

**STATE OF ILLINOIS**  
**ILLINOIS COMMERCE COMMISSION**

**COMMONWEALTH EDISON COMPANY     )**  
**Proposed General Increase in Electric Rates     )**     **Docket 10-0467**

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**REBUTTAL TESTIMONY OF EDWARD C. BODMER**  
**ON BEHALF OF THE CITY OF CHICAGO**

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**CITY EXHIBIT 2.0**

**DECEMBER 30, 2010**

1 **QUALIFICATIONS AND SUMMARY OF TESTIMONY**

2 **Q. What is your name and on whose behalf are you testifying?**

3 A. My name is Edward C. Bodmer. I am testifying on behalf of the City of Chicago  
4 (City).

5  
6 **Q. Have you previously filed testimony in this case?**

7 A. Yes. I submitted direct testimony on November 19, 2010.

8  
9 **Q. What subjects do you address in your rebuttal testimony?**

10 A. My testimony addresses four issues.

11 1. I respond to suggestions by Commonwealth Edison Company (ComEd or the  
12 Company), the Illinois Industrial Energy Consumers (IIEC), and the  
13 Commercial Group that primary distribution facilities should be allocated on  
14 the basis of non-coincident peak (NCP) rather than coincident peak (CP).  
15 ComEd's, IIEC's, and the Commercial Group's position on this point is  
16 contrary to the Commission's clear directive in its recent order in Docket 08-  
17 0532 (the Rate Design Order).

18 2. I respond to ComEd's rebuttal testimony with respect to the secondary cost of  
19 street lighting and its proposal to impose one-third of all above ground

20 secondary costs of distribution lines to alley lights – lights that only use 150 or  
21 250 watts.

22 3. I respond to ComEd’s rebuttal testimony on the subject of increasing customer  
23 charges. ComEd’s rebuttal testimony failed to address the most serious  
24 problems with its straight fixed variable rate design proposal.

25 4. I respond to ComEd’s request for more information involving the indirect  
26 costs of uncollectible accounts.

27

28 **USE OF NON-COINCIDENT PEAK RATHER THAN**  
29 **COINCIDENT PEAK TO ALLOCATE PRIMARY DISTRIBUTION**

30

31 **Q. Please summarize the general outline of your discussion of use of NCP versus CP**  
32 **to allocate primary distribution facilities.**

33 A. Given that ComEd “appreciates” and “supports” the “thorough review” of NCP  
34 versus CP analysis made by industrial and large commercial customer representatives  
35 (ComEd Ex. 50.0 at 6; LL 131-133), the City believes it is useful to evaluate the issue  
36 in a comprehensive manner. My discussion includes the following items:

37 - Definitions “CP”, “NCP”, and “maximum class load” and other terms. I  
38 explain why NCP is biased in a way that favors larger customer classes  
39 because these customers have time recording meters. Conversely, NCP is

40                   biased against classes such as small business customers that are allocated  
41                   costs on the basis of load research.

42           -       A discussion of why ComEd’s definition of “NCP” using system-wide  
43           customer class peaks has nothing at all to do with the manner in which  
44           elements of the distribution system are built on a regional basis.

45           -       An explanation of why application of NCP produces different cost allocations  
46           depending on the number of ratepayers in a customer class and how it is  
47           biased in favor of classes with a large number of ratepayers who have time  
48           recording meters. This demonstrates obvious problems with allocations using  
49           NCP because the cost of constructing and operating distribution equipment  
50           has nothing to do with the manner in which customer classes are designed.  
51           The costs incurred for building distribution lines and substations would be the  
52           same whether all ratepayers are in one single class or each in a separate class.

53           -       A discussion of cost causation in the distribution of electricity and the notion  
54           that equipment is sized to meet coincident regional peak load. This discussion  
55           demonstrates that system-wide CP is a much better indicator of regional  
56           coincident peak than system-wide NCP.

57           -       A review of statements made by ComEd witness Lawrence S. Alongi in an  
58           earlier case that directly argue for allocation of primary distribution facilities  
59           on the basis of CP rather than NCP.

60 - An analysis of points made in the NARUC Cost Allocation Manual that  
61 contradict Commercial Group witness Richard A. Baudino's and IIEC witness  
62 David L. Stowe's positions on the CP versus NCP issue.

63 - Comments on Mr. Stowe's arguments that distribution costs result from  
64 energy usage as well as peak load. In particular, I discuss the implication of  
65 using an average and excess allocator derived from coincident peak and  
66 energy usage. Such an allocator would be very favorable to residential  
67 consumers and unfavorable to business consumers.

68 - An explanation of why lighting rates that result from the use of coincident  
69 peak are not unreasonably low as ComEd suggests.

70

71 **Q. What does your comprehensive analysis of NCP versus CP demonstrate?**

72 A. It demonstrates that NCP is a technique used to lower computed costs for large  
73 business consumers. It is not related to cost causation. It is not consistent with  
74 historical positions taken by ComEd. It can be distorted depending on sampling  
75 techniques used to estimate loads for small ratepayers who do not have time  
76 recording meters. It creates the illogical construct that changes in customer class  
77 definitions change the costs experienced by ComEd.

78

79 **Q. Why is it necessary to go into so many details regarding the CP versus NCP**  
80 **issue?**

81 A. NCP is a tool that large business interests have used for many years to achieve  
82 favorable results for themselves. In many ways it is ingrained in the system. The  
83 biases in the NCP allocator involve tricky statistical and mathematical concepts.  
84 Given ComEd's support of large business interests, the City believes it is essential to  
85 work through issues associated with NCP and CP in a comprehensive fashion. In  
86 order to make the discussion less of a slog, I have moved much of the more technical  
87 discussion to a Technical Appendix, which is attached to my testimony as City  
88 Exhibit 2.1.

