ILLINOIS COMMERCE COMMISSION

DOCKET 16-_____

DIRECT TESTIMONY

OF

STEVEN M. WILLS

Submitted On Behalf

Of

AMEREN ILLINOIS COMPANY
d/b/a Ameren Illinois

July 8, 2016

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Ameren Illinois

I. INTRODUCTION

Q. Please state your name, address and current position.

A. My name is Steven M. Wills. My business address is One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, MO 63103. I am the Director of Rates and Analysis. In that role, I provide regulatory services for Ameren Illinois Company d/b/a Ameren Illinois (AIC or the Company).

Q. Please summarize your educational background and professional experience.

A. My educational background and professional experience is summarized in the Appendix to my testimony.

II. BACKGROUND

Q. What is the purpose of the Company's filing?

A. This filing proposes changes to the rate design of AIC's performance-based formula rate. AIC is a participating utility in the State's electric infrastructure investment program. The laws governing AIC's capital investment obligations and its recovery of electric delivery costs are known as the Energy Infrastructure Modernization Act (EIMA). Section 16-108.5(e) of the Public Utilities Act (PUA) requires that a utility participating in formula rates "shall make a filing with the Commission" on three-year intervals to either propose "revenue-neutral tariff

changes" or re-file "the existing tariffs without change." 220 ILCS 5/16-108.5(e). This filing constitutes a "3-year period" rate design filing required by EIMA, and the Company's second such rate design filing since it elected to participate in EIMA.

Q. In what docket did the Commission previously approve changes to the design of AIC's formula rate?

A. The Commission previously approved changes to the design of AIC's formula rate in Docket 13-0476. In that proceeding, the Commission issued a Final Order (March 19, 2014) and an Order on Rehearing (September 30, 2014). The status of AIC's prior rate design proceeding is closed, after the Appellate Court in the Fifth Judicial District issued its decision in March 2016, affirming the Commission's Order *Air Prods. & Chems. Co. v. Ill. Commerce Comm'n*, 2016 IL App (5th) 140266-U.

Q. Has the Company considered the Commission's findings from Docket 13-0476 in preparing this filing?

A. Yes. The Company has considered the Commission's findings from Docket 13-0476 in preparing this filing. Any deviation in methodology from the Commission's findings in Docket 13-0476 has been noted in AIC's testimonies.

Q. Does this filing propose to change the total amount of the revenue requirement?

A. The filing proposes "revenue-neutral" changes to the rate design of the formula rate, Rate MAP-P – Modernization Action Plan – Pricing (Rate MAP-P). In other words, AIC's proposals seek to adjust the methodology used to determine allocations of class cost of service, revenue allocation among customer classes, and rate design of various price components. The proposals are not intended to change the total revenue requirement that AIC is authorized to

recover. Instead, the changes address how the revenue requirement is recovered from various customer classes and among the various Rate Zones. In the modeling of projected prices to be effective in the January 2018 billing period, based on the rate design proposals included in this filing, AIC has used the revenue requirement proposed by the Company in its direct filing in Docket 16-0262, the latest update proceeding.

Q. What is the purpose of your testimony in this case?

A. My testimony discusses AIC's recommended rate design for its formula rate and provides supporting analysis. Specifically, I testify regarding: (i) AIC's overall pricing objectives and the considerations in developing the pricing methodology proposed in this filing; (ii) AIC's proposed revenue allocation among customer classes; (iii) AIC's proposed rate design methodology; and (iv) tariff changes necessary to make the changes presented in this proceeding. Ms. Karen Althoff will be testifying to the remaining cost allocation proposals.

Q. In general, how were the rate design proposals in this case developed?

A. First, AIC developed a class cost of service study, which assigned costs to individual rate classes. Next, the class cost of service was compared against revenues derived from present rate levels. I present a revenue allocation and rate mitigation methodology to evaluate movement to cost of service, and limit such movement if necessary. I also provide a process that will move rates across all rate zones to uniformity within the three-year period for which the rate design approved in this proceeding is in effect. Third, once class revenue allocation targets are developed, individual component prices are determined.

Q. What baseline prices were used to develop AIC's rate design proposals?

A. AIC's rate design proposals are modeled using the baseline prices set out in revised direct testimony filed by the Company in its pending formula rate update proceeding, Docket 16-0262. The prices established at the end of that proceeding will go into effect in January 2017, and therefore reflect a current and realistic starting point for modeling rate design.

Q. When would the changes approved in this proceeding be used to establish rates?

A. Section 16-108.5(e) requires the Commission to reach a decision within 240 days of the filing of this proceeding. The formula rate tariff requires the revenue neutral changes to rate design to become effective during the next annual billing period, which begins in January, provided that changes are approved at least 30 days prior to the January effective period. Assuming that the Commission uses all or most of the 240-day schedule, a final order in this proceeding would be issued after the January 2017 billing period. Thus, the changes approved in this proceeding would affect prices starting with the January 2018 billing period.

Q. Please summarize the Company's rate design proposals:

A. In this filing, the Company makes the following rate design proposals:

- Elimination of rate zone specific class cost of service studies in favor of a single consolidated AIC analysis;
- Systematic transition over three years to uniform delivery service pricing across rate zones for all charge types and customer classes[1];
- A change to the percent of the residential (DS-1 service classification) revenue responsibility that is collected through fixed monthly charges;
- A change to the percent of the small general service (DS-2 service classification) revenue responsibility that is collected through fixed monthly charges;

[1] There are two limited exceptions to uniform delivery service pricing that will be explained later in my testimony.

- A rate design change to eliminate the per kilowatt-hour (kWh) distribution delivery charge applicable to lighting customers (DS-5 service classification) served by Company owned lights and recover the same amount of revenues through a corresponding increase to the fixture charge;

- A change to the structure of the transformation capacity charge applicable to large general service (DS-4 service classification) customers taking service at a supply voltage of 100 kilovolts or greater; and

- An update to the cost basis and subsequent pricing of reactive demand charges applicable to large general service (DS-4 service classification) customers.

Q. Are you sponsoring any exhibits with your direct testimony?

A. Yes, I am sponsoring the following exhibits:

- Ameren Exhibit 1.1: Process of Determining Delivery Service Charges

- Ameren Exhibit 1.2: Summary of Rate Zone Allocators Used for AIC 2015 Formula Rate Revenue Requirement

- Ameren Exhibit 1.3: Revenue Allocation Methodology

- Ameren Exhibit 1.4: Revenue Proof Showing Revenue-Neutral Changes to Rates

- Ameren Exhibit 1.5: Residential Bill Impacts

- Ameren Exhibit 1.6: Non-Residential Bill Impacts

- Ameren Exhibit 1.7: Redline Changes to DS-3, DS-4, and Rate MAP-P Tariffs

III. <u>RATE OBJECTIVES AND RATE CLASSES</u>

Q. What methodologies has AIC applied in its cost of service study?

A. The current cost of service methodologies are derived from the Commission's findings in Docket 13-0476, subject to the changes that AIC has proposed in this filing. AIC witness Karen Althoff testifies in more detail about the specifics of the class cost of service study (Embedded Cost of Service Study or ECOSS) and results.

Q. What customer classes is AIC proposing in this case?

A. AIC is proposing to retain its six delivery service rate classifications:

Service Class	Delivery Service	Availability
Residential	DS-1	All residential
Small General	DS-2	Non-residential up to 150 kW
General	DS-3	Non-residential, 150 kW up to 1000 kW
Large General	DS-4	Non-residential, 1000 kW and greater
Lighting	DS-5	All photo-eye controlled lighting
Temperature Sensitive	DS-6	Non-residential, 150 kW and greater (optional)

Q. What are AIC's goals and objectives in developing and designing electric delivery service rates in this proceeding?

A. AIC aims to develop and design rates that are cost-based. AIC realizes, however, that bill impacts are also an important consideration. The Company remains mindful of rate continuity, rate stabilization, and customers' understanding of changes. Finally, AIC also continues to pursue price uniformity for each customer class across the three Rate Zones that constitute the former service territories of the legacy utilities. AIC considers all of these objectives and goals when designing rates that will provide AIC with a reasonable opportunity to earn its authorized rate of return. AIC believes the proposed changes within this proceeding appropriately balance these goals and objectives.

Q. What consideration was given to the fact that the formula rate process produces annual increases or decreases in the revenue requirement?

A. The AIC-proposed revenue allocation and rate design methodology attempts to balance the desire to move toward cost-based rates with mitigation of undue customer impacts. Under the formula rate structure however, we must be mindful that every year rates will change. In the 2016 formula rate update filing, Docket 16-0262, the Company's proposed rates reflect a modest overall reduction. In the near term, rates may either decrease further or increase. The amount by

which rates will change each year will fluctuate. Thus, it is prudent to take into account the unique nature of formula rates when contemplating rate mitigation measures. The revenue allocation methodologies contemplate movement toward cost of service at a pace influenced by the overall rate movement resulting from the annual updates. For example, an annual, material increase in overall rates would temper further customer class specific rate increases toward its cost of service in order to avoid compounding the effects of the increases. In contrast, for an annual, material decrease in overall rates, the methodology would allow for larger class specific increases to accommodate more meaningful movement toward cost of service without causing undue bill impacts.

