

PUBLIC DIRECT TESTIMONY

OF

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RATES DEPARTMENT

TELECOMMUNICATIONS DIVISION

ILLINOIS COMMERCE COMMISSION

ILLINOIS BELL TELEPHONE COMPANY

FILING TO INCREASE UNBUNDLED LOOP AND NONRECURRING RATES

DOCKET NO. 02-0864

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1 **I. Introduction**

2 **A. *Witness Identification and Qualifications***

3

4 **Q. Please state your name and business address.**

5 A. My name is Robert F. Koch and my business address is 527 East Capitol  
6 Avenue, Springfield, Illinois 62701.

7

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

9 A. I am employed by the Illinois Commerce Commission (“Commission”) as  
10 an Economic Analyst in the Rates Section of the Telecommunications  
11 Division.

12

13 **Q. Please describe your educational and occupational background.**

14 A. I received a Bachelor of Science degree in Mathematics and Economics  
15 from Illinois State University in 1992. In May of 1997 I received a Master  
16 of Science degree in Economics from Illinois State University. During the  
17 Summer of 1996, I worked as an intern in the Telecommunications Rates  
18 Section of the Public Utilities Division with the Commission. Upon  
19 graduation, I accepted a position with the Commission as an Economic  
20 Analyst in the Rates Section of the Telecommunications Division.

21

22 **Q. Please briefly describe your duties with the Illinois Commerce**  
23 **Commission.**

24 A. My responsibilities include reviewing wholesale and retail tariff filings for  
25 both competitive and non-competitive telecommunications services,  
26 providing support to other Commission Staff, and analyzing cost study  
27 issues in docketed cases that have cost of service and rate implications. I  
28 am also responsible for reviewing the managerial, technical, and financial  
29 capabilities of companies seeking approval to do business in Illinois as  
30 competitive local exchange carriers.

31

32 **Q Have you previously testified before the Commission?**

33 A. Yes. I have provided expert witness testimony in several docketed cases:  
34 I.C.C. Docket No. 96-0503 (GTE wholesale rate docket); I.C.C. Docket  
35 Nos. 97-0601/0602/0516 (Consol.)(access charge reform, etc.); I.C.C.  
36 Docket No. 97-0633 (interim local number portability cost recovery); I.C.C.  
37 Docket No. 98-0200/0537 (complaint investigating GTE Usage Sensitive  
38 Service rates); I.C.C. Docket No. 98-0252/0335 (Consol.) (Ameritech 5  
39 year alternative regulation review); I.C.C. Docket No. 98-0860 (Ameritech  
40 competitive service reclassification); I.C.C. Docket Nos. 99-0038/0039  
41 (Consol.) (access charge refunds for IXCs); I.C.C. Docket No. 99-0185  
42 (Ameritech alternative regulation Annual Filing); I.C.C. Docket No. 99-  
43 00315 (infrastructure maintenance fee adjustments); I.C.C. Docket No. 99-  
44 0412 (Geneseo EAS petition); I.C.C. Docket No. 99-0544 (ATS Services  
45 certification case); I.C.C. Docket No. 00-0043 (Cub complaint of Ameritech  
46 usage plans); I.C.C. Docket No. 00-0187 (GTE sale of assets to Citizens

47 Telecommunications Company of Illinois); I.C.C. Docket No. 00-0023  
48 (complaint investigating Ameritech's termination penalties); I.C.C. Docket  
49 No. 00-0233/0335 (Consol.) (Phase I and Phase II); I.C.C. Docket No. 00-  
50 0393 (initial and rehearing investigation of Ameritech's line sharing tariff),  
51 I.C.C. Docket No. 00-0812 (Phase I of Verizon cost docket), I.C.C. Docket  
52 No. 01-0662 (Phase I of Ameritech Section 271 checklist compliance  
53 docket), and I.C.C. Docket No. 02-0247 (Phase I of investigation into  
54 Ameritech access charges).

55

56

57 ***B. Purpose of this Testimony***

58

59 **Q. How is your Direct Testimony in this proceeding organized?**

60 A. My Direct Testimony addresses specific cost related issues involved in the  
61 December 24, 2002, unbundled network element ("UNE") filing of SBC  
62 Illinois ("SBCI"). The filing represents a significant departure from the  
63 methodology previously used by SBCI (formerly known as Ameritech  
64 Illinois) for developing UNE rates. Amongst the changes proposed in this  
65 filing is the introduction of a new cost model called LoopCAT for the  
66 development of UNE loop rates. My testimony addresses only a subset of  
67 the issues involved in this proceeding, and is organized as follows:

68

69 Section I is this introduction.

70

71        Section II is an analysis of the network design incorporated by SBCI in its  
72        LoopCAT model, as proposed by SBCI witness James Smallwood.<sup>1</sup> I  
73        conclude that the network design utilized by SBCI is not consistent with  
74        TELRIC principles and identify three significant flaws in its cost analysis.  
75        First, the network is designed such that too many next generation digital  
76        loop carriers (“NGDLCs”) are included in the network. Second, the  
77        LoopCAT model fails to incorporate a variety of equipment choices that  
78        would improve the efficiency of the network. Third, the LoopCAT model  
79        improperly includes costs that should be assigned to SBCI’s Broadband  
80        UNE offering. I recommend adjustments to LoopCAT to remedy these  
81        problems.

82

83        Section III addresses the development of Annual Cost Factors (“ACFs”).  
84        ACFs are a significant piece of SBCI’s cost development. Not only do  
85        they have a direct affect on rates via LoopCAT, they also indirectly affect  
86        rates as they are used in development of SBCI’s shared and common cost  
87        factor. I serve the function of incorporating the recommendations of other  
88        Staff members that affect the development of ACFs and recalculate these  
89        ACFs for use in this proceeding.

90

91        Section IV addresses concerns regarding SBCI’s compliance with  
92        imputation requirements, as discussed by SBCI witness Eric Panfil, for

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<sup>1</sup> See SBCI Exhibit 4.0 generally.

93 each of its competitive services that utilize the same or functionally  
94 equivalent noncompetitive services or noncompetitive service elements  
95 proposed to be increased by SBCI's December 24, 2002, UNE Tariff filing  
96 (i.e., retail business services). I determine that the imputation tests  
97 provided by SBCI are lacking required information and are in an improper  
98 form. After developing an appropriate form for these tests, I recalculate  
99 their values and determine that SBCI's proposed increases for UNE loop  
100 rates cause retail business access line rates to fail the test in all instances.  
101 I also perform the imputation test using Staff's proposed UNE loop rates in  
102 this proceeding and conclude that retail business access line rates satisfy  
103 the imputation tests in all cases. In addition, I provide a calculation of the  
104 increases to retail business rates that would be necessary for the  
105 satisfaction of imputation tests if SBCI's proposed UNE loop rate  
106 increases were accepted, and the resulting revenue impact.  
107  
108 Section V provides a summary of the conclusions and recommendations  
109 in my direct testimony.

