STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

Commonwealth Edison Company	)	
	)	ICC Docket No. 13-0387
Tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue neutral tariff changes related to rate design authorized by subsection 16-108.5(e) of the Public Utilities Act	)	

DIRECT TESTIMONY
OF

HARRY L. TERHUNE

ON BEHALF OF THE COALITION TO

REQUEST EQUITABLE ALLOCATION OF COSTS TOGETHER

REACT

COMPRISED OF:
A. FINKL & SONS, CO.
AUX SABLE LIQUID PRODUCTS, LP
CHARTER DURA-BAR
THE CITY OF CHICAGO
COMMERCE ENERGY, INC.
FLINT HILLS RESOURCES, LP
FUTUREMARK PAPER COMPANY
INTEGRYS ENERGY SERVICES, INC.
INTERSTATE GAS SUPPLY, INC.
THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO
PDV MIDWEST REFINING, LLC (CITGO)
UNITED AIRLINES, INC.

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I.

INTRODUCTION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Harry L. Terhune. My business address is Terhune Consulting LLC, 5 W. Central Rd. #206, Mt. Prospect, IL 60056.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the coalition to Request Equitable Allocation of Costs Together (collectively, "REACT").[1] REACT brings together some of the largest and most well-known industrial, commercial, and governmental energy users in the Northern Illinois area, along with alternative retail electric suppliers that

[1] The REACT members include: A. Finkl & Sons, Co.; Aux Sable Liquid Products, LP; Charter Dura-Bar (f/k/a Wells Manufacturing, Inc.); CITGO Refinery; The City of Chicago; Commerce Energy, Inc.; Flint Hills Resources, LP; FutureMark Paper Company; Integrys Energy Services, Inc.; Interstate Gas Supply, Inc.; The Metropolitan Water Reclamation District of Greater Chicago; PDV Midwest Refining, LLC (CITGO); and United Airlines, Inc. The opinions herein do not necessarily represent the positions of any particular member of REACT.

provide service to customers in the Commonwealth Edison Company (“ComEd”) service territory.

Q. What is your occupation?

A. I am an independent consultant. My firm is Terhune Consulting LLC, which began business in 2006, and my principal focus has been on consultation with electric utilities in relation to planning, operation, and reliability matters affecting their transmission and distribution systems. I also have contributed to the work of other consultants on their specific projects, including work for Edison International; Infrasource Technology (now part of Quanta Technologies); and R. M. Hansen & Associates (forensics). I have worked with REACT since ICC Docket No. 10-0467 (the "2010 ComEd Rate Case").

Q. Please summarize your educational background and professional experience.

A. I graduated from the University of Notre Dame in 1967 with the degree of Bachelor of Science in Electrical Engineering, and from the Illinois Institute of Technology in 1975 with the degree of Master of Science in Electrical Engineering. I am a Professional Engineer licensed in the State of Illinois. For the period from 2000 until March 2010, I was certified as a Reliability Operator by the North American Electric Reliability Corporation (“NERC”), the entity charged with enforcing transmission reliability rules. I am a Life Senior Member of the Institute of Electrical and Electronic Engineers and an Individual Member of CIGRE, the International Council on Large Electric Systems.

I was employed by ComEd for more than thirty-one (31) years, from 1967 to 1998. During that period, I held a wide variety of engineering and technical management positions, starting as a field engineer and local area planner and ending as the Manager of the Transmission and Distribution Planning Department. In that role, I was responsible for planning for the entire ComEd transmission and distribution system, i.e. from the 765 kV transmission lines and substations down to service to local retail customer areas.

From 1998 until 2000, I was employed by the Mid-America Interconnected Network ("MAIN") as its Assistant Executive Director; MAIN at that time was one of nine Regional Reliability Councils that made up NERC. From 2000 through 2005, I was employed by American Transmission Company LLC ("ATC"), the owner and operator of the high-voltage electric transmission system in the Eastern two-thirds of Wisconsin, the Upper Peninsula of Michigan and a small portion of Illinois. At ATC I held the title of Vice President-Operations, and had responsibility for real-time operations, design and construction, maintenance and protection; and later, transmission planning. Since the beginning of 2006, I have been the owner and President of Terhune Consulting LLC.

My resume and a more detailed professional biography are attached hereto as REACT Ex. 2.1.

Q. During your employment with ComEd, did you gain any experience or work in any fields that are relevant to this testimony?

A. Yes. The following areas of ComEd experience are particularly relevant:

- Engineer in field distribution design and local area distribution planning (Chicago North Div. 1967-1969);
- Transmission planning (System Planning, 1969-1972);
- Division Engineer, as department head responsible for planning and design of distribution facilities serving all classes of customers; Northern Div., 1976-1977; Chicago Central Div. (including the Chicago Loop area), 1977-1982;
- Transmission and Distribution Training and Methods Superintendent, 1988-1989;
- System Planning Manger, with responsibility for planning the high-voltage system, including involvement with high-voltage customers, 1990-1997; and
- Transmission and Distribution Planning Manger, with responsibility for planning both the transmission and distribution systems, 1997-1998.

Q. Do you have experience in all elements of the energy delivery system from power leaving the generator, through the transmission and distribution systems, to ultimate delivery to retail customers at their utilization voltage?

A. Yes. Of particular relevance is my experience with ComEd's practices of providing either standard service ("Standard Service") (as discussed further herein) or, for a customer's convenience and benefit, providing "non-standard" or "optional" forms of service ("non-Standard Service"). A key component of my work at ComEd involved ensuring that, while offering individual customers flexible forms of non-Standard Service, other customers receiving Standard Service from ComEd do not subsidize the additional costs caused by customers

receiving non-Standard Service. My experience with this issue is directly relevant to cost allocation issues that impact rate design in this case. These practices are particularly important for customers in ComEd's "Extra Large Load Delivery Class" (referred to herein as the "ELLC" class) and "over 10 MW High Voltage Delivery Class" (referred to herein as the "HV Over 10 MW" class) ; customers such as these often have need for unique and complex service facilities that may differ from ComEd Standard Service for customers with their demand characteristics.

Q. What is your current relationship, if any, with ComEd or its parent, Exelon?

A. I do not have an on-going professional relationship with ComEd or Exelon. I receive certain retirement benefits and own a small amount of Exelon stock.