Q. What impact does AIC's history have on price uniformity across Rate Zones?

A. AIC is comprised of three legacy utilities, which were reorganized and merged into a single utility in 2010. The existing Rate Zones follow the historical boundaries of the service territories of the legacy utilities. But AIC does not function as three separate and distinct affiliates. AIC operates as a single electric utility with a single tariff schedule and a single cost structure. Given this reality, AIC should have a single set of rates and charges for each customer class across its service territory, provided that movement towards uniformity progresses at a pace that does not cause undue customer impacts. The Commission has endorsed this movement towards uniformity in past cases, including Dockets 09-0306 et al. (cons.), 10-0517, and 13-0476. Although many prices are uniform across rate zones, including almost all charges[2] applicable to the Company's residential (DS-1) and small general service (DS-2) classes, some prices differ among the rate zones. For example, Distribution Delivery Charges applicable to

[2] Rates designed to recover Electric Distribution Taxes are the lone exception to uniformity for DS-1 and DS-2 customers. These rates are following a transition plan toward uniformity that was approved in Docket 13-0476.

larger commercial and industrial customers (DS-3 and DS-4) who take service at the Primary Supply Voltage level are unique in all three Rate Zones. Additionally there are certain charges applicable to customers that are uniform for two rate zones, but not the third. For example, most rates applicable to the DS-5 lighting class are uniform for Rate Zones II and III, but still diverge for Rate Zone I.

Q. Is AIC proposing any changes that could result in additional uniform prices among rate zones?

A. Yes. AIC proposes to transition to using a single revenue requirement and class cost of service study rather than rate zone-specific studies. AIC is also proposing to move to complete price uniformity across rate zones by the conclusion of the three-year period the rates designed in this proceeding are in effect. This transition process is further explained in Ameren Exhibit 1.1.

Q. What is shown in Ameren Exhibit 1.1?

A. Ameren Exhibit 1.1 shows a summary overview of the proposed process for determining delivery service charges. The exhibit is separated into sections concerning cost of service, revenue allocation, and adjustment to charges. The section relating to adjustment to charges addresses the proposed methodology to change individual price components contained in AIC's delivery service rates. The methodology reflected in Ameren Exhibit 1.1 takes the approved processes for class cost of service, revenue allocation, and pricing from Docket 13-0476 as its starting point. Proposed changes from that process are discussed in my testimony or the testimony of Ms. Althoff. I discuss proposals related to revenue allocation, and adjustments to DS-1, DS-2 and DS-5 pricing. Ms. Althoff discusses cost of service and adjustments to reactive demand charges applicable to DS-4 customers as well as transformation capacity charges applicable to DS-4 customers that take service at supply voltages exceeding 100 kV.

IV. REVENUE ALLOCATION – RATE ZONES

Q. How has AIC historically allocated the revenue requirement amongst the existing three Rate Zones?

A. AIC has allocated the revenue requirement based on different factors dependent on the type of expenditure, based on the Commission's guidance in the Order in Docket 10-0517,[3] which tied future ratemaking calculations to the legacy utility cost structure at the time of the merger in September 2010. The allocation factors applied vary by the individual FERC accounts. For plant expenditures, September 2010 legacy utility balances are used to establish the beginning cost levels. Distribution Plant additions since September 2010 have been allocated based on those September 2010 balances. Intangible and General Plant additions are allocated based on the total number of electric customers by Rate Zone as of 2012, as established in Docket 13-0476. The allocation of Distribution Operation & Maintenance (O&M) expenses relies upon a 2009 legacy utility cost basis, the last full calendar year prior to the merger of the legacy utilities. Other O&M costs are allocated by Total Electric Customers by Rate Zone as of December 2012, Present Base Rate Revenues, Other Operation and Maintenance Expense, and Adjusted Gross Total Plant. A more detailed explanation of the current allocators can be found in Ameren Exhibit 1.2 – Summary of Rate Zone Allocators Used for AIC 2015 Formula Rate Revenue Requirement.

[3] Except as provided for by changes in later dockets as noted below.

Q. Does AIC believe that the existing methodology to allocate the revenue requirement among Rate Zones continues to be appropriate for use in future formula rate updates?

A. No. Legacy cost allocations based on historical account balances from 2010 become less and less relevant, as more and more investment and costs are incurred on a jointly planned and operated AIC electric system. The continued use of legacy cost allocations to artificially divide up post-merger costs creates a hypothetical cost of service by Rate Zone that less accurately captures the true cost of serving that portion of the service area, as time goes by.

Q. What does AIC propose in this proceeding?

A. AIC proposes to transition to utilizing a single revenue requirement and a single cost of service study, rather than rate zone specific cost of service studies. This transition would occur in the formula rate update filing that AIC would file on or before May 1, 2017.

Q. Why is it appropriate for AIC to utilize a single cost of service study for purposes of this rate redesign filing?

A. A cost of service study is intended to be a guide to the rake making process. A key attribute of a useful cost of service study is the grouping of customers (rate classes) in which cost allocations can be evaluated for purposes of adjusting individual rate components up or down to meet a desired revenue requirement for a particular group of customers (rate classes). Today, 99 percent of electric customers are in rate classes with already uniform rates. For these customers there is not, nor will there be in the future, any logical rationale to separate existing uniform rate components based on the territorial boundaries of the former legacy utilities. Given these facts, there is little benefit to presenting cost of service results at the rate zone level for these customer classes. A more constructive guide for purposes of setting rates in this proceeding is the single AIC cost of service study, which provides the information most useful to the design of rates; the

cost differences of serving AIC's tariffed rate classes. With the understanding that complete rate uniformity will eventually need to occur in order to provide customers with cost based rates, it is more appropriate to develop a cost of service study that can provide a target for that cost basis, rather than three separate studies that lack this guidance. For the customers where full uniformity across Rate Zones does not yet exist, there is a decreasing benefit of using Rate Zone allocators to allocate merged costs; indeed, the continued use of such allocators becomes an unjustified barrier to reaching full uniformity.

Q. Why is it appropriate for AIC to utilize a single revenue requirement for purposes of this rate redesign filing?

A. The Rate Zones were established to follow the historical boundaries of the legacy utilities so that customers' rates, in the short term, would reflect the embedded plant investment and variations in expense associated with the legacy utility's cost of service. The use of Rate Zones for setting prices, however, was not intended to be a permanent regulatory mechanism. After 2010, the historical cost structures of providing service across the single utility, over time, would eventually transition to a common cost basis for all customers in a particular class. *Ameren Ill. Co.*, Order, Docket 13-0192 (Dec. 18, 2013) at 210. For example, prior to 2010 legacy CIPS assets were installed for the benefit of and used to establish rates for the specific customers receiving service in the former CIPS service territory. The same was true for legacy CILCO and IP assets. AIC investments since 2010, however, are no longer attributed to or tied to a particular legacy utility territory. Initially upon consolidation, the majority of assets serving customers were still legacy CIPS, CILCO, or IP assets. Any new AIC assets were a small part of the rate base and could reasonably be allocated to the rate zones based on historical plant balances. The further removed in time we get from 2010, however, the more that dynamic changes. Today, a

significant amount of investment has accumulated in the form of AIC assets used to serve the entire customer base as discussed below. Allocating those investments based on seven-year-old plant balance ratios in order to perpetuate a now non-existent distinction between operating utilities is inappropriate.

Q. Can you provide some perspective on the relative amounts of the current net plant investment balances included in rate base that are attributable to pre-consolidation versus post-consolidation investments?

A. Yes. The pre-consolidation and post-consolidation net plant values that underlie the rate base reflected in AIC's pending formula rate update proceeding (Docket 16-0262) are almost equal. Post-consolidation net plant values based on 2015 actual account balances are approximately 42.4 percent of total net plant investment. With 2016 projected additions included, post-consolidation net plant values rise to 49.1 percent of total net plant investment. This effect is expected and predictable, as the pre-consolidation plant continues to accumulate offsetting depreciation, while new additions continue to add undepreciated gross plant to the post-consolidation balance. With another full year of investment and depreciation occurring prior to rates going into effect based on the methodologies proposed in this case, a majority of net plant reflected in rate base will be associated solely with consolidated AIC investment; and that effect will only continue to get stronger over the years that rates impacted by this case will be in effect.

Q. Are O&M Expenses and other types of expenses also currently allocated to rate zones based on historical cost ratios?

A. Yes. Expense allocations are still made at the account level based on ratios of the legacy utilities' expenses for those accounts from 2009. Such allocations are an anachronism today, as

the operations of the utility have been consolidated for some time and these expenses are equally attributable to customers in each rate zone.

Q. Can you provide an example of expense types where use of historical allocations may produce results that do not reflect current operations?

A. One example is O&M storm restoration expense. A single year snapshot of storm-related O&M expense is significantly impacted by the specific weather events in that year. In one year, a certain rate zone might experience the brunt of the impacts of such weather, and in another year, an entirely different zone might experience the largest impact. Static allocations based on a snapshot year are more or less arbitrary, and unlikely to accurately represent the costs incurred in future periods.

Q. What other progress has AIC made toward rate uniformity that is relevant to the change you are proposing?

A. Based on the progress achieved over the last few years bringing various rates into uniformity across rate zones, an overwhelming majority of the Company's delivery service revenues are now derived from uniform charges. Overall, based on the proposed revenues on Schedule E-5 of the Company's Docket 16-0262 filing, 89.2 percent of revenues excluding EDT[4], and 86.7 percent of revenues including EDT, are derived from charges that exhibit uniformity across multiple rate zones. With rates effective on January 2016 bills, the entire DS-1, DS-2, and DS-6 classes are covered by uniform rates (other than EDT charges). There is additional uniformity amongst the customer and meter charges for the DS-3 and DS-4 rate

[4] In Docket 13-0476, the Commission approved a plan to gradually move the EDT prices toward uniformity across AIC. Within each rate zone, prices are currently uniform for all classes except DS-4.

classes. There are also at least two of the three rate zones with uniform prices for the DS-5 class, and for Distribution Delivery Charges for several DS-3 and DS-4 voltage level subclasses. Simply put, there are few rates and little revenue left that are even potentially influenced by rate zone specific cost studies. And as discussed previously, the assumptions and allocations supporting separate rate zone pricing are becoming increasingly dated and less meaningful.