89

90 **Q. Please describe the contents of City Exhibit 2.1.**

91 A. This exhibit includes definitions of "coincident peak", "non-coincident peak",  
92 "maximum individual peak", "coincident factors", "diversity factors", and "within-  
93 class diversity". The exhibit shows how sampling required for residential and small  
94 business ratepayers can distort measurement for customer classes where individual  
95 ratepayers do not have time recoding meters. City Exhibit 2.1 explains how NCP  
96 results in cost causation being a function of the size of a customer class and that large  
97 customer classes whose individual customers have time recoding meters have a cost

98 advantage. Since actual distribution costs do not depend on the definition of  
99 customer classes, allocation on the basis of NCP is not logical.<sup>1</sup>

100 The discussion in City Exhibit 2.1 demonstrates that because within-class  
101 diversity has nothing to do with cost causation on a regional or on a system-wide  
102 perspective, NCP leads to *irrelevant* results. My Technical Appendix also shows that  
103 NCP leads to *biased* results against classes with ratepayers who do not have time  
104 recording meters. Further, the analysis in City Exhibit 2.1 demonstrates that if for  
105 some reason a utility company wants to be extremely conservative in the sizing of  
106 distribution equipment -- as Mr. Stowe suggests -- NCP is still irrelevant. The stress  
107 on distribution equipment results from actual loads that are experienced by  
108 equipment. The stress on distribution equipment has nothing to do with NCP loads  
109 that are never experienced. In short, the non-coincident peak method has no  
110 relevance to cost causation and, worse yet, it contains a bias in favor of large  
111 customer classes with diverse load and time recording meters. These things render  
112 the NCP method inequitable.

113

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<sup>1</sup> ComEd's argument in response to Illinois Attorney General-Citizens Utility Board Witness Scott J. Rubin provides an example of the distortions inherent in NCP. Mr. Alongi testifies "The use of only a single NCP for all residential customers rather than using a separate, individual NCP for each residential delivery class (the sum of the individual NCPs is greater than the value of the single NCP) for the allocation of costs results in a reduction in the cost responsibility attributable to residential customers." ComEd Ex. 49 at 14, LL 314-318. Mr. Alongi's statement shows that using NCP to allocate costs leads to the irrational result that cost responsibility for the same group of customers changes depending on how the group is parsed.

114 **Q. What comments did ComEd make about the use of NCP versus CP to allocate**  
115 **primary distribution facilities in its rebuttal testimony?**

116 A. ComEd’s witness Garcia asks himself and answers two questions in his rebuttal  
117 testimony in support of NCP rather than CP. The first statement simply repeats  
118 testimony of Mr. Alongi from Docket 08-0532 (the Rate Design Case). Mr. Alongi’s  
119 testimony – and the testimony of other witnesses advocating use of NCP in that case  
120 – obviously was not persuasive. The Commission rejected use of NCP, stating that  
121 “We are persuaded that the allocation costs to substations and primary lines should be  
122 made on a CP basis.” Rate Design Order at 55 (April 22, 2010).

123 In the second question and answer, Mr. Garcia states:

124 Q. Does any party contend that ComEd’s use or application of CP to  
125 allocate primary lines and substations costs is in any way  
126 inconsistent with the Commission Order in the Rate Design  
127 Investigation proceeding?  
128

129 A. No. In fact, Mr. Stowe’s thorough review of the rationale for the  
130 use of CP to allocate such costs begins by noting that “this  
131 allocation is arguably consistent with the Rate Design Investigation  
132 Order.” (IIEC Ex. 3.0, 20:457). Thus, what is at issue here is that  
133 these parties seek Commission reconsideration of the use of CP to  
134 allocate these costs, *which ComEd appreciates and supports*.  
135

136 ComEd Ex. 50.0 at 6, LL. 127-134 (emphasis added).

137 Mr. Garcia makes no other arguments that provide any foundation for his  
138 recommendation to use NCP rather than CP in allocating lines. He does not state why  
139 he “appreciates” policies that will increase residential and lighting rates, but decrease



140 large business rates. He ignores the Commission’s clear directive in the Rate Design  
141 Order that ComEd use CP in allocating primary costs. He ignores the direct and  
142 rebuttal testimony of Staff witness Peter Lazare in the Rate Design Case. He ignores  
143 arguments made in the briefs submitted by various parties including the City and  
144 Staff in that case. The full extent of Mr. Garcia’s comments is that he simply  
145 “appreciates” the efforts made by the business community.

146 Mr. Garcia’s point that in the above quote that no other witness supported use  
147 of CP makes a person scratch his head. As noted above, the Commission issued its  
148 Order in the Rate Design Case on April 22, 2010. To my knowledge, the  
149 Commission has not issued any orders in the interim endorsing use of the NCP. The  
150 City, apparently foolishly in Mr. Garcia’s eyes, did not think it was necessary to  
151 advocate for a position that the Commission so recently approved. ComEd’s direct  
152 case, consistent with the Commission’s directive, used CP to allocate primary lines  
153 and substations. The City did not think it was necessary to submit testimony in its  
154 direct case complimenting ComEd for its decision to comply with the Commission’s  
155 Rate Design Order. Such testimony would seem to be superfluous, but Mr. Garcia  
156 apparently thinks otherwise.

157

158 **Q. What comments did Commercial Group witness Baudino make about the use of**  
159 **NCP versus CP in cost allocation?**

160 A. Towards the end of his written testimony, Mr. Baudino states:

161 I continue to believe that distribution substation and primary feeder line  
162 costs should be allocated on the basis of class non-coincident peak. This  
163 is consistent with industry practice and with the NARUC cost allocation  
164 manual. ... I recommend that the Commission reconsider its decision and  
165 continue the use of NCP as it has been applied in past ComEd cases.

166 Comm. Group Ex. 1.0 at 22; LL 391-396. Mr. Baudino made the same point in his  
167 rebuttal testimony in the Rate Design Case. Docket 08-0532, Comm. Group Ex. 2.0  
168 at 3-4; LL 55-79. His testimony in this case does not present any facts or conceptual  
169 arguments that the Commission did not have at its disposal when it made its decision  
170 in the rate design case. Later in my testimony, I discuss the issue of “industry  
171 practice,” where I demonstrate that in earlier cases when ComEd separated primary  
172 and secondary distribution service, the Company strongly advocated and used  
173 allocation of primary distribution on the basis of CP. I also discuss in detail below  
174 Mr. Baudino’s selective reading of the NARUC Cost Allocation Manual.

175

176 **Q. What does IIEC witness Stowe testify with respect to use of NCP rather than CP**  
177 **in allocating the cost of primary distribution facilities?**

178 A. Mr. Stowe makes a more detailed presentation on the subject than the ComEd or the  
179 Commercial Group witnesses. Mr. Stowe begins the NCP versus CP section of his  
180 testimony by claiming that the allocation of primary facilities was made only “to  
181 address a particular anomaly respecting the demand of street lighting customers.”

182 IIEC Ex. 3.0 at 21; LL 475-476. However, even Mr. Stowe recognized that the  
183 Commission’s Rate Design Order states:

184 Individual substations and primary lines are not constructed to  
185 serve customers within any single class but rather to serve customers from  
186 numerous classes. This means that a substation or primary line is not  
187 sized to meet the demands of any single class, but rather the collective  
188 demands of customers from numerous classes.

