

**STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION**

Commonwealth Edison Company)
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)
)
Revenue Neutral Tariff Changes)
Related to Rate Design)
_____)

ICC Docket No. 17-0049

REBUTTAL TESTIMONY OF EDWARD C. BODMER

On Behalf of

THE CITY OF CHICAGO

(City Exhibit 2.0)

April 26, 2017

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REBUTTAL TESTIMONY OF EDWARD C. BODMER

1 INTRODUCTION

2 Q. What is your name and for which party are you testifying?

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

4 Q. Did you provide direct testimony in this case?

5 A. Yes, I provided direct testimony on behalf of the City. My direct testimony was designated City
6 Ex. 1.0, and the associated exhibits were labeled City Ex. 1.1 - City Ex. 1.4.

7 Q. Did any witnesses present testimony that tends either to contest or to support your
8 conclusions on the issues addressed in your direct testimony?

9 A. Yes. Witnesses for the following parties responded to, or made pertinent comments about, at
10 least some portion of my testimony:

- 11** • John Leick, on behalf of Commonwealth Edison Company ("ComEd" or "the
12 Company"), responded to my testimony on Non-Coincident Peak (NCP) cost
13 allocation issues (including the feeder study on which ComEd based its
14 adjustments to its NCP results), regional costs, ComEd's load research and its

disparate impacts, and the proper treatment of the incremental costs of demand related functionality in AMI meters.

- Martin Fruehe, on behalf of ComEd, responded to my testimony on the following issues: regional cost studies; Ameren-ComEd contrasts; and whether ComEd has proposed NCP allocations favoring certain customer groups.
- James Bachman testified on behalf of the Chicago Transit Authority (CTA) and Metra; his testimony supports many of the points I made regarding NCP cost allocations and provides impact analyses that confirm those in my direct testimony.
- William Johnson testified for the Staff witnesses (“Staff”) of the Illinois Commerce Commission (“ICC” or “Commission”) regarding NCP cost allocations.
- Robert Stephens testified on behalf of the Illinois Industrial Energy Consumers (“IIEC”) in support of ComEd’s proposal for NCP cost allocations.

Q. Did the evidence and analyses of other witnesses in this case cause you to revise your position on any issues?

A. Not in substance. Indeed, much of the testimony, in fact, provides additional support of my positions. First, the testimony from other parties confirms that ComEd’s feeder study does nothing to support the proposed change to NCP allocations and that if alternatives to system-wide coincident peak (CP) are to be implemented, further study is necessary. Second, ComEd’s comments on its load research suggest that the entire database of residential consumers who have AMI meters should be the basis for measurement of peak demand by consumer class. Third, ComEd’s discussion of the consumer value the Company perceives in its list of benefits from AMI functionality allows a more precise demonstration that the added costs of demand-related AMI meter functionalities cannot be imposed on consumers through a customer charge.

39 **Q. Have you included review of ComEd's feeder study in your rebuttal testimony?**

40 **A.** Yes. I have included in this testimony some analysis of the odd results of the study. My
41 supplemental analysis does not alter my initial assessment, but it identifies additional anomalies
42 that invalidate the study.

43 **Q. Are you sponsoring any exhibits as part of your rebuttal testimony?**

44 **A.** Yes, as part of my testimony I present one exhibit, City Ex. 2.1, which provides selected discovery
45 referenced in this testimony -- specifically, ComEd's responses to City DRs 1.03, 1.05, 1.20, and
46 2.01.

47 **SUMMARY OF CONCLUSIONS**

48 **Q. Please summarize the conclusions you reached after examining the testimonies of other**
49 **witnesses on the issues of interest to the City.**

50 **A. NCP Allocations**

51 1. ComEd's response to my testimony on NCP allocations and IICE's testimony supporting NCP
52 allocations do not refute the fundamental conclusions of my direct testimony. Those
53 conclusions include the following points.

54 a) There is a quantitatively important distortion in the NCP methodology that is not
55 present in other allocation methods, a fact ComEd acknowledges;

56 b) ComEd's feeder study cannot be used to measure the regional CP demand that drives
57 ComEd's distribution costs, or to set rates for street lighting consumers that ComEd
58 never showed were served by its feeders with unusual peak times;

59 c) With Commission approval, ComEd has used CP allocations for most of the past forty
60 years; and

d) ComEd is very different from more rural downstate utilities because of its extreme needle peaking, and simply mimicking determinations in those utilities' distinctive cases is wrong.

2. Despite its acceptance of ComEd's proposal for NCP allocations,¹ Staff's testimony provides some hope for fair and accurate allocations. In particular, I refer to Mr. Johnson's recognition that the record evidence should be determinative and his statement that he reserves the "right to reevaluate my position in rebuttal if other parties to the proceeding identify valid areas of concern." Staff Ex. 1.0 at 27:642. The City's direct testimony certainly identified such areas, as ComEd admits. ComEd Ex. 5.0 at 5:98.

3. In addition, I believe my suggestion that the Commission require a detailed regional analysis that accounts for (cost-causing) regional coincident peak load for ratepayer classes, rather than rely on ComEd's highly flawed feeder study, is consistent with the "open to the evidence" position stated in Mr. Johnson's testimony. I hope that Staff will reconsider putting the cart before the horse through its call for adoption of NCP allocations in this case, while deferring a proper regional analysis until ComEd's next rate design case. A rigorous regional peak study is necessary to justify (and must precede) any such change to ComEd's allocation method. Staff Ex. 1.0 at 26:615.

4. Data and testimony about real world operational considerations presented by IIEC and the Railroads highlight why ComEd's feeder study cannot be used as a basis for a change to NCP cost allocations.

¹ Just as ComEd purports not to propose NCP allocations (despite its testimony supporting only that allocation change), Staff states only its "non-objection" to NCP allocations, but then recommends Commission adoption of an ECOS that incorporates ComEd's NCP allocation of primary facilities.

81 **Other Recurring Rate Design Issues**

- 82 5. ComEd does not provide a thoughtful response to my suggestion that the incremental costs
83 of AMI meters' usage/demand-related functionalities must not be included in ComEd's
84 customer charge. Instead, ComEd lists what it perceives to be consumer benefits of AMI
85 meters -- demand metering, time of use rates, RES billing, demand management programs,
86 and outage alerts. Thinking through whether demand-related AMI meter functionalities
87 (even viewed through the lens of ComEd's list of applications) are related to a consumer's
88 simple existence, or to consumers' usage and demand characteristics, one quickly sees that
89 ComEd is wrong on every justification for customer charge recovery the Company
90 mentioned. Both cost causation and equity preclude recovery of the incremental AMI meter
91 costs I addressed in my direct testimony through ComEd's customer charge.
- 92 6. As to regional cost allocations, ComEd states only that the Company does not want to
93 perform studies defined by its own explanation of cost causation. Information from
94 ComEd's widely deployed AMI meters and CEIGS system (both funded by ratepayers), along
95 with the completed Railroad Regional Geographical Allocations Study ("RRGAS"),
96 demonstrate that regional cost of service determinations and allocations can be conducted
97 in a reasonable way. That more accurate cost of service approach should be applied more
98 broadly.
- 99 7. ComEd confirms my observation that there have been dramatic changes in ComEd's
100 residential load factor data (and the resulting cost allocations) in the past couple of years.
101 Instead of providing an analysis demonstrating why such changes have occurred (to validate
102 the data it proposes to use for ratemaking), the Company just makes a couple of very
103 general statements. I recommend that ComEd use all available AMI data for its load

research through a compliance filing in this case, and as part of its filing in future rate design cases.

Q. Did ComEd’s rebuttal testimony provide the analytical detail you expected in response to your testimony and exhibits?

A. While concise testimony is always welcome, there appears to have been a lack of effort by ComEd in thinking through nuances associated with the cost of service issues I addressed in considerable detail. For example, ComEd’s claimed purpose is to provide the Commission with “information necessary to consider revenue requirement neutral cost functionalization and allocation methodology changes in the way ComEd allocates costs to ComEd’s retail delivery service classes.” ComEd Ex. 2.0 at 1”13. However, despite its unique access to the data that would allow a determination of the magnitude of the bias arising from the NCP methodology for ComEd consumers, it made no effort to provide the Commission with useful information.

Q. Did you observe any shared characteristics in ComEd’s rebuttal testimony responses, with respect to the issues you discussed in your direct testimony?