Q. Please describe what parts of your ATC experience are relevant to this case.

A. At ATC, I was periodically involved with transmission service arrangements to the retail customers of ATC's local distribution companies, customers who required high voltage service connections, and for which questions of standard versus required service arose. Of course, because most of my work was based in Wisconsin, the particulars were different, but the concepts remained similar.

Q. Have you testified in a regulatory proceeding before?

A. Yes. As a ComEd employee, I presented testimony to the Illinois Commerce Commission ("Commission"), to committees of the Illinois legislature, and to the

Federal Energy Regulatory Commission ("FERC"). As an ATC employee, I presented testimony to the Public Service Commission of Wisconsin and to FERC. Most recently, I testified on behalf of REACT in the 2010 ComEd Rate Case. A list of proceedings in which I have provided testimony is attached to this testimony as REACT Ex. 2.2.

Q. **Was any of your testimony in the 2010 ComEd Rate Case relevant to the issues in this proceeding?**

A. Yes. Portions of my Direct Testimony, Rebuttal Testimony, and Oral Testimony on cross-examination in ComEd's 2010 Rate Case, as well as my Affidavit in support of REACT's Offer of Proof in that case, addressed aspects of the then-existing rate design which had discriminatory effects on ELLC and HV Over 10 MW customers are relevant to this docket. Accordingly, my Corrected Direct and Corrected Rebuttal Testimony from the 2010 ComEd Rate Case are incorporated by reference herein as if they were attached hereto in REACT Exs. 2.3 and 2.4, respectively. The excerpt of the Transcript of the Evidentiary Hearing in 2010 ComEd Rate Case containing my Oral Testimony is incorporated by reference herein as if it was attached hereto in REACT Ex. 2.5, and my Affidavit in support of REACT's Offer of Proof in the 2010 ComEd Rate Case is incorporated by reference herein as if it was attached hereto in REACT Ex. 2.6.

II.

PURPOSE OF TESTIMONY AND GENERAL CONCLUSIONS

Q. What is the purpose of your testimony?

A. My testimony has four basic purposes. My testimony

(1) Discusses the allocation of the Shared Distribution Lines component of retail delivery service costs to the ELLC class and the HV Over 10 MW class under ComEd's Embedded Cost of Service Study ("ECOSS"). Consistent with the basic cost causation principle of assigning the costs to the cost-causers, which has been repeatedly endorsed by the Commission, only those facilities and related expenses reasonably associated with service to a particular class of customer should be assigned to that class, and the costs of those facilities and expenses should only be assigned to the extent that class utilizes such facilities;

(2) Explains that under ComEd's current tariff structure, ComEd has violated basic cost causation principles by over-allocating the costs of certain distribution system components to the ELLC and the HV Over 10 MW classes;

(3) Quantifies the extent of such over-allocation to the ELLC and the HV Over 10 MW classes; and

(4) Recommends straight-forward ways in which the Commission should correct the undue burden that ComEd has placed upon the ELLC and HV Over 10 MW classes.

Q. How does your testimony approach those objectives?

A. First, my testimony reviews the major elements of the ComEd power delivery system and the degree to which each of ComEd's customer classes use and benefit from those system elements. Second, my testimony sets forth in more detail the Shared Distribution Lines component of ComEd's delivery system, its key components, and the degree to which ComEd's customer classes use and benefit from those components. Third, my testimony analyzes the data made available since the close of written testimony in 2010 ComEd Rate Case. This additional data had not been available in prior rate cases, but is directly relevant to the allocation of costs arising from the Shared Distribution Lines portion of the delivery system to the customer classes, especially the ELLC and HV Over 10 MW classes compared to the other classes. Finally, my testimony contains recommendations for the basic steps that the Commission should take to correct the misallocation of certain Shared Distribution Lines related costs to the ELLC and HV Over 10 MW classes.

Q. What should the Commission do to address this misallocation of costs to the ELLC and HV Over 10 MW customer classes?

A. The Commission should ensure that the ECOSS used to set the delivery services rates does not assign to the ELLC and HV Over 10 MW customer classes any costs associated with facilities that are not be used to provide service to those customers. For the facilities that the ELLC and HV Over 10 MW customer classes only use to a de minimis extent, those facilities should be charged only in

proportion to use of such facilities, compared to the use of those types of facilities by other customer classes.

III.

OVERVIEW OF THE COMED DELIVERY SYSTEM

Q. Please categorize the key elements of the physical delivery chain that transports electricity from generators and external markets to end-use customers, and the relationship of those elements to ComEd's customer classes.

A. In general, the following are the key elements relevant to the facilities upon which ComEd's standard retail delivery service charges are based:

1. **Bulk Electric System**. This consists of the extra-high voltage and high voltage interconnected system owned by ComEd that integrates generation resources and makes those resources available for delivery. ComEd delivery charges associated with this portion of the ComEd system are derived from FERC jurisdictional tariffs. All ComEd retail and wholesale customers benefit from the bulk electric system.

2. **The Transmission Voltage Delivery System**. This consists of transmission facilities owned by ComEd at voltages from 345 kV through and including 69 kV, which transport power and energy from the bulk electric system to areas within the ComEd service territory, but which are not included in FERC-jurisdictional facilities. This system includes community (not individual customer) substation facilities that transform power between two or more transmission-level voltages. All ComEd retail customers benefit from the transmission voltage delivery system, as do certain wholesale customers (e.g., municipal electric systems) within the ComEd service territory.

3. **Distribution Substation Facilities**. This consists of facilities that transform power from a transmission voltage to a primary distribution voltage (less than 69 kV, higher than 2 kV)[2] to supply primary voltage distribution lines. All

[2] Because of legacy practices from prior to the merger of Commonwealth Edison and the Public Service Company of Northern Illinois in the 1950's, the nominal 4 kV system is typically 2,160/3,740 V in Chicago and 2,400/4,160 V outside Chicago; similarly, the

ComEd retail customers, except those receiving power to their property only at a transmission voltage, benefit from distribution substation facilities.

4. **Primary Distribution Lines** (also known as **Feeders** or **Circuits**). This consists of lines that transport power at a nominal primary distribution voltage (*e.g.*, 34 kV, 12 kV, 4 kV) from a distribution substation to the vicinity of a customer's property. This category of facilities is referred to in the ComEd ECOSS as "Shared Distribution Lines." ComEd retail customers benefit from primary distribution lines to differing degrees depending upon their load characteristics and customer class.