110 **II. LoopCAT Network Design Issues**

111

112 **Q. Please describe your qualifications to examine the network**  
113 **configuration utilized in LoopCAT.**

114 A. I note as an initial matter that I am not a telecommunications engineer and  
115 do not provide any recommendation in this proceeding based on  
116 engineering expertise with respect to the workings of an actual  
117 telecommunications network. I am trained as an economist, and have a  
118 basic, rather than detailed, understanding of the components needed to  
119 provision a voice grade network as well as a loop that is capable of  
120 facilitating advanced telecommunications services. My review of the  
121 network design utilized by LoopCAT is limited to its relation to current  
122 TELRIC requirements, which is squarely within the scope of my  
123 professional expertise. My testimony should not be construed as offering  
124 a recommendation regarding the engineering of the actual  
125 telecommunications network, which is, as I have stated, not within the  
126 scope of my professional expertise.

127

128 **Q. What requirements are placed on the design of the telephone**  
129 **network in a TELRIC environment?**

130 A. In ICC Staff Ex. 1.0 Staff witness Mr. Jeffrey Hoagg summarizes the  
131 TELRIC standard for costing and pricing unbundled network elements  
132 (UNEs), and addresses the requirements that must be satisfied for a

133 TELRIC-compliant cost study. The general TELRIC standards and  
134 requirements described by Mr. Hoagg are applicable here. Further, in  
135 considering cost models proposed for computing UNE loop costs, there  
136 are two requirements or criteria that should be considered.

137

138 First, in its consideration of forward looking cost models to be used to  
139 compute universal service support, the Federal Communications  
140 Commission (“FCC”) stated that “[t]he loop design incorporated into a  
141 forward looking economic cost study or model should not impede the  
142 provision of advanced services.”<sup>2</sup> Significantly, the FCC also encouraged  
143 states “to use the same cost methodology to the extent possible for both  
144 its universal service program and its pricing of unbundled network  
145 elements.”<sup>3</sup> The FCC subsequently clarified that the issue is “whether the  
146 models use the least-cost, most efficient, and reasonable technology while  
147 not impeding the provision of advanced services.”<sup>4</sup>

148

149 Second, cost causation principles dictate that the TELRIC of a loop should  
150 include only those costs necessary for provisioning of the UNE loop.<sup>5</sup>

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<sup>2</sup> *In the Matter of Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Report and Order, FCC 97-157 at para. 250 (rel. May 8, 1997) (“Universal Service First Report and Order”).

<sup>3</sup> *Id.* at para. 206.

<sup>4</sup> *In the Matter of Federal-State Joint Board on Universal Service; Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Docket Nos. 96-45; 97-160, Fifth Report And Order, FCC 98-279 at para. 68 (rel. October 28, 1998) (“Universal Service Firth Report And Order”).

<sup>5</sup> Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No.96-98, and Interconnection between Local Exchange Carriers and Commercial Mobile

151

152 **Q. What is meant by the term “advanced telecommunications**  
153 **services?”**

154 A. Advanced telecommunications services are defined in the Illinois Public  
155 Utilities Act (“PUA”) as being services that are capable of supporting a  
156 speed in excess of 200 kilobits per second (“kbps”) to the network  
157 demarcation point at the subscriber’s premises.<sup>6</sup> Further, the FCC has  
158 defined advanced services as “...high speed, switched, broadband,  
159 wireline telecommunications capability that enables users to originate and  
160 receive high-quality voice, data, graphics and video telecommunications.  
161 The term ‘broadband’ is generally used to convey sufficient capacity – or  
162 ‘bandwidth’ – to transport large amounts of information.”<sup>7</sup> Although there  
163 are a number of services that would be considered “advanced services”,  
164 the advanced services most commonly provided to residential and small  
165 business customers at this time are xDSL services.

166

167 **Q. Please describe DSL (or xDSL) services.**

168 A. DSL or “xDSL” refers to Digital Subscriber Line, with the lower case “x” a  
169 placeholder for various versions of DSL technology. DSL modems allow

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Radio Service Providers, CC Docket 95-185, First Report and Order, FCC 96-325, at para. 695 (rel. August 1, 1996) (“First Report and Order”).

<sup>6</sup> 220 ILCS 5/13-517(c).

<sup>7</sup> *Deployment of Wireline Services Offering Advanced Telecommunications Capabilities and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Third Report and Order, CC Docket No. 98-147, Fourth Report and Order, CC Docket No. 96-98, FCC 99-355, at para. 1 fn. 2 (rel. Dec. 9, 1999) (“*Line Sharing Order*”).

170 transmission of data over copper facilities used for voice grade services at  
171 vastly higher speeds than can be achieved with analog data transmission.  
172 DSL generally requires conditioned copper loops (i.e., loops without load  
173 coils, bridged taps and other interferers), and it does not work over fiber  
174 facilities. Traditionally, DSL technologies have been deployed on end-to-  
175 end copper loops up to 18,000 feet in length.

176

177 **Q. Please explain the relationship between the length of a copper loop**  
178 **and the ability to provision DSL services.**

179 A. Transmission speed and the quality and strength of the signal transmitted  
180 over a copper loop are inversely related to the overall length of the loop.  
181 As the overall length of a copper loop increases, the quality and strength  
182 of the signal transmitted decreases. In general, the quality and strength of  
183 a signal transmitted on a voice grade copper loop terminating more than  
184 18 kilofeet (“kft”) from a serving wire center declines below acceptable  
185 levels without some form of loop extending technology. This decline  
186 impacts voice signals as well as digital signals.

187

188 Traditional digital loop carriers (“DLCs”) and line extenders allow for voice  
189 grade service to be provisioned beyond 18kft from a serving wire center,  
190 but do not allow for DSL based advanced telecommunications service  
191 transmission to these customers. By employing what are called next  
192 generation digital loop carriers (“NGDLCs”) and fiber feeder cable, the

193 reach of DSL based advanced telecommunications services can be  
194 extended to all or virtually all customers of a serving wire center. This  
195 becomes possible when the length of the copper portion of the loop is  
196 decreased below 18kft as a result of employing an NGDLC. As a network  
197 design further restricts the length of the copper portion of the loop, an  
198 increased number of NGDLCs is needed to serve customers.