189  
190 Rate Design Order at 55.

191 Mr. Stowe justifies his position for use of NCP in face of the Commission’s  
192 directive to use CP by relying on statement made by Mr. Alongi in the Rate Design  
193 Case. IIEC Ex. 3.0 at 21; LL 476-479. This is the same statement Mr. Garcia refers to  
194 in his rebuttal testimony. ComEd Ex. 50 at 5; LL 118-124. In the Rate Design Case,  
195 Mr. Alongi stated “ComEd designs its primary lines and substations based on the non-  
196 coincident peak that occurs on those facilities, not the *system* coincident peak.”  
197 Docket 08-0532, ComEd Ex. 10.0 at 27; LL 570-571. Mr. Stowe claims that this  
198 statement demonstrates that ComEd has “designed and built distribution lines and  
199 substations for many decades” through relying on “NCP demands to design the  
200 primary lines and substations supplying its secondary network.” IIEC Ex. 3.0 at 21;  
201 LL 477-478.

202

203 **Do you agree with Mr. Stowe’s assertion?**

204 No. In fact, ComEd has acknowledged on many occasions in this case as well as other  
205 cases that primary lines are constructed on the basis of regional coincident peak load.  
206 Mr. Alongi's statement that distribution equipment is not constructed on the basis of  
207 *system-wide* peak is obvious. However, his statement that not building distribution on  
208 the basis of system-wide peak implies the Company builds distribution on the basis  
209 system wide non-coincident peak. Such an implication is not logical and contradictory  
210 to prior statements that Mr. Alongi made in previous testimony. For example, Mr.  
211 Alongi wrote in an earlier case that:

212 For each of the customer classes, two distribution capacity components  
213 were identified, the non-coincident class peak ("NCP") component and the  
214 coincident peak component. The NCP component ... includes the costs  
215 for standard system elements that are likely to be sized to accommodate  
216 individual customers' maximum loads. ... **The coincident peak**  
217 **component, on the other hand, includes the costs for standard system**  
218 **elements necessary to serve a geographic area or larger group of**  
219 **customers that can be sized with consideration given to diversity**  
220 **between individual customers' loads. ... [T]he investment costs of**  
221 **Transmission Distribution Centers ("TDCs"), 34 kV lines,**  
222 **Distribution Centers ("DC"), primary lines, and primary taps were**  
223 **included in the coincident peak component.**

224  
225 Docket No. 01-0423, ComEd Ex. 13.0 at 16-17; LL 345-363 (emphasis added). This  
226 testimony is far more plausible than the confusing statement made by Mr. Alongi in  
227 the Rate Design Case.

228

229 **Q. What is Mr. Stowe's next point regarding CP versus NCP?**

230 A. Mr. Stowe states that facilities are not only sized on the basis of peak load, but also  
231 on the loads that occur “at any time of day” implying that facilities should be  
232 allocated on the basis of energy as well as peak load. Specifically, Mr. Stowe stated

233 Primary circuits and substations are designed to provide safe and reliable  
234 power under *both normal* and extraordinary conditions, and *at any time of*  
235 *the day*. This means that the system designers cannot simply design the  
236 primary circuits and substations to distribute the amount of power that  
237 flowed through the primary distribution system during a historical system  
238 peak hour.

239 IIEC Ex. 3.0 at 21-22; LL 484-489 (emphasis added).

240 In City Exhibit 2.1, I explain in detail that it is impossible for regional peak  
241 load on distribution facilities to be more than the regional coincident peak load. This  
242 follows from the very definition of coincident peak load. Given the definition of  
243 coincident peak load -- the maximum load incurred on the regional system -- Mr.  
244 Stowe’s statement can only mean that it is the lower load that occurs at non-  
245 coincident times rather than the regional coincident peak at any other time of the year  
246 – or the regional energy – that partially drives the sizing of facilities. This implies  
247 that Mr. Stowe is advocating allocation of distribution facilities partially on the basis  
248 of energy usage.

249 A cost allocation method that includes energy would be unfavorable to  
250 lighting consumers. However, a cost allocation method that is partially derived from  
251 energy would be very favorable to residential ratepayers. In the past I have

252 recommended application of the average and excess method which allocates  
253 distribution plant on the basis of both energy and peak demand.

254 Mr. Stowe's comments about distribution equipment being built for normal  
255 conditions are counter to ComEd's statements that construction of distribution  
256 equipment is driven by peak loads. However, I believe it would be certainly be a  
257 good thing for the Commission to re-consider allocating some part of distribution  
258 costs on the basis of energy. This of course would have very negative effects on Mr.  
259 Stowe's and Mr. Baudino's clients.

260

261 **Q. Please comment on the final point made by Mr. Stowe relating to a paragraph in**  
262 **the NARUC Cost Allocation Manual.**

263 A. Both Mr. Stowe and Mr. Baudino refer to a document named the "NARUC Cost  
264 Allocation Manual" (NARUC Manual). Mr. Stowe quotes the following paragraph in  
265 his testimony:

266 Distribution substations are designed to meet the maximum load from the  
267 distribution feeders emanating from the substation. Similarly, when  
268 designing primary and secondary distribution feeders, the distribution  
269 engineer ensures that sufficient conductor and transformer capacity is  
270 available to meet the customer's loads at the primary- and secondary  
271 distribution service levels. ... Consequently, customer-class non-  
272 coincident demands (NCPs) *and individual customer maximum demands*  
273 are the load characteristics that are normally used to allocate the demand  
274 component of distribution facilities. ... The load diversity at distribution

275                    substations and primary feeders is usually high. For this reason, customer-  
276                    class peaks are normally used for the allocation of these facilities.

277                    IIEC Exhibit 3.0 at 24; LL 535-546, quoting NARUC Manual at 96 and 97 (emphasis  
278                    added).

279                    This quote is an incomplete and distorted representation of discussion in the  
280                    NARUC Manual. Use of the NARUC Manual published almost twenty years ago  
281                    without understanding details of the logic behind the statements should not carry any  
282                    weight in this proceeding or any other proceeding. Moreover, it must be noted that  
283                    the introduction to the NARUC Manual states that its objectives were to be  
284                    comprehensive and also “simple enough to be used as a primer” and to “be non-  
285                    judgmental; not advocating any one particular method but trying to include all  
286                    currently used methods with pros and cons.” NARUC Manual at ii.