5. **Distribution Transformers**. This consists of transformers on or near customer property that transform power from a primary distribution voltage to a lower, generally secondary distribution voltage (*e.g.*, a transformation from 12 kV to 480 V). Distribution transformers are characterized as "community transformers" when they are on public property, a ComEd right-of-way, or a ComEd easement, and are able to serve multiple customers; or as electric service stations ("ESS"), which are located on a customer's property and serve only that customer. Community transformers generally serve a small number of single and/or three-phase customers at voltages below 480 V and benefit those customers. An ESS transformer benefits only the customer on whose property it is located and that it serves.

6. **Distribution Secondary Lines**. This consists of electric conductors, either single or three-phase, operating at a voltage below 2 kV (typically 120/240, 208, or 480 V) on public property, a ComEd right-of-way, or a ComEd easement, that are able to serve multiple customers. Distribution secondary lines only benefit customers receiving secondary voltage service from community transformers.

7. **Secondary Service Conductors**. This consists of conductors owned by ComEd and operating at secondary voltages, which connect community transformers or distribution secondary lines to an individual customer at the customer's utilization voltage. Secondary service conductors from the transformer of an ESS to a customer at the customer's utilization voltage are not owned by the customer, not ComEd. Each secondary service conductor benefits only the customer to whom it is connected.

Q. You state that the above characterizations are for "standard" retail delivery service. What is "Standard Service"?

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nominal 12 kV system may be 6,900/12,000 V in Chicago and 7,200/12,470 V outside Chicago, with exceptions around the fringes. The nominal 34 kV system operates typically at 20,000/34,500 V, generally outside Chicago.

A. Standard Service is a term defined in ComEd's Terms and Conditions, on Original Sheet 155 as follows:

> A standard distribution facilities installation provided by the Company for a retail customer includes distribution facilities adequate to provide, at a single delivery point, the electric power and energy required by such retail customer. However, in certain individual situations, more than one delivery point is provided in a standard distribution facilities installation if the Company determines that the provision of such multiple delivery points is more economical, efficient or reliable than an installation with a single delivery point. . . . The electric power and energy requirements of a retail customer equal the highest MKD [maximum kilowatts delivered] established by such retail customer during the twelve (12) preceding monthly billing periods at a power factor of not less than eighty-five percent (85%) lagging.

Q. Do all retail customers of ComEd receive Standard Service?

A. No. ComEd has long had a policy of trying to be flexible in accommodating customers' service requirements, even if those requirements differ from Standard Service. It has been ComEd's practice to segregate and separately recover the revenue requirements of "non-standard" or "optional" facilities ("non-Standard Service"), to the extent that those revenue requirements exceed the revenue requirements of Standard Service. ComEd has a mechanism known as "Rider NS - Nonstandard Services and Facilities" ("Rider NS") for recovery of costs related to provision of non-Standard Service.

As the name suggests, non-Standard Service includes the services and facilities that ComEd provides for the benefit of an individual customer that are in excess of or different from Standard Service. The costs of non-Standard service, to the extent in excess of Standard Service, are segregated from the costs for Standard Service, and billed separately under Rider NS, to avoid having customers taking

Standard Service from subsidizing a customer taking non-Standard Service. Conversely, because a non-Standard Service customer is paying for the non-Standard Service facilities individually under Rider NS, it is important that the segregated costs of those facilities not be included in base rates – otherwise ComEd would be double-recovering for those facilities. Rider NS deals with ComEd-owned facilities that are on or in the immediate vicinity of the property of the individual Rider NS customer being served.

Q. How is Standard Service determined for any customer class and for customers within that class?

A. The General Terms and Conditions of ComEd's Tariff (Original Sheet No. 155), as noted above, provide:

> A standard distribution facilities installation provided by the Company for a retail customer includes distribution facilities adequate to provide, at a single delivery point, the electric power and energy required by such customer. However in certain individual circumstances more than one delivery point is provided in a standard distribution facilities installation if the Company determines that the provision of such multiple delivery points is more economical, efficient or reliable than an installation with a single delivery point.

Beginning on Sheet 166 of the Tariff, standard secondary service voltages are defined.

Q. In general, how do retail customer classes relate to the Standard Service voltages?

A. Generally, the relationship between voltage and Standard Service is as follows:

- The residential classes receive single-phase three-wire service at 120/240 V or 120/208 V.

- Nonresidential customers with up to 600 kW in any half-hour period are eligible to choose from among a variety of secondary service voltages; these are defined on Sheet 167 and range from 120 V, two phase wire to 480 V, three or four phase wire service, plus a very limited option for deep-well pumps of 2,400 V three-phase, 3-wire service. These secondary service voltage options apply to the nonresidential Small Load and Medium Load customer classes, and also Large Load class customers with between 400 and 600 kW of half-hour monthly demand.

- For all nonresidential customers in the Large Load and Very Large Load classes with half-hour demands in the range from 600 kW up to 4,500 kW the standard secondary service voltage is 277/480 V three phase, 4-wire.

- For nonresidential customers with demands which exceed 4,500 kW, the Standard Service voltage is 2,160/3,740 V three phase or higher. This group includes the upper end of the Very Large Customer class (4,500 kW up to 10,000 kW). It also includes all customers of the ELLC class (those with half-hour demands exceeding 10,000 kW (i.e., over 10 MW)).

- The HV Over 10 MW class of customers, by definition having a MKD in excess of 10 MW, receives some power at transmission voltages (69 kV or greater) and often also from distribution lines at other voltages.

Q. What elements of the physical delivery chain that are used to provide Standard Service are normally used to provide electric service to all classes of customers?

A. The relationships are generally as follows, tracing the flow of electricity from the bulk electric system down through the primary distribution lines:

- All customer classes utilize the bulk electric system and the transmission voltage delivery system.

- All customer classes except the High Voltage class customers (to the extent that they predominantly receive their electricity at a transmission level voltage, 69 kV or greater) utilize the distribution substations.

- All customer classes except the High Voltage class customers utilize the primary distribution lines to some extent. Many High Voltage customers also receive some power via primary distribution lines in addition to that received from transmission voltage lines.

Q. Do all customer classes except the High Voltage class utilize the primary distribution lines to some extent?

A. Yes. Primary distribution lines leave their source distribution substation utilizing three-phase high-capacity "main stem" electrical conductors (overhead wires or insulated underground cables). As the lines progress out into the territory the high-capacity portions of the lines may be connected or "tapped" by lower capacity wires/cables serve smaller loads, radially out from the high-capacity wires/cables. The lower capacity "taps" may be either single, two or three-phase.

