he offers is \$40.56 per month, based upon the FCC model using default inputs. He compares this
10 figure to an existing local rate of \$12.79 per month, and claims this comparison demonstrates
11 that local service is subsidized.

12 There are numerous flaws with this comparison, but the most glaring one is that the cost
13 figure he cites obviously includes all, or nearly all, of Sprint's Missouri loop costs while the
14 revenue figure he cites includes only a portion of the amount Sprint's customers pay for the use
15 of this loop. Historically, loop costs have been recovered from an array of services, and no single
16 service has been expected to carry the entire burden of the loop facilities. Rates have historically
17 been designed to further the goal of universal service, in part by averaging rates across low and
18 high cost geographic areas, and in part by ensuring that the minimum monthly charges are kept
19 at attractively low levels. It would be reasonable for Dr. Staihr to describe these regulatory
20 policies as "supporting" low basic rates, but he hasn't offered valid evidence to support a claim
21 that local rates are "subsidized" in the technical sense of this term. To be valid, such a claim

1 would need to be supported with evidence that the basic rate is below the TSLRIC for the service
2 in question. No such evidence has been offered.

3 While Dr. Staihr hasn't provided any workpapers to support his cost calculation of
4 \$40.56 per month, in a typical default run of the FCC model for Sprint's Missouri service area,
5 the loop cost would be somewhere around \$38.00 per month. Since it includes the entire cost of
6 the loop network, the cost figure Dr. Staihr has put forward is more akin to a stand alone cost
7 estimate than a pure TSLRIC estimate. This figure might provide some insight into a reasonable
8 ceiling for local rates, but it doesn't tell us anything about whether local service is subsidized.
9 The Colorado Commission reached essentially the same decision in its Order in Docket No.
10 96S-257T (issued January 27, 1997), in which it stated:

11 Loop costs are shared and common and should be covered by all
12 the services using the loop.... The inclusion of loop costs in the
13 TSLRIC for basic exchange service violates the definition of
14 TSLRIC in the (Colorado) Commission's Costing and Pricing
15 Rules.... Loop costs would not be avoided if basic exchange
16 services were eliminated and the provision of all other services
17 continued. The network would still be a part of USWC's costs
18 even if basic local exchange service were discontinued. (pp. 42-43)

19
20 *Variability of Common Costs*

21 Q. Dr. Staihr claims that you have made some misstatements concerning common
22 costs. What is your response? (Staihr Rebuttal, p. 14, lines 18-19)

23 A. Dr. Staihr quotes a sentence on page 11 of my direct testimony, in which I wrote
24 "an increase in production of any one good will tend to increase the level of common costs."

1 And he responds by arguing that “common costs are, by definition, costs that do *not* vary with
2 the level of output.” (Staihr, Rebuttal Testimony, p. 14)

3 Before responding to the substance of Dr. Staihr’s critique of my reasoning, I would note
4 that my sentence is rather cryptic. To be more accurate and less confusing I should have said “an
5 increase in production of any one good will tend to increase the level of common costs, *holding*
6 *constant the level of production of all other goods involved in the common production process.*”

7 In economics we often focus on the impact of a particular phenomena (e.g. increasing output)
8 while holding everything else constant. The latin phrase *ceteris paribus* is sometimes used
9 amongst economists as shorthand for this concept. This Latin phrase means “all else constant.”
10 Frequently, however, this phrase is omitted, and it is assumed that the reader will realize that
11 other things are being held constant. Dr. Staihr’s reaction to my statement may be due, at least
12 in part, because I failed to make clear that I was speaking about how common costs behave in
13 reaction to increases to one form of output, while holding constant all of the other outputs.

14 In his reaction to this sentence Dr. Staihr also makes a substantive argument which goes
15 well beyond any dispute with the original wording of my testimony. He contends that “common
16 costs are, by definition, costs that do not vary with the level of output.” (Id.) If by this statement
17 he means common costs never vary with output—that is that common costs are always fixed
18 costs—that simply isn’t true. While some common costs are fixed costs (remaining unchanged in
19 response to variations in output within the specified planning horizon), it is equally true that
20 other common costs are variable costs (changing in response to output variations).

1 As proof of this point, consider a couple of simple examples, which are typically
2 classified as “common costs.” First, consider the President’s desk. Undoubtedly, the cost of the
3 desk doesn’t vary with day to day variations in output, thus it would be fair to classify this as a
4 fixed cost. And, perhaps even in the long run the cost of the desk remains unchanged, regardless
5 of how large the firm. This provides an example which is consistent with Dr. Staihr’s statement
6 since the President’s desk is a cost which is common to all of the firm’s products and services,
7 and this cost does not vary with the level of output. However, other examples come to mind that
8 go the other way. For instance, the President’s compensation is also typically classified as a
9 common cost (this is certainly the case with most cost studies prepared by carriers like Sprint).
10 Like the President’s desk, his salary probably doesn’t vary on a daily basis with fluctuations in
11 usage. By the same token, however, it probably does vary in the long run, depending upon how
12 large and successful the firm is. Certainly, if we look at the full picture, including bonuses, stock
13 options, and other benefits, there is no question but that the President’s compensation will
14 typically vary with the overall level of sales or output (amongst other variables that influence
15 compensation). This was certainly what I found in my econometric study of the compensation
16 paid to the top management of electric utilities (part of my doctoral dissertation).

17 In fact, while I’m not aware of any empirical studies on the subject, I wouldn’t be
18 surprised if the cost of the President’s desk also varies somewhat with the size and success of the
19 firm. Certainly, firms with higher levels of output can afford to provide their Presidents with
20 nicer, more lavish furnishings. In any event, there are many examples of common costs which
21 vary with output (though not necessarily in equal proportion to changes in output). For instance,

Surrebuttal Testimony of
Ben Johnson, PhD.

1 accounting, marketing, and billing costs are often classified as common costs, and all of these
2 tend to vary somewhat with output levels.

3 Q. In support of his claims concerning common costs, Dr. Staihr quotes the FCC.
4 Can you respond?

5 A. Yes. In this quote, the FCC states that common costs are “costs that are incurred
6 in connection with the production of multiple products or services, and remains (sic) unchanged
7 as the relative proportion of those products or services varies.” (Id., p. 15) I have no
8 disagreement with this statement, which is focused on a scenario in which the overall level of
9 output remains unchanged. Put another way, in its statement the FCC is implicitly holding
10 constant the total level of output. It is increasing at least one category of output while decreasing
11 one or more other outputs by an offsetting amount, in order to leave the overall level of output
12 unchanged. (That is what is implied by the reference to changes in relative output proportions).

13 Nothing about this statement by the FCC is contradictory to my original statement, which
14 was focused on a situation in which one category of output was increasing while other categories
15 were not decreasing, resulting in a higher overall level of output, rather than a situation in which
16 the total level of output is assumed to remain unchanged. Put another way, I was assuming that
17 all other categories of output remain unchanged (*ceteris paribus*) while the FCC was assuming
18 that total output remained constant.

19 While the scenario mentioned by the FCC is valid, it is equally valid to speak of
20 situations in which the production of one output increases while all others remain unchanged
21 (*ceteris paribus*). For example, if the firm increased the production of A while production of B

1 and C declined by just enough to keep its overall level of output unchanged, costs that are
2 common among all three of these outputs would remain unchanged. However, if the overall
3 output level increases (whether due to an increase in all three outputs, or an increase in just one
4 or two of the outputs, the level of common costs would increase (unless by coincidence all of the
5 common costs also happened to be fixed costs).