199

200 **A. Requirement 1: the loop design incorporated into a forward**  
201 **looking economic cost study or model should not impede the**  
202 **provisioning of advanced telecommunications services**  
203

204 **Q. Does the network configuration provided by SBCI impede the**  
205 **provisioning of advanced telecommunications services?**

206 A. No. The network design incorporated by SBCI in its LoopCAT model does  
207 not impede the provisioning of advanced services. As I noted previously,  
208 in order to provide advanced telecommunications services, an all copper  
209 loop cannot exceed 18kft in length. Loops that are longer than 18kft  
210 would need to be augmented with fiber optic feeder cables and other  
211 electronics in order to provision DSL services. LoopCAT, however, is  
212 designed so that the copper portion of any loop in the network does not  
213 exceed 12kft.<sup>8</sup> Further, the engineering assumptions in SBCI's LoopCAT  
214 model do not include traditional DLCs, load coils, or line extension

---

<sup>8</sup> The overall loop length at which the feeder portion of the loop is provisioned over fiber cable rather than copper cable is called the crossover length. SBCI Ex. 4.0, Schedule JRS-3 at 15. Thus, LoopCAT employs a 12,000 foot crossover length.

215 technology. Rather, loops that are greater than 12kft in length are only  
216 provided over fiber fed systems with NGDLCs located at the Remote  
217 Terminal (“RT”). By making these network assumptions, SBCI’s modeled  
218 network more than satisfies this first requirement.

219

220 **Q. Can any of the fiber fed loops designed by SBCI in LoopCAT be used**  
221 **to provide advanced telecommunications services?**

222 A. No. Although SBCI claims that the network configuration developed by  
223 LoopCAT is the proper break point for the provisioning of advanced  
224 services<sup>9</sup>, the loops created by the model are not currently outfitted do so.  
225 A careful review of LoopCAT shows that the NGDLCs deployed in the  
226 hypothetical network are not configured to provide a data signal  
227 transmission path from the site of the Remote Terminal (“RT”) to the  
228 central office. By SBCI’s own admission, a significant amount of  
229 equipment would be necessary to provision such services.<sup>10</sup> The problem  
230 does not lie in the copper portion of the loop (the portion between the  
231 NGDLC and the subscriber’s premises). Rather, it is the NGDLC  
232 equipment at the RT and the transmission path between the RT and the  
233 central office that are configured in such a way that advanced  
234 telecommunications service transmission speeds are impossible.  
235 Significant upgrades to the NGDLC equipment would be necessary to

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<sup>9</sup> SBC Illinois Ex. 8.0 at page 28.

<sup>10</sup> SBCI response to Staff Data Request 1.10 lists a series of nine upgrades that would be necessary to provision such services.

236 carry the advanced telecommunications service over the entire length of  
237 the loop.

238

239 **Q. What general upgrades to the modeled network configurations would**  
240 **be needed to provide advanced telecommunications services?**

241 A. The NGDLC systems would need to be retrofitted with channel banks that  
242 are capable of housing more advanced line cards than what are present in  
243 SBCI's design. The channel banks used in LoopCAT's network  
244 configurations are only capable of housing line cards for voice grade  
245 telecommunications services.<sup>11</sup> As such, the speed at which data could  
246 travel over the entirety of the loop would be limited to traditional 56 kbps  
247 modems under this configuration.

248

249 Additionally, a return path from the RT to the serving wire center for the  
250 data signal would also need to be provisioned. Although there may be a  
251 sufficient amount of fiber optic cable in the SBCI designed hypothetical  
252 network to handle the bandwidth requirements, there is no multiplexing  
253 equipment and central office termination equipment assigned for the  
254 transport of advanced data traffic to the serving wire center.

255

---

<sup>11</sup> Technically, the channel banks applied in the LOOPCAT modeled networks can also accommodate line cards for other non-advanced telecommunications services such as ISDN and coin telephone service.

256 **Q. Do you have any concerns regarding the TELRIC compliance of the**  
257 **network design proposed by SBCI in LoopCAT?**

258 A. Yes. Although the loop design utilized in LoopCAT does not impede the  
259 provisioning of advanced telecommunications service, this design is –  
260 contrary to TELRIC standards -- extremely inefficient. The result is that the  
261 network is “over-built” and the cost of the network is inflated. There are  
262 two specific reasons why this is so.

263

264 First, the modeling assumption in LoopCAT that the copper portion of the  
265 loop is no longer than 12kft for any customer is inefficient and imprudent.  
266 As explained by Staff witness Harold “Bud” Green, an 18kft crossover  
267 point for copper loops is sufficient for the provisioning of advanced  
268 telecommunications services.<sup>12</sup> Thus, use of an 18kft crossover length  
269 would not impede the provisioning of advanced services. By opting to use  
270 the shorter 12kft crossover point in LoopCAT, the number of NGDLCs in  
271 the hypothetical network is significantly increased in an inefficient manner.  
272 The result is an inflated investment cost for NGDLC systems, and  
273 consequently an inflated cost per loop. I would note that in its  
274 consideration of forward looking cost models to be used to compute  
275 universal service support, the FCC similarly rejected use of a 12kft  
276 crossover length and concluded that a maximum copper loop length of

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<sup>12</sup> See Staff Exhibit 10.0.

277 18kft was more appropriate.<sup>13</sup> As will be shown later in this testimony,  
278 Staff has run LoopCAT with an 18kft crossover point and found that it  
279 produces loops with lower TELRIC costs. The only conclusion that can be  
280 reached is that 18kft is a more efficient network crossover point, and is  
281 therefore a superior design choice for a TELRIC based loop.

282

283 Second, the RT cabinet sizes utilized in LoopCAT serve to inflate loop  
284 costs. Staff is aware of ten sizes of RT cabinets available from SBC's  
285 vendor, Lucent Technologies, which could be placed in the hypothetical  
286 network to achieve the same capabilities as those modeled by SBCI.<sup>14</sup>  
287 SBCI, however, only includes two of the largest cabinet sizes offered by  
288 Lucent in its forward-looking network. In restricting its choice of NGDLC  
289 sizes, SBCI is potentially inflating the investment per loop. For example, if  
290 a certain RT serves exactly 50 customers, than LoopCAT will place an  
291 NGDLC with a capacity of xxxx lines. However, Lucent offers a xxxx line  
292 NGDLC system that could provide the same capabilities but costs roughly  
293 xxxx less than the xxxx line system. Because LoopCAT does not  
294 incorporate the variety of NGDLC systems that are available in the  
295 marketplace, the investment in NGDLC systems is not efficient.  
296 Regardless as to whether SBCI currently uses such systems in its actual

---

<sup>13</sup> Universal Service Fifth Report And Order at para. 270.