Q. Is there a way to more easily picture the way in which the various components interrelate?

A. To envision how the pieces of ComEd's distribution facilities fit together, it may be helpful to draw an analogy to a large tree. The bulk electric system and high voltage transmission system would equate to the trunk of the tree. The three-phase high-capacity primary distribution lines would be the largest branches of the tree. The single phase, two-phase, and low-capacity three-phase lines would be analogous to the smaller branches radiating out. Secondary voltage lines and services would be analogous to twigs at the ends of the smaller branches.

Q. Please explain how the various customer classes are connected to the components of the distribution system.

A. All primary voltage customers benefit from the high-capacity "main stem" portions of distribution lines. Customers receiving single-phase service voltage may be connected to the lower-capacity "taps," including taps that have only one phase present. Nonresidential customers with standard three-phase service generally require two-phase or three-phase distribution lines and single-phase taps are incapable of adequately providing that type of Standard Service. Two-phase distribution lines can normally only handle single-phase customers and customers with small three-phase loads, generally below about 300 kW. Customers in the ELLC and HV Over 10 MW customer classes generally require only three-phase Standard Service.

Q. So, are you saying that not all portions of primary distribution lines are capable of meeting the Standard Service requirements of all classes of loads?

A. Correct. Not all portions of primary distribution lines are capable of serving all standard varieties of secondary service voltages and related customer demands, which means that not all portions of primary distribution lines are capable of meeting the Standard Service requirements of all classes of loads. In particular, only facilities with certain minimum voltage, current-carrying capability, and phase requirements are suitable to serve the Standard Service requirements of customers with demands in excess of 10 MW that are connected to primary

distribution lines . That is, for customers with demands of over 10 MW, Standard Service generally means facilities with high-capacity, main-stem feeder capability.

Q: When you refer to the ELLC and HV Over 10 MW classes, how do they differ from other classes and from each other?

A: An ELLC class customer has a minimum coincident demand in excess of 10,000 kW, or 10 MW, at a single customer property location. Under ComEd's tariffs, this can be a single point of service, or, under non-standard service terms, may represent a number of points of service all totaling to a demand of more than 10 MW. For multiple points of service to be treated as a single customer, they must all be on contiguous pieces of property as defined by ComEd. The terms of ComEd's non-standard service tariff properly account for any additional costs arising at this customer site from multiple on-property points of service, multiple voltages, etc. to prevent subsidization by other customers.

The HV Over 10 MW class customer similarly has a coincident demand in excess of 10 MW. However, the HV Over 10 MW class customer differs from the ELLC class customer in that at least one point of service at the HV Over 10 MW class customer's property is served at a transmission-level voltage, i.e., at or above 69,000 volts (69 kV).

Q. **Do all ELLC and HV Over 10 MW customer class members receive Standard Service?**

A. No. It is common for customers in these classes, with loads in excess of 10 MW, to require, for their own purposes, forms of service different from Standard Service. An example might be a factory complex or refinery with multiple processes spread over multiple buildings on a large site; such a customer often requests multiple points of service which could be operating at different customer utilization voltages, requiring a number of different ComEd transformations from the primary distribution voltage to customer utilization voltages. Furthermore, the customer may require direct primary voltage points of service without ComEd transformations, or, in the case of HV Over10 MW customers, transmission voltage point or points of service. Generally the primary distribution lines feeding such customers will be three-phase high-capacity main-stem feeders at 12 kV or 34 kV. Sometimes, such a customer may have a need for very small points of service such as a guard shack, parking lot lights, signage, etc., which may be fed from single-phase transformers connected with single-phase conductors to nearby three-phase lines. The cost of the on-property or immediately adjacent transformer and connection facilities, to the extent that they exceed Standard Service costs, are covered by Rider NS. Such applications, for the ELLC and HV Over 10 MW classes, amount to just a de minimis use of such facilities.

Q. Are there off-property costs that could arise from primary distribution voltage lines serving customers with multiple and/or non-standard points of service that are not covered by non-Standard Service charges?

A. It is possible that some costs, beyond those normally applicable to Standard Service, could arise between the distribution substation and the customer's location. ComEd noted this possibility in ComEd's 2010 Rate Case, and my rebuttal testimony in that proceeding explained that such usage of single-, two-phase, and 4 kV facilities by ELLC customers is de minimis. The additional data provided by ComEd since my rebuttal testimony was filed in the 2010 Rate Case has confirmed my conclusion.

IV.

THE IMPACT OF THE ADDITIONAL AVAILABLE DATA

Q. Has additional data become available regarding the utilization of specific distribution facilities by ELLC and/or HV Over 10 MW customers?

A. Yes. Beyond my qualitative descriptions in previous testimony, information has become available through data requests in this proceeding that make it possible to demonstrate quantitatively the de minimis nature of utilization of certain components of the primary distribution system, specifically, 4 kV circuits and single- and two-phase components of circuits at all primary distribution voltages (4, 12, and 34 kV).

Q. What categories of quantitative data have you been able to analyze in this proceeding?

A. There are three general categories of data that ComEd has provided in this proceeding that were not provided in the prior proceedings.

(1) ComEd provided an additional level of detail of the facilities that are included and excluded in its Shared Distribution Line costs. Specifically, ComEd provided detailed transformer facilities data for ELLC customers under Rate NS. (*See* ComEd Response to REACT Data Requests 1.01 and 1.02, attached hereto as REACT Ex. 2.7.)ComEd also provided a breakdown of how many circuit miles of distribution line were single-, two-, and three-phase, and whether they were overhead or underground lines. (*See* ComEd Response to REACT Data Request 1.05, attached hereto as REACT Ex. 2.8.) ComEd further provided a breakdown of how many conductor miles of underground distribution lines were direct buried, or underground in conduit. (*See* ComEd Response to REACT Data Request 1.06, attached hereto as REACT Ex. 2.9.) With this data, it is possible to calculate "circuit miles" for each category in the analysis, allowing for a straight-forward comparison of the costs.[3]]

(2) ComEd provided additional detail regarding the usage of specific facilities by customers in the ELLC and with HV Over10 MW customer classes. ComEd provided listings of all meters and transformer locations associated with ELLC and with HV Over10 MW customers, their associated peak and off-peak demands, and to the extent available in ComEd's records, their related service voltage and transformer connection data. (*See* ComEd Response to REACT Data Request 1.08, attached hereto as REACT Ex. 2.10.)