6
7 *Marginal or Incremental Costs vs. Average Costs*

8 Q. Dr. Staihr also claims that you have overstated the difference between TSLRIC
9 and average costs. Can you respond?

10 A. Yes. When I indicated in my direct testimony that marginal or incremental costs
11 tend to be less than average total cost, I was speaking in the context of the telecommunications
12 industry specifically. The relationship between average and marginal cost varies depending upon
13 the nature of the cost curves, whether the firm is in or out of equilibrium, and other factors. The
14 relationship between average and incremental cost depends upon these same factors, as well as
15 the particular increment being considered. With very large increments, the pattern of costs may
16 be similar to average cost. In fact, where the increment is defined as the entire output of the firm,
17 then incremental cost is equal to average cost, and no discrepancy would exist.

18 Dr. Staihr believes my statement about marginal costs tending to be much lower than
19 average cost is only “true in the presence of large fixed costs and economies of scale and scope.”
20 (Id.) However, all three of these phenomena are present in the telecommunications industry.
21 Large fixed costs and economies of scale and scope are pervasively important aspects of this

Surrebuttal Testimony of
Ben Johnson, PhD.

1 industry. I discussed this at several points in my direct testimony, including the following
2 passages:

3
4 Economies of scale appear in telecommunications in such plant
5 elements as poles and trenches used to hold cables, where the
6 increase in carrying capacity (e.g., number of circuits) is
7 disproportionately greater than any corresponding increase in the
8 cost of the pole or trench. That is, it costs little more to install poles
9 for 1,000 circuits along a particular route than to install poles for
10 100 circuits along the identical route. (Johnson Direct, pp. 11-12,
11 lines 19-20, 1-3)
12

13 If a telecom firm produces both toll and local phone service, it may
14 gain some economies of scope. When the same pole route carries
15 both intercity trunk lines and local loops, the firm can achieve
16 economies of scope by using one set of poles instead of two. (Id.,
17 p. 12, lines 6-9)
18

19 Dr. Staihr stresses in his Attachment BKS-R1 that there can be situations where TSLRIC
20 isn't below average cost. I have no disagreement with this contention, in so far as it applies to
21 certain other industries, where fixed costs are relatively modest and economies of scale and
22 scope are not pervasive. In this regard, it is noteworthy that the examples he sets forth in his
23 Attachment BKS-R1 are not taken from the telecommunications industry. What holds true in the
24 food service or housing industries doesn't tell us much about this industry. For those companies,
25 their average cost of producing their goods may indeed be lower than their TSLRIC. But in
26 industries with pervasive economies of scale and scope, like telecommunications, this will
27 rarely, if ever, be the case. It is much more likely for TSLRIC to fall substantially below average
28 cost (assuming both types of cost are consistently and accurately estimated).

Differing Opinions Concerning Loop Costs

Q. Dr. Staihr contends that “the majority of today’s leading regulatory economists working in telecom do not support the view that the local loop is a common or shared cost. Rather, the predominant view among economists is that the cost of the loop is a direct cost of connecting to the public switched network.” (Staihr, Rebuttal Testimony, p. 16, lines 15-18) Would you agree with this assessment?

A. No. I’m not aware of any surveys that have been conducted to determine the opinions of economists on this controversial topic (“leading” or otherwise). The only source document Dr. Staihr cites in support for his bold claims about the majority opinion of other economists is an article published in the Yale Journal on Regulation. The article was written by Steve Parsons who was, at the time of publication, an Economist at Southwestern Bell Telephone. It does not contain a survey of economists; rather, it discusses the reaction to an article published by Drs. Kahn and Shew in an earlier issue of that publication, and the fact that the article has received more attention from academics than from regulators:

The 1987 article by Kahn and Shew has received some recognition in the economics and legal communities, yet it has been cited rarely by the Federal Communications Commission (FCC) in its orders and has received almost no attention in state public utility commission orders. Arguments for and against the Kahn and Shew position do appear in discussions, presentations, papers, comments in a testimony before regulatory commissions and in commission orders to the telecommunications industry. (Steve Parsons, “Seven Years After Kahn and Shew: Lingering Myths on Costs and Pricing Telephone Service,” Yale Journal on Regulation, Vol. 11, 149, 1994, pp. 155-156)

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Mr. Parsons (who obviously agrees with Kahn, Shew and Staihr) offer several possible
2 explanations for why their position is so frequently rejected by regulators. Most prominently,
3 these authors apparently don't think regulators are adequately educated, or unbiased enough, to
4 rule correctly:

5 Kahn and Shew's position on loop costs has not been embraced
6 due to the analytical complexity of the topic and continued
7 misunderstanding in the economics of cost analysis.
8 Counterarguments, although often false, sound initially appealing.
9 ...Beyond the complexity of the topic, it may be that regulators fear
10 the political backlash from basic telephone customers facing such
11 rate increases. (Id., p. 157)
12

13 Turning back to Dr. Staihr's comments about the opinions of economists, relatively few
14 economists have had occasion to think about this issue in depth, or to evaluate all of the factors
15 which help determine whether or not loop costs are properly classified as joint or common costs.

16 Of course, many of the economists "working in telecom" have thought about the subject,
17 and perhaps the majority agree with Dr. Staihr's views. Never having seen or conducted a
18 survey, I have no way of knowing for sure. But even if this were true, it wouldn't be very
19 informative, because he has limited the scope of his comments to economists "working in
20 telecom."

21 Only a tiny fraction of the more than 10,000 economists in this country are actively
22 "working in telecom" and I suspect the great majority of these individuals are employees of,
23 work as consultants for, or receive grant support from, the large telecom carriers. These large
24 carriers have advanced the viewpoint that loop costs are exclusively attributable to local service
25 for decades.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 Considering the enormous amounts of time and money which have been expended over
2 this past century by these large carriers in an effort to convince regulators that loop costs are not
3 a shared or common cost, and that these costs must be recovered entirely from local customers, I
4 would be surprised if these carriers would be willing to hire or support any economists with
5 contrary opinions on this controversial issue. Just as the opinions of a political candidate or
6 federal judge on hotly contested issues can become a “litmus test” for certain jobs, perhaps the
7 major carriers simply decline to hire any economists who disagree with their corporate advocacy
8 position concerning loop costs.

9 Needless to say, I believe loop costs are most properly viewed as a joint or common cost
10 of local, switched access and other retail services. However, I am certainly willing to concede
11 that economists are not unanimous in their opinions in this hotly contested area. In this regard, it
12 is worth noting that despite the enormous effort expended by the large carriers to advance their
13 position on this subject, they have surprisingly modest success with this issue. These advocacy
14 failures go back more than 75 years, and have been so pervasive they cannot possibly be
15 attributed solely to the lack of intelligence or objectivity of the various decision makers.
16 Consider, for example, the landmark decision by the U.S. Supreme Court in *Smith vs. Illinois*
17 *Bell Telephone Company* ("Smith"). Writing for the Court on the question of whether the entire
18 cost of the access line could be charged to a single service, Chief Justice Charles Evans Hughes
19 noted as follows:

20 In the method used by the Illinois Company in separating its
21 interstate and intrastate business, for the purpose of the
22 computations which were submitted to the court, what is called
23 exchange property, that is, the property used at the subscriber's

Surrebuttal Testimony of
Ben Johnson, PhD.