<sup>14</sup> In ICC Docket No. 00-0812, Staff received information regarding Lucent NGDLC offerings. Staff is aware of ten NGDLC system sizes, ranging from a xxxx line system to a xxxx line system. The total cost of each of these systems increased as the size of the system increased.

297 network, these solutions are available. In a TELRIC environment, such  
298 choices must be considered.

299

300 SBCI's decision to restrict the choice of NGDLC in LoopCAT not only  
301 inflates the total investment in loop facilities, but it also impacts cost by  
302 decreasing the overall utilization of the equipment. Said another way, fill  
303 factors are inappropriately lowered in such an environment. The lowering  
304 of fill factors creates an additional inflationary impact on the cost per loop.  
305 The end result is a UNE loop rate that is inflated by two separate impacts.  
306 Indeed, SBCI is neglecting to incorporate efficient network design by  
307 restricting NGDLC options. Unfortunately, Staff is not aware of any way to  
308 adjust LoopCAT to reflect the inclusion of these eight additional varieties  
309 of NGDLC equipment.

310

311 **Q. Does SBCI currently install loop plant so that the copper-fiber**  
312 **crossover length is restricted to 12kft?**

313 A. No. SBCI has indicated that it does not plan to do so. Specifically, in  
314 response to Staff Data Request RK 1.14(c), SBCI indicates that financial  
315 analysis guides the decision as to whether copper loop plant will be  
316 restricted to less than 12kft, and that it is not a strict rule.<sup>15</sup> This includes  
317 the rollout of new plant as well as the replacement of existing plant.  
318 Therefore, the 12kft crossover point cannot be justified as the appropriate

---

<sup>15</sup> See Schedule 4.2 to Staff Exhibit 4.0.

319 forward looking design on the basis of SBCI's current practices. Although  
320 I do not fault SBCI for applying prudent investment decisions, my concern  
321 is that the loop rate it is attempting to charge to its competitors is not  
322 based on a reasonable assumption of the forward-looking network.

323

324 **B. Requirement 2: the UNE Loop Rate Should Only Recover**  
325 **Costs Associated with the Provisioning of the Element**

326

327

328 **Q. Please explain why UNE loop rates must only recover costs**  
329 **associated with the loop?**

330 A. In summarizing the TELRIC methodology, the FCC required that costs  
331 must be attributed on a cost-causative basis.<sup>16</sup> As such, costs for shared  
332 equipment must be apportioned directly to a network element if possible.  
333 If there is a piece of equipment that is shared between a UNE loop and  
334 another UNE, the UNE loop should only recover costs for the portion of  
335 the equipment which it utilizes, to the extent that such an allocation can be  
336 made.

337

338 **Q. Does SBC's cost development of the UNE loop only recover the cost**  
339 **of provisioning the loop?**

340 A. No. As was mentioned previously, the network modeled in LoopCAT  
341 cannot provision advanced telecommunications services where loops  
342 have fiber feeder. Additional facilities are needed in such instances. The

343 retail offering that allows for xDSL over fiber fed loops is provisioned via  
344 Project Pronto. The UNE offering that allows for xDSL over fiber fed loops  
345 is provisioned via SBCI's Broadband UNE. The problem occurs due to the  
346 fact that facilities that comprise the UNE loop are shared with advanced  
347 telecommunications services offered via Project Pronto and the  
348 Broadband UNE.

349

350 Specifically, for loops equipped to provide both voice and advanced  
351 telecommunications services and provisioned over fiber feeder cable, both  
352 the voice grade service and the advanced service would utilize or share all  
353 facilities from the DLC cabinet to the network interface device. In Docket  
354 00-0393 (on rehearing) SBCI presented cost information regarding its  
355 broadband service offering that indicates that 25% of the DLC cabinet  
356 facility is apportioned to the broadband offering and 75% to the voice  
357 telecommunications network.<sup>17</sup> However, 100% of the recovery of these  
358 costs is placed on the UNE loops that are subject to this proceeding.  
359 Therefore, SBCI's proposed UNE loop rates would cause double recovery  
360 of cabinet costs to occur.

361

362 Since the broadband offering requires the same transmission path to the  
363 end-user, it would be logical to assume that the broadband offering also  
364 uses 25% of facilities beyond the cabinet. Beyond the cabinet, facilities

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<sup>16</sup> First Report and Order at paragraph 691.

365 mainly consist of the distribution and drop wires that are fully recovered by  
366 the loop. Although these facilities are shared with the broadband offering,  
367 the portion of the loop used to provision broadband services has a rate of  
368 zero. In other words, 100% of the cost of the loop beyond the cabinet is  
369 recovered via the loop as a result of pre-existing rate design decisions.  
370 There is no double recovery of facilities in this instance that needs to be  
371 adjusted.

372

373 **Q. Do you have these same concerns for loops provisioned using**  
374 **copper feeder cable?**

375 A. I do not have these same concerns for all copper loops. The copper loops  
376 designed by LoopCAT are capable of provisioning broadband services.  
377 As such, any carrier wanting to provision broadband services over a  
378 copper fed loop in this hypothetical network need not purchase additional  
379 equipment. However, fiber fed loops cannot provision broadband services  
380 without additional equipment. As such, SBCI provides such services via  
381 an augmented network design. The broadband UNE offering reflects a  
382 substantially different architecture from the loops at issue in this  
383 proceeding. It is my opinion that the broadband UNE should recover not  
384 only the additional equipment needed to provide advanced  
385 telecommunications services, but also a reasonable portion of the shared  
386 network that it utilizes.

---

<sup>17</sup> ICC Docket 00-0393, Ameritech Rehearing Exhibit 7.02P.

387

388 **C. Recommendations**  
389

390 **Q. How can LoopCAT be modified to address the concerns discussed**  
391 **previously in this section?**

392 A. I propose two specific modifications to address the concerns identified  
393 previously. First, it is my recommendation that LoopCAT be altered so  
394 that an 18kft crossover point is used in the network design. Second, it is  
395 my recommendation that 25% of the DLC-RT cabinet investment be  
396 removed from LoopCAT. Although I also indicated that the lack of  
397 implementing certain NGDLC equipment in LoopCAT violates TELRIC  
398 principles, I am not aware of any way to remedy this problem within the  
399 model.