A. In early drafts of my direct testimony, I had included barbed comments on what I perceive as distortions of the history of ComEd’s NCP usage, and of the meaning of well-defined regulatory terms. I also included comments on ComEd’s failure to provide non-confidential versions of workpaper data under the Company’s control that are critical to evaluating its proposals and testimony.² Those statements (and others) were deleted or modified during the editing process for my earlier testimony. However, the distortion of key terms, the illogical and simplistic nature of responsive arguments and analyses, and the selective non-use of available

² Ultimately (five days before this testimony was due), ComEd filed public “supplemental workpapers” comprising the feeder data files it had over-classified for weeks as confidential documents (after redacting only feeder names).

utility data, in ComEd's rebuttal testimony, suggest that my earlier critical comments, previously left on the cutting room floor, are apt foundations for my rebuttal testimony.

Q. How have you organized your testimony on the various topics, to respond to testimony from ComEd and other parties?

A. I have maintained the same order of issues I used in my direct testimony. I begin with some brief general observations about the rebuttal testimony of the parties. Regarding the specific substantive issues, I address first the proposal to use NCP cost allocations for ComEd's primary distribution facilities. The second major portion of my testimony (as in my direct) discusses several recurring rate design issues where Commission action is required in this investigation -- regional costs of service, ComEd's use of load research data, and demand-related AMI functionality costs.

NON-COINCIDENT PEAK (NCP) COST ALLOCATIONS

1. NCP vs. CP: General Comments, Data, Time Line and Feeder Study

Q. ComEd advises the Commission to reject your suggestion that it has favored business consumers and has not presented a full, objective analysis of NCP allocations. (ComEd Ex. 4.0 at 6:132-134. What is your response to ComEd's remarks?

A. First, ComEd's expression of outrage that anyone might suggest that its cost allocation proposals have favored certain consumer groups is unsupported by history or any rebutting evidence. Second, while I am getting older and my memory is not what it was, I have read ComEd's testimony in its 2008 case, the 2010 case, and now in this case. Through the years, ComEd has presented many arguments in support of NCP and has written testimony that strongly disputes my critiques of NCP. ComEd has not been in any way neutral on this issue. I cannot accept such a re-write of history. I do not believe I have misinterpreted the effect of ComEd's prior and

current testimony on this issue. I am not imagining that I have had to respond on an almost continual basis to the Company's NCP arguments.

Q. Do NCP allocations generally benefit commercial ratepayers in a way that makes repeated proposals for that method from ComEd and commercial consumers favorable to these ratepayers?

A. Yes. I described in considerable details the reasons why NCP allocations are inherently (and unfairly) favorable to heterogeneous commercial consumer classes. I also explained that heterogeneity reduces rates for commercial customers and that NCP has historically been favored by those consumers. When rates were bundled, commercial and industrial consumers vigorously opposed anything that had an energy allocation or charge, rather than a demand allocation and charge (like the average and peak allocation method). Those consumers also have advocated for a minimum distribution approach to certain cost allocations. A third favored position of ComEd's commercial and industrial consumers is the use of NCP allocations, rather than CP allocations, a position ComEd has regularly supported. ComEd has advocated NCP allocations despite the many flaws I discussed in my direct testimony in this case, flaws I have also discussed in earlier ComEd proceedings. ComEd's advocacy for NCP allocations -- ignoring the flaws identified by my testimony and Commission orders, is tantamount to favoring the benefitted commercial consumers.

Q. ComEd dismisses the significance of your time line showing that NCP has been used to set rates for only a small portion of the last 40 years. How do you respond?

A. There is very little substantive information on this point in ComEd's rebuttal testimony that I can respond to. The Company's witness Mr. Leick states:

Though Mr. Bodmer points to the use of marginal cost studies in years gone by, marginal costs have not been used for many years, and I am not familiar with the details of the preparation of that sort of study. Of course, such studies were

173 used when ComEd offered only a bundled service, including generation supply
174 and transmission services. ComEd Ex. 5.0 at 6-7:137-139.

175
176 While Mr. Leick's lack of institutional knowledge (or diligence in researching Company history in
177 his area of expertise) is surprising, the implication that distribution poles and wires somehow
178 had a different allocation in a bundled rate case is simply irritating, as well as false. I can assure
179 ComEd's executives that in a bundled rate case the Company's poles, wires, and substations
180 were allocated on the basis of coincident peak, not NCP. The implication that distribution costs
181 were treated differently when the rates were part of a bundled service process makes no sense
182 at all. The same facilities -- lines, poles, and substations -- were being allocated, using the
183 methods I described. As I wrote in my direct testimony, rates for ComEd's residential
184 consumers were frozen for ten years (from 1998 to 2007), and the only time NCP had any effect
185 on rates was in the short period from the end of the rate freeze in 2007 to implementation of
186 the rates set in ComEd's 2008 case.

187 **Q. Has ComEd used the regulatory ratemaking term NCP in a manner consistent with the way it**
188 **has been used in this case to describe ratemaking allocation options?**

189 **A.** No. What is at best careless usage of various terms could introduce unnecessary confusion into
190 the Commission's efforts to make sense of testimony presenting opposing positions.
191 Perhaps the most flagrant example of shifting meanings is the careless (or deliberate) misuse
192 and confusion of (a) the term non-coincident peak, which is defined on a system-wide basis, and
193 (b) the concept of a regional coincident peak. This terminology confusion was part of data
194 request responses quoted (and potentially relied on) by Staff witness William Johnson. Mr.
195 Johnson testified:

196 [In response to Staff DR WRJ 5.01, which asked if CP or NCP demands are more
197 relevant to ComEd's approach in sizing primary distribution facilities, ComEd
198 stated:

199 The **NCP** load on the individual primary voltage distribution facilities is
200 most relevant for sizing such facilities. . . . ComEd conducts ongoing
201 reviews of its primary voltage distribution facilities and reviews each
202 distribution circuit and substation annually, comparing the **NCP** peak
203 load on those facilities to the allowable rating to determine if any action
204 is necessary to maintain the facilities. Staff Ex. 1.0 at 21:498 (my
205 emphasis).
206

207 In the above response to the data request, ComEd implies that when the load of a distribution
208 feeder is not coincident with the system-wide load, the regional feeder peak is termed NCP.
209 This is very different than the definition of NCP discussed throughout this case and suggested as
210 a basis for cost allocation. A class' NCP is a number that quantifies a **system-wide** event
211 (maximum system-wide class demand), which need not occur at the time of the utility's system-
212 wide coincident peak.

213 The quotation included above clearly refers to a **regional coincident** peak that (if it were the
214 expected regional peak) could determine the sizing of individual primary voltage facilities.
215 ComEd's confusing use of NCP, which has been used throughout this case to refer to system-
216 wide class demand, with coincident peak demand in a regional context could make readers
217 believe that system-wide NCP has something to do with the way its facilities costs are caused.
218 That is not true. The **regional** coincident peak may occur at a different time from the system-
219 wide coincident peak. This does not make it a **system-wide** non-coincident peak. More
220 important, ComEd plans and constructs facilities to meet coincident demand within the region
221 served by those facilities, not to meet NCP -- a system-wide concept. The misuse of critical
222 terms such as NCP, which may have misled Staff, is not acceptable, and it should not be
223 considered in the Commission's determinations. As in too many other instances, ComEd uses
224 language and terms fluidly, where meanings may change to support a particular position. Often,
225 presumably because ComEd is assumed to be most expert in its business, distorted terminology
226 is not questioned.

227 **Q. Does Staff's direct testimony provide a better justification for an NCP cost allocation method**
228 **than ComEd's direct testimony?**

229 **A.** No, it does not. Staff witness Johnson ignores the critical point of the ComEd testimony he
230 quotes to justify his acceptance of ComEd's NCP proposal. ComEd stated in its discovery
231 response that "The NCP load on the individual primary voltage distribution facilities is most
232 relevant for sizing such facilities." Staff Ex. 1.0 at 21:502. It is the load on **individual** facilities
233 that determines the sizing (and costs) of those particular facilities.³ An NCP approach would use
234 contribution to the regional load on specific, individual facilities to allocate the total costs of all
235 similar facilities on the system, even if there is no cost causation outside the measured region.
236 The illogic of that approach is shown by the fact that the sum of the NCPs used to allocate
237 system costs under that method would exceed the actual system load at any time.