1 station and from that station to the toll switchboard, or to the toll
2 trunk lines, was attributed entirely to the intrastate service.... While
3 the difficulty in making an exact apportionment of the property is
4 apparent, and extreme nicety is not required..., it is quite another
5 matter to ignore altogether the actual uses to which the property is
6 put. It is obvious that, unless an apportionment is made, the
7 intrastate service to which the exchange property is allocated will
8 bear an undue burden.... (282 U.S. 150, 151 (August 1923).)
9

10 In the years since, this principle of recovering at least some of the joint costs of the
11 network from all types of users of that network (including interstate toll users) has been upheld
12 again and again. Despite decades of pressure to shift network costs from toll to local services,
13 the policy of spreading these costs across multiple services has been affirmed by state public
14 utility commissions in numerous proceedings throughout the country.

15 In recent years, regulators have often agreed to shift more of the loop costs onto local
16 service customers. However, these are often policy decisions which result from practical
17 considerations, like the desire to maintain parity between interstate and intrastate rates, or a
18 concern that an excessive share of the loop costs is coming from toll users—necessitating a
19 reduction in access rates. Similarly, the recent CALLS decision by the FCC was motivated at
20 least in large part by the desire to amicably settle a long-standing series of controversies
21 concerning the appropriate level of interstate switched access charges.

22 Q. Can you provide a few examples of instances in which regulators have agreed
23 with your view that the local loop is a common or shared cost?

24 A. Yes. The policy of recovering these costs from multiple services has been
25 repeatedly affirmed by state public utility commissions in numerous proceedings throughout the
26 country. In many cases, this controversial issue has been resolved without much explicit

1 discussion of the theoretical issues (e.g. by simply failing to adopt proposed rate rebalancing
2 proposals). But, in other cases regulators have made explicitly rulings on this controversy. One
3 example is a decision by the Pennsylvania Public Utility Commission in 1995 which reached the
4 opposite conclusion from that advocated by Dr. Staihr here:

5 We agree with the PTA and the OCA that local loop costs are joint
6 on shared costs since the local loop is jointly utilized to provide a
7 wide array of telecommunications services...(Pennsylvania Public
8 Utility Commission Order in Docket Nos. I-00940035,
9 L-000950105, August 31, 1995, p. 12.)
10

11 In some cases regulators have discussed the issue in considerable detail. One prominent recent
12 example is a April 11, 1996 order by the Washington Utilities and Transportation Commission,
13 which rejected tariff changes proposed by Qwest (then known as U.S. West Communications or
14 USWC). In analyzing various cost studies submitted in that proceeding, the Washington
15 Commission found as follows:

16 [T]he cost of the local loop is not appropriately included in the
17 incremental cost of local exchange service. The local loop
18 facilities are required for nearly every service provided by the
19 Company to a customer. Neither local service nor in-state long
20 distance service nor interstate long distance nor vertical features
21 can reach a customer without the local loop. Should USWC cease
22 to provide any one of these services, its need for a local loop to
23 provide the remaining services would remain. The cost of the
24 local loop, therefore, is not incremental to any one service. It is a
25 shared cost that should be recovered in the rates, but no one
26 service is responsible for that recovery. USWC's presentation that
27 the local loop is appropriately and necessarily an element of the
28 cost of local exchange service, made through the testimony of
29 witness Farrow, is not credible in light of the purposes of a long
30 run incremental cost study and is inconsistent with accepted
31 economic theory regarding such studies. (Commission Decision

1 and Order Rejecting Tariff Revisions, Docket No. UT-950200, p.
2 78.)
3

4 The Washington Commission's ruling is particularly significant because it was decided in
5 a state in which local exchange competition had emerged early. The commission found that the
6 advent of local competition had not altered the economic character of the loop. Under conditions
7 of competition, the loop was still a joint and common cost that should not be recovered solely
8 from end users, but rather in the prices of all the services that use the loop.

9 In an order dated December 27, 1995, the New Mexico State Corporation Commission
10 concluded that "it is inappropriate to include the full cost of the local loop in the determination
11 of the cost of local exchange services." (Order in Docket No. 94-291-TC: In the Matter of the
12 Application of GTE Southwest, Inc. and CONTEL of the West, Inc. to Restructure their
13 Respective Rates, III.58, p. 15.)

14 Similarly, in its Costing and Pricing Rules, the Colorado Commission has stated as
15 follows:

16 The access loop is not a separate service but rather is an input
17 necessary for the provision of many telecommunications services.
18 As such, costs associated with the access loop will not appear in
19 the total service long run incremental cost of any single service
20 requiring the access loop but will appear as part of the total service
21 long run incremental cost of the entire group of services requiring
22 the loop.... (Rule 4(2)(iii)).
23

24 In a general rate case of USWC in Utah, that commission expressed its dissatisfaction
25 with the repeated failure of USWC to treat the loop as a shared cost:

Surrebuttal Testimony of
Ben Johnson, PhD.

1 We are troubled by the Company's failure to take into account
2 Commission past orders which deal with some of the pivotal issues
3 and assumptions which go into the calculation of TSLRIC. One
4 failure, in particular, is the Company's decision to assign all costs
5 of access lines to basic residential service... . The Commission has
6 already rejected the Company's premise that the only purpose of
7 access lines, the local loop, the is for the customer to obtain a dial
8 tone or local service. Without the local loop, the end user would
9 not have access to switched access products or use of toll services.
10 (US West Communications, Inc., Utah Public Service
11 Commission, Docket No. 95-049-05, Report and Order, at 95,
12 Issued November 6, 1995.)
13

14 In the Commonwealth of Virginia, based upon the record which included a cost study
15 prepared and presented by GTE South Incorporated (the Company), a senior hearing examiner
16 found:

17 While cost of service studies are not a precise science, I am
18 unwilling to accept the results of the Company's LRIC studies in
19 this case because I believe the studies significantly overstate the
20 LRIC of basic local service. The loop is a utility asset which is
21 used by a myriad of other services in addition to local service.
22 Loop costs are, in every sense of the word, joint and common costs
23 which should be allocated to all of the services utilizing the loop.
24

25
26 Indeed, under the Company's proposal to allocate all loop costs to
27 local service, the traffic of interexchange carriers would essentially
28 receive a "free ride" over the loop. That is not fair to local service
29 customers. Local service customers should not be saddled with all
30 the costs of an asset which is used by numerous services provided
31 by the Company, interexchange carriers and others. (Glenn P.
32 Richardson, Report of Glenn P. Richardson, Senior Hearing
33 Examiner, Case No. PUC950019, March 14, 1997.)
34

35 In its final order, the Virginia Corporation Commission adopted this portion of the
36 examiner's 121-page report. (Application of GTE South Incorporated For revisions to its local

1 exchange, access and intraLATA long distance rates, Commonwealth of Virginia State
2 Corporation Commission, Case No. PUC950019, at 5,19-20 (August 7, 1997).)