400

401 **Q. Please describe how LoopCAT must be modified to support an 18kft**  
402 **crossover point.**

403 A. Unfortunately, LoopCAT does not have an 18kft option that can simply be  
404 selected. Significant modifications to the model, as well as a significant  
405 modification to data that is fed into the model, is necessary to perform this  
406 task. Staff requested that SBCI provide the results of running LoopCAT  
407 with an 18kft crossover point in Staff Data Request RK 1.15, but it  
408 declined.<sup>18</sup>

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<sup>18</sup>See Schedule 4.2 to Staff Exhibit 4.0.

409

410 Staff also requested that SBCI provide all information needed to calculate  
411 loop costs with an 18kft crossover point. The process is complicated by  
412 the fact that a very large database, entitled ILData.csv, needed to be  
413 modified and “preprocessed” prior to running LoopCAT with the 18kft  
414 crossover. The necessary data was provided in response to Staff Data  
415 Request RK 1.22, and the detailed steps needed to implement this change  
416 into LoopCAT were provided in response to Staff Data Request 1.27(c).<sup>19</sup>

417

418 Although I requested the information, and it is my testimony that  
419 recommends that the 18kft crossover point be implemented, I do not  
420 perform the actual LoopCAT modifications. Staff witness Dr. Qin Liu  
421 provides the necessary calculations as indicated in her direct testimony,  
422 Staff Exhibit 5.0. By incorporating this recommendation, as well as those  
423 of other Staff members, Dr. Liu produces the UNE rates that Staff  
424 recommends in this proceeding.

425

426 **Q. What is the impact on the TELRIC cost of the loop of using your 18kft**  
427 **crossover point versus the 12kft crossover point utilized by SBCI in**  
428 **LoopCAT?**

429 A. Dr. Liu performed a sensitivity analysis of the TELRIC costs developed by  
430 LoopCAT under both the 12kft and 18kft crossover scenarios for a 2 wire

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<sup>19</sup> Id.

431 analog loop. This analysis used the exact input selection provided by  
432 SBCI with this filing, and only modified the crossover point. The results of  
433 this analysis are summarized in the table below. This table clearly shows  
434 that the impact is not very significant, especially in Access Area A where  
435 the 12kft scenario is only 1.14% higher than the 18kft option. However,  
436 Table 1 below shows that the TELRIC costs are lower under the 18kft  
437 scenario in all access areas.

438 **Table 1**

	Access Area A	Access Area B	Access Area C
12kft Scenario	\$8.86	\$17.71	\$20.46
18kft Scenario	\$8.76	\$15.60	\$19.48
% Increase	1.14%	13.53%	5.03%

439

440 **Q Did you expect a more significant impact on TELRIC costs for loops**  
441 **than what is shown in Staff Exhibit 4.01?**

442 A. Yes. Staff expected a more dramatic decrease in costs than those shown  
443 in Staff Exhibit 4.01. In examining the changes in LoopCAT that result  
444 from increasing the crossover point, two significant impacts serve to  
445 counter-balance the cost savings that result from having fewer NGDLCs  
446 placed in the field.

447

448 First, the increased reliance on copper feeder causes feeder costs to  
449 increase in the 18kft model. This is to be expected, as fiber is generally

450 more efficient than copper for the provisioning of feeder cable. It is the  
451 digital loop carrier and multiplexing equipment that makes provisioning  
452 over fiber more expensive in many cases. The appropriate determination  
453 is what mix of fiber feeder and copper feeder in the network produces the  
454 lowest overall cost for the loop. Staff cannot perform an analysis to  
455 determine what this optimal mix should be because of limitations with  
456 SBCI's LoopCAT model. Rather, Staff selects an 18kft crossover because  
457 it does not impede advanced data service provisioning and produces  
458 lower cost loops than the 12kft option.

459

460 The second impact that Staff has identified as causing upward pressure  
461 on loop costs is the fact that SBCI's LoopCAT methodology automatically  
462 changes copper cable gauging when the crossover point increases from  
463 12kft to 18kft. Specifically, the mix of cable gauging is shifted so that  
464 lower gauge cable becomes more prevalent in the network. This shifting  
465 causes overall cost of the loop to increase because lower gauge cable is  
466 more expensive than higher gauge cable. Table 2 below shows the  
467 change in 24 gauge cable as a percent of total copper placement that  
468 automatically occurs in LoopCAT when moving from a 12kft crossover to a  
469 18kft crossover.

470 **Table 2**

	24 Gauge % (12kft)	24 Gauge % (18kft)
Access Area A	xxxx	xxxx

Access Area B	xxxx	xxxx
Access Area C	xxxx	xxxx

471

471 **III. Annual Cost Factor Development**

472

473 **Q. What are Annual Cost Factors (“ACFs”)?**

474 A. ACFs are factors that, when applied to total investment for a piece of plant  
475 equipment, calculate the recurring annual cost of providing the equipment.  
476 ACFs are developed such that capital costs and operating expenses  
477 associated with plant investments become a part of this annualized cost.  
478 Each category of plant investment (land, building, cable, motor vehicles,  
479 DLCs, etc.) has a separate ACF. Each ACF consists of two component  
480 factors -- the Capital Cost Factor (the sum of the cost factors for  
481 depreciation, cost of money, and income tax) and the Operating Expense  
482 Factor (the sum of the cost factors for maintenance, other expense, and  
483 ad valorem tax). As I will demonstrate below, the inputs used to calculate  
484 the component factors have a significant impact on the resulting ACFs,  
485 and, ultimately, on UNE rates.

486

487 **Q. What is your role in examining SBC Illinois’ ACFs?**

488 A. I have examined the spreadsheet in which SBC Illinois’ ACFs are  
489 developed.<sup>20</sup> With one exception that I will discuss later in this section, I  
490 generally find that the methodology employed by SBCI to calculate its  
491 ACFs is sound. However, Staff takes issue with certain inputs used in the

---

<sup>20</sup> SBCI develops its Annual Cost Factors in a file entitled ACF\_2001\_IL\_STD\_10-15-2002.xls, which was provided to Staff as part of the December 24, 2002 tariff filing. It is hereafter referred to as the “ACF Study”.

492 ACF Study. I have gathered input changes recommended by various Staff  
493 witnesses in this proceeding that impact ACFs. After calculating revised  
494 ACF values, I provide this information to other Staff witnesses for their use  
495 in the proceeding. Specifically, the ACF values are provided for Dr. Liu to  
496 input into LoopCAT, and to Dr. Melanie Patrick for use in shared and  
497 common cost development.