Q. Are there any final observations you can share to put the issue of Rate Zone level costs in perspective?

A. Yes. Consider the communities of Belleville, East St. Louis, and Decatur. Belleville is approximately 13 miles from East St. Louis and 130 miles from Decatur. Belleville and Decatur were previously served by IP, whereas East St. Louis was in the CIPS service territory. When these were distinct utilities with separate employees, management, and cost structures, it was appropriate for a resident of Belleville to share a common rate with a resident of Decatur, but not with East St. Louis. But with the merger of the utilities, it is not appropriate to try to allocate the cost of an asset installed in Belleville in a manner that impacts rates of a customer 130 miles away in Decatur more so than a customer one tenth that distance in East St. Louis, when all three customers are served by the same utility.

Q. What is your conclusion regarding rate zone specific cost studies based on these observations?

A. Going forward, a majority of rate base will be associated with post-consolidation AIC-specific investments. Operating and capital expenses can no longer be rationally divided amongst different customers using anachronistic allocation factors. And significant progress towards uniformity already has been achieved, given that nearly 90 percent of revenues currently arise from uniform prices. I therefore conclude that class cost of service in future formula rate updates

should be performed only at the AIC level in order to provide a more appropriate guide for pricing.

Q. How would the use of a single revenue requirement and single cost of service study impact the transition to uniform pricing?

A. The current process for moving rates to uniformity includes a test using two criteria. The first is that the ECOSS-determined cost per unit (kilowatt-hour (kWh), kilowatt (kW) or lighting fixture as applicable) for a given rate class and rate zone is within 10 percent of the same cost for another zone or zones. The second criterion is that the specific prices within rate zones being moved to uniformity are also within 10 percent of each other. Obviously if we no longer calculate rate zone specific cost of service studies, the first criterion for uniformity will become moot. Because the rate zone specific costs are decreasingly relevant and the incurrence of costs on an AIC consolidated basis has been occurring for many years, it is reasonable to say that the cost of service is "close enough" to uniform across the service territory to deem that criterion met. *Ameren Ill. Co.*, Order, Docket 13-0192 (Dec. 18, 2013) at 208. Indeed, price uniformity has been achieved for over 99 percent of our customers.[5] Future rate uniformity movement will be determined with just the second criterion applicable to similarity in existing price levels across rate zones supplemented by systematic movement where necessary, which will ensure gradual transitions in pricing levels to minimize potential undue customer bill impacts.

[5] Prices for AIC's residential (DS-1) and small non-residential (DS-2) customers are 100 percent uniform among rate zones (excluding EDT).

Q. If the Commission does not approve the use of a single revenue requirement and single cost of service study, what does AIC propose?

A. If the Commission does not approve the use of a single ECOSS, AIC proposes that the revenue requirement allocation factors to Rate Zones be updated, consistent with changes to the allocation factors used in the Company's most recent gas rate case (Docket 15-0142).

V. <u>REVENUE ALLOCATION – RATE CLASSES</u>

Q. What is the present methodology used to allocate revenue among rate classes within each rate zone?

A. Revenue allocation targets are established based on the results of a rate zone-specific ECOSS. Movement towards full cost of service is constrained to the greater of: (i) 0.025 cents per kilowatt-hour; (ii) 10 percent; or (iii) a constraint multiple of the system average increase based on a sliding scale starting at 1.5 times system increase for overall increases less than 10 percent and reduced by 0.0125 for each percentage point of average system increase greater than 10 percent, but not less than a factor of 1.0. These mitigation constraints were approved by the Commission in Docket 13-0476, and upheld on appeal by the appellate court in the Fifth District. *Air Prods. & Chems. Co. v. Ill. Commerce Comm'n*, 2016 IL App (5th) 140266-U. AIC's proposed revenue allocation methodology is shown in Ameren Exhibit 1.3. The present revenues reflected in Exhibit 1.3 are those proposed by the Company in Docket 16-0262. The changes to class revenue allocation targets reflect the results applicable under a scenario where the total amount of present revenue equals the proposed revenue requirement (i.e., is revenue-neutral).

Q. Is AIC proposing any modifications to the revenue allocation methodology approved in Docket 13-0476?

A. The existing revenue allocation methodology continues to appropriately balance movement towards cost of service with concerns for revenue stability and customer bill impacts. Consistent with AIC's recommendation to perform a single AIC ECOSS, the revenue allocations to rate classes will be performed on a consolidated basis, rather than at the rate zone level.

Q. Is AIC proposing any modifications to the treatment of the Electric Distribution Tax?

A. The Company is not proposing any modification to the treatment of the Electric Distribution Tax (EDT). Assuming that the revenue allocation methodology currently in use continues to be applied, all customer classes may be paying the same average EDT rate no later than rates effective January 2020.

Q. Will the results of the revenue allocation methodology be used for all classes and subclasses?

A. The revenue allocation methodology will be used for all classes and subclasses, except the DS-3 +100 kV supply voltage subclass. That subclass contains very few, and sometimes no, customers, so that it does not qualify as a viable class or subclass for purposes of establishing unique pricing. The revenue allocation targets for this category of service generated by the revenue allocation methodology will not be used to further adjust prices. Instead, the pricing process will utilize costs from the DS-4 +100 kV supply voltage subclass. This will result in a different amount of revenue generated by the DS-3 + 100 kV category than was allocated. This

difference, either a revenue surplus or deficiency, which is expected to be negligible in most cases,[6] will be allocated to other rate classes (or subclasses).

VI. RATE DESIGN

Q. What elements of rate design will you address?

A. I will discuss AIC's proposals for further progress towards uniform pricing among rate zones, changes to the rate design for the DS-1, DS-2, and DS-5 classes, and I will introduce the changes to DS-4 class rates that will be further explained by Ms. Althoff.

A. Rate Uniformity

Q. Why is it appropriate to move towards uniform pricing across AIC's rate zones.

A. AIC's rates are not uniform across its rate zones for all rate classes. This non-uniformity is the result of an increasingly artificial distinction between the service territories of AIC's legacy utilities. Although the AIC system is nominally divided into rate zones for tariff and billing purposes, it is jointly planned and operated, and has been for many years.

Q. What is the current status of rate uniformity across AIC's rate zones?

A. As discussed previously, nearly 90 percent of DS revenues are currently derived from uniform charges. Rates are entirely uniform for the DS-1, DS-2, and DS-6 service classifications. Meter and customer charges are uniform for DS-3, DS-4, and DS-5 customers. DS-3 customers served at High Supply Voltage and DS-3 and DS-4 customers served at +100 kV Supply Voltage also have uniform distribution delivery charges. For other DS-3 and DS-4 subclasses and DS-5 fixture charges, at least two rate zones have uniform charges. The remaining charges to become uniform include fixture and distribution delivery charges applicable to Rate Zone I for the DS-5

[6] In the rates calculated for this proceeding, the difference amounted to less than $3,000.

class, and the distribution delivery charges applicable to DS-3 customers served at Primary Voltage in Rate Zone III, DS-4 customers served at Primary Voltage in all rate zones, and DS-4 customers served at High Supply Voltage in Rate Zone II. As Ms. Althoff and I will discuss further, also the Transformation Capacity Charge applicable to DS-4 customers served at +100 kV Supply Voltage also currently lacks uniformity.

Q. How do you propose to move rates towards uniformity across the Rate Zones?

A. I propose that rates be moved methodically towards uniformity within the three-year period that the rate design resulting from this case will be in effect. This methodical movement should be accomplished in the following manner. In any situation where pricing in each rate zone is within 10 percent of the class average prices, the rates in all Rate Zones should be moved to uniformity immediately. In all other situations, the charges should be moved towards uniformity over the course of three years. In the first year, the charges should be moved one-third of the way from their current level towards uniformity. In the second year, the charges should be moved halfway from their then-current level towards uniformity. In the third year, the charges should be moved completely to uniformity.

Q. Why is it necessary to make deliberate movement toward uniformity where it is not otherwise achieved using the 10 percent threshold criteria?

A. Rate uniformity for all customers in each class may never be achieved using the 10 percent threshold criteria. Without Rate Zone allocated costs, the existing prices in each rate zone would all be adjusted proportional to the change in revenue allocation for the entire class. The result would be rates that maintain their existing differentials and never become "close enough" to be made uniform under the 10 percent threshold. The deliberate and systematic

movement toward uniformity will achieve the objective of complete uniformity for AIC's delivery service prices, while spreading the bill impacts over a reasonable timeframe.

Q. Would deliberate movement toward uniformity still be necessary if the Company continued to utilize Rate Zone allocations?

A. Yes. While it is possible that the calculation of costs by rate zone could produce results that would move rates directionally in a manner that would eventually lead to uniformity, there is no guarantee that that would occur. In fact, it is possible that, due to the nature of future changes in allocation factors, billing units, or other factors, rates would further diverge. Complete uniformity can only be assured by deliberate action to create it.