3 In Iowa, the Utilities Board specifically found:

4 Designating the access line as a separate service and allocating all
5 of its costs to the local service customer continues to be a major
6 problem with U.S. West's LRIC methodology. (U.S. West
7 Communications, Inc., Iowa Utilities Board, Docket No.
8 RPU-94-1, Final Decision and Order, at 13 (IUB November 21,
9 1994).)
10

11 Similar conclusions have been reached at one time or another by regulatory commissions
12 in many other states, including Florida, Iowa, Louisiana, Minnesota, New Hampshire, Texas,
13 and Vermont. Furthermore, both the National Association of Regulatory Utility Commissioners
14 (NARUC) and the National Association of State Utility Consumer Advocates (NASUCA) have
15 expressed support for the position that loop costs are properly treated as joint or common costs
16 of the various services using the loop, and that these costs should not be shifted entirely onto
17 local customers. (Comments of NARUC, FCC Docket CC 96-45, at 20 (Filed April 12, 1996);
18 Comments of NASUCA, FCC Docket CC 96-45, at 23-24 (Filed April 12, 1996).)

19 While there are undoubtedly exceptions, state regulators in their individual capacities and
20 through NARUC have repeatedly acknowledged that loop costs are properly treated as shared
21 costs of the full family of services that make use of the loop, including intrastate switched
22 access, and therefore these costs should not be loaded entirely onto just one of the services which
23 use the loop (e.g. basic local service).

1 Q. You've indicated that large carriers like Sprint have long advocated treating the
2 local loop as a direct cost of local service, and not interpreting it as a joint or common cost.
3 Could these carriers potentially benefit from increasing local rates and decreasing access and toll
4 rates?

5 A. Yes, they certainly could see some potential for increased profit if cost
6 responsibilities are shifted in this manner. If the CCL is reduced or eliminated, the most direct
7 beneficiaries will be the IXC's, who will experience an immediate reduction in their cost of doing
8 business. Even if they pass this cost reduction through to their customers in the form of lower
9 rates, IXC's like Sprint will benefit because rate reductions will stimulate additional demand for
10 their services, from which they can reasonably expect to benefit. All firms prefer growth to
11 stagnant or declining sales, but the benefits of increased growth are particularly pronounced in
12 this industry because of its declining cost characteristics. Traffic growth tends to translate into
13 lower unit costs and higher profits for both the IXC's and the ILEC's. For this same reason, the
14 large ILEC's may benefit from access rate reductions-particularly if they are allowed to impose
15 offsetting increases in local rates. As access and toll rates decline, long distance traffic volumes
16 will be further stimulated, potentially resulting in higher revenues and profits for Sprint and
17 other carriers-particularly those which operate under price cap regulation.

18 Due to the declining cost characteristics of the industry, rapid growth in access and toll
19 volumes translates into lower per-unit costs and higher productivity growth. Under price cap
20 regulation, the benefits of faster than normal cost productivity growth and declining costs tend to
21 flow to the carriers, rather than customers. Furthermore, local exchange service is typically

Surrebuttal Testimony of
Ben Johnson, PhD.

1 considered to be one of the least price-sensitive, or most highly monopolistic services offered by
2 the ILECs. By shifting a higher share of the cost burden into this category, the carriers may also
3 benefit from a greater degree of revenue and profit stability, and possibly a higher degree of
4 insulation from growing competitive pressures – particularly if the ILEC is allowed to increase
5 basic residential local exchange rates, and other markets where the greatest degree of monopoly
6 power currently remains. For these and other reasons, many of the larger carriers, like Sprint,
7 may have concluded that it is in their economic interests to place 100% of the loop and port costs
8 onto local exchange customers. But, I don't believe this type of cost shifting is economically
9 sound or necessary.

10 Q. Has Congress also spoken to the issue of shifting joint and common costs entirely
11 onto local service customers?

12 A. Yes. The appropriate treatment of these shared costs has been vigorously debated
13 for many years in many different forums. Thus, it isn't surprising that Congress included some
14 specific provisions relating to this issue in the 1996 Telecom Act. The Act adds an entirely new
15 section to federal law dealing with universal service--Section 254. Within this context, a portion
16 of § 254(k) reads:

17 [T]he States, with respect to intrastate services, shall establish any
18 necessary cost allocation rules, accounting safeguards, and
19 guidelines to ensure that services included in the definition of
20 universal service bear no more than a reasonable share of the joint
21 and common costs of facilities used to provide those services. (47
22 U.S.C. § 254(k) (1996).)
23

1 Congress was aware of the long standing debate over the proper treatment of these costs,
2 and the desire of many carriers to shift these costs from toll to local services, as well as the
3 propensity of monopolists to attempt to shift costs onto their most captive customers when faced
4 with an increased threat of competition. The remaining parts of 254(k) make it clear that the
5 purpose behind these provisions is to prevent placing an excess cost burden on basic local
6 service and other services included within the universal service category. While Congress hasn't
7 mandated the specific allocation procedures to be used, or specified exactly how much of the
8 joint costs can be placed onto the basic exchange category, it is obvious that 100% allocation of
9 these costs onto local exchange service would be contrary to the intent of this passage. Such an
10 extreme shift of cost responsibility would force local exchange service to bear more than a
11 reasonable share of the joint and common costs of facilities used in providing local, access, and
12 other services.

13 Q. Historically, much of this debate has swirled around the FCC. What stance has
14 the FCC taken with regard to the recovery of joint and common cost?

15 A. The FCC's positions in this area have varied somewhat, depending upon the time
16 frame and the context. However, the FCC has recognized the fact that the loop is shared by
17 multiple services. According to the FCC, the loop is "needed" and "used" by several
18 telecommunication services--services which reside within both the interstate and intrastate
19 jurisdictions. As previously acknowledged, dealing with costs associated with a shared facility
20 can be challenging. The FCC states:

21 Determining the costs that an incumbent LEC incurs to provide
22 interstate access services and that, consequently, should be

1 recovered from those services, is relatively straightforward in
2 some cases and problematic in others. ... Most facilities, however,
3 are used for both intrastate and interstate services. ... By contrast,
4 the cost of other facilities used for both interstate and intrastate
5 traffic do not vary with the amount of traffic carried over the
6 facilities, i.e., the costs are non-traffic sensitive. These costs pose
7 particularly difficult problems for the separations process: The
8 costs of such facilities cannot be allocated on the basis of
9 cost-causation principles because all of the facilities would be
10 required even if they were used only to provide local service or
11 only to provide interstate access service. A significant illustration
12 of this problem is allocating the cost of the local loop, which is
13 needed both to provide local telephone service as well as to
14 originate and terminate long-distance calls. (Access Charge
15 Reform, Price Cap Performance Review for Local Exchange
16 Carriers, Transport Rate Structure and Pricing and End User
17 Common Line Charges, CC Docket Nos. 96-262, 94-1, 91-213,
18 and 95-72, First Report and Order, FCC 97-158 (adopted May 7,
19 1997) (Access Charge Reform Order) at ¶ 23). [emphasis added.]
20

21 Consistent with this view of common costs, in a recent trilogy of orders the FCC clearly
22 recognized that the costs associated with the loop are shared costs of multiple services. In its
23 initial First Report and Order concerning the implementation of local competition, the FCC
24 recognized that the loop is a shared facility used to provide telecommunication services which
25 gives rise to common costs. It just so happens that this is the same order that Dr. Staihr cites as
26 contradicting my definition of common cost. If he believes that the conclusions contained in the
27 order are valid, he must agree with the following FCC statement:

28 As discussed in greater detail below, separate telecommunication
29 services are typically provided over shared network facilities, the
30 cost of which may be joint or common with respect to some
31 services. The costs of local loops and their associated line cards in
32 local switches, for example, are common with respect to interstate
33 access service and local exchange service, because once these
34 facilities are installed to provide one service they are able to

1 provide the other at no additional cost. (Local Competition Order
2 at §678.)
3

4 The FCC followed this First Order with a proposed rulemaking on access charge reform.
5 In the context of this rulemaking process the FCC reaffirmed the concept that costs associated
6 with the loop are common costs with respect to certain telecommunication services. (Access
7 Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate
8 Structure and Pricing and Usage of the Public Switched Network by Information service and
9 Internet Access Providers, CC Docket Nos. 96-262, 94-1, 91-213, and 96-263, Notice of
10 Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, FCC 96-488 (adopted
11 December 23, 1996) (NPRM, Third Report and Order).) The FCC states:

12 For example, interstate access is typically provided using the same
13 loops and line cards that are used to provide local service. The
14 costs of these elements are, therefore, common to the provision of
15 both local and long-distance service.(§ 237.)
16

17 The FCC also rejected the argument that loop costs aren't logically attributable to long
18 distance calling when it pointed out that:

19 Much of the telephone plant that is used to provide local telephone
20 service (such as the local loop, the line that connects a subscriber's
21 telephone to the telephone company's switch) is also needed to
22 originate and terminate interstate long-distance calls." (Id.)
23
24
25
26
27

Surrebuttal Testimony of
Ben Johnson, PhD.

1 *Cost Causation*

2 Q. Would you please address the “six simple facts,” developed by Dr. Alfred Kahn
3 which Dr. Staihr cites in support of his opinion concerning the appropriate interpretation and
4 treatment of loop costs?

5 A. Yes. Dr. Staihr cites to Dr. Kahn’s six “facts” but he discusses just five “facts” in
6 his testimony. (Staihr, Rebuttal Testimony, pp. 17-18) To minimize confusion, it may be useful
7 to quote directly from Dr. Kahn. In his testimony on behalf of Verizon-Pennsylvania (at the time
8 BellAtlantic-Pennsylvania), Dr. Kahn stated the essence of his argument as follows:

9 Consumers impose the cost of the loop on a telephone company and on
10 society by the act of subscribing to telephone service. The causation
11 principle therefore requires that the cost of providing the loop be fully
12 incorporated in the cost of that basic service.... Conversely, if, as I
13 understand to be essentially the case, actual use of the loop for local or
14 long distance calling or for other services imposes no loop costs on the
15 supplier and if subscribers were to refrain from placing those calls or
16 using any of those other services it would not save any of those costs,
17 there is no sense in which usage or other services can be held causally
18 responsible for loop costs. (BA-PA Statement No. 2.0, p. 3, lines 12-15,
19 17-21)
20

21 I don’t necessarily dispute the truly factual aspects of Dr. Kahn’s reasoning, but I do
22 disagree with his views of causation, which I believe lead to misleading or inaccurate
23 conclusions. Dr. Kahn rests his argument on the notion that end use customers “cause” loop
24 costs to be incurred by the act of subscribing to telephone service. This seems intuitively
25 obvious, since the decision to subscribe to local service causes a local loop terminating at that
26 customer’s premises to be connected to the central office. However, the logic of cost causation is
27 not as simplistic as Drs. Kahn and Staihr would have us believe. If we want to accurately

1 examine causation, we will typically find that the local loop in question was installed some years
2 earlier—or perhaps decades earlier. Hence one can reasonably argue that the cost associated with
3 this physical plant was directly “caused” by decisions of other people—perhaps a potential
4 subscriber in years past, but more likely a real estate developer or home builder, or perhaps a
5 phone company executive anticipating the potential for growth in a given area. Those individuals
6 made the decisions which caused loop plant to be installed along a particular route. Some of this
7 plant is dedicated to a particular neighborhood, or house, and the remaining plant serves a
8 broader geographic area on a common or shared basis.

9 The initial decisions that lead to the act of installing these facilities can be seen as the
10 proximate cause of most of their costs. Subsequently, if consumers don’t decide to purchase
11 telephone service, the plant will often sit idle; if they do decide to purchase service, it will be
12 utilized. The total loop cost incurred by the phone company may not vary much either way. The
13 investment in loop plant accumulates carrying charges until a further decision is made to activate
14 the circuit and supply the dial tone that enables the line to become an active part of the public
15 switched network. At that time a billing cycle is initiated, and the cost of the loop begins to be
16 recovered.

17 Of course, once cause and effect are broken down into this much detail, one can quickly
18 lose sight of the important economic issues. Proximate causes like the act of subscribing are not
19 necessarily very interesting or revealing--what counts are the underlying causes or factors that
20 explain patterns of behavior and the resulting impact on the firm’s costs and revenues, and the
21 degree to which costs increase or decrease in response to particular decisions, or price signals.

Surrebuttal Testimony of
Ben Johnson, PhD.

1 In this regard, what I find particularly disappointing about this focus on cost causation is
2 that Drs. Kahn and Staihr make no effort to distinguish between average and marginal costs, and
3 they utterly fail to acknowledge the crucially important point that—to whatever extent an
4 individual subscriber may “cause” some additional costs to be incurred as a result of their
5 decision to purchase basic local exchange service, the relevant question is what is the marginal
6 cost resulting from that decision. Stated another way, from the perspective of economic theory, if
7 we are going to delve into the world of cause and effect, and to use this as a basis for setting
8 prices, there is no excuse for ignoring the crucially important distinction between average and
9 marginal cost.

10 In this regard, I agree with Dr. Kahn when he points out that at the end of the day we
11 must settle on

12 ...a method of the recovery of those costs ... that consumers
13 actually impose on providers when they subscribe to “basic
14 universal service” and that would be saved if they refrained from
15 demanding it. (Id., pp. 3-4, lines 27-28, 1-2)
16

17 But the only measure of costs which can fairly be said to truly meet this criteria (actually
18 being imposed on providers when an individual subscriber decides to purchase basic service) are
19 the marginal costs of providing that service. This is true regardless of whether one is looking at
20 the long run or the short run. Many of the costs of a telephone network—including the costs of
21 digging trenches and installing cable and various “getting started” costs do not necessarily vary
22 at the margin, and they certainly don’t increase or decrease on a pro-rata basis in direct response

Surrebuttal Testimony of
Ben Johnson, PhD.

1 to the decisions of individual customers to purchase basic service—whether this issue is viewed in
2 the long run or the short run.

3 Moreover, the typical retail subscriber doesn't demand dial tone, nor do they make
4 decisions to purchase telephone service purely on the basis of the potential to place and receive
5 local calls. To the contrary, they want the ability to place and receive all types of telephone calls,
6 including both intrastate and interstate long distance calls, and some customers also want to use
7 the various ancillary services that carriers can provide (e.g. Caller ID). While it may be possible
8 to identify the marginal cost of hooking a particular subscriber to the network, there is no sound
9 basis for assuming that cost is entirely attributable to local service or to assume that it has
10 nothing to do with the demand for toll services. To the contrary, some customers' decision to
11 hook into the telephone network is more a function of their interest in receiving long distance
12 calls than it is in placing or receiving local calls.