[3] Circuit miles are the geographic length of a circuit or segment of a circuit, regardless of how many phases are present. One mile of a one-, two-, or, three-phase circuit segment is one circuit mile. However, for example, one mile of a two-phase circuit segment equates to two conductor miles; one mile of a three-phase circuit segment equates to three conductor miles, etc.

(3) ComEd provided details regarding the costs for single-, two- and three-phase lines. That is, ComEd provided representative cost data for new construction single-, two- and three-phase overhead, underground direct buried and underground in conduit distribution line construction. (*See* ComEd Response to REACT Data Request 1.11, attached hereto as REACT Ex. 2.11.)

Q. What is the impact of that new quantitative data on your analysis?

A. In short, the new data confirm that the ELLC and HV Over 10 MW customer classes receiving Standard Service, or receiving non-Standard Service via Rider NS, either do not use certain types of facilities, or only use them to a de minimis extent, and thus should either not be charged for those facilities or should be charged only in proportion to that de minimis use of such facilities compared to the use of those types of facilities by other customer classes.

Q. Looking at the ELLC class, what common ComEd primary distribution line voltages are capable of providing Standard Service to an ELLC customer?

A. ELLC class customers would require 34 kV or 12 kV lines to adequately provide Standard Service. As ComEd stated in its Response to Staff Data Request PL 2.08 in ICC Docket No. 10-0467:

> The amount of electric power and energy required by a customer in the Extra Large Delivery Class and Railroad Delivery Class would qualify the customer for a primary voltage service connection which would typically be a 12 kV or 34 kV service point in order to provide enough capacity for a service connection at a single delivery point or more than one service point to the same customer property in some circumstances.

(ICC Docket No. 10-0467, ComEd Response to Staff Data Request PL 2.08, a copy of which is attached hereto as REACT Ex. 2.12.)

Q. Would 12 kV single-phase or two-phase primary distribution lines ever be adequate to supply Standard Service to an ELLC class customer?

A. No. Three-phase service is standard for the ELLC class of customer.

Q. Would the portions of three-phase 12 kV distribution lines that have conductors of a capacity significantly lower than the "main stem" capacity of such lines ever be adequate to supply Standard Service to an ELLC class customer?

A. No. The current-carrying capability of such lines would be insufficient to supply loads in excess of 10 MW.

Q. Would 4 kV three-phase, two-phase, or single-phase primary distribution lines ever be adequate to supply Standard Service to an ELLC class customer?

A. No.

Q. Would secondary distribution lines, as you defined them above, ever be adequate to supply Standard Service to an ELLC class customer?

A. No.

Q. Would secondary voltage service conductors from secondary distribution lines or a community transformer ever be adequate to supply Standard Service to an ELLC class customer?

A. No. Standard Service to an ELLC customer class customer would be from an electric service station on customer property supplied by 12 kV or higher primary distribution lines; the customer pays for and owns the service conductors from the transformer in an electric service station into the customer's premises.

Q. Would any such categories ever be used to provide non-Standard Service to an ELLC or HV Over 10 MW customer class customer?

A. The requirements of non-Standard Service often involve multiple voltages and forms of service connections, but Rider NS provides for payment of the incremental revenue requirements of non-Standard Service facilities at the customer's location, above those of Standard Service, by the customer receiving such service. Thus, even if there are ELLC or HV Over 10 MW class members that receive those types of non-Standard Services at the customer's location, it would be completely inappropriate to include these costs in developing the costs to be allocated to the class. Any allocation of the cost of related off-property facilities with costs in excess of Standard Service, and not subject to Rider NS or other reimbursement mechanism, should be restricted in proportion to the de minimis level of actual utilization of such facilities by the ELLC or HV Over 10 MW classes of customers.

Q. Given this information, is REACT proposing that ComEd base charges on actual facilities serving specific individual customers of these two classes?

A. No. ComEd's allocation of charges to each of the customer classes should be in proportion to the utilization of those types of facilities (e.g., single-phase circuit elements, 4 kV, etc.) by the class as a whole. Preferably, in a reasonable time, based on some statistically valid sampling analysis, but initially using approximations, using the means discussed below.

Q. What are your findings from examination of the transformer connections of ELLC customers receiving non-standard service under Rider NS in the reply to REACT Data Request 1.01?

A. Based on the sample received from ComEd, it is clear that the ELLC customers simply do not use certain facilities that are included in the Shared Distribution Lines category of ComEd's ECOSS. Their amount of connections to ComEd's distribution system using the 4 kV circuit and single- and two-phase circuit connections is truly de minimis amount -- less than one percent of the total kVA of connections utilized by the overall group of forty-six (46) customers.

Q. Please explain how you analyzed the Rider NS data that was provided by ComEd.

A. ComEd provided data for forty-six (46) ELLC customers receiving service under Rider NS (Non-standard Services and Facilities). I looked at each transformer location for each customer. I identified whether the transformer location was

connected as single-phase (serving single-phase load), two-phase (commonly called "open delta," serving single-phase and small, delta-type, three-phase loads), or three phase (either a three-phase transformer or three single-phase transformers connected to serve a three-phase load). I then summarized the total kVA of transformer capacity connected in each category, i.e., single-, two- or three-phase connection. I also looked at the primary distribution service voltage serving each transformer location and the transformer capacity served from each voltage (4, 12, and 34 kV).

Q. What calculations were you able to make based upon that analysis of the Rider NS data provided by ComEd?

A. From the ComEd data, as summarized in REACT Ex. 2.13, attached hereto, I derived the following conclusions:

a. 4 kV transformer connections amounted to less than one per-cent (0.55%) of the kVA of all transformers, while 12 kV and 34 kV transformer connections amounted to 77.7% and 21.8%, respectively, of all transformers.

b. Single- and two-phase connections amounted to less than one per-cent of the kVA of all transformer connections (0.19%).

c. For the sample received from ComEd, 4 kV circuits and single- and two-phase circuit connections amount to a de minimis utilization by the ELLC customers analyzed, with the kVA transformer capacity associated with either being less than one percent of the total kVA of connections utilized by the overall group of forty-six (46) customers.

Q. What are your findings from examination of the transformer connections of HV Over 10 MW customers receiving non-Standard Service under Rider NS in the reply to REACT Data Request 1.02?