287                    In terms of the quote itself, note that the manual states **individual customer**  
288                    **demands** as well as non-coincident demand are **normally** used in cost allocation.  
289                    The statement does not say that this allocation method is either justified or fair. Nor  
290                    does the manual give an explanation of why either non-coincident peaks or individual  
291                    class peaks are appropriate or logical. Later in the paragraph, the authors state that  
292                    **customer-class peaks** are **normally used**, without stating whether the customer-class  
293                    peaks are coincident peak, non-coincident peak, or maximum class loads.

294                    Moreover, when reading other statements in the NARUC Manual, one can  
295                    find support for allocating distribution costs on the basis of energy usage and other

296 policies that would almost certainly not be supported by IIEC or the Commercial  
297 Group. More importantly, in a paragraph just below the one quoted by Mr. Stowe,  
298 the manual discusses an allocation policy that is more complex, but very similar to  
299 allocation on the basis of coincident peak load. At one point the NARUC Manual  
300 defines non-coincident peak in a completely different way than ComEd defines the  
301 concept in this case.

302

303 **Q. Are there positions discussed in the NARUC Manual that differ from positions**  
304 **advocated by IIEC and the Commercial Group?**

305 A. Yes. Big business has a strong aversion to any cost that may be allocated on the basis  
306 of energy rather than peak demand. With the exception of the electricity distribution  
307 tax, ComEd does not allocate distribution costs on the basis of energy usage.  
308 However on page 21, a table is presented which shows that distribution costs are  
309 “typically” allocated on the basis of energy as well as demand. Authors of the  
310 manual state:

311 ... to the extent that transmission investment enables a utility to avoid  
312 lines losses, some portion of transmission may be classified as energy  
313 related. ... As in transmission, it may be possible to identify some energy  
314 component of the [distribution] cost.”

315 NARUC Manual at 21. The allocation of any transmission or distribtuion cost on the  
316 basis of energy used is generally srongly objected to by big business representatives.



317 Perhaps not surprisingly, Mr. Stowe and Mr. Baubindo chose not to quote this portion  
318 of the manual.

319

320 **Q. What does the NARUC Manual say about the allocation of distribution facilities**  
321 **a couple paragraphs after the quote cited by Mr. Stowe?**

322 A. A couple paragraphs after the quote extracted by Mr. Stowe, the manual discusses the  
323 idea of “simulating load profiles for various classes of equipment on the distribution  
324 system” which “provides information on the nature of load diversity between the  
325 customer and the substation, and its effect on equipment cost.” According to the  
326 manual, this technique “represents the peak load for each type of distribution  
327 equipment.”

328 The NARUC Cost Allocation Manual describes the concept of “equipment  
329 peak” as follows:

330 The concept of peak load or “equipment peak” for each piece of  
331 distribution equipment can be understood by considering line  
332 transformers. If a given transformer’s loading for each hour of a month  
333 can be calculated, a transformer load curve can be developed. By  
334 knowing the types of customers connected to each load management  
335 transformer, a simulated transformer load profile curve can be developed  
336 for the system. This can provide each customer’s class demand at the time  
337 of the transformer’s peak load. Similarly, an equipment peak can be  
338 defined for equipment at each level of the distribution system. ... This  
339 method should reflect different load diversities among customers at each  
340 level of the distribution system.

341 *Id.* at 98.

342 While computing coincident peak at the level of each piece of equipment as  
343 suggested above would resolve much of the debate regarding NCP versus CP, it is not  
344 realistic to expect ComEd to perform such an analysis when the Company does not  
345 even separate costs according to above ground and underground distribution.

346

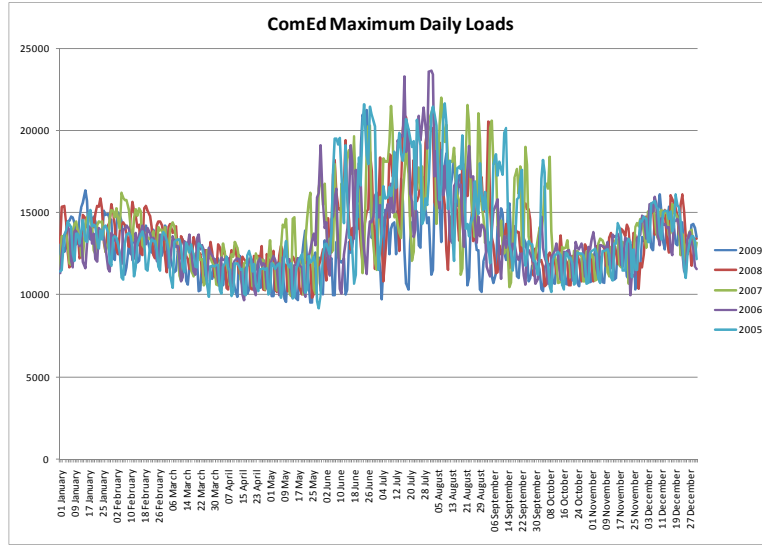
347 **Q. What does the above-cited paragraph mean with respect to using NCP as an**  
348 **indicator of cost causation?**

349 A. In my opinion, the above paragraph demonstrates the fallacies in using system wide  
350 NCP as an indicator for cost causation. The load duration curve for a piece of  
351 equipment is computed through sorting loads faced by primary feeders and  
352 substations from the lowest levels to the highest levels. Ratepayers who do not use  
353 electricity equipment during the peak load period should not be assigned costs of the  
354 equipment. The benefits of the equipment to ratepayers who do not use the  
355 equipment during peak periods are zero cost by-products of having the equipment  
356 available at peak periods. Using system-wide NCP to simulate usage on individual  
357 elements of equipment would suggest that diversity in electric energy used by a  
358 substation to power an outdoor ice rink in Lake Forest in the winter could offset a  
359 swimming pool that is drawing power from a substation in Harvey in the summer.