238 **Q. Does Staff's testimony offer anything new regarding cost causation by the street lighting**
239 **classes?**

240 **A.** No. Staff's testimony does nothing to show that street lights actually contribute peak load on
241 any feeder in the ComEd system. Based on ComEd's feeder study, Mr. Johnson concludes only
242 that street lighting load **theoretically** "can contribute" to "some portion" of some unidentified
243 feeder's peak load. Staff Ex. 1.0 mat 22:521. Like ComEd, Mr. Johnson acknowledges the
244 inaccuracy (and inappropriateness) of this approach, by immediately proposing an adjustment
245 to reduce the allocation the NCP method would produce. Mr. Johnson's adjustment is larger
246 than ComEd's, a change he attributes to rate impact concerns. Also like ComEd, Mr. Johnson
247 fails to explain why using a method that requires an arbitrary adjustment is superior to the
248 current Commission-approved allocation method. In fact, Staff admits that the NCP method

³ The NCP method ignores the regional (individual feeder) limitation on the scope of cost causation attributable to non-coincident regional loads.

does not provide fair or accurate cost allocations for the Dusk to Dawn street lighting class: “[L]oads from these Delivery Classes [FIL Class and DDL Class] do not normally contribute a substantial amount of load relative to the total peak kW demand on a feeder.” Staff Ex. 1.0 at 22:525. Not one of the advocates for an NCP allocation method demonstrates a sound quantitative basis for the specific subjective adjustments they conclude the NCP method would require.

At the end of the day, Staff states that it does not actually recommend the flawed NCP allocation method to the Commission. Staff merely “does not object” to the ComEd proposal. The Commission also should reject the cart before the horse approach implicit in Staff’s recommendations. Staff would accept ComEd’s proposal for an immediate change in allocation methods, but defer any rigorous study to assess whether the new cost allocations (and rates) are fair and accurate, until ComEd’s next rate design case. Staff Ex. 1.0 at 26:615.

Q. In your direct testimony you alluded to ComEd’s control of regulated service data and the unfair advantages that control can confer. Did the rebuttal testimony reveal any instances of such results in this case?

A. From reading rebuttal testimony of the Staff and other intervenor witnesses, I seem to be the only witness who is questioning the validity or worth of ComEd’s feeder study. My direct testimony emphasized that the study cannot be used as a basis for setting rates. In particular, the study is meaningless for street lighting rates primarily because it does not provide any usage data shown to be associated with street lighting or any other specific ratepayer classes. My assessment that the study is unsuitable for ratemaking is confirmed by the testimony of Mr. Bachman. CTA/Metra Joint Ex. 1.0 at 14:329.

271 Though the top level of data available in Mr. Leick's testimony demonstrates (by itself) a fatal
272 flaw in the study's design, the obstacles ComEd imposed to access the underlying data are an
273 example of the advantages provided by utility control of data collected by and concerning
274 ratepayer funded utility systems, limiting opposition to its positions. The points below illustrate
275 what I mean.

- 276 ■ Even though its feeder study was a major part of ComEd's case, the
277 spreadsheets and data that supported the study were not included in ComEd's
278 initial filing.
- 279 ■ The City asked for the data in a data request (ComEd's response to City DR 1.03
280 is included in City Ex. 2.1). ComEd responded that the data was in fact a work
281 paper and that it was confidential. This is another surprising new way ComEd
282 has changed the usual meaning of customary language. While there is
283 apparently no legal rule, the custom for all parties in Commission cases has
284 been to provide the supporting workpapers for testimony. Even if workpaper
285 documents or data are confidential, redacted workpapers are provided.
- 286 ■ Because ComEd classified all of the feeder study data as confidential, rather
287 than redacting only that portion of the data that is truly confidential, I had to
288 sign a protective order in order to view the data, an unnecessary logistical
289 challenge given that I was in Mongolia (I am not kidding) earlier this year.
- 290 ■ After filing my direct testimony, I submitted revised discovery that pointedly
291 asked for the redacted (non-confidential) documentation one ordinarily expects.
292 Before responding to the discovery request, ComEd provided redacted

293 "supplemental workpapers"⁴ -- but only five days before the deadline for my
294 rebuttal testimony. ComEd response to City DR 2.01 (in City Ex. 2.1).

- 295 ▪ ComEd's feeder study data provides only the date of the annual peak and the
296 peak loads of the feeders. ComEd must have had hourly data that show details
297 of what was happening, such as data detailing the overall hourly patterns on
298 individual feeders, which was not provided. This is an important area to
299 investigate, since anomalies in the data (e.g., sudden spikes) may yield
300 misleading results, while most of the heavy loads occur, as one would expect, in
301 the summer daytime.
- 302 ▪ IIEC witness Robert Stephens appears to have had a different experience gaining
303 access to necessary data. In discussing why loads for one of the very high usage
304 business classes did not result in favorable impacts from NCP, IIEC witness
305 Stevens states: "I have investigated this issue with ComEd. The information that
306 I have received suggests that the customer makeup of this subgroup has
307 changed. My understanding is one or more merchant generators exist, or have
308 moved into, the High Voltage (> 10,000 kW) subgroup." IIEC Ex. 1.0 at 8:108. If
309 ComEd is going to erect obstacles to any data, you would expect it to be for
310 customer data.

311 **Q. How does the testimony from the railroad witnesses confirm your conclusion that there are**
312 **serious problems with the feeder study?**

313 **A.** The Railroad consumers' testimony demonstrates two important problems that confirm that
314 ComEd's feeder study cannot be used as a basis for setting rates. The first and most interesting

⁴ ComEd's "supplemental workpapers" comprise the requested data files (with only feeder names redacted) for the feeder study underlying ComEd's NCP testimony.

testimony is the statement by CTA operational staff that ComEd is overwhelmingly concerned with daytime summer loads when managing its distribution system. CTA/Metra Joint Ex. 1.0 at 10:230-237. (I begged for operational information such as this in data requests (City Ex. 2.1, DR 1.20), but received nothing.

The second piece of testimony that is directly relevant is the report that most feeders serving the CTA do not peak in summer months. CTA/Metra Joint Ex. 1.0 at 10:230-237. Presumably, these feeders do not have much, if any, street lighting load. For any dedicated CTA feeders that do not peak in the summer, the street lights are not contributing to the capacity cost. This confirms that it is absolutely essential to know what kind of load is contributing to the regional feeder peaks, since feeders that actually serve street lights could have regional peak loads that are unaffected by night time street lighting loads.

Q. Elaborate on how the operational issues discussed in the Railroad testimony conflicts with the ComEd feeder study.

A. The following portion of Mr. Bachman's testimony is worthy of repeating:

Based on the testimony of Metra's Mr. Johnson . . . it is very clear that ComEd's system operators who communicate with Mr. Johnson's operation area view the summer period on ComEd's primary line system as the critical time of the year because the ComEd system is under the most operational stress from ComEd customers in the summer. The summer time period is when the flow through to the Railroad traction substations is critical for ComEd. The ComEd operators want uninterrupted access to flow through the traction power substations. CTA/Metra Joint Ex. 1.0 at 10-11: 230-235.

This statement is more important than every single piece of data collected in ComEd's feeder study. This information from real system operations demonstrates that people managing the actual distribution system (and not operating behind desks in ComEd's rates department) do not examine loads at 5:00 AM or in the month of April, as suggested by ComEd's feeder study. The demand in the summer at the coincident peak is the driver of real distribution needs and costs,

as verified by the Railroad testimony. This information from on the ground operations is far more reliable as a basis for setting rates than the odd results from ComEd's feeder study. That real operations information supports use of system-wide CP as the basis for allocating primary distributions costs. The City's requests for this type of real operational information data hit a dead end.

Q. Do you have a comment on the testimony presented by Staff's Mr. Johnson, with respect to the feeder study?

A. I do think a minor statement in Mr. Johnson's testimony is worthy of comment. Mr. Johnson wrote: "ComEd also provided information that indicates: (a) their feeders do not experience their peak demands **consistent with** the date and time of ComEd's system peak." Staff Ex. 1.0 at 24:564-565. The statement (taken from ComEd) highlights one of my biggest concerns with the feeder study. The sum of the peak load on the feeders must be the same as the system-wide coincident peak. This, I hope, is something that we all can agree about --the fact that the sum of the parts must equal the whole. This means that demands on the feeders must, by definition, be consistent with ComEd's summer needle peaking. If there are odd annual peaks on individual feeders that occur in April or at 5:00 AM, these odd peaks must be offset by even more extreme summer peaks on other feeders. It must add up. If it does not, there are problems with the data itself.