498

499 **Q. Please summarize all changes to ACF inputs that Staff is**  
500 **recommending.**

501 A. Staff recommends the following input changes:

- 502 • In Staff Exhibit 3.0, Staff witness Peter Lazare proposes that the sales  
503 tax rate be changed from the default value of 8.5% to 7.14%.
- 504 • In Staff Exhibit 12.0 Staff witness Michael McNally proposes that the  
505 cost of capital be changed from 12.19% to 8.62%, the cost of debt  
506 (referred to by SBCI as the annual interest rate) be changed from  
507 7.18% to 4.65%, and the dept-to-equity ratio be changed from 14% to  
508 49%.
- 509 • In Staff Exhibit 13.0 Staff witness Peter Wagner proposes several  
510 changes to average service life and salvage value of various plant and  
511 equipment.

512

513 **Q. How are rates impacted by Staff's recommended changes to ACF**  
514 **inputs?**

515 A. As indicated above, changes to ACF inputs result in changes to the ACFs.  
516 Changes to ACFs directly affect recurring rates for loops, as they are  
517 inputs into the LoopCAT model. Staff witness Dr. Liu has performed a  
518 sensitivity analysis of the impact on TELRIC costs in LoopCAT that are the  
519 result of Staff's recommended changes to cost of capital and depreciation.  
520 Changes to ACFs also impact the shared and common cost factor  
521 developed by Staff witness Dr. Patrick.<sup>21</sup> As such, the recurring costs  
522 produced by LoopCAT and non-recurring rates proposed by Staff witness  
523 Mark Hanson are impacted. Schedule 4.01 to this testimony shows the  
524 changes to ACFs that are the result of the input changes proposed by  
525 Staff.

526

527 **Q. Do you make any changes to ACFs as a result of Staff's**  
528 **recommended changes to fill factors?**

529 A. No. SBCI witness Randall White argues that as fill factors increase, the  
530 cost of maintaining plant and equipment also increases.<sup>22</sup> As such, Mr.  
531 White implies that the maintenance factor, which is a component of the  
532 Expense Cost Factor, should increase as fill factors increase. Staff  
533 witness Green indicates that the embedded cost analysis provided by Mr.

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<sup>21</sup> Shared and common costs are affected by two impacts. First, the CAPCS values in the Shared and Common Cost Study must be updated due to changes in capital costs in the ACF Study. Second, certain values that are used in SBCI's Support Assets Study were updated to reflect changes in the ACF Study. As a result of the changes in the Support Assets Study, additional modifications needed to be made in the Shared and Common Cost Study. I performed these necessary modifications and provided the resulting updated numbers to Dr. Melanie Patrick.

<sup>22</sup> SBCI Exhibit 8.0 at page 15.

534 White in Schedule RSW-4 to SBCI Exhibit 8.0 is not necessarily indicative  
535 of the environment and cost relationships that would be encountered in a  
536 TELRIC designed network.<sup>23</sup> As such, I am not aware of any reasonable  
537 basis to conclude that any changes need to be made to ACFs as a direct  
538 result of Staff's proposed changes to fill factors.

539

540 SBCI incorporates Mr. White's philosophy in the ACF Study. The ACF  
541 study includes worksheet tabs to adjust maintenance and other expense  
542 factors as fill factors are changed. These tabs mark-up the maintenance  
543 and other expense factors in a linear fashion as fill factors increase.

544 These specific modifications to ACFs are not supported by Mr. White or  
545 any other SBCI witness, and appear to be a highly subjective attempt to  
546 inflate overall costs when fill factors are increased. As SBCI provides no  
547 basis for these modifications, I do not allow for these modifications in my  
548 ACF development. This is simply done by choosing not to update the  
549 values of fill factors in the inputs tab of the ACF Study.

---

<sup>23</sup> See Staff Exhibit 10.0.

550 **IV. Imputation**

551

552 **A. The Imputation Requirement**

553

554 **Q. Please describe the imputation requirement as it exists in Illinois.**

555 A. Imputation is required by Section 13-505.1 of the Public Utilities Act  
556 (“PUA”), which states the following:

557 *Sec. 13-505.1. Imputation.*

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*(a) This Section applies only to a telecommunications carrier that provides both competitive and noncompetitive services. If a carrier provides noncompetitive services or noncompetitive service elements to other telecommunications carriers for the provision by the other carriers of competitive services, switched interexchange services, or interexchange private line services or to other persons with which the telecommunications carrier also competes for the provision by those other persons of information or enhanced telecommunications services, as defined by the Federal Communications Commission, then the telecommunications carrier shall satisfy an imputation test for each of its own competitive services, switched interexchange services, or interexchange private line services, that utilize the same or functionally equivalent noncompetitive services or noncompetitive service elements. The purpose of the imputation test is to determine whether the aggregate revenue for each service exceeds the costs, as defined in this Section, to be imputed for each service based on the telecommunications carrier's own routing arrangements. The portion of a service consisting of residence untimed calls shall be excluded from the imputation test. The imputed costs of a service for purposes of this test shall be defined as the sum of:*

*(1) specifically tariffed premium rates for the noncompetitive services or noncompetitive service elements, or their functional equivalent, that are utilized to provide the service;*

*(2) the long-run service incremental costs of facilities and functionalities that are utilized but not specifically tariffed; and*

588                   (3)     *any other identifiable, long-run service incremental*  
589                   *costs associated with the provision of the service.*

590  
591                   (b)     *Notwithstanding the provisions of subsection (a), if a*  
592                   *telecommunications carrier permits other telecommunications*  
593                   *carriers to purchase interexchange private line services, except*  
594                   *those provided under contract or other form of agreement pursuant*  
595                   *to the provisions of Section 13-509, under the same tariffed rates,*  
596                   *terms, and conditions as any other customer, then such*  
597                   *interexchange private line services provided by the*  
598                   *telecommunications carrier shall not be subject to the imputation*  
599                   *test required in this Section.*

600  
601                   220 ILCS 5/13-505.1  
602

603  
604     **Q.     Has the Commission developed rules to implement this statutory**  
605           **requirement?**

606     A.     Yes. Code Part 792 was adopted by the Illinois Commerce Commission  
607           to implement Section 13-505.1 of the Public Utilities Act. Code Part 792  
608           was recently amended, with the modified rule effective December 15,  
609           2002. This code part specifies certain requirements for filing imputation  
610           tests and is attached as Schedule 4.02 to this testimony. Carriers must  
611           satisfy an imputation test for all competitive services that rely on  
612           noncompetitive services or noncompetitive service elements for the  
613           provision of the competitive service. The purpose of this test is to guard  
614           against anticompetitive (or predatory) pricing by prohibiting the  
615           subsidization of competitive services by noncompetitive services (or  
616           noncompetitive service elements).