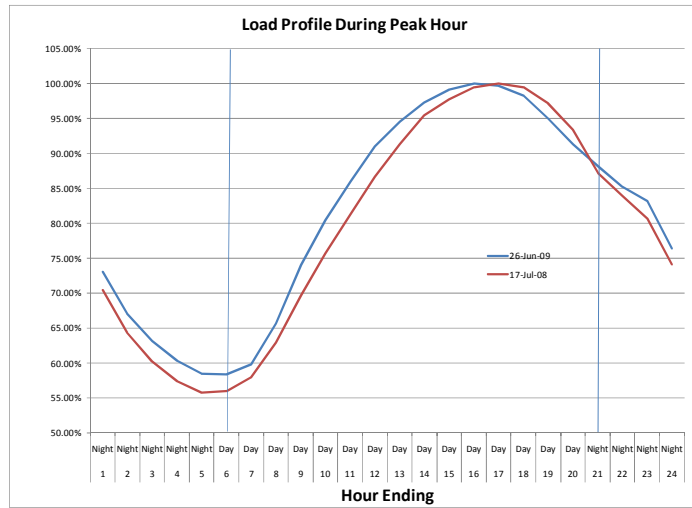
360 This is completely contrary to the idea that costs are derived using equipment peaks  
361 described in the NARUC Manual.

362 If one did compute the annual load duration curve for pieces of the primary  
363 distribution system such as primary feeders, the load profiles would probably  
364 resemble load duration system for the entire system in which peaks occur during the  
365 summer. It is doubtful that peaks on substations and primary feeders would occur  
366 during the winter – ComEd is a strongly summer-peaking utility company as shown  
367 in the graph below. (If the summer and winter peaks were close to each other, one  
368 may argue the lighting loads could cause the peak.) Furthermore, once night falls in  
369 the summer, the loads fall rapidly as shown in the second graph below. Finally, the  
370 dramatic failures of ComEd’s distribution system that have occurred in the past – the  
371 Fisk and Crawford outage in 1989, the 1999 Wrigleyville outages, and the Chicago  
372 Loop outages during business hours in 1999 – confirm that it is not nighttime lighting  
373 load that puts pressure on the distribution system.

374



375



376

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380

### Chicago Sunrise and Sunset in July

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Sunrise: 5:19am Sunset: 8:30pm	2 Sunrise: 5:19am Sunset: 8:29pm	3 Sunrise: 5:20am Sunset: 8:29pm
4 Sunrise: 5:20am Sunset: 8:29pm	5 Sunrise: 5:21am Sunset: 8:29pm	6 Sunrise: 5:22am Sunset: 8:29pm	7 Sunrise: 5:22am Sunset: 8:28pm	8 Sunrise: 5:23am Sunset: 8:28pm	9 Sunrise: 5:24am Sunset: 8:28pm	10 Sunrise: 5:24am Sunset: 8:27pm
11 Sunrise: 5:25am Sunset: 8:27pm	12 Sunrise: 5:26am Sunset: 8:26pm	13 Sunrise: 5:26am Sunset: 8:26pm	14 Sunrise: 5:27am Sunset: 8:25pm	15 Sunrise: 5:28am Sunset: 8:25pm	16 Sunrise: 5:29am Sunset: 8:24pm	17 Sunrise: 5:30am Sunset: 8:23pm
18 Sunrise: 5:31am Sunset: 8:23pm	19 Sunrise: 5:31am Sunset: 8:22pm	20 Sunrise: 5:32am Sunset: 8:21pm	21 Sunrise: 5:33am Sunset: 8:20pm	22 Sunrise: 5:34am Sunset: 8:20pm	23 Sunrise: 5:35am Sunset: 8:19pm	24 Sunrise: 5:36am Sunset: 8:18pm
25 Sunrise: 5:37am Sunset: 8:17pm	26 Sunrise: 5:38am Sunset: 8:16pm	27 Sunrise: 5:39am Sunset: 8:15pm	28 Sunrise: 5:40am Sunset: 8:14pm	29 Sunrise: 5:41am Sunset: 8:13pm	30 Sunrise: 5:42am Sunset: 8:12pm	31 Sunrise: 5:43am Sunset: 8:11pm

381

382

383 **Q. Is the definition of NCP in the NARUC Cost Allocation Manual consistent with**  
 384 **manner in which ComEd computes NCP?**

385 A. The NARUC Manual has a couple of different definitions of NCP. At one point,  
 386 NCP is defined as follows:

387 ...for a particular customer class ... the increase in peak demand on the  
 388 distribution system due to a 1 kW increase in the maximum demand of the  
 389 class. The peak demand on the distribution system is referred to as the  
 390 non-coincident peak demand.”

391 *Id.* at 142. This definition, which focuses on how an increase in the peak load of a  
 392 customer class effects distribution equipment, is consistent with the earlier discussion  
 393 involving equipment peaks and regional coincident peak loads. The definition is  
 394 completely inconsistent with the computation of system-wide class load applied by

395 ComEd. The definition used by ComEd is driven by within-class diversity but which  
396 has nothing to do with measuring load on elements of the distribution system.

397

398 **Q. How does ComEd describe the cost causation for primary distribution facilities**  
399 **in this case?**

400 A. Other than the restatement of Mr. Alongi's testimony from the last case, ComEd  
401 repeatedly maintains that construction of distribution results from peak load. For  
402 example, ComEd witness Ross C. Hemphill, Ph.D. testifies:

403 ComEd installs a new feeder, a new distribution substation, or even a  
404 customer's service drop, ComEd determines the capacity of that system  
405 component based on *the projected peak load* requirement over the long  
406 term. The system is thereby designed and sized to be able to serve all  
407 reasonable levels of demand and use. As the Commission noted in its  
408 Order in the 2007 Rate Case, "... distribution facilities must be planned  
409 and built to meet customers' maximum loads."  
410

411 ComEd Ex. 14 at 10; LL 210-215, (emphasis added). In terms of cost causation, this  
412 statement can only mean that facilities are served to meet regional coincident peak  
413 load (perhaps with a buffer or reserve margin). If the region is defined as one single  
414 ratepayer, which would be the case for service drops, then the regional peak load is  
415 the customer's maximum individual demand as defined in City Exhibit 2.1.  
416 However, no matter how one tries to bend Dr. Hemphill's statement, it is difficult to

417 believe that the system-wide non-coincident peak derived from system-wide customer  
418 class peaks (as defined by ComEd) drives the construction of distribution facilities.

419

420 **Q. Is there a problem with use of CP because distribution equipment is built on the**  
421 **basis of regional CP rather than system-wide CP?**

422 A. Not necessarily. It is certainly true that cost allocation would be improved if one  
423 were to measure coincident peak on a regional basis and then come up with methods  
424 to gross up the regional data into customer classes. Even though this is possible, it is  
425 not likely that ComEd would agree to perform such a task. The Company would  
426 probably argue that the costs of making detailed analyses for rate design offset the  
427 benefits. Being left with measurements that are all on a system-wide basis, the  
428 Commission is left with analyzing which system-wide measure of load best  
429 represents coincident load on a region by region basis. The answer to this is obvious.  
430 System-wide NCP which measures customer class peak load does not have anything  
431 whatsoever to do with calculation of regional load. Differences between NCP and CP  
432 arise from class diversity that does not affect cost causation and have nothing to do  
433 with regional loads. Differences between NCP and CP due to measurement from  
434 applying sampling create biases and render NCP less accurate than CP. Given the  
435 limited data, the only reasonable approach is to apply CP in cost allocation of primary  
436 distribution.