13 Q. Is there any evidence that customers consider their anticipated usage when
14 making decisions to subscribe?

15 A. Yes. It should be obvious that both toll and local usage are valued by customers.
16 While the theoretical ability to place and receive calls may have some value to customers, the
17 mere ability to pick up the phone and hear a dial tone is not of significant value to most
18 customers—except to the extent this ability is combined with the anticipation that they will
19 actually talk on the phone. In this regard, the various prices charged are of considerable
20 importance. Needless to say, the price tag associated with the decision to connect to and remain
21 on the network is certainly highly relevant, and potentially can be the single most important

1 factor in determining whether someone subscribes. However, one cannot lose sight of the price
2 tag associated with usage. For instance, in most jurisdictions local usage is bundled with the
3 ability to hear a dial tone, and there is no additional charge on a per-minute basis for either
4 placing or receiving calls within a specified local calling area. Similarly, customers know that
5 having joined the network they can receive long distance calls from family and friends at no
6 additional cost to them—and they can also place many long distance calls without further expense
7 (e.g. to businesses that advertise toll free numbers). The ability to place long distance calls is
8 also important for most customers. Similarly, the anticipated cost of placing toll calls is a factor
9 to consider in making the decision to join or remain on the network. However, it's fair to assume
10 that toll prices are a secondary consideration, since toll prices are not exorbitant and because the
11 customer can control this aspect of their monthly expenditures on a call-by-call basis. In any
12 event, it is clear that anticipated use of the loop for long distance calls is one of the factors which
13 influences a typical subscribers' decision to join, stay on, or leave the switched network.

14 Q. How does the fact that all types of anticipated usage are relevant to the decision to
15 become or continue as a telephone subscriber relate to Drs. Kahn and Staihr's arguments?

16 A. They focus attention on the obvious fact that individual end-use subscribers make
17 decisions about joining or leaving the switched network, then they attempt to use this fact as an
18 argument for why the costs associated with that decision should be attributed to local exchange
19 service. However, this reasoning falls apart because it depends upon blurring the distinction
20 between subscribers and services. Even if one were to conclude (as I do not) that the cost of a
21 loop is entirely attributable to the particular subscriber who has their telephone physically

Surrebuttal Testimony of
Ben Johnson, PhD.

1 connected to that particular loop, that fact alone wouldn't tell us anything about whether the cost
2 of that loop should be recovered through (or attributed to) their local service, their toll service, or
3 any other service that they obtain over that loop. Nor, for that matter, does the fact that
4 individual subscribers help "cause" loop costs logically determine the extent to which
5 subscribers should pay the cost of the loop through their local bill. Historically, some of these
6 costs have been recovered through their toll bill, while another portion has been paid by various
7 businesses that want or need to talk with them (e.g. through the toll rates paid by businesses, and
8 through the relatively high level of local exchange rates paid by businesses).

9 Before rushing to the judgment that it is somehow "uneconomic" for businesses to help
10 pay the cost of residential telephone service, it is worth noting that this sharing of the cost
11 burden is not only the result of regulatory policies, but it is also a consequence of normal market
12 forces wherein many businesses voluntarily agree to pay a disproportionate share of the cost of
13 communicating with their customers. If that sounds implausible, just consider the fact that so
14 many businesses find it profitable to advertise toll-free numbers. When they do this, they are
15 voluntarily agreeing to pay a greater-than-required share of the cost of the loops which are used
16 by the people who call them. Of course, this voluntary arrangement would effectively be
17 precluded under the approach advocated by Dr. Staihr, since the toll charges which are
18 voluntarily absorbed by the business would no longer include any contribution towards the cost
19 of the loop.

20 Q. Dr. Staihr also discusses the beef and hide analogy. Can you please comment on
21 his testimony in this regard?

Surrebuttal Testimony of
Ben Johnson, PhD.

1 A. Yes. Dr. Staihr states, without proof, that my analogy is not applicable in the case
2 of telecom services. (Staihr, Rebuttal Testimony, p. 19, lines 6-11) Dr. Staihr provides no
3 evidentiary support for this contention, nor does he provide much in the way of supporting logic.
4 He concedes that joint costs are involved in this classic example “because it is impossible to
5 separate the production of beef from the production of leather.” (Id.) But, he fails to show how
6 this is any different from the telecom situation. At the stage of production in which the cattle
7 farmer operates, it is impossible to separate the production of beef from the production of
8 leather. At later stages (butchering and tanning), of course, such distinctions become possible
9 and thus various direct costs are also incurred in producing steak and shoes. But the same facts
10 apply to the production of various telephone services. It is equally impossible to separate the
11 production of access to local customers from the production of access to long distance carriers
12 (unless the phone company takes extra steps in order to destroy the value which is inherently
13 created by blocking access to toll carriers). By hooking up a customer in order to provide them
14 with local service, the phone company will not only produce a higher volume of “local access”
15 but it will also produce a higher volume of “long distance access.” Access to the toll and local
16 networks are inherently intertwined, and it is impossible to separate the two production
17 processes (except by expending additional effort in order to destroy the value which is inherently
18 created—just as a cable company can destroy some of what it produces by blocking access to
19 premium services).

20 Q. In his reasoning, Dr. Staihr seems to be relying, at least in part, on the physical
21 proximity of the local customer to the loop, as well as the fact that for most customers local

Surrebuttal Testimony of
Ben Johnson, PhD.

1 service is the most "basic" service they purchase, which largely explains their motivation for
2 joining the network. Can you please comment on this aspect of his testimony?

3 A. Yes. Assigning costs on the basis of a guess about the primary intention of
4 ratepayers when they make a purchase is not a sound basis for economic analysis, nor does it
5 provide a basis for determining the appropriate recovery of joint costs.

6 I will certainly agree that many customers obtain a phone line primarily because they
7 want local service, and their purchasing decisions are only secondarily concerned with toll and
8 enhanced services. And, I will concede that there may be some consumers who are exclusively
9 focused on local service when they make the decision to hook up. But, it is certainly true that
10 many more consumers want to obtain and use the entire array of telecom services, including
11 local, toll and custom calling. In the same way, obtaining clear, convenient access to local
12 television stations and the most basic cable programming is undoubtedly the primary motivation
13 for many people to hook into a cable system. But, it is equally true that the majority of customers
14 end up buying at least some of the premium programming, and it isn't possible to completely
15 disentangle their motivations in deciding whether or not to connect to the cable TV system.

16 In any event, questions of primary and secondary motivation are not crucial in resolving
17 the joint cost issue. The fact that access to the network (dial tone) is typically bundled with a
18 package of local usage (typically unlimited calling) doesn't mean that local service alone
19 "causes" these costs. To the contrary, the loop costs are also "caused" by demand for toll and
20 ancillary services. These ancillary services also play a role in motivating people to connect to the
21 switched network.