Q. Can you please describe the magnitude of price movement that will need to occur under the Company's proposal to achieve uniformity for all classes?

A. Other than for the lighting class, which is discussed in detail further in my testimony below, there are only three individual charges that remain to move to uniformity: the Distribution Delivery Charges applicable to the DS-4 Primary Voltage and High Voltage subclasses, and the DS-3 Primary Voltage subclass. For the DS-3 Primary subclass, Rate Zones I and II would need to have rates increase approximately 3.5% per year while rates decrease by a similar amount in Rate Zone III to reach uniformity. For the two DS-4 voltage subclasses the estimated annual percentage increases would be slightly larger in Rate Zone II, at 10.6 percent and 16 percent respectively, with offsetting decreases in the other two zones. The percentage increases are higher in these subclasses due to the lower overall cost of service for DS-4 customers relative to other classes. However, the absolute level of the annual rate increases required in Rate Zone II to reach uniformity in each of the DS-4 subclasses relative to the total usage of the customers in those subclasses represents roughly $0.001/kWh.

Q. Under AIC's proposal, once a rate is uniform across at least two rate zones, will uniformity be retained in future filings?

A. Yes. AIC proposes that, after the three-year period, its Delivery Service rates will be uniform across rate zones for the indefinite future, with relatively minor exceptions explained further below. Some non DS tariff provisions also will continue to be different among rate zones, such as Rider HMAC – Hazardous Materials Adjustment Clause applicable only to Rate Zone III, and Rider EEA – Electric Environmental Adjustment applicable only to Rate Zone I and III customers.[7]

Q. Please describe these remaining exceptions to DS rate uniformity that you propose to retain going forward.

A. There are two such exceptions. They are not rates that will take different values for different rate zones per se, but two individual prices that, due to specific historical circumstances at a particular legacy company, are currently assessed in only one rate zone. Those charges are the Rate Zone III pole charge for DS-5 lighting customers and the Rate Zone I meter reassignment charge applicable to certain DS-3 and DS-4 customers.

Q. Why will the Rate Zone III pole charge be retained without a similar charge in the other parts of the service territory?

A. Prior to 2007, the legacy utilities handled customer requests for certain types of poles differently. In what is now Rate Zone I and Rate Zone II, poles beyond the standard offering were treated as an excess facility and a rental agreement was entered into between the customer

[7] Rate Zone II customers pay for environmental cleanup costs through Rider TAR, a natural gas tariff. The Rider EEA charges for Rate Zones I and III will remain differentiated by rate zone at least until such time that all planned environmental remediation work is completed.

and Company to cover that cost. In Rate Zone III, some special request poles were covered by an existing tariff charge. Because the same type of cost was collected under a tariff charge in some instances and a rental agreement in others, there is not a practical way to achieve uniformity between these two legacy billing practices. This is only applicable in grandfathered situations were the equipment in question was installed prior to 2007.

Q. Why does Rate Zone I continue to need a meter reassignment fee that is not also applicable in the other zones?

A. This is another grandfathered situation resulting from operational differences between the legacy utilities. In Rate Zone I, some customers that owned their own transformation equipment prior to 2007 have their meters configured on the high side of the transformer. This contrasts with practices utilized in the other legacy operating companies. This configuration, i.e., meters configured on the high side of the transformer, gives rise to a unique cost of service for these grandfathered customers that should continue to be reflected in the meter reassignment charge.

B. DS-1 Rate Design

Q. How are AIC's current DS-1 rates designed?

A. Residential rates under the DS-1 service classification include a meter charge and customer charge that are flat monthly amounts assessed to each customer, and a distribution delivery charge that is collected on a cents per kWh basis. The distribution delivery charge is differentiated seasonally between summer and non-summer charges, and the non-summer charge incorporates a blocked structure. The first 800 kWh per month of non-summer residential usage are billed at one rate, and any incremental usage above 800 kWh is at a second, lower rate. EDT is collected separately as a flat per kWh charge applicable to all usage with no seasonal differentiation or blocking.

Q. Under the existing rate design, how are the levels of the customer charge, meter charge, and distribution delivery charge established?

A. The meter charge is set first at a level that is expected to produce revenues equal to the costs attributed to the meter function and allocated to the residential class in the ECOSS. Next, the customer charge is set such that the revenues derived from the meter and customer charge in combination produce 36.4 percent of the total revenues allocated to the class. The distribution delivery charges are adjusted to the level necessary to produce the total class revenue responsibility by increasing or decreasing them in equal proportions until the revenue target is reached. The 36.4 percent of revenues that come from fixed charges (customer and meter charge) was a result of the Commission's Order on Rehearing in Docket 13-0476 adopting Staff's proposed rate design.

Q. What was the Commission's basis for adopting Staff's proposal to set fixed charges at 36.4 percent of the class revenue responsibility?

A. The Commission desired to decrease the residential fixed customer charge and increase the variable charges, while protecting against the potential for significant bill impacts, in particular for residential customers who use electricity as the primary source of space heating. The Commission believed that Staff's rate design placed "greater emphasis on traditional ratemaking principles like cost causation." *Ameren Ill. Co.*, Order on Rehearing, Docket 13-0476 (Sept. 30, 2014) at 41. The Commission also wanted to adopt a rate design, "which encourages residential customers to reduce energy usage and increase energy efficiency." Order on Rehearing, at 41. The Commission noted the disagreement between the parties on the topic of fixed versus variable costs associated with delivery service, and suggested that the parties present a more robust, substantive record on the issue, to the extent that they wanted to revisit the issue.

Q. Do you have any additional perspective and evidence to include in the record in this proceeding on the design of residential rates?

A. Yes. First, it is instructive to review the process of classifying costs in the ECOSS and how those classifications relate to the various rate design elements used across the customer classes. Costs are classified as either customer-related, demand-related, or energy-related based on an assessment of the activities and investments that give rise to those costs. For example, the costs of assets that are dedicated to individual customers, such as meters and service lines that directly connect to the customer premises are classified as customer-related costs. AIC incurs these costs when it establishes service to customers.

Q. Please describe demand-related costs.

A. The costs of a distribution utility that are not directly related to customers are typically classified as demand-related. Demand-related costs are those associated with investments made and activities performed that serve multiple customers, which may be sized and configured relative to the aggregate demand on the relevant part of the system. I say may be related to aggregate demand because there is a wide variety of types of equipment and activities, with unique characteristics, which fall into this classification. Demand-related investments include utility assets such as poles, wires (secondary, primary, and high voltage spans), transformers and bulk substations. Over the long term, changes in demand might change the level or type of new investment required for demand-related assets in a particular operating area or subdivision. The level or type of new investment, however, does not vary to any remotely material degree in the short term in response to changes in customer demand. Further, the embedded costs of the existing investment, which form the basis for the formula rate revenue requirement, are completely fixed. The utilities seek to recover the costs associated with the return of

(depreciation) and return on (cost of capital) capital that has already been deployed to construct this permanent infrastructure. O&M expenses also are not dependent on and driven by fluctuations in customer usage. Consider the example of vegetation management expense. AIC performs tree trimming activities to clear the rights of way for its lines. The extent to which trees grow and require trimming has no direct or indirect influence from the amount of energy carried over the nearby lines. Whether a customer's demand fluctuates hour to hour, day to day, or month to month, the permanent infrastructure that exists to serve them is unchanged, as are the costs associated with it.

Q. Please describe energy-related costs.

A. Energy-related costs are those costs that vary in direct proportion with kWh consumption of customers. For electric utilities, energy-related costs are generally associated with the production function (fuel, variable O&M, and the like). Distribution only utilities do not perform the production function and therefore have few if any energy-related costs. AIC's power supply options are generally billed on variable kWh charges because the procurement of power for customers fills the same role as the production function of a vertically integrated utility. In the case of AIC's distribution revenues that are impacted by this proceeding, there is one energy-related cost identified in the ECOSS: Electric Distribution Tax (EDT). EDT is assessed to utilities by the State of Illinois based directly on the kWh of energy delivered. Therefore the EDT is the quintessential energy-related cost, and is therefore collected on a per kWh charge from all of AIC's customers.

Q. How does this review of cost classification relate to questions at issue regarding residential rate design?

A. The rate designs employed by electric utilities including AIC for many rate classes are often times described as three part rates. The three parts relate back directly to the three categories identified for classification of costs in the ECOSS: customer, demand, and energy. For AIC's DS-3, DS-4, and DS-6 rate classifications, customers pay customer charges, demand charges, and energy charges (primarily for collection of energy-related EDT costs). Under the three part rate structure, there is a logical mapping of costs from the classifications of the ECOSS to the rate design. Customer charges are generally used to collect customer-related costs; demand charges generally collect demand-related costs; and energy charges generally collect energy-related costs. The challenge for residential rate design[8] is that historically the functionality of residential meters did not readily enable demand billing. Since most of the cost of service of residential customers is demand-related, the lack of an available demand charge creates a question regarding where these costs should be recovered in an existing rate design that includes just customer and energy charges.

Q. Are residential demand charges becoming a viable option for electric utilities today?

A. Yes. There is an ongoing discussion in the industry on the merits of instituting residential demand rates, including numerous workshops and conferences dedicated to the topic. This dialogue is largely occurring in states that have had considerable penetration of private solar generation installations, which has led to a debate concerning cost shifting between groups of residential customers under net metering frameworks. This dialogue can be seen in certain utility

[8] This issue is also relevant for the discussion of DS-2 rates that will follow.

rate filings, including proposals put forth by Arizona Public Service, Pacific Gas and Electric, San Diego Gas and Electric, Westar, NV Energy, and Oklahoma Gas and Electric, among others.