437

438 **Q. Is the notion that NCP creates a bias against small business ratepayers discussed**  
439 **in your Technical Appendix (City Exhibit 2.1) borne out by data in this case?**

440 A. Yes. The table below compares CP and NCP and the associated cost of service for  
441 various classes of business consumers. Note how the use of NCP rather than CP is  
442 favorable to large business interests. I have not included the two residential customer  
443 classes in the table because the effects of the NCP method are highly affected by the  
444 manner in which sampling of space heat ratepayers is represented in load research.<sup>2</sup>

	Percent Benefit from NCP	Dollar Benefit from NCP
Watt-Hour	-1.46%	(\$410,205)
Small Load 0-100 kw	-0.48%	(\$1,397,346)
Medium Load 101-400 kw	-1.83%	(\$3,457,258)
Large Load 401-1000 kw	0.44%	\$705,580
Very Large Load Over 1,000-10,000 kw	1.89%	\$4,122,920

445

446

447 **Q. Is the impact of the number of customers within a customer class and the use of**  
448 **NCP versus CP discussed in City Exhibit 2.1 borne out ComEd’s cost-of-service**  
449 **study?**

450 A. Yes. To illustrate the effect of the number of customers within a customer class size  
451 on the difference between NCP and CP, one can examine cost differences for classes

<sup>2</sup> This table was derived from ComEd’s data request response to the Commercial Group -- CG 1.02  
SUPP\_Attach\_2.



452 with different numbers of customers and that have meters capable of measuring  
 453 demand. Note that the railroad class has only two customers and little possibility for  
 454 diversity. For the railroad class, NCP is particularly unfavorable. However, for  
 455 classes with a large number of customers, NCP is favorable.

	Number of Ratepayers	Percent Benefit from NCP	Dollar Benefit from NCP
Large Load 401-1000 kw	4,147	0.44%	\$705,580
Very Large Load Over 1,000-10,000 kw	1,508	1.89%	\$4,122,920
Extra Large Load Over 10,000 kW	13	-6.34%	(\$760,551)
High Voltage Up to 10,000 kW	40	-8.16%	(\$204,028)
High Voltage Over 10,000 kW	33	-1.76%	(\$264,568)
Railroads	2	22.87%	(\$1,519,586)

456

457

458 **Q. Why does the number of customers within a customer class make such a**  
 459 **difference in the effect of CP versus NCP?**

460 A. The reason is simple. With more ratepayers in a class it is more likely that more  
 461 within-class diversity will occur. However, a large number of ratepayers will not  
 462 always create benefits because in some customer classes, all consumers may have  
 463 very similar load profiles, implying that there is little within-class diversity, which is  
 464 the driver of the NCP allocator. This is particularly true in the case of street lighting  
 465 customers where there is virtually no within-class diversity because street lighting  
 466 consumers all use power during the period between when darkness falls and the time  
 467 the sun rises. As illustrated in City Exhibit 2.1, for street lighting customers, their

468 maximum individual peak would be just about the same as the non coincident peak  
469 load.

470

471 **Q. Please comment on Mr. Alongi’s testimony that use of CP in allocation of costs**  
472 **would mean relatively low average rates for ComEd’s lighting customers.**

473 A. Mr. Alongi testifies that “it is interesting” that the cost per kWh for street lighting  
474 ratepayers is low relative to other ratepayers because of the use of CP. ComEd Ex.  
475 49.0 at 19; LL 437-446. He states that “[s]ingle family homeowners, apartment  
476 dwellers, and small business operators located within a stone’s throw of dusk to dawn  
477 lighting units, using virtually the same distribution facilities” will have lower rates.  
478 *Id.* at 19; LL 446-448. Mr. Alongi then compares ComEd’s proposed lighting rate to  
479 Ameren, ConEd, PECO, PEPCO, Delmarva and Detroit Edison. His analysis shows  
480 that four companies -- ConEd with an extremely high rate of 6.11 cents per kWh, as  
481 well as one Ameren subsidiary, Detroit Edison, and Delmarva have higher rates than  
482 the ComEd proposed rate. PECO has a similar rate, while two companies – another  
483 Ameren Subsidiary and PEPCO have lower rates. ComEd Ex. 49.0 at 21; Table R1.

484

485 **Q. Do you find Mr. Alongi’s presentation persuasive?**

486 A. No. Mr. Alongi's comments with respect to the level of lighting rates are distorted  
487 for several reasons.

488 - First, Mr. Alongi ignores the massive increase in distribution cost of service  
489 that has occurred after ComEd stopped separating primary and secondary distribution  
490 facilities a few years ago. As I testified in the Rate Design Case, when ComEd  
491 switched from its cost study that differentiated primary and secondary facilities to the  
492 study that did not differentiate equipment, cost of service *increased* by 99% for street  
493 lighting consumers while cost of service *decreased* by percentages ranging from 17%  
494 to 28% for other non-residential ratepayer classes. Docket 08-0532, City Ex. 1.0 (2<sup>nd</sup>  
495 Rev.) at 20; LL 460-474.

496 - Second, Mr. Alongi's statement that the lighting facilities are a "stone's  
497 throw" away from other facilities ignores the central question discussed above,  
498 namely that the cause of cost incurrence depends on the time of day and the time of  
499 year when the facilities are used.

500 - Third, consumers who use overhead facilities and are a "stone's throw" away  
501 from the street lights use overhead facilities and pay rates that are far too high relative  
502 to ratepayers who receive power from underground facilities.

503 - Fourth, the reason ComEd's lighting rates may be below those of some other  
504 companies could be that the other companies use NCP in an inappropriate manner  
505 and nobody makes arguments in favor of the street lighting ratepayers in other

506 jurisdictions. Inappropriate cost allocation techniques in other jurisdictions do not  
507 justify making the same mistakes in Illinois.