617

618 **Q. How does the imputation test prohibit the subsidization of**  
619 **competitive services by the noncompetitive services of a carrier?**

620 A. When a competitive service requires the use of a noncompetitive service  
621 (or service element) for its provisioning, the incumbent local exchange  
622 carrier that provides the noncompetitive service has a potential advantage  
623 over other carriers. Although the market for the service in question is  
624 classified as competitive, the incumbent carrier controls the market for  
625 noncompetitive elements necessary to provision the competitive service.  
626 The imputed cost, in essence, is a proxy for the cost at which the  
627 competitive carrier could provide the service. If the incumbent carrier  
628 prices the competitive services below its imputed cost, the competitive  
629 carriers will generally not be able to operate in the market profitably. Over  
630 time, the market for the competitive service will become increasingly less  
631 competitive if the incumbent carrier is permitted to engage in this type of  
632 pricing. In order for there to be a level playing field for the competitive  
633 service, Section 13-505.1 of the PUA places restrictions on the amount  
634 that the incumbent local exchange carrier can charge for the competitive  
635 service in the form of a price floor. That price floor is equal to the imputed  
636 cost of providing the service.

637

638 **Q. Since the services subject to this proceeding are all noncompetitive,**  
639 **why is imputation relevant here?**

640 A. The reason that imputation requirements are relevant in this proceeding is  
641 because SBCI is proposing to increase the cost of the UNE loop, which is  
642 a noncompetitive element necessary for the provisioning of retail business  
643 access lines. State law designates all retail business access lines as  
644 competitive services for carriers subject to alternative regulation.<sup>24</sup> If the  
645 price of the UNE loop increases, the potential exists that the rates for  
646 SBCI's retail business access lines may be set below a level at which  
647 other carriers could compete.

648

649 **Q. Under what authority would imputation tests for retail business**  
650 **access lines be required in this proceeding?**

651 A. Although I am not a lawyer, a plain reading of Code Part 792 leads to the  
652 conclusion that retail business access line imputation tests must be  
653 performed as a result of SBCI's proposed UNE rate increases. Code part  
654 792.30(c)(3) requires that an imputation test be filed:

655

656 3) *When any tariff is filed that increases rates for a*  
657 *noncompetitive service or a noncompetitive service element,*  
658 *or its functional equivalent, which is utilized in providing a*  
659 *service subject to imputation.*  
660

661 **Q. What would be the consequence if the UNE rates became effective**  
662 **and retail business access lines did not pass an imputation test?**

663

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<sup>24</sup> 220 ILCS 5/13-502.5(b).

664 A. Under this scenario, the rates for retail business access lines would need  
665 to be increased to the point where they comply with the imputation  
666 mandate in Section 13-505.1. Although SBCI submitted imputation tests  
667 showing that retail business access lines do not pass imputation, they do  
668 not propose any remedies that would bring the retail rates into compliance  
669 with Section 13-505.1.

670 **B. SBCI's Proposed Imputation Tests**  
671

672 **Q. Has SBCI performed and filed imputation tests for the competitive**  
673 **services of SBC Illinois that utilize the noncompetitive service**  
674 **elements that are the subject of this investigation?**

675 A. Yes, it has. However, SBCI's filing did not fully comply with the minimum  
676 filing requirements of Code Part 792.40 listed above. The December 24,  
677 2002, filing that is the subject of this proceeding included 12 separate  
678 imputation tests, one for each retail business access line rate that utilizes  
679 a UNE loop.<sup>25</sup> Each type of retail business access line fails the imputation  
680 test provided by SBCI.

681  
682 There is no indication within the filing as to how the Company intends to  
683 address the imputation test failures. The only mention of imputation  
684 concerns in the testimony accompanying the filing comes from SBCI  
685 witness Eric Panfil, who states that he is uncertain as to whether

686 imputation tests are even required as a result of this filing, and that such  
687 determination is a legal issue to be addressed in the briefing period of this  
688 proceeding<sup>26</sup>. No SBCI witness addresses the policy concerns of these  
689 failures.

690

691 **Q. Please explain how SBCI's December 24, 2002, filing did not meet the**  
692 **minimum filing requirements of Code Part 792.40?**

693 A. Although SBCI provided an imputation cost study, it did not provide all the  
694 information required for an imputation test. Specifically, the Company has  
695 not provided any of the material required in Code Part 792.40(a)(2). This  
696 includes an illustration or diagram, as well as a written description of the  
697 service subject to imputation that indicates all competitive and  
698 noncompetitive service elements used in its provisioning.

699

700 **Q. Has SBCI performed the imputation tests for retail business access**  
701 **lines properly?**

702 A. No. The imputation tests submitted by SBCI in its December 24 filing are  
703 improper. I provide a more appropriate form of these tests using SBCI's  
704 proposed UNE loop rates as Staff Schedule 4.03 to this testimony. The  
705 tests that I propose differ from those proposed by SBCI in three significant  
706 ways: (1) I do not include imputed costs for loop connection charges as

---

<sup>25</sup> The retail business access lines that require imputation include all of the lines listed in SBCI's tariff III. C.C. No. 19, Part 4, Section 2, 4<sup>th</sup> Revised Sheet No. 2.3 and 8<sup>th</sup> Revised Sheet No. 3.

<sup>26</sup> SBCI Ex. 1.0 at 23.

707 part of the test; (2) I do not include revenues for line connection charges  
708 as part of the tests; and (3) I impute the UNE port rate, rather than the port  
709 LRSIC, on the cost side of the tests. Although the difference between  
710 imputed revenues and costs presented in my Schedule are lower than in  
711 SBCI's calculation, each of the retail services fails the test nonetheless.

712

713 **Q. Why do you find it inappropriate for SBCI to include loop connection**  
714 **charge costs and line connection charge revenues as part of the**  
715 **imputation test?**

716 A. There are three significant reasons why these charges should not be  
717 included as part of the test. First, the inclusion of these items is a  
718 departure from the manner in which the imputation test was set for retail  
719 business access line imputation tests in Docket No. 98-0860.<sup>27</sup> In that  
720 proceeding, SBCI proposed a test that Staff approved of for the most part.  
721 The only contentious issue regarding the form of the imputation test in that  
722 proceeding had to do with whether UNE port rates needed to be imputed,  
723 which is also an issue in this proceeding and will be discussed later in this  
724 section. SBCI introduces these items now as a change to the test utilized  
725 by the Company and Staff in Docket No. 98-0860, without any testimony  
726 or supporting documentation to indicate why this change is necessary or  
727 appropriate.