A. ComEd provided data for only two customers in its reply to REACT Data Request 1.02. I analyzed this data in the same manner as REACT Data Request 1.01, described above. In this case, one customer had a bank of three 15 kVA single-phase transformers in a three-phase bank, and also one 1500 kVA three-phase transformer; all fed at 12 kV. The second customer had three 25 kVA single-phase transformers in a three-phase bank and one 25 kVA single-phase transformer providing single-phase service; all fed at 12kV. There was no 4 kV service to either customer. Single- or two-phase service amounted to just 1.5% of the total of 1645 kVA of transformers reported in the data request. While this is a very small sample, it does comport with de minimis utilization of single or two-phase or 4 kV facilities by the HV Over 10 MW class.

Q. Please explain what analysis you performed using the demand and transformer connection data provided by ComEd for the ELLC class.

A. In the case of the ELLC customers, I analyzed ComEd data from eight hundred sixty eight (868) transformer or primary meter points encompassing one thousand six hundred eighty four (1,684) individual meters as set forth in ComEd's Response to REACT Data Request 1.08. I looked at the peak and off-peak recorded demand for each meter associated with a given high-voltage, primary

voltage or transformer location, as well as analyzing the transformer connections reported for that location. There were some discrepancies in the data, for example some small transformers had reported demands vastly in excess of their kVA capacity. In my analysis, I treated such high demands as three-phase loads. I treated any demand with no transformer designation as a three-phase primary metered load. I consolidated any location with three single-phase transformers connected together as a three-phase transformer location.

Q. What calculations were you able to make for the ELLC class using the demand and transformer connection data provided by ComEd?

A. My calculations confirmed use of 4 kV circuits and single- and two-phase circuit connections by ELLC customers is de minimis. Both the kVA transformer capacity and demands associated with 4 kV circuits and single- and two-phase circuit connections was less than one percent of the total kVA or demand of connections utilized by the overall group of forty-six customers. The results were similar for both on-peak and off-peak calculations. Specifically, I derived the following specific conclusions for the ELLC customer locations, summarized at page 1 of REACT Ex. 2.14, attached hereto.:

a. 4 kV transformer locations amounted to less than one percent (0.14%) of the demand of all locations served from primary distribution lines (4, 12, and 34 kV). In addition, 4 kV transformer locations amounted to less than one percent (0.29%) of the connected transformer kVA served from such lines.

b. Single- and two-phase transformers accounted for less than one percent (0.17%) of the demand of all points served from primary distribution lines (4, 12, and 34 kV). In addition, single- and two-phase transformer connections accounted for less than one percent (0.29%) of the connected kVA of transformers served from such lines.

Q. Please explain the analysis you performed using the data provided by ComEd for the HV Over 10 MW customers.

A. In the case of the HV Over 10 MW customers, I analyzed ComEd data from one hundred thirty five (135) transformer or primary meter points encompassing two hundred thirteen (213) individual meters, as set forth in ComEd's Response to REACT Data Request 1.08. I examined the peak and off-peak recorded demand for each meter associated with a given high-voltage, primary voltage or transformer location, as well as the transformer connection reported for that location. There were some discrepancies in the data, for example, some small transformers had reported demands vastly in excess of their kVA capacity. To be conservative in my analysis I treated such high demands as three-phase loads. I also treated any demand with no transformer or without a "HIGH VOLTAGE" designation as a three-phase primary metered load. I treated any transformer location or service point with total metered demands over 10MW as a "HIGH VOLTAGE" point of service, even if not so designated by ComEd. I consolidated any location with three single-phase transformers connected together as a three-phase transformer location. I excluded all demand marked or judged by

me to be "HIGH VOLTAGE" and served at a transmission voltage from the distribution primary voltage level demand computations; consequently, all demand remaining was served from primary distribution lines.

Q. What calculations were you able to make for the HV Over 10 MW customer class using the demand and transformer connection data provided by ComEd?

A. My calculations confirmed use of 4 kV circuits and single- and two-phase circuit connections by the HV Over 10 MW customers that receive some service from primary distribution lines is de minimis. The kVA transformer capacity for either the 4 kV or the single- or two-phase connections is around two percent of installed kVA, and the demands associated with either is less than one percent of the total demand of connections utilized by the overall group of one hundred thirty five service locations. The results were similar for both on-peak and off-peak calculations. Specifically, I derived the following conclusions for the HV Over 10 MW customer locations, summarized in REACT Ex. 2.14, Page 2:

a. 4 kV transformer locations amounted to less than one percent (0.20%) of the demand of all locations served from primary distribution lines (4, 12, and 34 kV). In addition, 4 kV transformer locations amounted to slightly more than two percent (2.14%) of the connected transformer kVA served from such lines.

b. One- and two-phase transformers accounted for less than one percent (0.37%) of the demand of all points served from primary distribution lines

(4, 12, and 34 kV). In addition, single- and two-phase transformer connections accounted for slightly more than two percent (2.22%) of the connected kVA of transformers served from such lines.

c. The low percentage utilization based on demand calculations is more representative of the true de minimis use of 4 kV and of single- and two-phase facilities, as the effect of points served at primary distribution voltages (where customer owned transformers are used) are not included in the percentage transformer kVA calculations.

Q. What were your findings from analyzing the circuit mileage data for single-, two- and three-phase primary distribution lines and their representative new construction costs?

A. ComEd reported on the number of circuit miles of primary distribution lines in the ComEd system as follows:

Line Type	Single Phase	Two Phase	Three Phase	Total
Overhead	13,444	3,770	17,710	34,924
Direct Buried UG	14,262	1,808	10,580	26,650
UG in Conduit	368	25	3,304	3,697
Total	28,074	5,603	31,594	65,271

(*See* ComEd Responses to REACT Data Requests 1.05 and 1.06, attached hereto as REACT Exs. 2.8-2.9.) The total single- and two-phase mileage is 33,677; that is 51.6% of all circuit miles. That percentage, when compared to the less than 1%

utilization of single- and two-phase circuits to serve the loads of the ELLC or HV Over 10 MW class customers as demonstrated above dramatically shows that under ComEd's ECOSS, the ELLC and HV Over 10 MW customer classes have been improperly assigned substantial costs. Furthermore, single- and two-phase direct buried mileage is 16,045, or 80% of all direct buried circuit mileage; while underground circuits in conduit are almost entirely three-phase.