Q. Does Mr. Stephens' testimony have implications for the value of ComEd's feeder study?

A. Yes. Mr. Stephens did not like the fact that NCP allocations would increase costs of service for certain large customer classes with few ratepayers in the class. He pointed out that there was an unusual spike around hour 3741, the end of May, in 2014. IIEC Ex. 1.0 at 7-8:100-110. This spike, which Mr. Stephens attributes to the load of a large generator, would appear as a non-summer feeder peak in ComEd's feeder study. I doubt very much that the feeder that moves

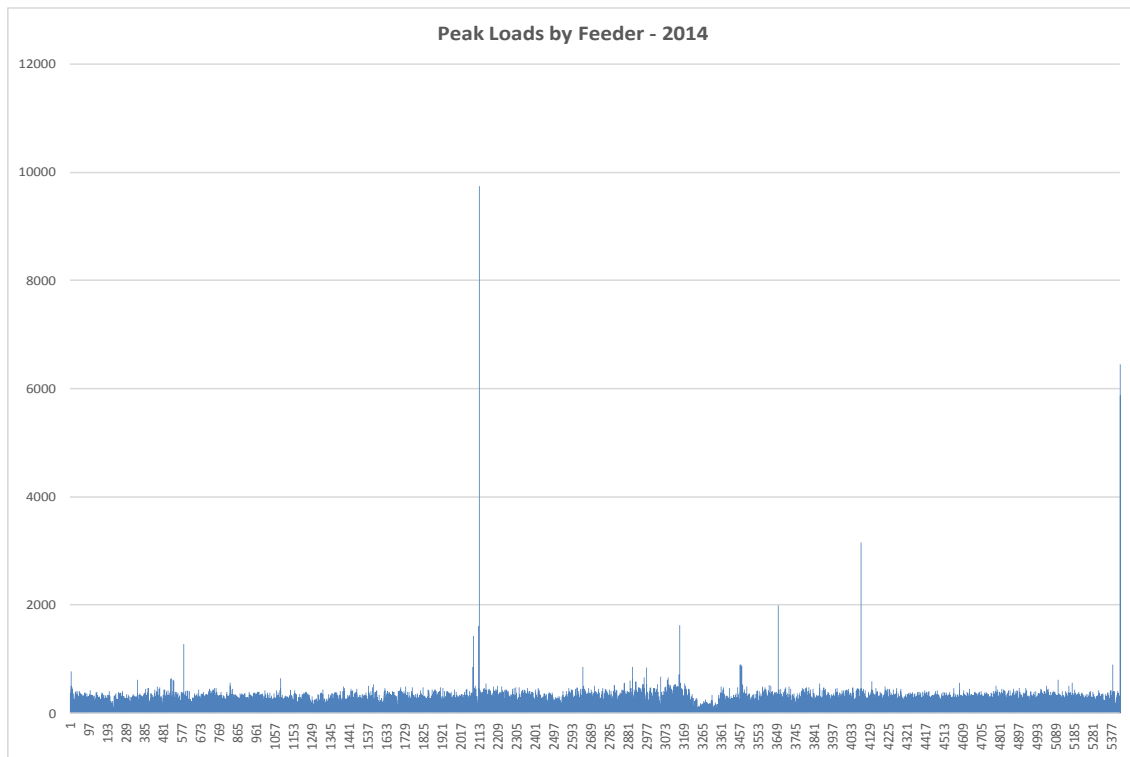
power to Mr. Stephens' merchant plant or that the high peak load from a generating plant was simultaneously serving a whole bunch of street lights. This anomalous load highlights the point that ComEd's feeder study is irrelevant, unless it is accompanied by consumer class data that identifies the cost-causing consumers . We need to know, in particular, whether the feeders with odd peaks serve street lights or not. Until this is known, the feeder study cannot be used in any way at all to set Dusk to Dawn rates.

Q. After finally receiving the ComEd feeder study data, did you find any anomalies that indicate problems with the study?

A. Yes. The data spreadsheets used for the study included no hourly information, no regional information, no customer class information, and no load information. These omissions are problematic for the reasons I have explained. In addition, the little bit of data in the spreadsheets demonstrates other potential problems with the data. The two figures below graph the peak load (the sum of the loads on the three conductors) for each of the feeders. The graphs for 2014 and 2015 demonstrate that the feeder data did not cover the year 2012, in which ComEd reached its highest recent peak. The data demonstrates that some feeders had loads of 35 times the average load. These extreme points could either comprise data errors or exceptional data. Under any circumstance, ComEd must explain such extreme values -- which can distort allocations.

385

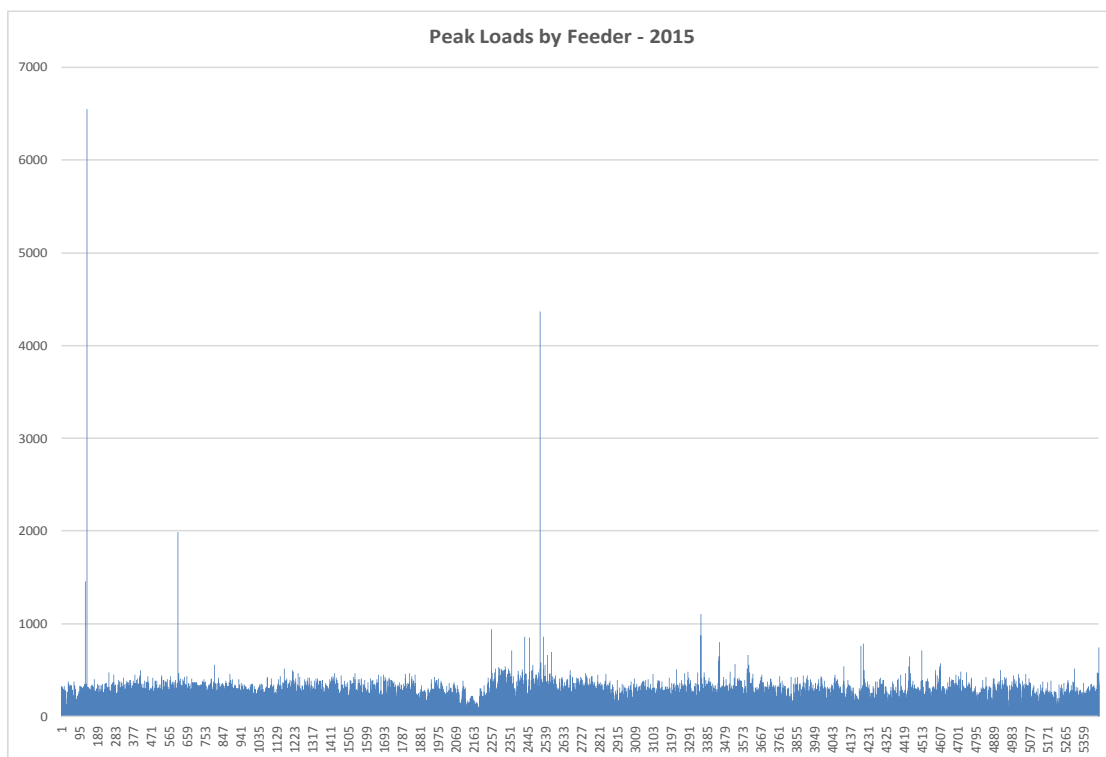
FIGURE 1 - PEAK LOADS BY FEEDER 2014



386

387

FIGURE 2 - PEAK LOADS BY FEEDER 2015



388 **2. NCP versus CP: Effects of NCP Bias**

389 **Q. Did ComEd disagree with or challenge your demonstration of the bias inherent in the NCP**
390 **method?**

391 **A.** Surprisingly no. When asked about his assessment of my conclusion that some delivery classes
392 “have a lower NCP cost allocator due to their operating diversity,” Mr. Leick wrote:

393 I do not dispute the general concept, but do not agree that the difference in
394 peak demands for what he refers to as heterogeneous delivery classes may be
395 as extreme as a ski hill and golf course. Factories and office spaces in most
396 delivery classes typically operate during normal working hours, and the
397 noncoincident demands of the individual customers would typically only vary by
398 a few percent relative to the coincident peak for that delivery class. ComEd Ex.
399 5.0 at 5:98-103.

400 **Q. Do you agree with Mr. Leick that the heterogeneity in those delivery classes is usually not as**
401 **dramatic as your illustrations and that the impact is not very much?**

402 **A.** That is not universally true. The commercial classes also include entertainment venues like
403 arenas or theaters (which can peak on weekends or in the evening), churches (which peak on
404 Sundays), night clubs (which peak at night), restaurants (which peak in the evening), hotels
405 (which peak in the morning) health clubs, and all sorts of other establishments that people use
406 during their non-working hours. As I explained in my direct testimony, when some businesses
407 have load profiles very different from others in the class, the diversity within the class reduces
408 rates for the heterogeneous commercial classes. This is the real reason NCP is so important an
409 issue to commercial classes.