---

<sup>27</sup> The imputation test proposed by Ameritech Illinois in ICC Docket No. 98-0860 was provided in response to Staff Data Request No. RK 1.02. The test was originally filed as Ameritech Illinois Exhibit 4.0, Schedule 7 in that proceeding.

728

729 Second, line connection charges are not a part of the provisioning of retail  
730 access lines or UNE loops. Line connection charges recover only the  
731 non-recurring costs associated with the establishment of service, and not  
732 the recurring costs of provisioning retail network access lines or UNE  
733 loops. Line connection charges are cost based and do not depend on  
734 recurring revenues for their recovery. As such, there is nothing within  
735 Section 13-505.1 of the PUA that would require the inclusion of these non-  
736 recurring costs within the retail network access line imputation test.

737

738 Third, because no diagram, illustration or description of the retail access  
739 line imputation test has been provided, SBCI has not made a case for the  
740 departure from existing imputation standards. The burden of proof in this  
741 docket falls squarely on the Company, yet they do not attempt to provide  
742 any proof that additional items must be added to the retail business access  
743 line imputation test that it previously endorsed.

744

745 **Q. Please explain your proposal to include the UNE port rate as a part of**  
746 **the imputed cost of retail business access line rates?**

747 A. The simple explanation is that the port is a noncompetitive element of the  
748 retail business access line. In general, competitors must purchase a loop  
749 as well as a port from SBCI in order to provide voice telecommunications  
750 service. Therefore, both Section 13-505.1 of the PUA and Code Part

751 792.40(c) require that the noncompetitive rate for this element be imputed  
752 into the costs. Whether to include the UNE port rate or the port LRSIC in  
753 the imputed cost for SBCI's retail business access lines was at issue in  
754 Docket 98-0860. However, that case was dismissed, due to actions of the  
755 Illinois General Assembly concerning the services subject to the  
756 proceeding.<sup>28</sup>

757

758 While Docket No. 98-0860 was being litigated, this issue was more  
759 significant than it is currently. At that time, the UNE port rate was \$5.01  
760 and the port LRSIC was xxxx, causing the disparity between Staff's  
761 imputed cost and SBCI's imputed cost to be xxxx. In the meantime, the  
762 UNE port rate has been reduced to \$2.18 and the port LRSIC has been  
763 reduced to xxxx, causing the disparity between Staff's and SBCI's  
764 imputed cost to reduce to xxxx. Nonetheless, the imputation  
765 requirement has not changed since Docket 98-0860, nor has Staff's  
766 position regarding its application to retail business access line imputation  
767 tests.

768

769 **Q. With the changes to the imputation test that you recommend, do**  
770 **SBC's retail business access lines pass the test?**

771 A. No. Schedule 4.03 of my testimony illustrates that SBCI fails the test for  
772 each and every retail service affected.

---

<sup>28</sup> Docket 98-0860 was abated as a result of the enactment of Section 13-502.5(a) of the Public

773

774 **Q. What are Staff's concerns regarding the failure of SBCI's retail**  
775 **business access line rates to pass imputation tests under SBCI's**  
776 **proposed UNE rate increases?**

777 A. The direct testimony of Staff witness Jeffrey Hoagg (Staff Ex. 1.0) details  
778 the policy concerns related to these test failures. In my opinion, these  
779 failures create the distinct likelihood of a price squeeze that would  
780 significantly impact the competitive landscape for retail business access  
781 lines. Additionally, SBCI's proposal would, for its rates to pass imputation,  
782 require an increase in retail business access line rates of over \$200 million  
783 annually. Schedule 4.04 of my testimony details this calculation.

784

785 **Q. Are there similar concerns with respect to retail residential access**  
786 **line competition?**

787 A. Yes. However, satisfaction of an imputation test is not required at this  
788 time for SBCI's retail residential access lines because they are currently  
789 classified as noncompetitive services. As such, imputation tests are not  
790 required for these services. If imputation were required, these services  
791 would also fail.

792

793 **Q. Do the competitive services subject to imputation pass imputation**  
794 **tests under Staff's proposed alternative UNE rates?**

795 A. Yes. My Schedule 4.05 is a set of appropriate imputation tests for retail  
796 business access line rates, with Staff's proposed UNE loop rates imputed  
797 into the cost side of the test. This schedule clearly shows that the subject  
798 services pass imputation under Staff's proposed rates, and thus would  
799 satisfy the imputation requirement set forth in Section 13-505.1 of the  
800 PUA.

801 **V. Summary and Recommendations**

802

803 **Q. Can you please summarize your recommendations regarding**  
804 **network design issues in this proceeding?**

805 A. Yes. My analysis of SBCI's LoopCAT model revealed several problems  
806 with the network design incorporated into LoopCAT that must be  
807 addressed. Below is a listing of the network design problems I have  
808 observed and an explanation of the actions taken to address these  
809 problems:

- 810 • The fiber-copper crossover is set inappropriately at 12kft. Staff has  
811 adjusted LoopCAT based on loop data obtained from SBCI to reflect  
812 costs using an 18kft crossover point.
- 813 • LoopCAT fails to allocate the costs of shared facilities to the  
814 broadband service offering, recovering 100% of those costs through  
815 the UNE loop. To ameliorate this problem, I reduce the per unit  
816 investment in DLC cabinets by 25% in LoopCAT.

817

818 **Q. Can you please summarize your recommendations regarding ACF**  
819 **development in this proceeding?**

820 A. Yes. I recalculate ACFs based on the recommendations of other Staff  
821 members. Reductions in all ACFs occur as a result, and range from 2.6%  
822 to 14.3%.

823

824 **Q. Can you please summarize your recommendations regarding**  
825 **imputation in this proceeding?**

826 A. Yes. SBCI provided imputation tests for retail business access lines with  
827 its December 24, 2002, filing that is the subject of this proceeding. I  
828 conclude that the tests submitted by the Company lack material that is  
829 required by Code Part 792.40 and are of an incorrect form. I propose an  
830 alternative form of the tests and determine that in each instance, retail  
831 business access lines fail the test when SBCI's proposed UNE loop rates  
832 are imputed. I perform imputation tests for retail business access lines  
833 using Staff's proposed UNE loop rates and conclude that, in each  
834 instance, the services pass the test.

835

836 **Q. Does this conclude your testimony?**

837 A. Yes.