1 Any attempt to trace "cost causation" to these individual services on the basis of
2 consumer motivation is bound to be meaningless, since the loop costs are actually "caused" by
3 the desire to use an array of different services, and the chain of causality cannot be uniquely
4 traced back to any single service within this array. If the dial tone line were bundled with toll
5 service, and local service were priced as an optional add-on, many consumers would still acquire
6 the dial tone line, to ensure that they can place and receive toll calls, regardless of whether or not
7 they ever place or receive any local calls. If the loop were bundled with toll, it might appear that
8 the dial tone line is a direct cost of toll, and thus one could plausibly argue that the entire cost
9 should be attributed to the toll category. However, this type of reasoning is not economically
10 valid, regardless of which service is bundled with the dial tone line, and regardless of which
11 service provides the dominant or primary motivation for acquiring the dial tone line. So long as
12 numerous different services require the use of the line, economic theory suggests that all of these
13 different services will contribute towards the cost of the line.

14 In competitive markets, consumer motivation and "cause and effect" reasoning does not
15 have any impact on the manner in which joint costs are recovered. Similarly, distinctions
16 between different products or services on the basis of which ones are properly classified as
17 "basic" or "primary" and which ones are classified as "ancillary" or "secondary" have no impact
18 on the key question of joint cost recovery. To the contrary, all of the joint products contribute to
19 the joint costs, including "ancillary" byproducts of another production process.

20 For proof of this point, we can turn to another classic joint cost example from the
21 economic literature. Cotton seed is probably a mere byproduct of the production of cotton. And,

1 arguably the people buying cottonseed oil don't "cause" cotton to be grown, while the consumers
2 of cotton cloth do "cause" the various costs of growing raw cotton to be incurred. Nevertheless,
3 consumers of both cottonseed oil and cotton clothing contribute to the cost of growing and
4 harvesting cotton. The mere fact that the planting of cotton is "caused" by demand for cotton
5 cloth does not result in all of the joint costs being recovered from the clothing market, and none
6 from the ancillary products like cottonseed oil.

7 Joint costs are recovered in proportions that are determined by the relative strength of
8 demand—not on the basis of which product is primary and which one is secondary. Cause and
9 effect is essentially irrelevant, except to the extent it reflects strength of demand. Customers in
10 both the cotton and cottonseed oil markets share the joint costs, in proportions that are
11 determined by the relative strength of demand for cotton cloth and cottonseed oil. Thus, for
12 example, perceptions of the desirability of cottonseed oil relative to corn oil and olive oil, as well
13 as the prices of these substitutes, will influence the price of cottonseed oil, and in turn impact the
14 extent to which purchasers of this ancillary product contribute towards the costs of growing
15 cotton.

16
17 *The Distinction Between Joint Use and Joint Cost*

18 Q. Dr. Staihr concludes his joint and common cost discussion with two arguments
19 based upon analogies. Would you please respond to the first of these arguments?

20 A. Yes. Dr. Staihr first uses televisions and video cassettes to make the point that
21 “while it is impossible to place a long-distance call without using a local loop, it is also

Surrebuttal Testimony of
Ben Johnson, PhD.

1 impossible to watch a video cassette without a television set. But the cost of the television set is
2 not a joint or common cost of a video rental.” (Id.)

3 I certainly agree with Dr. Staihr that the cost of the television set is not a joint or common
4 cost of a video rental. However, that says nothing about whether or not loop costs can properly
5 be interpreted as joint costs, because the two situations aren’t close enough analogies.

6 It is obvious that some similarities exist within his analogy, or he wouldn’t have chosen
7 it. For instance, like a television, the local loop enables a consumer to undertake many different
8 activities—place local calls, toll calls, and have access to a variety of custom calling features.
9 Like televisions, only when congestion is present (e.g. two members of the family want to watch
10 different shows at the same time) is there a trade-off between these alternative uses—users can
11 readily move between services just like a television viewer can move between channels.
12 However, the analogy breaks down when closely examining the key characteristics which
13 determine whether the two situations merely involve joint use, or whether they also involve joint
14 costs.

15 Contrary to Dr. Staihr’s testimony, I am not arguing or implying that “joint use implies
16 joint cost.” Nor am I confusing the difference between joint use and joint cost. Quite the
17 contrary, the concepts of joint use and joint cost are distinct, even though in some important
18 situations both joint use and joint cost are present.

19 Q. Before digging deeper into his analogy, can you explain further the distinction
20 between joint use and joint cost?

1 A. Yes. The classic case of beef and hides provides a good illustration of joint costs
2 without involving joint use—at the retail level. You don’t need to wear leather gloves in order to
3 enjoy eating a hamburger, so there is no joint use by retail customers. Nevertheless, joint costs
4 are involved, because a cattle farmer can’t efficiently produce beef without simultaneously
5 producing hides. Unless the farmer throws away or destroys one of his two products (beef and
6 hides) he will automatically create the second product whenever he creates more of the first.

7 In understanding this potentially confusing distinction between joint use and joint cost, it
8 is important to keep in mind the distinction between intermediate and final stages of production,
9 and the corresponding distinction between intermediate and final forms of usage. In the beef and
10 hide example, feed is a joint cost. As such, feed is jointly used in the production of both beef and
11 hides. However, that joint use phenomenon is distinct from the question of whether or not the
12 resulting finished products are jointly used (most customers take off their gloves before eating
13 their burgers).

14 A similar distinction exists in the telephone context. When an additional access line is
15 installed, it increases an intermediate output which simultaneously becomes available in both toll
16 and local markets (as well as the market for other services, such as custom calling). The
17 terminology typically applied to that intermediate output is “network access”—the ability to place
18 and receive telephone calls which is produced when loops are combined with switches to form
19 an interconnected network.

20 Not only are loops used at an intermediate stage of production like cattle feed, but loops
21 fit the definition of joint costs just as well as cattle feed does. Recall the Handbook of Industrial

1 Organization definition of joint cost which I introduced in my direct testimony: joint costs arise
2 when there are production factors that “once acquired for use in producing one good... are
3 costlessly available for use in the production of others.” (Handbook at 17) As I explained in my
4 direct testimony, this definition fits the example of beef and hides, because once the decision is
5 made to produce more beef, the cattle feed used in this process will costlessly produce more
6 hides, as well. Of course, neither the carcasses nor the hides will be useful to end users unless the
7 remaining steps in the production process are completed (butchering and tanning). Significantly,
8 this same definition perfectly fits the production of network access for both local and toll calling.
9 Once the decision is made to produce more local network access the loops that are used in this
10 process will costlessly produce more long distance network access, as well. Stated another way,
11 the decision to connect a telephone to the network in order to have the ability to place or receive
12 local calls will costlessly also produce the ability to place and receive toll calls.

13 One reason this issue seems so confusing and ambiguous is that it involves an
14 intermediate stage of production, and most people do not commonly focus on subtle differences
15 in the various stages of production; rather, we are used to thinking about the production process
16 as an entirety, often focusing most of our attention on the final products which we actually
17 consume. Thus, for example, when we think about “beef” we probably visualize a steak or
18 hamburger, rather than an unbutchered carcass. Yet, technically, the production of beef only
19 involves joint costs at the intermediate (and early) stages of production. Additional costs are also
20 incurred (e.g. butchering and tanning) which are direct costs of each of the final products (these
21 steps do not involve joint costs).

1 The situation involved in the production of local and toll service is very similar, and
2 potentially very confusing, particularly because most people aren't used to thinking in terms of
3 the distinction between "access" to other points on a network and actual usage of that network to
4 connect to those points.