410 **Q. Did you quantify the effects of the bias in NCP in your direct testimony, to test how dramatic**
411 **NCP impacts would be?**

412 **A.** Yes. I anticipated the type of comment ComEd made about the magnitude of the NCP bias when
413 I wrote my direct testimony. To meet any such objection, I made an effort to quantify the effect
414 in different ways. Apparently, ComEd did not get around to that part of my testimony.

415 The best way to quantify the magnitude of the NCP bias is to compare annual billing demand
416 allocation with NCP allocation. This analysis, which I presented in Table 6 - NCP-CLASS DEFINITION
417 ALLOCATION DISTORTION in my direct testimony (City Ex. 1.0 at 38), demonstrated that the Railroad
418 class was harmed by NCP -- not because of the way it uses electricity, but because it has a
419 homogenous load. (ComEd did not respond to our request for annual billing demand because it
420 was apparently too burdensome for the company so I was forced to use old data). I also
421 demonstrated, with a scatter plot, that the benefits of NCP are highly correlated to the number
422 of consumers in the class. City Ex. 1.0 at 36, Fig. 7. With more consumers, there is more
423 diversity and there is higher savings from NCP.

424 **Q. Could Mr. Stephens' anomaly for high voltage consumers be related to the NCP bias?**

425 **A.** Yes. Mr. Stephens seems surprised that some commercial consumers can lose from a change to
426 NCP allocations. He should not be surprised at all. I discussed how the increase to ratepayer
427 groups with a small number of consumers could be expected. Indeed, when I prepared a table
428 showing impacts from NCP in ComEd's 2010 rate case, commercial groups with a small number
429 of consumers had an increase then too. I have replicated the table from the 2010 case, which
430 shows that all of the big consumers with small numbers had a cost increase rather than a benefit
431 from NCP. Mr. Stephens' implication that a new merchant plant is the cause of the negative
432 effects of the NCP method, for that consumer group, does not hold.

TABLE 1 - EFFECT OF CLASS SIZE WITH NCP ALLOCATIONS

	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)

3. NCP versus CP: ComEd Needle Peaking versus Small Summer to Non-Summer Differences of Downstate and Other Utilities

Q. In your direct testimony, you noted ComEd's reliance on the switch from CP to NCP allocations for certain downstate utilities, to support its proposal. Was that change mentioned by other witnesses in this case?

A. Yes. Apparently some parties would have the decisions for much smaller downstate utility companies drive policy in this case. The switch was noted by the IIEC and Staff, as well as ComEd. ComEd argued simplistically that its primary lines do not operate in a manner different from those operated by AIC or MidAmerican. ComEd would have the Commission believe that the fact that both utilities transmit electricity over primary lines is the critical issue in determining an appropriate allocation method. From a cost causation standpoint, the crucial point is how much the peak load in the summer differs from loads during other times.

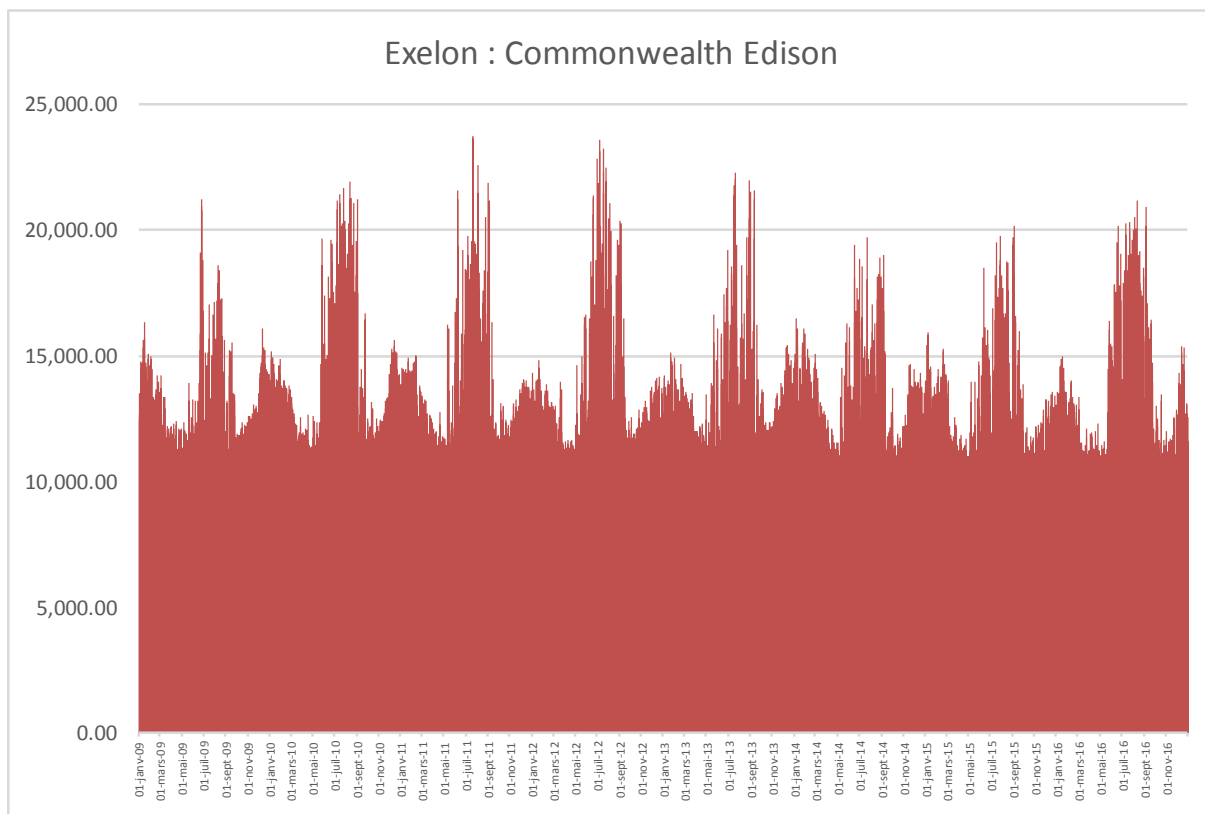
Q. Did you present empirical evidence on the difference between ComEd's needle peaks and the winter peaking tendencies of small downstate utilities in your direct testimony?

A. Yes. My presentation on this point was in an exhibit, and I used companies that have similar rural and small town characteristics to the downstate utilities. To expand my analysis to include additional comparable utilities (for which load data are available), I included utilities from other states. Specifically, I included AEP and Penelec, which likely have similar characteristics to the

452 downstate utilities. I have been told that if I present something in an exhibit, it could easily go
453 unseen or be ignored. I hope this second mention prompts a review of the data supporting my
454 conclusions. ComEd did not present empirical evidence that rebuts my demonstration of
455 relevant differences between ComEd and other utilities. This empirical data on ComEd's needle
456 peaks, and the contrast to the flatter loads of more rural utilities, is far more important than
457 ComEd's simplistic equating of utilities that transmit electricity by wire conductors.

458 **Q. What empirical evidence data can you provide to show that ComEd has distinctive extreme**
459 **needle peaks that occur in the summer?**

460 **A.** When you look carefully at the graph of ComEd load data below, you can see that, in every year
461 of the eight-year period, the peak occurs in the summer, and that the summer peak is far higher
462 than the winter peak (by at least 10,000 MW). While the charted data show dramatic needle
463 peaks, unless we know which consumers are using the feeders with extreme peaks and which
464 consumers are using the winter and April peaking feeders, we know nothing at all that is
465 relevant to cost allocations among classes.