508

509 **Q. Please summarize the problems you have identified with using NCP to allocate**  
510 **primary lines and substation costs.**

511 A. The manner in which ComEd applies NCP has nothing to do with cost causation; it  
512 inequitably lowers the cost of service for large diverse business customer classes; it is  
513 derived from artificial load diversity that has nothing to do with efficient usage; it  
514 creates illogical results whereby the classification of a customer class changes cost of  
515 service; and, it is inconsistent with prior ComEd testimony. NCP should not even be  
516 used in allocating the costs of primary or secondary lines. Instead, maximum  
517 individual peak should be used to allocate secondary line costs.

518

519 **SECONDARY COST OF STREET LIGHTING**

520 **Q. ComEd states that its proposed rate design with respect to the secondary costs of**  
521 **street lighting is consistent with the Commission's Rate Design Order. ComEd**  
522 **Ex. 49 at 19,; LL 428-431. Do you agree?**

523 A. No. The Rate Design Order mandated that ComEd directly use the secondary cost of  
524 service that was included in my rebuttal testimony in that case. The Order stated:

525 In the absence of any meaningful refutation of the City's calculation by  
526 ComEd, we direct that the charge for street lighting service drops should  
527 be calculated in the manner suggested by the City, which in this instance is  
528 \$183,000.

529 Rate Design Order at 53. As I stated in my direct testimony, ComEd changed the  
530 most important figure I presented in my rebuttal testimony the rate design case, which  
531 included the \$183,000 number. The important number that ComEd changed was the  
532 cost per foot of wire. In my direct testimony, I discussed how the number for the City  
533 of Chicago is distorted by very expensive secondary wire that is probably not used for  
534 street lighting service. City Ex. 1.0 at 54-55; LL 1069-1086. To resolve problems  
535 associated with the very high cost category of secondary wire, I computed the average  
536 of primary and secondary overhead wire in the City and used this number as the base  
537 for my analysis in the rate design case. ComEd did not address this important point  
538 in its rebuttal testimony.

539

540 **Q. Mr. Alongi testifies that you were “dissatisfied” with ComEd’s “proposal.”**  
541 **ComEd Ex. 49 at 19, LL 431-432. Is this an accurate representation of your**  
542 **testimony?**

543 A. It is true that I complained about ComEd's "implementation" of the Commission's  
544 directive in my direct testimony -- in particular for not applying similar approaches  
545 for the suburbs. However, much of my direct testimony dealt with implementing  
546 issues that ComEd testified were incorrect in my analysis in the Rate Design Case,

547 such as my failure to include operation and maintenance expenses. I acknowledged  
548 that my analysis in the Rate Design Case contained errors and in my direct testimony  
549 in this case, I tried to be constructive in developing a more accurate estimate of cost  
550 of service.

551 In contrast to my efforts to narrow the issues with respect to street lighting  
552 secondary costs, ComEd chose to add what I consider to be a silly adjustment for  
553 alley lights. And when Mr. Alongi chose to add alley lights to his analysis, he  
554 adopted all of the adjustments I made for intangible and general plant, operation and  
555 maintenance expenses, taxes other than income and administrative costs.

556

557 **Q. What adjustment did ComEd make with respect to alley lights to your corrected**  
558 **analysis of secondary street lighting costs?**

559 A. ComEd assumed that 250 and 150 watt alley lights use approximately one third of the  
560 entire above ground distribution system in the City. Using a very high number for the  
561 cost per foot of wire, my analysis resulted in a cost of service of about \$169,000.  
562 City Ex. 1.0 at 57; L 1115. Not surprisingly, by assuming that 250 and 150 watt light  
563 bulbs should be allocated one third of the cost of the entire secondary system, ComEd  
564 was able to inflate that number to about \$900,000. ComEd Ex. 49.7. ComEd also  
565 stated that it added \$250,000 in service drop costs to my analysis. According to

566 ComEd, "\$250,000 is the approximate value for only the City non-alley lights which

567 is the amount that the Chicago Method currently excludes from the allocation to the  
568 Dusk to Dawn Lighting Delivery Class.” ComEd Ex. 49.0 at 49, fn 2. This  
569 adjustment is particularly unfair because all of the costs that ComEd classifies as  
570 service drops in its incremental cost analysis are performed by City of Chicago  
571 employees or contractors.

572

573 **Q. Please discuss the issue of including alley lights in your analysis of bottom-up**  
574 **cost calculations.**

575 A. In the Rate Design Case, I addressed the issue of distinguishing alley lights from non-  
576 alley lights in detail because they have a completely different configuration. Docket  
577 08-0532, City Ex. 1.0 (2<sup>nd</sup> Rev.) at 25-31; LL 602-738. As discussed above, the  
578 Commission accepted my method and this approach distinguished alley lights from  
579 non-alley lights. This was despite a number of attempts by ComEd to confuse things  
580 by mixing alley lights together with residential and arterial lights, which have an  
581 entirely different configuration than alley lights. *See, e.g.*, Docket 08-0532, ComEd  
582 Ex. 6.0 at 50; LL 1126-1146. In my direct testimony in this case, I again explained  
583 that alley lights and non-alley lights have a completely different configuration than  
584 residential and arterial lights and I even presented a not-very-elegant diagram that  
585 attempted to illustrate this fairly obvious fact. City Ex. 1.0 at 43-46; LL 839-884.  
586 ComEd has made a new stride in adopting Harry Truman’s idea that “if you can't

587 convince them, confuse them” by making the absurd assumption that alley lights that  
588 use 250 watt or 150 watt bulbs use about one third of the above ground secondary  
589 distribution system in the City. ComEd Ex. 49 at 48, LL 1078-1083.

590 Mr. Alongi’s rebuttal testimony with respect to alley lights issue simply  
591 confirms that the alley lights must be distinguished from the non-alley lights in the  
592 cost-of-service analysis. The small amount of power used by a 250 or a 150 watt  
593 bulb cannot be allocated the same amount of power line costs as other consumers  
594 along the wire span who use a whole lot more energy than a single light bulb. The  
595 very small amount of power used by a single alley light is significantly less than the  
596 power used by integrated systems of residential or arterial lights. In the case of  
597 residential and arterial lighting, the ComEd wire span that connects the transformer to  
598 the City-owned line powers many street lights that are connected to each other with  
599 City secondary wire, which in turn is connected to a City-owned controller.