Q. Is AIC proposing a three part residential rate design with a demand charge in this proceeding?

A. No, not at this time.

Q. Why hasn't AIC proposed a transition to a three-part rate with a demand charge in this proceeding?

A. The traditional hurdle for utilities attempting to institute residential demand charges has been the metering functionality required to bill customers. AIC is in the process of installing Advanced Metering Infrastructure (AMI), and has requested ICC approval to deploy AMI to 100 percent of its electric delivery customers by the end of 2019. The completion of the Company's deployment would be the more appropriate time to contemplate the possibility of transitioning to demand charges. At that time, consideration can be given to customer bill impacts, customer education regarding the new rate structure, and revenue stability. In this case, my recommendation is that the Commission approve a rate design that would have the flexibility to transition to a three part rate, which would include demand charges, should AIC decide to propose such a structure in the future.

Q. Please explain how the Commission can best assess the appropriate rate design structure to collect demand-related costs in this proceeding.

A. The question of how to best chart a course to the eventual adoption of demand charge ties to the Commission's request in Docket 13-0476 to more fully develop the record regarding how demand-related costs should be collected. In response to this request, the Company has

developed some additional analysis of residential billing demands relative to other charge types to determine the most appropriate structure for collection of these costs in a two part rate design. Rather than focusing on the extent to which the demand-related costs at issue are fixed versus variable–a question the Commission struggled with in AIC's last rate redesign case—the Commission should consider what rate design would produce results most similar to the result that would occur under a demand charge. By definition, a demand charge would send a price signal that aligns with the cost causation for demand related costs. Again, for the customer classes that currently have demand charges, demand related costs are collected in the corresponding charge with little debate. The goal here is to replicate the effect of a residential demand charge as best as possible with the two rate components that are presently available.

Q. Please describe your approach to developing a rate design to collect demand-related costs through the customer and energy charges.

A. In my opinion, much of the analysis and discussion in Docket 13-0476 had an underlying assumption that, because demand and energy are both a type of customer "usage" measure, the energy charge adequately represents a "usage" based price signal for demand-related costs. A review of the relationship between residential demand data and energy consumption data, however, suggests that the cost recovery model most similar to a demand charge using a two part rate design would in fact allocate demand-related costs in part to the energy charge and in part to the customer charge. To understand why, it is useful to think about the customer characteristics and behaviors that drive observed demands and energy consumption.

Q. Please elaborate.

A. Demand is a measure of the maximum amount of electricity a customer uses at any one time. The stock of energy using goods in homes that give rise to demand is fairly homogeneous

across customers; air conditioning, refrigerators, lighting, televisions, etc. are relatively ubiquitous amongst residential customers. It stands to reason that at some point in any given month, most households run multiple similar energy consuming devices and appliances simultaneously in a manner that creates their individual monthly demand. While there is no doubt variation in the electric end uses present from house to house, there is much more variability in the frequency and duration of the operation of those end uses that are driven by life style and behavior differences.

Consider two homes of similar size in the same neighborhood and construction vintage that each have central air conditioning and typical appliances, lighting and plug loads present. Now assume that one house is inhabited by a large family that has a parent and young children at home during the week, while the neighboring house is occupied by a single professional that works long hours during the week with no one home. Both of these houses may have a similar demand in a summer month, as there is some hot day during the month when both homes have occupants home (the weekend for the single professional) with the air conditioner running, some lights and a T.V. on, the refrigerator cycling on periodically, and perhaps some laundry running. Again, this produces similar demand for the two homes. However, this condition of high usage is a daily occurrence at the home of the large family, whereas the single professional uses a programmable thermostat to manage the air conditioner while at work, and the lights, T.V.'s and appliances sit idle for hours on end. These two homes with similar demand may have extremely different energy consumption. From a cost causation perspective, these houses place similar demand on the system and would have similar impacts on AIC's incurrence of demand-related costs. However, their bills under the existing rate design would be very different because the family that is home regularly consumes many more kWh and incurs correspondingly higher

distribution delivery charges. Generalizing this discussion to AIC's residential population, it is clear that all households do not have equivalent demands. It is likely, however, that the variability in energy consumption, which is driven more by the behavioral and life style traits of the individual end-users, is greater than variability in demand, which is largely driven by the household's stock of end-using appliances and goods.

Q. Do you have any empirical data to validate this expectation?

A. Yes. I collected information from the Company's load research database on AIC's residential customers. Load research is the process by which AIC learns about customer demand patterns by maintaining a randomly selected, statistically representative group of customers that are metered on an hourly basis to draw conclusions about the usage characteristics of its customer classes. I analyzed 224 residential customers that had a complete set of hourly meter observations for a year. From that data, I calculated the monthly demands of the customers (the maximum hour of usage in the month) and consumption (the sum of all hours' usage in the month). From this data, I observed that the coefficient of variation[9] of AIC's residential customers' demand is substantially lower than the same measure for residential energy consumption. The coefficient of variation for demand was 54 percent, whereas the same measure for consumption was 72 percent. Essentially this means that total consumption is considerably more varied from customer to customer than is demand.

[9] The coefficient of variation is the ratio of the standard deviation of a variable to the mean of the same variable. This is a measure where lower values indicate a more stable data series.

Q. What is the implication of the finding that residential customer demand is more consistent across customers than total consumption?

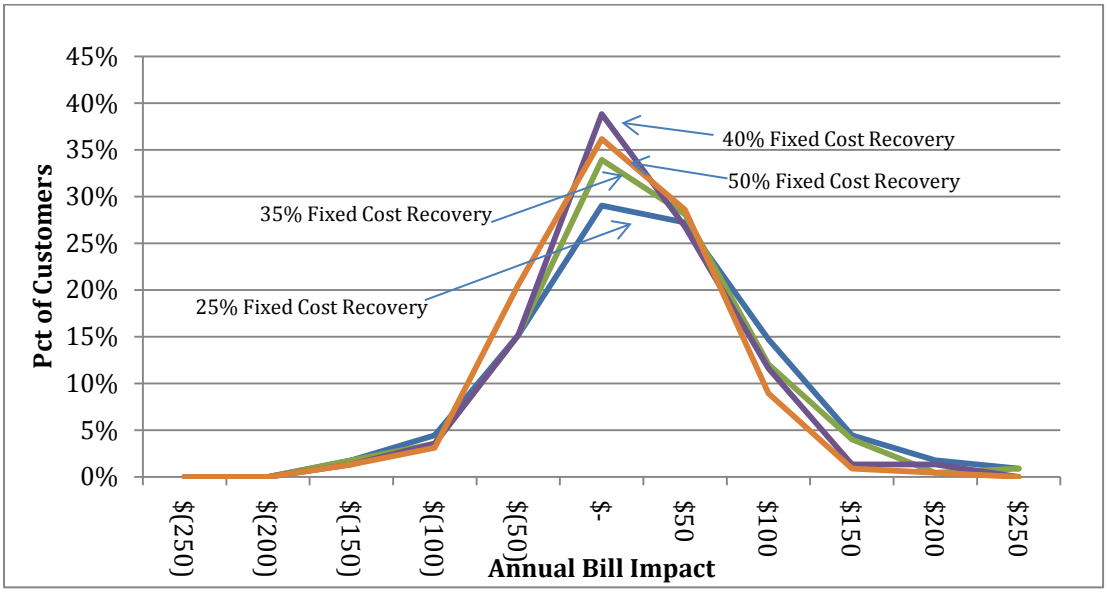
A. Collecting demand-related costs in an energy charge produces more customer bill (and utility revenue) variation than is truly present in customer demands. Allocating a portion of demand-related cost to the customer charge would temper this variability and produce bill impacts and utility revenues more consistent with the nature of residential demands. In the example of the two similar homes with different occupancy patterns, collection of certain demand-related costs in the fixed charges would help align billing with demand-related cost causation, which again is similar for the two homes.

To further demonstrate this effect for the AIC residential population, I used the same residential load research customers' data to design a hypothetical summer demand charge. The hypothetical rate structure was designed to collect all customer related costs in a customer charge and all demand related costs in a demand charge in a manner that is revenue neutral to the existing summer rate structure for the load research customers included in the analysis. Next, I calculated summer bills for the sample customers using this hypothetical demand charge based rate structure. Finally, I calculated revenue neutral two part (customer and energy) rates with different percentages of fixed costs collected in the customer charge. I then calculated sample customer summer bills using each of these combinations of customer and energy charges. For this purpose, I calculated bills based on customer charges designed to collect 25 percent, 30 percent, 35 percent, 40 percent, 45 percent, and 50 percent of residential revenues[10]. For each fixed charge percentage, I compared the resulting bills to the bills based on the hypothetical demand charge to see what level of fixed cost recovery in the customer charge produces

[10] The chart in Figure 1 omits the 30 percent and 45 percent scenarios for ease in visually interpreting the results.

customer impacts most similar to a demand charge. The result, as expected based on my discussion above, shows that a rate design with relatively higher percentages of costs allocated to the customer charge do a better job of mimicking the bill impacts of a demand charge. Figure 1 below shows the distribution of bill impacts for each fixed charge combination as compared to the demand charge.