FIGURE 3 - COMED COST DRIVING NEEDLE PEAKS

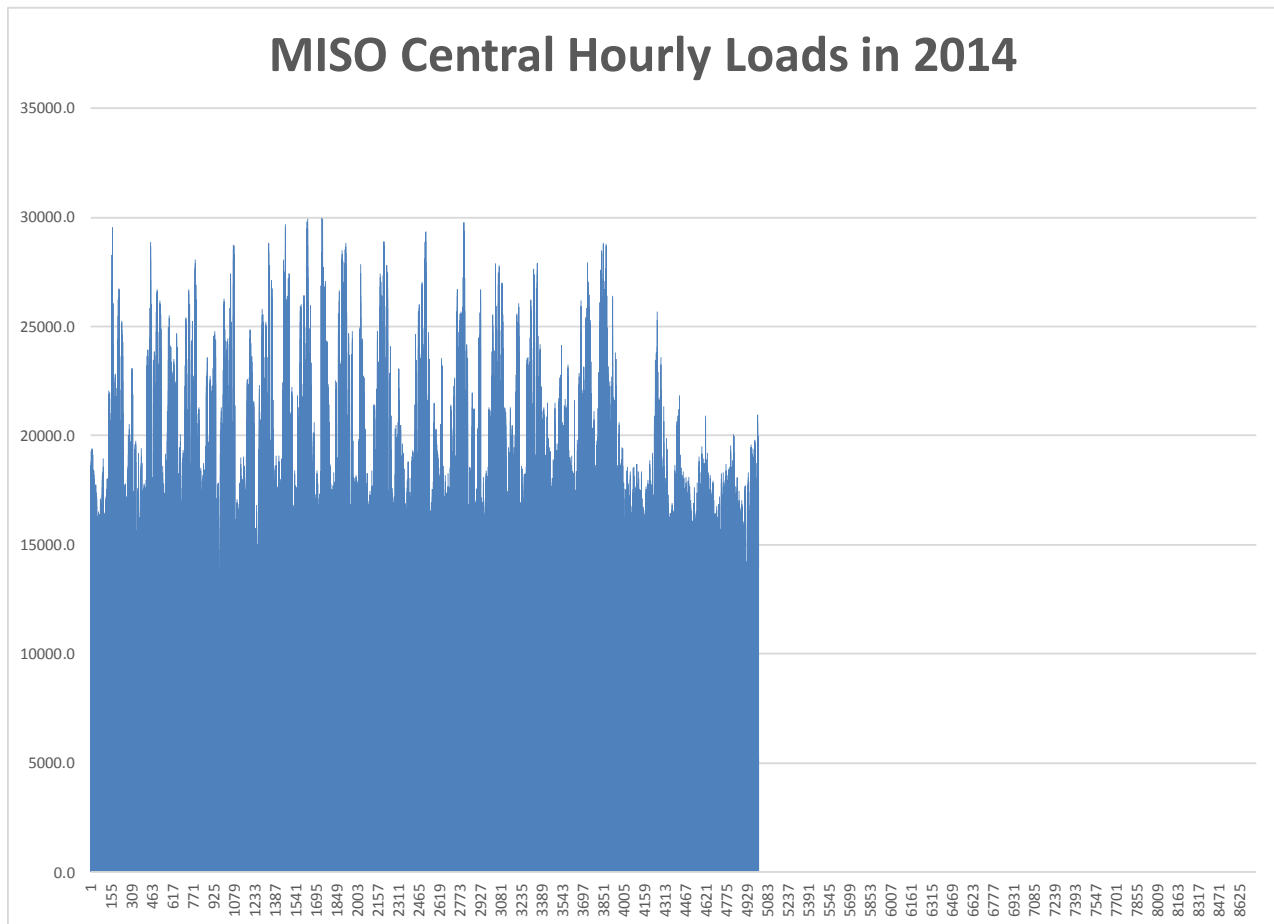
467

468 **Q. Have you been able to prepare the same graphic presentation of data for Ameren?**

469 **A.** No. MISO is far less transparent than PJM and hourly loads for individual distribution utilities
 470 like Ameren and MidAmerican are not presented through its website. That is why companies
 471 like AEP and Penelec are relevant and why I used their load patterns. (I examined other
 472 companies that serve smaller cities and more rural areas than ComEd, and they all had a mix of
 473 summer and winter peaking load.) It should be clear to anyone with a bit of knowledge about
 474 the industry that those firms, and many other companies with data presented in a transparent
 475 manner on the PJM website, are comparable to Ameren. I expect that some parties in this case
 476 will not be inclined to accept this. For those individuals, I did find some data on the MISO
 477 website for MISO Central, which includes Ameren. These data are shown below and
 478 demonstrate that ComEd-like summer time needle peaking is not present.

479

FIGURE 4 - MISO LACK OF NEEDLE PEAKS



480

OTHER RECURRING RATE DESIGN ISSUES

481

1. Regional Peak Costs and Allocations and the RRGAS

482

Q. Does ComEd or the Staff agree with your suggestion that more costs should be allocated on a regional basis?

483

484

A. No. ComEd made some rather moderate statements about preferring that costs not be

485

allocated on a regional basis in its direct testimony. It appears that after receiving support in

486

that position from Staff, ComEd became a lot more aggressive on this issue in its rebuttal

487

testimony. After writing many pages of detail on the regional adjustment that is named RRGAS,

488 ComEd stated in a rather timid way in its direct testimony that: “the Commission should
489 consider rejecting geographical cost allocation studies such as the RRGAS. (line 1055). In its
490 rebuttal testimony, ComEd changed its tone.

491 **Q. In his rebuttal testimony, Mr. Fruehe asserts that you “misinterpreted the reason ComEd**
492 **introduced the RRGAS.” Is the Company correct?**

493 **A.** Possibly. I read ComEd’s long account of working with Metra and CTA to come up with their
494 approach to the regional cost allocation and the description of the mechanics of the regional
495 allocation. Perhaps I did not pay enough attention to ComEd’s mild suggestion that the
496 Commission should consider rejecting the approach.

497 However, my statement that ComEd had “opened a can of worms it has fought to keep closed”
498 was not a comment on ComEd’s motivation, willingness, or intent regarding the study. Rather, it
499 was an observation that ComEd’s production of the study demonstrates, despite claims of
500 impossibility or infeasibility, that ComEd can -- in fact, did - conduct a regional cost of service
501 study. ComEd’s performance of the regional cost study makes an un rebutted statement that
502 such studies can be done, are feasible, and can produce more geographically accurate costs of
503 service. My testimony recommends that such refinements in the accuracy and fairness of
504 ComEd’s ECOSS be extended to other areas with significant, distinctive costs of service.

505 **Q. Do you have any response to Mr. Fruehe’s comparisons to downstate utilities and references**
506 **to decisions in their cases as bases for not taking account of regional cost differences and**
507 **regional cost allocations?**

508 **A.** Yes. As I noted in my direct testimony, reliance on decisions in cases for different utilities, based
509 on different evidence and circumstances, is not a good guide for determinations in this case. In

fact, Mr. Fruehe notes that in the case he references, the utility proposal to abandon regional cost studies was unopposed, so the issue was not thoroughly examined in the case.

My main point (on why there are distinctive regional costs) is not one of economic analysis, engineering considerations, or accounting allocations, and it does not involve comparisons to other Illinois utilities. It is instead related to history. Regions of what is now ComEd's service territory have dramatically different housing stock, distribution equipment, undergrounding practices, and economic prosperity, due to the unique and interesting history of the City of Chicago. Downstate utility companies do not have the dramatic differences in housing density that is a characteristic of the Chicago area and traceable to different waves of immigration. Unique to Chicago are its older bungalow belt of relatively small homes to accommodate European immigration, near large concentrations of extreme wealth in newer surrounding suburbs where increases in distribution costs were required to extend service. These dramatic, distinctive regional characteristics, combined with ComEd's demonstrated ability to make regional calculations, support continued further investigation into regional rates. Differential rates by region are just like the basis for defining any other rate class – the evaluation is whether the cost differences are large enough to warrant a separate class. In the Chicago area, unlike downstate areas, cost differences warrant an investigation of regional costs, and possibly regional rates.

2. Load Research and Full Use of AMI Data

Q. In your direct testimony you pointed out dramatic variations in residential class load factors over recent years, and you contrasted the stability of load factors for classes where ComEd relies on meters instead of load research. Did ComEd agree that the large variances indicate a problem?

533 A. No. ComEd attached its response to City Data Request 1.05. ComEd contends that the response
534 “provides the City with an explanation of how ComEd used AMI data instead of historical load
535 research data in recent proceedings.” ComEd Ex. 5.0 at 3:49-50).

536 **Q. In that response, ComEd states that it discussed sampling of AMI meters in its FRU case and**
537 **referred the City to a description of the some of the data on the ICC’s e-docket system. In your**
538 **view, is this a reasonable way to present load research data that is the basis for ComEd’s**
539 **testimony in this case?**

540 A. No, I do not believe that it is. ComEd states that the information was ComEd’s workpapers
541 supporting ComEd’s position in a recent formula rate case. The information also is, in essence,
542 the workpapers supporting ComEd’s position in its direct testimony in this case. It is my
543 experience at the Commission that workpapers are usually provided to other parties shortly
544 after testimony is filed. I was not involved in the FRU case, and load research from AMI meters
545 should be a central issue in this case. One should not have to play detective to obtain ComEd’s
546 expert witness’ supporting workpapers (from a different case) to find the data relied on this
547 proceeding.