600 For non-alley lights, assume that one allocates the entire span of wire from the  
601 transformer to the City connection, rather than recognizing that other ratepayers are  
602 also tapped to the line (something that is not true.) In this hypothetical case the  
603 allocated cost would be less than the cost ComEd would like to attribute in its  
604 embedded-cost-of-service study (ECOSS), proving the problems in the ECOSS. In  
605 my direct testimony, I demonstrated (applying a cost per foot of wire that combines  
606 primary and secondary wire) that costs using the method I advocated is only 43% of  
607 the cost the ComEd would like to impose. City Ex. 1.0 at 58; LL. 1129-1131. Of



608 course, allocating all of the cost of a wire span to alley lights would does not produce  
609 a similar result because alley lights use such a small amount of electricity. For alley  
610 lights, if the entire wire span is allocated to the single bulb, the cost would be more  
611 than the line cost that is allocated on the basis of NCP in ComEd's ECOSS. If  
612 ComEd continues to insist on including alley lights in the analysis, it would have to  
613 determine how much of the power usage of a wire span is due to the alley lights  
614 versus other usages, which would drastically reduce ComEd's 33% figure. The  
615 proportion of usage of secondary lines dedicated to 250 and 150 watt bulbs in alleys  
616 would surely be far less than the 33% number ComEd assumed when it attempted to  
617 revise my analysis.

618

619 **Q. How did ComEd respond to the point in your direct testimony the City makes**  
620 **the service connections between the City's street lighting facilities and ComEd's**  
621 **secondary system?**

622 A. ComEd does not deny that the City employees or contractors make the service  
623 connection. However, instead of admitting that their testimony was erroneous and  
624 recognizing that the whole allocation of service drop costs is flawed because of not  
625 accounting for actual costs, ComEd now introduces the notion that it makes "final  
626 permanent connections." Mr. Alongi testifies that "Although Mr. Bodmer mentioned

627 that the City has made these types of connections *on occasion*, ComEd makes the  
628 final permanent connections.” ComEd Ex. 49 at 48; LL 1073-1075 emphasis added).

629 This quote demonstrates that Mr. Alongi continues to make statements that are  
630 simply not correct. I did not use the term “on occasion” in my direct testimony.  
631 According to my conversations with City representatives, ComEd has not performed  
632 the labor nor incurred material costs for the service connections for many years.  
633 During all this time, the Company has been charging the City for connections that the  
634 City makes and that have cost the City significant sums of money.

635

636 **COMED’S CUSTOMER CHARGE PROPOSAL**

637 **Q. How does Dr. Hemphill respond to the direct testimony of other parties with**  
638 **respect to ComEd’s proposal to increase dramatically its customer charges for**  
639 **residential customers?**

640 A. No party, including the Commission Staff, supports ComEd’s customer charge  
641 proposal. Staff and these parties raise numerous cost, equity, and policy arguments  
642 against ComEd’s desire to increase dramatically the customer charge. However, Dr.  
643 Hemphill concentrated on relatively inconsequential issues in his rebuttal testimony.  
644 ComEd did not even respond to several points, including that the embedded cost of  
645 service for distribution lines, substations, transformers, and other equipment was  
646 caused by the amount of consumption; that the Company is attempting to impose the

647 difference between variable marginal cost and embedded cost in a highly  
648 discriminatory manner on the most inelastic portion of the rate structure; that its  
649 proposal would increase bills to City ratepayers by \$50 million each year; that the  
650 Company would have customer charges 4.5 times the industry median and more than  
651 double that of any other utility; and that its proposal is completely inconsistent with  
652 interclass allocation. Dr. Hemphill seems to be simply hoping that the Commission  
653 follows the same policy that it made in a couple of natural gas distribution cases.

654

655 **Q. What is your response to Dr. Hemphill’s statement that his customer charge**  
656 **proposal is not derived from short-run marginal cost? ComEd Ex. 46 at 21; LL**  
657 **470-477.**

658 A. Dr. Hemphill writes:

659 There is no part of my direct testimony (ComEd Ex. 14.0 Rev.) in which I  
660 ever use the word marginal. ... There is a significant difference that all  
661 economists should recognize between average embedded variable costs  
662 and marginal costs, let alone short-run marginal costs.

663 ComEd Ex. 46 at 21, LL 470-477. Dr. Hemphill’s comment could be taken from the  
664 novel “1984.” He apparently believes that if Big Brother -- in this case, ComEd --  
665 does not label something a marginal cost, then it cannot be a marginal cost. Instead  
666 he invents a term that has nothing to do with measuring cost of service, something  
667 named “embedded variable cost.” The short-run marginal cost of distribution is the

668 change in cost associated with a small change in volume. If there is surplus capacity  
669 on the distribution system, the change in cost associated with a small change in usage  
670 is zero. This number zero is the short-run marginal cost and it is the number used by  
671 Dr. Hemphill.

672

673 **Q. Dr. Hemphill also does not like you using the term “Ramsey Pricing.” *Id.* at 21;**  
674 **LL 478-480. How do you respond to Dr. Hemphill’s aversion to the use of that**  
675 **term?**

676 A. ComEd seems to be obsessed with labeling things instead of thinking through ideas in  
677 a logical manner. ComEd would like to recover costs that have been caused by the  
678 size of consumption and that are not embedded costs from what it labels “volumetric  
679 charges.” This leaves a whole lot of costs to be recovered from some other means.  
680 The most inelastic portion of the rate structure is the customer charge and this is how  
681 Dr. Hemphill wants the remaining costs to be recovered. This idea of inverse  
682 elasticity is Ramsey pricing no matter what Dr. Hemphill writes.

683

684 **UNCOLLECTIBLE ACCOUNTS**

685 **Q. ComEd requests that you provide information about the indirect costs of**  
686 **uncollectible accounts. Can you provide the requested information?**

687 A. ComEd does not argue with the point made in my direct testimony that the indirect  
688 costs associated with credit collection -- customer cut-offs, customer cut-ins, phone  
689 calls related to customer collections -- should be included as part of the uncollectible  
690 cost. To compute the number for indirect cost, I would first separate the call center  
691 calls related to credit and collections. Some of call center costs could then be  
692 assigned to uncollectible costs rather than being assigned on the basis of the number  
693 of ratepayers. Next, I would review all of the accounts in account 903 to evaluate  
694 which costs are related to credit evaluation, collection activities, the costs of  
695 disconnecting consumers, the costs of re-connecting consumers, and any other costs  
696 associated with evaluating, collecting or administering costs associated with people  
697 who are late in paying their bills.

698

699

\* \* \*

700 **Q. Does this conclude your rebuttal testimony?**

701 A. Except for the Technical Appendix I mentioned in my discussion of the use of CP  
702 versus NCP, yes.