Figure 1: Delivery Service Bill Difference Between Demand Based Cost Recovery and Different Levels of Fixed Charge Recovery



Q. Please explain Figure 1.

A. Each line represents the distribution of customer impacts that would be expected when moving between a demand charge residential rate design and the two part rate design with fixed cost recovery at the specified level. A higher peak in the center of the graph for one series indicates that more customers under that fixed cost recovery scenario would have minimal bill impacts relative to a demand charge than series with a lower peak. This analysis demonstrates that the percentage of fixed cost recovery in the customer charge most aligned with demand

charge recovery is 40 percent[11]. In fact, for the 40 percent fixed cost recovery scenario, almost 40 percent of customers would have summer bills nearly identical to a demand charge. Notably, the worst bill impacts occur under the 25 percent fixed cost recovery scenario, which is close to where the rate design would be if only customer-related costs were included in the customer and meter charges. Under that scenario, less than 30 percent of customers would have nearly identical bills to a demand charge.

Q. What conclusions do you draw with respect to the appropriate residential rate design to adopt in this case?

A. Studying a hypothetical residential demand charge is useful for at least two reasons. First, demand-related costs naturally lend themselves to collection in a demand charge in order to provide a relevant price signal to customers. Absent a demand charge in the rate design, the best way to simulate that price signal is to allocate the demand-related costs to customer and energy charges in a way that most closely mimics the demand charge. Secondly, targeting a residential rate design that is likely to produce the smallest possible bill impacts relative to a demand charge may smooth the transition to an actual residential demand charge if and when the time is right to do so. Both of these factors suggest that the best rate design for demand-related costs would include between 40 and 45 percent of fixed costs in the customer and meter charge.

Q. What changes to the design of DS-1 rates is AIC proposing?

A. Based on the foregoing analysis, AIC proposes to slightly increase the percentage of the residential DS revenue requirement recovered in fixed customer charges from the current level.

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[11] The 45% scenario that is not shown is extremely close to the 40% line and would similarly be a suitable percent for fixed cost recovery

Today, 36.4 percent of the residential revenue responsibility is collected through fixed customer and meter charges. Coming out of this case, I recommend increasing that percentage to 40 percent for the three years that rate designs approved in this docket will be in effect. After the increase in the fixed charges, I recommend the remaining steps in the DS-1 rate design process remain the same as they are presently.

Q. How would this recommended rate design impact the bills of the large family and the single professional from your earlier discussion of the differences in customer usage patterns?

A. Because the customers were hypothetical, let's assume that the large family was an above average, but otherwise typical non-space heating user at approximately 15,000 kWh per year, and the single professional used half of that amount annually, or 7,500 kWh per year. The large family, under proposed rates from Docket 16-0262 would annually pay a base distribution service bill (excluding EDT) of approximately $693 per year whereas the neighbor would pay approximately $459. Recalling that the two customers cause similar demand-related costs on the system, it is noteworthy that the large family pays nearly $20 a month more. The proposed redesign, increasing the fixed charge revenues to 40 percent of total class revenues, would have a modest impact on reducing the disparity between these two customers. I estimate that the 15,000 kWh using family would save about $8 per year and the 7,500 kWh customer's bill would increase by about $4 per year. An even smaller user would see a larger bill increase, but the amount could never exceed the total increase in the customer charge itself, which I estimate would be about a dollar and a half per month. For a complete review of expected bill impacts associated with the revenue neutral changes to rates in this case, please see the discussion later in my testimony.

C. DS-2 Rate Design

Q. How are AIC's current DS-2 rates designed?

A. DS-2 rates have the same components as those described for DS-1; specifically a customer charge, meter charge, and seasonally varying Distribution Delivery Charge. The only differences in overall structure are that there are differentiated customer and meter charges for DS-2 customers served at secondary versus primary voltage, and the block rate structure applicable to the non-summer Distribution Delivery Charge uses a 2,000 kWh block rather than 800 kWh.

Q. How are the specific charges established during a formula rate update?

A. Again, the process is similar to that followed for the DS-1 class, with just a couple of distinctions. First, the meter charges are established at the level necessary to produce revenues equal to the DS-2 allocated costs from the meter function in the ECOSS. The meter function costs are allocated to secondary and primary customers based on the replacement costs of such meters. The customer charge is adjusted such that the total revenues derived from the meter and customer charges for the whole class are expected to collect a certain percentage of the total revenue responsibility for the class. However, whereas the DS-1 percentage of fixed costs that is collected in these two charge types is fixed at 36.4 percent, the percentage of revenues applicable to DS-2 fixed charges relies on the previous year's fixed charge percentage, then increases that percentage by 2.5 percent per year until 50 percent of the revenue is derived from the customer and meter charge. Finally, the Distribution Delivery Charges are adjusted proportionally until the class revenue target is achieved.

Q. How does AIC propose to design DS-2 rates?

A. In general, I propose that the process remain intact as it is today as a result of Docket 13-0476. However, rather than targeting 50 percent of the total revenues being collected through fixed charges, I propose to make this class consistent with my DS-1 recommendation and cap the fixed charge recovery percentage at 40 percent. AIC believes it is appropriate, just as it is for the DS-1 class, to maintain a rate design that can transition to incorporate demand charges in the future. While I have not performed the same study for DS-2 that I did for DS-1, the diversity of loads within the DS-2 class leads me to believe that the percentage of costs recovered in the fixed charges should not exceed the percent that I recommended for residential customers.

Recalling the discussion from DS-1, I mentioned the relative homogeneity of end uses across households. There is less homogeneity in the DS-2 class. Consider that in this class there are customers very similar to residential homes. Imagine a law office or antique shop that occupies a building that used to actually be a home. Contrast this customer with some of the largest DS-2 customers, with demands up to 150 kilowatts (kW). These customers would include amongst their ranks full retail outlets with pharmacies and large convenience shops that have much more square footage, commercial-scale lighting, large refrigeration and freezer loads, and a whole host of equipment that would not be found in the law office or antique shop in my previous example. This diversity of customer types leads me to believe that the variability in demand, while still possibly lower than the variability in energy consumption, may be much more similar to energy consumption patterns than observed in the residential class. In this case, increasing the percent of revenue recovery derived from the fixed charge to the 50 percent level approved in Docket 13-0476 would likely go farther than needed to temper the revenue variability associated with the energy charge. Further, I am concerned that if the fixed charge

goes all the way to 50 percent of the class revenues, the bill impact on the smaller customers like the law office or antique shop may be overly burdensome. For example, based on rates in effect today which recover approximately 32 percent of revenues in the fixed charges, I estimate that increasing recovery to the 50 percent level with no change in revenue requirement would produce a rate increase of over 30 percent for DS-2 customers in the 10th usage percentile. Based on these observations and considerations, I suggest that the DS-2 fixed charge recovery be capped at no more than 40 percent.

D. DS-5 Rate Design

Q. How are AIC's current DS-5 rates designed?

A. DS-5 lighting rates include fixture charges for Company Owned lights, and Customer and Meter (as applicable[12]) charges for Customer Owned lights. Additionally, all lighting accounts currently pay per kWh distribution delivery[13] and EDT charges.

Q. Are DS-5 rates presently uniform across rate zones?

A. No, not entirely. Pricing for Rate Zones II and III is uniform, but pricing in Rate Zone I is lower than the other two zones due to legacy cost differentials between the former operating companies. Per the rate uniformity plan described earlier in my testimony, I propose that the Rate Zone I charges move toward uniformity with the other two zones over a three year phase-in. This rate movement is one of the larger moves that remains for any AIC customer class to achieve uniformity, but I believe the bill impacts to Rate Zone I customers will be both justified

[12] All new customer owned lights as of January 2, 2007 are required to be metered and receive a meter charge. Grandfathered customer owned lights installed prior to that date may still be unmetered in which case the metering charge is not applicable.

[13] The delivery charge for Rate Zone I is currently zero per the approved rate design methodology from Docket 13-0476.

and mitigated by changes the Company is planning to make to its Company Owned lighting offerings.

Q. What changes does AIC plan to make to the lighting service offerings?

A. Beginning in 2017, the year prior to any rates being implemented as a result of this case, AIC intends to begin replacing its area and directional lights with Light Emitting Diode (LED) fixture technology. The current default offerings are High Pressure Sodium (HPS) lights and Metal Halide lights. Additionally, some Mercury Vapor and Incandescent fixtures are in operation on the system due to grandfathering of these technologies that were earlier default offerings of the legacy operating companies. LED lights offer numerous advantages relative to the other lighting technologies that should reduce customer costs significantly over time. LED lights are considerably more energy efficient than the legacy technologies and will therefore generate meaningful customer savings on the power supply portion of bills. Additionally, LED lights have a longer life expectancy and require less maintenance than current lighting technologies. Both of these factors contribute to LED's favorable economics for AIC's lighting customers. In addition to favorable economics, LED street lights also provide environmental benefits due to reduced emissions of generation that would otherwise be required to serve lighting needs.

Q. How does the introduction of LED lights justify movement of Rate Zone I pricing up towards uniformity with the other zones?

A. AIC plans to replace all of its existing area and directional fixtures systematically at the time that any component (including bulbs or photocells) fails. Because the expected life of existing bulbs is 6 years or less, it is anticipated that the entire population of these lights will be converted to new fixtures within a relatively short window of time. As discussed earlier in my

testimony, legacy cost differences between rate zones are becoming decreasingly relevant the longer that the system is jointly operated. This phenomenon will be particularly true for a class of assets that is expected to be upgraded with new equipment across the entire population in a relatively short period of time. The lighting fixtures in place will all have a similar cost basis as a result of these replacements and upgrades. Any link remaining to the historical cost differential between rate zones will be quickly overshadowed by the similarity of the cost of new fixtures.