548 **Q. In any case, is the sampling ComEd performed (and discussed in ComEd’s response to City DR**
549 **1.05) reasonable for the purposes for which ComEd used it?**

550 A. I think not. ComEd used a sample of 5,000 meters for the load research for residential non-
551 space heating consumers in this case. This sample includes high and low use consumers. It
552 includes City and suburban consumers. The sample is a tiny fraction of ComEd’s entire ratepayer
553 base. ComEd has a whole lot more residential AMI meters than the 5,000 in its sample. The
554 question that jumps out about this approach is “Why?” After all the investment in expensive
555 AMI meters that capture the sampled data, why would ComEd even engage in sampling instead
556 of using a complete set of data? (If the AMI meters are not complete for a region, it could

perform weightings as explained below.). For commercial ratepayer classes that have real time meters, ComEd does not discuss a sampling approach. For those classes (except for small consumers without demand recording meters), ComEd appears to use comprehensive data for classes.

Q. ComEd made a different calculation of load factors than the analysis you presented in Table 8 - Distinctive Low-Use Consumer Costs, in your direct testimony. ComEd Ex. 5.0 at 19:426. Do you stand by your conclusions and the calculations they are based upon?

A. Yes. Despite small calculation differences (ComEd complained about my use of 8784 (366 x 24) hours in a leap year), both the ComEd data and my data show a dramatic increase in multi-family load factors. My data are taken directly from the ECOSS and translate directly into rate impacts. ComEd's computed load factors showed an increase from 35% to 45%, which is similar to the increase shown by my calculations. Such changes, which remain unexplained by ComEd, strongly suggest a need to validate the data, but ComEd continues to ignore these indicators.

Q. Whether using ComEd's load factors or your load factors, what do the quantitative data show?

A. The data show that ComEd has been overcharging distribution capacity to people in the multi-family non-space class for decades by about 20%. This result cannot be made acceptable by saying "Oops, our research was wrong, and you have been paying way too much for 25 years." The situation is similar for single-family residences, where a large change occurred and now is reversed by a later, further change.

Q. Given ComEd's response to your analysis and the Company's very limited sample of AMI meters, what is your recommendation?

A. I suggest that ComEd be required to use all of the available AMI meter data for 2015 and 2016 in a compliance filing in this docket. Within a couple of months of the order in this case, ComEd

should prepare a detailed report to the Commission, including the proportions of different usage levels and regions that have been used. For example, say all multi-family consumers in the City with usage between 300 kWh per month and 400 kWh month all have AMI meters (100% penetration) but only half of consumers in the suburbs who use between 1,500 kWh and 2,000 kWh have the meters (50% penetration). A factor could then be used to scale up the group that does not have full penetration of the AMI meters.

In the compliance filing, ComEd should also present the impact on affected costs of service to all ratepayer groups from using all the available AMI data. The AMI data should be subject to review by other parties, and used to revise rates through the compliance filing, so consumers do not have to wait another three years to gain the use of ratepayer-funded AMI data.

Q. Does the limited sample of data ComEd used influence the NCP versus CP allocation impacts?

A. Yes. In my direct testimony, I demonstrated that when the NCP method is used, heterogeneity in a class is a big deal that causes a bias against homogeneous loads. In the extreme, if ComEd would only sample a single residential consumer, there would be no heterogeneity in the class and NCP would be very unfavorable to the residential class. The higher the number of ratepayers sampled, the more the heterogeneity in a class that would be captured, changing the cost allocation balance between residential and commercial classes. If the Commission does apply NCP, it is even more imperative that the sample of residential AMI data be increased, to capture in-class diversity.

3. Assigning Costs Associated with AMI Functionality

Q. Does ComEd agree that the costs of AMI functionality must not be imposed as a customer charge?

602 **A.** No. Mr. Leick states that the Company does not agree with the “proposal to assign a portion of
603 the AMI meters costs to the \$ per kWh or \$ per kW DFC for several reasons.” (Line 445).
604 Further, the company has provided some details on why it believes that AMI functionality should
605 be imposed as a customer charge. I appreciate this. ComEd’s detail about what constitutes the
606 justification for its position allows evaluation of whether the applications or benefits the
607 Company identifies that support recovery of the AMI functionality costs should logically be
608 recovered through a customer charge.

609 First, it should not be controversial to acknowledge that utility investment in new residential
610 meter functionality that is specifically designed to measure some novel aspect of consumer
611 usage -- like demand magnitude, or time of usage -- is by definition related to usage or demand.
612 Such costs should therefore be recovered through charges that vary with usage or demand.
613 Each of the applications or benefits that ComEd identifies in its rebuttal testimony is also clearly
614 related to usage or demand. Cost causation requires that those costs be treated as related to
615 usage or demand. In addition, the fairness of the proposed recovery scheme must be
616 considered in rate design. An examination of ComEd’s discussion of functionality and the
617 results for consumers further supports the usage or demand sensitive nature of the investment
618 both from a cost causation and from a fairness perspective. Therefore, as to the claimed
619 benefits for which ComEd asserts these costs provide, I begin by explaining the simple idea that
620 AMI functionality costs can only be imposed as a customer charge when the AMI functionality,
621 its applications, or its benefits have no relation to the size of a consumer. In this discussion, I
622 use size to mean the magnitude of consumer demand or usage. I discuss each of ComEd’s
623 reasons in turn. This simple logical analysis demonstrates that the costs of new AMI meter
624 functionalities over and above standard meter functions and costs must not be imposed on
625 residential ratepayers as a customer charge. In working through ComEd’s claimed benefits from

626 AMI functionality, I demonstrate that ComEd cannot simply declare, for example, that time of
627 use rates mean that AMI functionality costs should be imposed as a customer charge. Some
628 additional brain exercise is necessary.

629 **Q. What is the appropriate logical framework for determining whether the added costs of AMI**
630 **meters over and above the cost of a standard meter should be recovered based on the**
631 **number of consumers or based on the amount of energy consumption or demand?**

632 **A.** The logic is simple. Customer charges impose the same costs on all consumers in a class,
633 regardless of their size (in terms of demand or energy usage). Demand and energy charges
634 impose higher charges for consumers with larger energy usage or demand. This means that if
635 the AMI functionality impacts discussed by ComEd are bigger for larger consumers, they must
636 not be imposed as a customer charge. It is not more complicated than this. This idea was the
637 basis for not imposing demand management costs as a customer charge in the 2008 case.

638 **Q. How do you demonstrate the logic of whether an AMI functionality is related to size or not**
639 **and therefore whether the AMI functionality cost should be included as a customer charge.**

640 **A.** I use a simple example where the same living space is occupied by multiple ComEd ratepayers in
641 one scenario and a single ratepayer large consumer in a second scenario. This example may
642 seem overly simplistic, but over the years I have observed a surprising lack of logic applied by
643 ComEd to argue that various costs should be included in the customer charge. So here is the
644 example. First, imagine a big house that is occupied by a family that uses a lot of electricity – say
645 2,000 kWh per month on average. Next, assume that the original family sells the house, but the
646 house is now separated into two living spaces. When the house is split, assume ComEd defines
647 the separate living areas as two different ratepayers and the company installs two AMI meters.
648 Assume that the two families occupying the split house each use 1,000 kWh per month, or half
649 the amount the original family used. The intention of this simple example is not to represent a

real situation, but to illustrate issues associated with the size of a ratepayer in terms of usage or demand. After the house is split into two parts, the fundamental question is whether two AMI meters provide twice the value from functionality that originally accrued to the single, larger homeowner, as they would pay twice as much in customer charges.

To emphasize how imposition of the costs of AMI functionality is related to the question of whether they are related to the size of a consumer, I have included a diagram that illustrates the issue.



With the split in the house shown on the bottom, I assume there will be now be two AMI meters applied to electricity use that is half of what it used to be. In paying for two meters on the basis of a customer charge, the two halves of the house each pay the full customer charge.

Q. ComEd writes that customer cost treatment is warranted for demand related AMI functionality “because Retail Electric Suppliers (“RESs”) have the option to offer time of use supply options to their customers, ComEd’s meters need to be able to bill based on time of use to support their supply offerings” (ComEd Ex. 5.0 at 20:452-455). Are those energy or demand measurements for RESs related to magnitude and profile of a consumers’ energy use?