5 Potential confusion can be reduced or eliminated by careful disaggregation and study.
6 Simply stated, completed toll calls typically involve three or more intermediate steps: use of two
7 access lines or loops, one or more switches, and one or more interoffice trunks. In turn, some of
8 these components can be used only for local purposes, some only for toll, and others for both
9 purposes. Because of congestion, inter-office switching and trunking typically involves either
10 direct costs (when the item is dedicated to one market or the other) or common costs (not joint).
11 The latter occurs where equipment is shared but increased use in one market displaces usage in
12 the other market.

13 The access line (loop) can properly be described as giving rise to either joint or common
14 costs, since the loop serves multiple markets. I believe it can most accurately be viewed as a
15 joint cost, in the typical situation where the line is not highly congested and its use in serving one
16 market does not preclude its use in serving the other market. More specifically, when a loop is
17 used to connect a telephone to a switch, the loop yields at least two intermediate products: the
18 potential ability to communicate with customers within the same locality (we can call this
19 intermediate product "local access") and the ability to communicate with customers in other
20 cities (we can call this intermediate product "long distance access"). Since the latter form of

1 access is provided via toll carriers, one can think of the loop as providing access to both local
2 and toll networks.

3 Of course, since communication is generally two-way, we can also say that two other
4 joint products are provided, as well: access to the customer installing the line by other customers
5 within the same locality, and access to that customer by toll carriers and their customers.
6 Similarly, when used in conjunction with modern switching hardware and software, an access
7 line also provides access to other useful services, like call waiting and voice mail.

8 Q. Having established this basic understanding of the distinction between joint use
9 and joint cost, as well as the distinction between intermediate and final products, can you
10 respond directly to Dr. Staihr's analogy to television sets, which are jointly used with cable
11 programming and video cassettes?

12 A. Yes. There are no joint costs involved in the television set, only joint use. This
13 distinction makes the television set completely different from the situation with loops (where
14 both joint use and joint costs are involved).

15 Dr. Staihr seems to be suggesting that it isn't reasonable to recover loop costs from both
16 toll and local service unless it would also be reasonable to recover the cost of a television set
17 from the price of cable service and the price of video rentals. But this is nonsense because the
18 mere existence of joint use (the television is jointly used in conjunction with cable programming
19 and video cassettes) does not inherently indicate the existence of joint costs. Nor have I assumed
20 anywhere in my analysis that joint costs are present merely as a result of the fact that a telephone

Surrebuttal Testimony of
Ben Johnson, PhD.

1 is jointly used in placing both toll and local calls. Because television sets don't give rise to joint
2 costs in the same way telephone networks do, his analogy doesn't fit, and thus it proves nothing.

3 Q. In concluding your discussion of Dr. Staihr's analogy, can you provide a
4 television analogy which does involve joint costs?

5 A. Yes. Rather than focusing on the television set, let's shift our attention to the
6 manner in which cable television services are provided. Once a cable TV company installs cable
7 to a particular neighborhood and it sends television signals down the system towards its
8 customers, the programming inherently becomes available to everyone connected to the
9 system—regardless of whether they want to watch (or have paid for it) or not. In order to
10 maximize their profits, these companies take extra steps to “block” programming from those
11 customers who haven't paid for it. Thus, for example, the cable company will expend additional
12 effort to limit access to “non-basic” services like HBO and ESPN, in order to ensure that only
13 paying customers watch the programming provided on these channels.

14 Given the technology used in sending programming to customers by coaxial cable, the
15 cable TV industry incurs joint costs. In essence, once the coaxial cable is installed to a set of
16 houses and programming is sent over that cable, everyone connected to the system can watch all
17 of the programs, unless additional effort is made to destroy that ability (blocking access). Given
18 the nature of this technology, the cost of installing and maintaining the cable can be viewed as
19 joint costs. Once these production factors have been deployed for use in producing television
20 service for one set of customers (or for carrying one set of channels), that cable is costlessly
21 available for use in the production of service to other customers (or the carrying of other

Surrebuttal Testimony of
Ben Johnson, PhD.

1 channels). Thus, for example, in order to provide a particular program to Mr. Jones, this program
2 will also be provided to his neighbor, Mr. Thomas, unless special efforts are made to destroy the
3 value that is inherently created when the signal is sent over the system. Aside from additional
4 fees paid to copyright holders, it wouldn't cost the cable TV company anything more to provide
5 all of its customers with all of its channels.

6 The cable TV industry provides another example of the normal pattern of recovery of
7 joint and common costs: all customers contribute towards these costs, through the prices paid for
8 all of the different services involved in the joint production process. Significantly, the joint costs
9 are not recovered from different services on the basis of some arbitrary allocation formula. Nor
10 is the entirety of the joint costs placed on the most basic level of service, or through an "access
11 fee" imposed on all customers regardless of their willingness or ability to pay. To the contrary,
12 the joint costs are recovered from various services, based upon the strength of demand for those
13 services. Larger markups are imposed on "premium" services, which are perceived by customers
14 as having more value, as a result a relatively large share of the joint costs are recovered from
15 those customers who subscribe to large amounts of "premium" programming (including
16 programs like ESPN which are typically bundled into an "enhanced basic" package of some
17 type). Consistent with normal market patterns, the most "basic" form of service typically
18 provides the smallest contribution towards the firm's joint costs.

Mark Harper

Q. Finally, witness Mark Harper, testifying on behalf of Sprint Missouri criticizes your inclusion of testimony and exhibits comparing your costs estimates with existing access rates in Missouri, as well as your comparisons between Missouri access rates and the access rates charged in other jurisdictions. (p. 9) Why were these cost and rate comparisons included in your testimony?

A. In addition to the reasons set forth in my direct testimony, we developed this data because the Commission specifically required this type of comparison as part of its Request for Proposal:

The contractor shall provide a comparison of how existing intrastate exchange access rates compare with the corresponding rates for intrastate exchange access rates offered in other states. The comparison should attempt to reveal whether the proposed intrastate exchange access rates identified in Analysis of Intrastate Exchange Access Service Issues, subparagraph a., are generally higher or lower than corresponding rates for the service in other states.(RFP B3Z01165, page 7, section 2.3.2 f)

No conclusions or recommendations were drawn from this type of comparison.

Q. Does this complete your surrebuttal testimony, which was filed on August 29, 2002?

A. Yes, it does.

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

In the Matter of an Investigation of the Actual
Costs Incurred in Providing Exchange Access
Service and the Access Rates to be Charged by)
Competitive Local Exchange Telecommunications)
Companies in the State of Missouri.) Case No. TR-2001-65

AFFIDAVIT OF BEN JOHNSON, PhD.

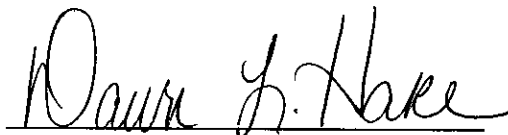
STATE OF MISSOURI)
)
COUNTY OF COLE)

Ben Johnson, PhD., of lawful age, on his oath states: that he has participated in the preparation of the foregoing written testimony in question and answer form, consisting of 90 pages of testimony to be presented in the above case, that the answers in the attached written testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.



Ben Johnson, PhD.

Subscribed and sworn to before me this 27th day of August, 2002.



DAWN L. HAKE
Notary Public - State of Missouri
County of Cole

My commission expires Jan 9, 2005