Q. How does the introduction of LED lights mitigate bill impacts associated with movement of Rate Zone I pricing up towards uniformity with the other zones?

A. As mentioned previously, LED lights use less energy than the technologies that they will be replacing. In the context of the total lighting bill, the power supply savings created by the more efficient lights will provide a significant offset to any delivery service increases experienced by Rate Zone I customers as a result of movement to uniformity.

Consider a Rate Zone I lighting customer with a 100 Watt Sodium Vapor fixture that currently pays about $0.0485/kWh for power supply[14]. This customer's annual consumption may drop from approximately 500 kWh to somewhere around 200 kWh. That savings of 300 kWh/year, multiplied by the assumed power supply rate of 4.85 cents will generate annual savings of $14.56, or $1.21/month. The current differential in fixture charges between Rate Zone I and the other two zones for this fixture is $2.07 ($6.24 vs. $4.17). At these rate levels, the uniform price among all three zones would be expected to be approximately $5.54 per month, or just $1.37 per month higher than the Rate Zone I price. So the power supply savings of

[14] As of the time of this filing, AIC's fixed price supply offering for BGS-5 lighting customers includes a summer rate of $0.0368/kWh and a non-summer rate of $0.04316/kWh. BGS customers also currently pay $0.00668/kWh for transmission service under Rider TS and $0.00054 in Supply Cost Adjustments for a total average cost of $0.0485/kWh.

$1.21/month would cover more than 88 percent of the increase in fixture charge driven by movement to uniformity. Keep in mind, also, that the increase in fixture charge would be phased in over the three year movement to uniformity. And also, per my previous answer, the cost basis of the Rate Zone I lights will be moving toward the other zones. So all in all, the Rate Zone I impacts are less significant on a total bill basis, and at the same time aligned with movement in the underlying cost of service.

Q. What other impacts will LED lights have on the delivery service bills of all DS-5 customers?

A. On average, delivery service bills should generally be lower with LED lights. There will be an investment in the new lights that will show up as an increase to rate base over time that will tend to increase rates, but there should be offsetting reductions to O&M expense that decrease rates as the need to perform maintenance trips to replace bulbs and photocells is reduced. These impacts do not come into play in the rate redesign process, but will flow through the revenue requirement calculations of future MAP-P updates. Additionally, the allocation of primary distribution line costs to the lighting class should be reduced over time. Currently, primary distribution line costs are allocated to DS-5 customers based on one half of the non-coincident peak demand of the class. As more efficient bulbs become prevalent on the AIC system, the non-coincident peak demand of the class should go down and reduce the share of these costs allocated to DS-5 customers. Overall, lighting customers should be economically better off on their delivery service bills with LED lights; and much better off on their power supply bills.

Q. Given the context of the proposed introduction of LED lights, how does AIC propose to design DS-5 rates?

A. First, the fixture charges that currently derive their pricing from the old default HPS and Metal Halide offerings will be changed to reference the new default LED fixture. Grandfathered lighting technologies including HPS, Metal Halide, Mercury Vapor, and Incandescent will now derive their pricing from the applicable LED replacement fixture. Mapping of the legacy light fixtures to the replacement LED will be included in revisions to the DS-5 tariff, which, as discussed below, will be filed upon conclusion of this proceeding. With respect to future rate design, I first propose that, in the first formula rate update after this case, the revenues derived from the Distribution Delivery Charge, which is currently assessed on a per kWh basis for Company Owned lights, be rolled into the fixture charges. Customer Owned lights will keep the existing Distribution Delivery Charge structure and initial price level. Once these changes have been instituted, all price components will be adjusted by an equivalent percentage in order to achieve the total DS-5 class revenue target. Uniformity will be achieved between Rate Zone I and the already uniform prices in Rate Zones II and III per the transition plan discussed earlier in my testimony. Any prices applicable to Rate Zone I lighting customers that are within 10 percent of the Rate Zone II and III prices will immediately move to uniformity. Remaining charges will move systematically over three years to close the rate zone pricing gap.

Q. Why should the Distribution Delivery Charge revenues be rolled into the fixture charge for Company Owned lighting?

A. The Distribution Delivery Charge provides no value in terms of a meaningful price signal to lighting customers. The DS-5 tariff requires all lights served under its terms to have their operation controlled by photocells that respond to changes in ambient light conditions during

dusk and dawn hours. The usage of these lights that provides the basis for this charge is not metered, but is derived from calculations. Unmetered Company Owned lighting usage is based on the rated wattage of the fixture multiplied by monthly "burn hours," which are derived from sunrise and sunset times. The implication of this is that, once a customer elects a fixture, the usage of that fixture is completely out of that customer's control and the usage that will ultimately be billed can be determined precisely even in advance of the time when that usage occurs. In fact, in Figure 2 below, I show an illustration of the redesign process calculated for a 100 Watt HPS Area light in Rate Zone III. The annual bill for a customer on this rate could be applicable to any year where the rates shown are in effect, because the usage is consistent year to year based on the burn hours times rated wattage calculation.

Figure 2: Illustrative Impact of Proposed DS-5 Rate Design Change on an Individual Lighting Bill

	Current Rate Design							Redesigned Charges
Column	1	2	3	4	5	6	7	8
Month	Fixture Charge	Distribution Delivery Charge (DDC)	Burn Hours	Fixture Wattage (Including Ballast Losses)	kWh Consumption	Total Distribution Delivery Charge	Total DS Bill	Fixture Charge
Jan	$6.24	$0.01451	408	117	48	$0.69	$6.93	$6.81
Feb	$6.24	$0.01451	347	117	41	$0.59	$6.83	$6.81
Mar	$6.24	$0.01451	346	117	40	$0.59	$6.83	$6.81
Apr	$6.24	$0.01451	301	117	35	$0.51	$6.75	$6.81
May	$6.24	$0.01451	279	117	33	$0.47	$6.71	$6.81
Jun	$6.24	$0.01451	255	117	30	$0.43	$6.67	$6.81
Jul	$6.24	$0.01451	272	117	32	$0.46	$6.70	$6.81
Aug	$6.24	$0.01451	298	117	35	$0.51	$6.75	$6.81
Sep	$6.24	$0.01451	322	117	38	$0.55	$6.79	$6.81
Oct	$6.24	$0.01451	368	117	43	$0.62	$6.86	$6.81
Nov	$6.24	$0.01451	387	117	45	$0.66	$6.90	$6.81
Dec	$6.24	$0.01451	417	117	49	$0.71	$6.95	$6.81
Annual	$74.88		4,000		468	$6.79	**$81.67**	**$81.67**
Fixture Charge Redesign Adder (Current Annual Distribution Delivery Charge Revenue Divided by 12 Months)						$0.57		

Column	Source
1	Present Rates (MAP-P)
2	Present Rates (MAP-P)
3	Sunrise/Sunset
4	Fixture Specs
5	Burn Hours x Fixture Wattage
6	kWh x DDC
7	Fixture Charge + DDC Revenues
8	Current Fixture Charge + Fixture Charge Adder

Note again that in Figure 2 the total annual charges under the existing and redesigned rates are the same. And keep in mind that no action the customer can take (short of terminating

or changing the level of service) will have any influence on that fact. Lighting customers should be financially indifferent to redesigning the charges as I have proposed.[15]

Q. If customers are financially indifferent, what is the benefit of the rate redesign you have proposed?

A. Reducing the number of charge types can simplify customer bills and improve their understandability. Additionally, as I have mentioned a number of times, LED lights are considerably more energy efficient than the technologies they will replace. While the exact efficiency improvement varies by light type and size, in general they are about 60 percent more efficient as a class. By collecting fixed costs of the distribution system from lighting customers in a variable kWh charge, however, the Company would see material delivery service revenue erosion as the population of lights is converted over a few short years. For the affected lights (which represent over 90 percent of lights on the system), usage will be cut by nearly 60 percent. This change in revenue would represent lost opportunity for the Company to collect its revenue requirement. Designing rates that virtually assure such an outcome runs counter to sound rate making objectives.

[15] Due to mapping of legacy fixture technologies that have slightly different wattage to the HPS technologies in the existing tariff, the change will not be perfectly revenue neutral to every individual customer, but will be revenue neutral to the tariff light category and changes to individual lights should be small.

Q. Doesn't the Company already live with fluctuations in usage impacting revenues as a result of efficiency improvements across all classes? If so, what distinguishes the lighting class such that a rate design solution should be immediately implemented to rectify the problem when other classes have not been similarly redesigned?

A. Yes, the Company does currently bear some level of revenue erosion induced both by its own energy efficiency programs and customer actions taken of their own initiative to conserve. I do not necessarily endorse that outcome as the best policy, but there are very clear distinctions that make it even more inappropriate and unnecessary for the lighting class. First, as I described previously the existing kWh charge provides absolutely no price signal to customers and therefore cannot be said to be serving any reasonable rate making objective. Perpetuating lost opportunity for the Company to recover its revenue requirement for no reason is certainly not a good policy. Secondly, the speed and magnitude of the anticipated change in class usage is at a dramatically different scale for the lighting class than anything observed in the other rate classes. For other classes, we often talk about whether sales may be declining at a pace of about one percent per year, give or take a little bit. As the lighting class is transformed over a few short years, we expect usage to fall by roughly 60 percent. While loss of 1 percent or so of revenues from a class per year is concerning to me, loss of over 10 percent per year is simply another level of issue. This is especially true given my previous conclusion that the variable price that gives rise to that loss is not achieving any current ratemaking objective.