A. Yes, the functionalities and impacts discussed by ComEd are clearly related to size, in terms of usage or demand. Any benefit from AMI meters relating to such energy supply plans purchased from a RES involves the consumer’s usage/demand. Application of the AMI functionalities to measure and bill consumers switching to sophisticated RES plans provides benefits that increase with the amount of energy purchased from a RES.

To demonstrate this, return to the simple example of our house that is split into two parts.

Assume the family living there before the house partition receives benefits from securing RES supply and that the AMI meter functionality will result in savings of \$20 per month for this family that used a lot of energy. If the two families who use less energy and live in the separate living spaces of the partitioned house also decide to secure power from the RES (which is far less likely for smaller consumers), assume that each receives a savings of \$10 per month – the lower savings is directly related to the lower usage. If the AMI cost for the RES functionality is imposed as a customer charge, the large consumer pays half as much for the same benefit as the two smaller ratepayers. This is not fair and it is not appropriate ratemaking, just like imposing the

683 cost of distribution poles as a customer charge is not appropriate, because larger consumers
684 receive more benefits from distribution poles than smaller consumers.

685 **Q. Discuss ComEd’s assertion that “time of use measurement is necessary to bill many customers**
686 **that elect the hourly rate which bills with supply charges that vary each hour... [and] ComEd**
687 **has a window of 9 A.M. to 6 P.M. for its billing demand selection, so the time of use is**
688 **necessary for that billing attribute on many nonresidential customers.” ComEd Ex. 5.0 at**
689 **19:450.**

690 A. Time of use rates for nonresidential consumers has no meaning in the context of the issue I
691 discussed in my testimony – the issue of time of use rates for **residential** consumers enabled by
692 AMI meters is potentially relevant. I assume Mr. Leick is referring to residential and not to
693 nonresidential consumers in this statement.

694 Any AMI functionality cost incurred to measure or to bill additional aspects of electricity supply
695 (especially when not required by ComEd’s residential rate) is, without exception, related to
696 usage or demand, not the number of ratepayers. Using AMI functionality to reduce
697 usage/demand charges with time of use rates is more beneficial for people who live in large
698 suburban palaces than for apartment dwellers with minimal usage/demand.

699 In our house partition example, this can be easily demonstrated. Assume before the split of the
700 house, the family that uses a lot of energy could adjust various large appliances to save money
701 from time of use rates. Assume that the savings from changing energy usage result in reduced
702 bills of \$20 per month for the large user. If the smaller ratepayers use less energy with smaller
703 appliances, there will be smaller potential for savings from time of use rates, say at most \$10 per
704 month (the small consumers will also be much less likely to opt for time of use rates). As in the
705 previous example, if the AMI meter functionality is imposed as a customer charge, the small

consumers must pay twice as much to receive the same aggregate benefit. Once again, imposing the cost of AMI functionality as a customer charge is unfair and inappropriate. Imposing the cost of AMI functionality as a customer charge would be like imposing the cost of substations that are related to the size of usage as a customer charge rather than a demand or energy charge.

Q. Comment on another of ComEd’s stated reasons for treating demand related functionality as a customer cost -- that “Demand measurement is necessary to bill a majority of nonresidential customers.” ComEd Ex. 5.0 at 19:447.

A. Billing a majority of nonresidential consumers has no real meaning in the context of the issue I discussed in my testimony. To be clear, my recommendation focuses on residential class consumers and I did not consider the effects of AMI meters on nonresidential consumers. I assume the ComEd statement refers to residential ratepayers.

In terms of measuring demand, there may be a debate as to the value of tabulating demand rather than energy for residential consumers, given the correlation between the two. If there is indeed some information benefit from measuring demand (coincident demand, of course), it would accrue to ComEd and the all ratepayers in aggregate because of changed usage patterns. For an individual consumer, this benefit is received in proportion to amount of energy or demand used (not to the customer costs of billing and reading meters). In our partitioned house example, assume hypothetically that because of better demand measurement, ComEd reduces aggregate rates by \$5 million per year. As the benefit is not related to customer costs, it will reduce the electric bills of people in relation to the amount of energy or demand they use. The family who lived in the entire house and used a lot of energy would receive twice the benefit of the two families who moved into the partitioned houses. But if each of the two families pays for

the AMI meter functionalities through an imposed customer charge, the smaller ratepayers pay twice as much to receive the same overall benefit. As with the other AMI functionalities, when the benefits accrue as a function of the size of a ratepayer in terms of energy use, the cost of AMI functionality cannot be imposed as a customer charge. Imposition of customer charges to capture the novel usage or demand measurements that result in benefits that vary on usage is unfair and not appropriate.

Q. ComEd continues its review of AMI functionality applications, which ComEd asserts justify customer charge treatment of their costs, by discussing demand management programs. Does this application justify customer charge treatment?

A. ComEd asserts that the Company “experiences the same costs for AMI meters for both participants and nonparticipants in demand management programs, and must have a meter ready that is capable of offering available demand response programs for the State mandated demand response and hourly supply pricing programs.” ComEd Ex. 5.0 at 20:462. Any demand management program is related to demand and use. Indeed, the Commission has already ordered ComEd to allocate costs associated with demand management programs, like Nature First, as energy costs. To understand this benefit of AMI functionality, first consider the case of vacation homes that do not use energy, except in August. If you do not use any electricity, you will not get any benefits from demand management.

The option to voluntarily participate in programs rather than be forced to participate in the programs aggravates the size issue. It is far more likely that people who use a lot of energy will participate in the programs because there is more energy to save. This is analogous to buying a financial option on a stock. If you buy an option with a payoff of \$100, you will pay more for it than an option of \$50. If ComEd is granting ratepayers the option to participate in demand

management through the AMI meters, larger consumers are receiving a more valuable option than smaller consumers.

To demonstrate why demand management benefits of AMI meters cannot be imposed as a customer charge, consider again the house partition example. Assume the two smaller consumers after the house partition participate in demand management programs as does the larger consumer. The demand management programs operate by reducing demand and energy, which is a function of the amount of energy or demand that can be reduced. We can assume the aggregate demand management benefits will be the same for the single large consumer as the aggregate savings are for the two smaller consumers. If AMI functionality cost is imposed as a customer charge, the two small consumers will pay twice as much to receive the same demand management benefit. This is not fair ratemaking policy.

Q. ComEd's final argument points to outage notification benefits of the AMI meters. Is the cost of this functionality properly treated as a customer cost?

A. Again, no. At page 20, line 463 of his rebuttal testimony Mr. Leick stated:

Outage notification functionality is based on number of customers and has no relation to the usage level of the customer. For example, if 1,000 customers lose power, the 1,000 AMI meters will send 1,000 notifications to ComEd. The meters will not send a different notification depending on the customer's usage patterns or participation in demand management programs.

That argument is the only instance where ComEd attempts to exercise any logic at all. But their logic is flawed -- and wrong. In ComEd's ECOSS, costs for outage activities (like trucks, staff, and equipment) are all part of ComEd's capacity costs and not its customer costs. The costs are allocated to ratepayers as demand or energy charges. To the extent that AMI meters offset some of these costs or enhance reliability, the cost reductions also should also be reflected in ComEd's capacity costs. Return for the final time to our partitioned house hypothetical. As the large customer before partition uses two times much energy, the value of avoiding the outage is

778 two times as great as for the two smaller consumers. It is the value to the consumer and the
779 offsetting capacity costs that must drive the ratemaking and not number of notifications. Even
780 though two consumers are notified, the value of these two notifications is the same as the single
781 notification for the single larger consumer.

782 **Q. Is your recommendation that demand related costs for AMI meter functionality be allocated**
783 **and recovered as usage/demand costs (not customer costs) a departure from the cost**
784 **allocation principles traditionally applied by ComEd and the Commission?**

785 **A.** No. In fact, Mr. Leick explained in his direct testimony that: “The customer charge is a fixed
786 dollar per month (“\$/month”) charge that historically has been designed to recover certain fixed
787 costs that ComEd incurs to provide standard electric service. The customer charge is designed
788 to recover costs associated with standard service connections, billing, payment processing, and
789 other customer services activities.” ComEd Ex. 2.0 at 30:549 -552. I do not believe any of the
790 applications of AMI functionality ComEd identified as justifications for customer charge
791 treatment fit Mr. Leick’s description of costs that the customer charge “historically has been
792 designed to recover.”

793 **Q. Does that conclude your rebuttal testimony?**

794 **A.** Yes.