In short, ComEd's ECOSS fails to assign the costs of single- and two-phase circuits to the cost-causers. The result is that the he ELLC and HV Over 10 MW customer classes are improperly cross-subsidizing the other classes of customers.

Q. Your analysis shows that the ELLC and HV Over 10 MW customer classes utilize single- and two-phase circuits for only about 1% or less of their requirements. How does the present rate design apply single- and two-phase distribution line costs to their rates?

A. ComEd's ECOSS, as reflected in the present rate design, inaccurately presumes that all retail ComEd customers receiving power via primary distribution lines fully utilize the single- and two-phase facilities, as well as three-phase facilities, in proportion to their demand. This means that the ELLC and HV Over 10 MW classes bear the costs of the single- and two-phase distribution line facilities at a level 50 to 100 times their actual proportion of use.

Q. What costs are associated with the "Shared Distribution Lines" component of the ComEd ECOSS, to be allocated to customer classes?

A. The costs associated with service from primary distribution lines are represented in the ComEd Embedded Cost of Service Studies ("ECOSS") as a line item titled “Shared Distribution Lines”. That item includes the costs of all the primary distribution lines between distribution substations and the electric service station or community bank transformers or primary service connection at the customer’s premises, except any separately paid for by individual customers under Rider NS or similar reimbursement plans. It is a mixture of overhead poles and conductors, underground cables, direct buried trenches, conduit, manholes, vaults, and various line accoutrements (e.g. lightning arresters, fuses, switches, circuit reclosers, etc.). These costs are included in various accounts under the Commission’s Uniform System of Accounts (e.g. account 364, poles; 365, overhead conductors; 366, conduit; 367, underground conductors, etc.). However, in a broad sense, the costs in those accounts are driven by the relative unit cost and length of one-, two-, and three-phase circuits historically constructed, installed, commissioned, and placed in service in the field. Of course, each type of construction, overhead as well as direct buried or conduit-type underground, has its own cost profiles and related weighting factor to contribute to the total cost included in the plant accounts and ultimately in the facilities that determine customer cost allocations. Naturally these costs represent the depreciated cost of numerous different plant additions over many years, at their original costs plus overhead at the time of installation, depreciated to the current day. However, it is possible to gain an approximate picture of what proportion of the total shared distribution lines cost item arises from each type of construction and number of phases installed, by way of a proxy

using the miles of line by type of construction and phase times the current representative ComEd cost of new construction.

Q. Can you describe your analysis of ComEd's reply to REACT Data Request 1.11 and how the typical new construction cost data relates to the installed circuit miles by phase and the costs presently allocated to the ELLC and HV Over 10 MW customer classes?

A. I performed this proxy calculation and it is described in REACT Ex. 2.15, attached hereto. The result, in summary, is as follows:

Phase	Line Type	Circuit Miles	Cost@new rates	Percent of Total Cost
1	OH	13444	$2,480,192,140.80	15.71%
2	OH	3770	$907,814,793.60	5.75%
3	OH	17710	$5,765,191.555.20	36.53%
1	UG-DB	14262	$1,948,549,743.36	12.35%
2.	UG-DB	1808	$331,980,042.24	2.10%
3.	UG-DB	10580	$2,566,318,656.00	16.26%
1	UG-Condt.	368	$92,624,716.80	0.59%
2	UG-Condt.	50	$6,292,440.00	0.04%
3	UG-Condt.	3304	$1,684,989,250.56	10.68%
Grand Total		65271	$15,783,953,338.56	100%
1 & 2 Phase Total		(15.71+5.75+12.35+2.10+0.59+0.04%)		36.54%
3 Phase Total		(100-36.54%)		63.46%

This indicates, in broad terms, that more than about a third of the costs being allocated to the ELLC and HV Over 10 MW customer classes under the "Shared Distribution Lines" category represents costs of single- and two-phase facilities. However, actual utilization of single- and two-phase facilities by these customer classes showed that their actual use is less than 1% compared to 99% for three-phase facilities.

Thus, the plant costs allocated to the ELLC and HV Over 10 MW customer classes for their use of primary distribution lines under the category "Shared Distribution Lines" should be reduced by ComEd by about one third to reflect that those classes do not utilize single- and two-phase facilities that contribute to the overall cost of "Shared Distribution Lines".

ComEd Has Misallocated Shared Distribution Lines Facilities Costs to the ELLC and HV over 10 MW Classes

Q. What conclusions do you draw from the fact that the 4 kV and single- and two-phase facilities you describe above would not be adequate to provide Standard Service to ELLC class customers?

A. The following types of utility distribution plant should be excluded from cost allocations to the ELLC class, except to the extent of and in proportion to the de minimis utilization of such facilities by the class:

- Single-phase or two-phase primary voltage overhead or underground line sections;
- Any 4 kV primary voltage overhead or underground line sections;
- Any secondary distribution line sections; and

- Any secondary voltage service conductors.

In other words, the costs recovered from the ELLC customer class customers should not include the Distribution Secondary Lines, and Secondary Service Conductors, and selected de minimis facilities in the primary voltage distribution lines ("Shared Distribution Lines") discussed above.

Q. Are these costs currently included in the costs allocated to the ELLC customer class in ComEd's ECOSS?

A. Yes.

Q. Are you proposing to alter ComEd's overall rate base or revenue requirement in any way?

A. No. ComEd should be entitled to full recovery for costs incurred related to necessary and prudent investments. However, under my understanding of the Commission's commitment to cost causation principles, facilities that are either not used or are used only to a de minimis degree by the ELLC and HV Over 10 MW classes should be excluded from the allocation to those classes or limited to a level proportional to the de minimis utilization by the classes.

Q. Is it reasonable to ask ComEd to further investigate methodology for the allocation cost of providing primary voltage distribution service to the ELLC and HV Over 10 MW customer classes?

A. The Commission's Order in ICC Docket No. 08-0532, (the "2008 Special Investigation Proceeding"), directed ComEd to modify its embedded cost of service study to more accurately reflect the underlying cost drivers of allocation to each customer class. The Order gave particular attention to the ELLC customer class.

In ComEd's 2010 Rate Case, in the Supplemental Direct Testimony of ComEd Witness Mr. Alongi (ComEd Ex. 21.0), Mr. Alongi was asked:

> Can you describe the categories of costs in ComEd's compliant primary/secondary analysis for which ComEd used actual available data from its electronic systems and performed manual reviews and the associated dollars related to each situation?

