City Ex. 1.2
ICC Dkt. 17-0049
(37 pages, incl. cover)

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

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

REBUTTAL TESTIMONY OF EDWARD C. BODMER ON BEHALF OFTHE CITY OF CHICAGO

CITY EXHIBIT 2.0

DECEMBER 30, 2010

QUALIFICATIONS AND SUMMARY OF TESTIMONY

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

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

Q. Have you previously filed testimony in this case?

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

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

A. My testimony addresses four issues.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Q. Please describe the contents of City Exhibit 2.1.

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

advantage. Since actual distribution costs do not depend on the definition of customer classes, allocation on the basis of NCP is not logical.[1]

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

[1] 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.

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

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

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

> Q. Does any party contend that ComEd's use or application of CP to allocate primary lines and substations costs is in any way inconsistent with the Commission Order in the Rate Design Investigation proceeding?
>
> A. No. In fact, Mr. Stowe's thorough review of the rationale for the use of CP to allocate such costs begins by noting that "this allocation is arguably consistent with the Rate Design Investigation Order." (IIEC Ex. 3.0, 20:457). Thus, what is at issue here is that these parties seek Commission reconsideration of the use of CP to allocate these costs, ***which ComEd appreciates and supports***.

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

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

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

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

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

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

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

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

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

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

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

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

Rate Design Order at 55.

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

Do you agree with Mr. Stowe's assertion?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The NARUC Cost Allocation Manual describes the concept of "equipment peak" as follows:

> The concept of peak load or "equipment peak" for each piece of distribution equipment can be understood by considering line transformers. If a given transformer's loading for each hour of a month can be calculated, a transformer load curve can be developed. By knowing the types of customers connected to each load management transformer, a simulated transformer load profile curve can be developed for the system. This can provide each customer's class demand at the time of the transformer's peak load. Similarly, an equipment peak can be defined for equipment at each level of the distribution system. … This method should reflect different load diversities among customers at each level of the distribution system.

Id. at 98.

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

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

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

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

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

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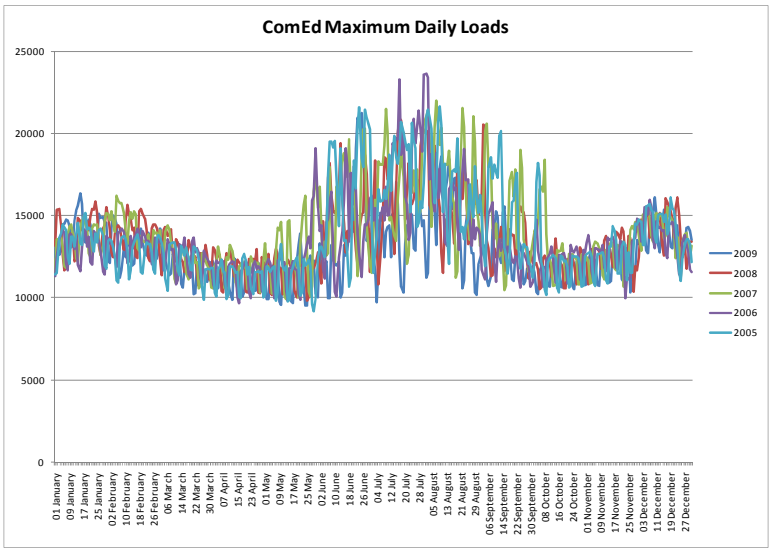

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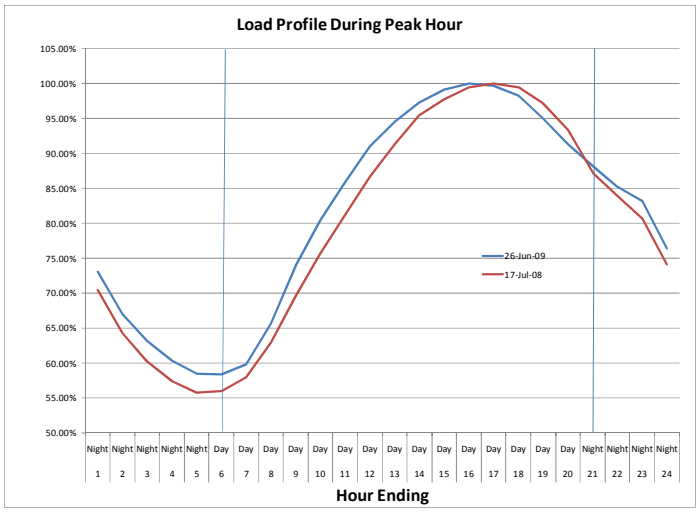

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Chicago Sunrise and Sunset in July

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

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

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

> …for a particular customer class … the increase in peak demand on the distribution system due to a 1 kW increase in the maximum demand of the class. The peak demand on the distribution system is referred to as the non-coincident peak demand."

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

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

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

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

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

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

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

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

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

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

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

	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

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

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

[2] This table was derived from ComEd's data request response to the Commercial Group -- CG 1.02 SUPP_Attach. 2.

with different numbers of customers and that have meters capable of measuring demand. Note that the railroad class has only two customers and little possibility for diversity. For the railroad class, NCP is particularly unfavorable. However, for 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)

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

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

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

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

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

Q. Do you find Mr. Alongi's presentation persuasive?

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

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

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

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

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

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

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

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

SECONDARY COST OF STREET LIGHTING

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

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

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

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

Q. Mr. Alongi testifies that you were "dissatisfied" with ComEd's "proposal." ComEd Ex. 49 at 19, LL 431-432. Is this an accurate representation of your testimony?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

COMED'S CUSTOMER CHARGE PROPOSAL

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

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

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

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

A. Dr. Hemphill writes:

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

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

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

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

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

UNCOLLECTIBLE ACCOUNTS

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

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

* * *

Q. Does this conclude your rebuttal testimony?

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