In fact, in other contexts, the Commission has implemented policies that help protect utilities from the impact of revenue erosion when total sales may be declining from year to year. One recent example is the Volume Balancing Adjustment rider (VBA) that was approved for gas service provided by AIC to residential and small commercial and industrial customers in Docket

15-0142. Rider VBA effectively decouples the Company's recovery of the fixed costs associated with providing distribution service from the level of sales the Company makes in a given period. The Company's DS-5 rate design proposal, while different in its mechanics from Rider VBA, would have a similar effect for electric lighting revenues.

Q. Does this proposal also create the need for changes to AIC's tariffs?

A. Yes. AIC will file a DS-5 tariff with the Commission outside of this case intended to provide the LED offering to customers in 2017. The rate design changes I proposed above will give rise to further changes to remove the reference to the Distribution Delivery Charge for Company Owned Lights and to change the pricing references to the default LED offerings for each light type. Legacy HPS, Metal Halide, Mercury Vapor, and Incandescent lights will derive their pricing from the replacement LED fixture applicable to that lighting type and wattage. The MAP-P Informational Sheet also will be updated to reference the default LED fixture for pricing.

Q. Why has AIC not included the proposed changes to the DS-5 tariff with this filing?

A. AIC is still in the process of developing details of its LED light offering to customers and therefore does not have all of the final information needed to effectuate the tariff changes that will be required. However, that is expected to occur prior to the conclusion of this rate redesign proceeding. Once the tariff changes implementing the LED as a customer offering have been completed, the additional changes regarding rate design to be effective in 2018 can be made to that tariff.

Q. Does AIC anticipate that its proposed changes to the DS-5 tariff will be available for review during this proceeding?

A. Yes. AIC anticipates that its proposed changes to the DS-5 tariff will be available for review by October of 2016, in advance of the record in this proceeding being closed.

E. DS-4 Rate Changes

Q. What rate design changes are being proposed for the DS-4 service classification?

A. The Company is proposing two changes to DS-4 rates. The first change involves the Reactive Demand Charge assessed to DS-4 customers. The Reactive Demand Charge has been fixed at $0.27/kVar for the three year period since Docket 13-0476. Ms. Althoff provides an updated cost basis for this rate, and also presents a plan to update pricing to be consistent with her calculated cost over a three year period. Next, the Company also proposes changes to the Transformation Capacity Charge structure and an updated cost basis for the charge applicable to customers taking service at +100 kV Supply Voltage.

Q. Please describe the changes proposed to the structure of the Transformation Capacity Charge.

A. As Ms. Althoff describes in her testimony, the +100 kV Supply Voltage subclass in Rate Zone II received a distinct transformation capacity charge, in Docket 13-0476, from the rest of the DS-4 class (including +100 kV customers in Rate Zones I and III) due to some unique characteristics of that group's usage and rate zone specific revenue allocations. As such, this presents a challenge for achieving uniformity, since the Rate Zone I and III customers served at the same voltage level derive their pricing from the charge common to all DS-4 customers. In order to facilitate uniformity and also recognize the unique nature of such transformation costs for the customers in this group, AIC proposes to calculate a distinct transformation capacity

charge based on the specific substations performing transformation services for all DS-4 customers served at +100 kV Supply Voltage and move each rate zone's charge toward that cost systematically over three years (similar to the movement toward uniformity described earlier in my testimony). Further, AIC proposes to amend its DS-4 tariff to require future customers in this classification to take such service under Rider EFC – Excess Facilities Charge (Rider EFC) and will grandfather existing customers to the proposed charge.

Q. Why is this proposal appropriate for this subclass of customers?

A. Transformation service for these customers is generally provided by facilities that are dedicated to specific customers and represent a significant investment. The costs of these large dedicated facilities should be collected from the customers that benefit from them to the extent possible. The best way to achieve this going forward is for customers to execute rental agreements under Rider EFC. For those existing customers that already have Company owned transformations without rental agreements, Ms. Althoff has calculated the embedded cost of transformation service dedicated to +100 kV DS-4 customers and proposes to move pricing in all three rate zones to that uniform level over three years. In future formula rate updates, AIC may provide further updates to the cost basis for this charge if changes in investments or other costs of providing transformation service change materially.

Q. How would this rate change impact the customers in this subclass?

A. For customers in Rate Zones I and III, they would see a reduction from the $0.59/kW that they currently pay to the $0.23/kW proposed by Ms. Althoff, phased-in over three years. Rate Zone II customers would see an increase from $0.15/kW to the same $0.23/kW level, also phased in over three years. This would move these customers to a charge that reflects the cost of providing the service.

F. Summary of Prices and Revenues

Q. Has AIC compared the prices it proposes in this proceeding against those proposed in Docket 16-0262?

A. Yes. A comparison of the prices AIC proposes in this proceeding against those proposed in Docket 16-0262 is contained in Ameren Exhibit 1.4. In the aggregate, the prices proposed in this proceeding generate revenue equal to the revenue requirement AIC has proposed in Docket 16-0262.

Q. Have you calculated the bill impacts that various groups of customers would experience as a result of the rate changes that arise from the revenue neutral rate design changes?

A. Yes. Please see Ameren Exhibit 1.5 for Residential Bill Impacts and Ameren Exhibit 1.6 for Non-Residential Bill Impacts.[16] Of note, the impact of the rates on the bills of typical residential space heating customers, a class for whom the Commission expressed concern in the Order on Rehearing in Docket 16-0262, is a modest reduction. This decrease results from the reduction in the amount of costs being recovered in the variable charge associated with the Company's DS-1 rate proposal. A residential space-heating customer using 18,000 kWh per year would realize savings of approximately $1.40 per month, roughly 2.4 percent on the delivery service bill. A large space heat customer with usage around 37,000 kWh per year would save about $3.20 per month, or 3.7 percent on the delivery service bill. For smaller residential

[16] Bill impacts result from both proposed rate design changes and the application of revenue allocation and rate mitigation processes for another year following Docket 16-0262. This represents the next step in movement toward cost for items such as EDT, which will occur for rates effective in 2018. Actual 2018 rates will follow this process but also reflect revenue requirement and other ECOSS updates associated with the 2017 MAP update.

customers, who would realize a bill increase due to the increasing fixed charge, that increase would not exceed $1.40 per month (the increase in the fixed charge).

VII. TARIFF CHANGES

Q. What tariff changes are necessary to implement AIC's proposals in this proceeding?

A. Tariff changes are presented in Ameren Exhibit 1.7. Tariffs being updated include Rate DS-3 General Delivery Service, Rate DS-4 Large General Delivery Service and Rate MAP-P. The changes to the DS-4 tariff relate to the discussion above regarding the requirement that future customers served at +100 kV Supply Voltage obtain transformation service through Rider EFC beginning April 1, 2017. In order to maintain consistency in wording between the DS-3 and DS-4 tariffs, an update is being made to the DS-3 tariff as well regarding transformation service. The changes to Rate MAP-P remove references in the discussion of the formula rate methodology to class cost of service studies being performed at the rate class level. As mentioned during my discussion of lighting, further changes to the DS-5 tariff should also be made based on the outcome of this case. Because an interim tariff filing will be required while this docket is pending, AIC is not filing the DS-5 tariff changes at this time. A revised DS-5 tariff can be included in the record in this case after the first change to DS-5 has been made by a separate filing. The final DS-5 tariff with the changes recommended by the Company can be filed as a compliance filing with the Commission order at the conclusion of this docket.

VIII. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes, it does.

APPENDIX

STATEMENT OF QUALIFICATIONS
STEVEN M. WILLS

I received a Bachelor of Music degree from the University of Missouri-Columbia in 1996. I subsequently earned a Master of Music degree from Rice University in 1998, then a Master of Business Administration (M.B.A) degree with an emphasis in Economics from St. Louis University in 2002. While pursuing my M.B.A., I interned at Ameren Energy in the Pricing and Analysis Group. Following the completion of my M.B.A. in May 2002, I was hired by Laclede Gas Company as a Senior Analyst in its Financial Services Department. In this role, I assisted the Manager of Financial Services in coordinating all financial aspects of rate cases, regulatory filings, rating agency studies and numerous other projects.

In June 2004, I joined Ameren Services as a Forecasting Specialist. In this role, I developed forecasting models and systems that supported the Ameren operating companies' involvement in the Midwest Independent Transmission System Operator, Inc.'s (MISO)[17] Day 2 Energy Markets. In November of 2005, I moved into the Corporate Analysis Department of Ameren Services, where I was responsible for performing load research activities, electric and gas sales forecasts, and assisting with weather normalization for rate cases. In January 2007, I accepted a role I briefly held with Ameren Energy Marketing Company as an Asset and Trading Optimization Specialist before returning to Ameren Services as a Senior Commercial Transactions Analyst in July of 2007. I was subsequently promoted to various positions within the same group leading to a role as the Manager of Quantitative Analytics. In this role, I testified in numerous rate cases and various other regulatory proceedings in front of the Missouri Public

[17] MISO has since changed its name to the Midcontinent Independent System Operator, Inc.

Service Commission. I also led a team responsible for electric and gas sales forecasting, load research, pricing of structured transactions, and various other analytical tasks.

In April 2015, I accepted my current position as Director of Rates and Analysis for Ameren Illinois. In this role, I oversee the development of cost of service studies, regulated pricing and rate design, and other analytical functions to support the Company's regulatory initiatives and requirements.