(ICC Docket No. 10-0467, ComEd Ex. 21.0 at 24:402-404.) In his answer, Mr. Alongi described an effort by ComEd to utilize its electronic systems (e.g. ComEd's CEGIS geographic information system) and manual inspection to examine, for example, the proportion of utility poles supporting primary distribution conductors, secondary distribution conductors, or a combination, in order to allocate not only the wire involved but the poles, switches, lightning arresters, etc. to the appropriate category. (*See id.* at 24:405-26:465.) The ComEd records also show conductor sizes, number of conductors, number of phases, etc. present, as well as length of conductor, etc. (*See id.*) The techniques ComEd employed to achieve the limited objective of a primary/secondary facilities split apparently could readily be applied to determine what primary

voltage facilities exist that are or are not appropriate to render primary voltage distribution line service to ELLC and HV Over 10 MW class customers, and the degree to which they contribute to costs. The result should be used to adjust the proportional allocation of "Shared Distribution Lines" to those customer classes in ComEd's ECOSS, and ultimately, to their final rates.

Q. Based on this analysis, what should the Commission conclude about the way in which ComEd's ECOSS allocates the costs associated with primary and secondary voltage line facilities?

A. ComEd's current misallocation of primary and secondary voltage line facilities which are generally inadequate to serve the standard requirements of ELLC and HV Over 10 MW class customers is egregiously unfair. It also seems to be inconsistent with the Public Utilities Act, which states, "Charges for delivery services shall be cost based, and shall allow the electric utility to recover the costs of providing delivery services through its charges to its delivery service customers that use the facilities and services associated with such costs." (220 ILCS 5/16-108(c).) That statement regarding charges being "cost-based" charges appears to call for a higher degree of fairness and accuracy in the allocation of revenue requirements to each customer class.

The Commission Should Address ComEd's Misallocation to ELLC and HV Over 10 MW Customer Classes

Q. Does ComEd have the ability to identify the facilities that are improperly included in the costs assigned to the ELLC and HV Over 10 MW customer classes?

A. ComEd should be able to identify the facilities that should be excluded from the revenue requirements of the ELLC and HV Over 10 MW customer classes and reallocated to other, more appropriate classes. ComEd's CEGIS system contains a significant amount of detail regarding the facilities, and ComEd's testimony in its 2010 Rate Case and its subsequent actions regarding the study ComEd undertook to create the exemplar primary/secondary split support the conclusion that ComEd has this capability.

Q. What specifically about ComEd's testimony in the 2010 ComEd Rate Case and ComEd's subsequent actions suggest that ComEd has the ability to identify the facilities that are improperly included in the costs assigned to the ELLC and HV Over 10 MW customer classes?

A. ComEd demonstrated through its analysis for consideration of a primary rate category that it, through a combination of internal and consultant resources has the capacity to perform such a statistically valid study. Furthermore, ComEd commissioned a study by Christensen Associates Energy Consulting in compliance with the Commission Order in the 2010 ComEd Rate Case which demonstrated its ability, utilizing the consultant, to carefully examine both

physical facilities in the field and ComEd plant, commercial, and operating records. The study did not address my concerns in this testimony of degree of utilization, but did demonstrate statistically valid sampling techniques and study personnel qualified to interpret data from the ComEd system. That study confirmed the reasonable accuracy of ComEd physical plant records and, similarly, no physical field review of ComEd facilities would be required.

Q. To what extent should the principles that you have recommended above be considered for HV Over 10 MW customers?

A. For the HV Over 10 MW class, the same principles of exclusion from revenue requirements of plant equipment inappropriate for Standard Service to the customer class should be applied to the retail delivery service charges to HV Over 10 MW customers for that proportion of their load served from primary distribution lines rather than from high voltage lines.

Q. What level of allocation modification would be appropriate for the ELLC and HV Over 10 MW customer classes?

A. Based on my analysis of the information that ComEd has now provided, the appropriate approximate adjustment to remedy the over-allocation of costs of "Shared Distribution Lines" to the ELLC and HV Over 10 MW customer classes would be to reduce their allocation of costs from "shared distribution lines" by about one-third. That is, it appears that about 36% of the costs assigned to the ELLC and HV Over 10 MW customer classes under ComEd's ECOSS for Shared

Distribution Lines represents the cost of single- and two-phase lines, for which those customer classes make use for less than 1% of their demand from Shared Distribution Lines. Thus, the Shared Distribution Lines allocation to those two classes should be reduced by about one-third.

The Commission also should direct ComEd to perform a statistically valid sampling study to determine, with a further degree of accuracy, the appropriate allocation of single-, two-, and three-phase primary distribution line costs, as well as 4 kV costs to these classes based on their actual utilization of those facilities.

Q. How does this proposal differ from ComEd's current practice?

A. ComEd's current ECOSS and rate design presume that any customer class which uses a type of facilities (such as the single- and two-phase as well as 4 kV lines) to any degree should bear a full cost burden proportional to their demand without regard to the degree of actual utilization of those facilities and their cost causation effect. ComEd's current approach is plainly contrary to the cost causation principles. The approach outlined in this testimony would more accurately assign the costs to the cost-causers.

V.

CONCLUSION

Q. Please summarize your testimony.

A. There are certain groups of facilities that ELLC and HV Over 10 MW customers would either never use or use to a de-minimis level as part of receiving service from primary voltage distribution lines. Therefore, under the principle that costs should be assigned to their causers, and with respect to the ELLC and HV Over 10 MW customer classes, one- and two-phase and 4 kV primary voltage distribution facilities should not be included in the revenue requirement of an ELLC class customer who requires standard three-phase service for a load in excess of 10 MW. Further, in the case of customers receiving non-standard service, which may include a de minimis utilization of 4 kV, single- or two-phase primary service connections, the allocation of costs to their customer class should be in proportion to this de-minimis use.

Combining these two concepts, since either the ELLC or the HV Over 10 MW classes include a combination of customers that receive Standard Service and non-Standard Service, the allocation of 4 kV, and single- and two-phase facilities should be limited to only the proportional de minimis use characteristic of each class overall. It is both necessary and feasible for ComEd to identify and exclude facilities not used, or used to a de-minimis degree, to provide Standard Service to the ELLC and HV Over 10 MW customer classes.

Q. Does this complete your direct testimony?

951 A. Yes. However, because discovery in this proceeding is ongoing, I reserve the
952 right to update my analysis and supplement information to the extent that
953 additional information provided by ComEd makes that appropriate.