Exhibit No.:	_____
Issue(s):	Rate Design/ Cost of Service Study
Witness/Type of Exhibit:	Marke/Direct
Sponsoring Party:	Public Counsel
Case No.:	ER-2014-0258

DIRECT TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of
the Office of the Public Counsel

**UNION ELECTRIC COMPANY D/B/A
AMEREN MISSOURI'S**

Case No. ER-2014-0258

** **

Denotes Highly Confidential Information that has been Redacted

December 19, 2014

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BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariff to Increase Its Revenues for Electric Service	)))))	Case No. ER-2014-0258

AFFIDAVIT OF GEOFF MARKE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Geoff Marke, of lawful age and being first duly sworn, deposes and states:

1. My name is Geoff Marke. I am a Regulatory Economist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my direct testimony.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

Geoff Marke

Subscribed and sworn to me this 19th day of December 2014.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

JERENE A. BUCKMAN
My Commission Expires
August 23, 2017
Cole County
Commission #13754037

Jerene A. Buckman
Notary Public

My Commission expires August 23, 2017.

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DIRECT TESTIMONY

OF

GEOFF MARKE

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

CASE NO. ER-2014-0258

I. INTRODUCTION

Q. Please state your name, title and business address.

A. Dr. Geoffrey Marke, Economist, Office of the Public Counsel (OPC or Public Counsel), P.O. Box 2230, Jefferson City, Missouri 65102.

Q. Please describe your education and employment background.

A. I received a Bachelor of Arts Degree in English from The Citadel, a Masters of Arts Degree in English from The University of Missouri, St. Louis, and a Doctorate of Philosophy in Public Policy Analysis from Saint Louis University (SLU). At SLU, I served as a graduate assistant where I taught undergraduate and graduate course work in urban policy and public finance. I also conducted mixed-method research in transportation policy, economic development and emergency management.

I have been in my present position with OPC since April of 2014 where I have been responsible for economic analysis and policy research in electric and gas utility operations. Prior to joining OPC, I was employed by the Missouri Public Service Commission as a Utility Policy Analyst II in the Energy Resource Analysis Section, Energy Unit, Utility Operations Department, Regulatory Review Division. My primary duties in that role involved reviewing, analyzing and writing recommendations concerning electric integrated resource planning, renewable energy standards, and demand-side management programs for all investor-owned electric utilities in Missouri. I have also been employed by the Missouri

Department of Natural Resources (later transferred to the Department of Economic Development), Energy Division where I served as a Planner III and functioned as the lead policy analyst on electric cases. I have worked in the private sector, most notably serving as the Lead Researcher for Funston Advisory based out of Detroit, Michigan. My experience with Funston involved a variety of specialized consulting engagements with both private and public entities.

Q. Have you testified previously before the Missouri Public Service Commission?

A. Yes, prior to this case I submitted written testimony in EO-2012-0142, EO-2014-0189, GR-2014-0086 and GR-2014-0152.

Q. Have you been a member of, or participated in, any work groups, committees, or other groups that have addressed electric utility regulation and policy issues?

A. Yes. I am currently a member of the National Association of State Consumer Advocates (NASUCA) Distributed Energy Resource Committee which shares information and establishes policies regarding energy efficiency, renewable generation, and distributed generation, and considers best practices for the development of cost-effective programs that promote fairness and value for all consumers. I am also a member of NASUCA's Electricity Committee, which discusses current issues affecting residential electric consumers. Additionally, I have been selected to participate as a "consumer" voice on several working committees toward the development of Missouri's State-Wide Energy Plan currently being undertaken by the Missouri Division of Energy.

Q. What is the purpose of your direct testimony?

A. The purpose of this testimony is: 1) to make OPC's rate design recommendations based on a series of questions submitted by the Commission regarding the stabilization or growth of demand in geographic locations where there is underutilization of existing infrastructure, and 2) to present the results of Public Counsel's Class Cost of Service (CCOS) study in this case

and preliminary inter-class rate design recommendations. I will respond to each of the rate design questions the Commission raised in turn first.

II. ECONOMIC DEVELOPMENT RATE DESIGN MECHANISM

Q. Should any rate design mechanism be established to promote stability or growth of customer levels in geographic locations where there is underutilization of existing infrastructure?

A. Properly designed, perhaps. However, there may be other more preferable mechanisms to provide an economic development rate structure which would operate in a more narrowly tailored and efficient fashion than that suggested by the Commission's questions. Examples of approaches adopted in other jurisdictions are included later in this testimony.

As to the Commission's inquiry, OPC offers that geographic locations experiencing population loss can serve as a useful, empirical proxy for infrastructure underutilization for all rate paying classes. However, the Commission should be mindful of certain, albeit limited, benefits to excess capacity. For instance, transmission lines in depopulated areas are often needed to service other areas where population is stable or growing. Further, redundancy in energy infrastructure may be desirable since under-used infrastructure provides a back-up for the rest of the network, particularly in emergency situations. Ultimately, it is likely preferable to maintain existing infrastructure as it would be both difficult and expensive to restore or expand service at a later point if a given area regains population.[1]

If the Commission enacts a mechanism to incentivize demand in an area with underutilized infrastructure, the Commission should be mindful of the potential conflicting policy direction inherent in a rate design mechanism charged with promoting energy usage while other policy is in place attempting to curb energy demand. The tension between economic growth and

[1] Hoornbeek, J. Schwarz. T. (2009) Sustainable Infrastructure in Shrinking Cities: Options for the Future. Kent State. http://www.cudc.kent.edu/projects_research/research/54064004-Sustainable-Infrastructure-in-Shrinking-Cities.pdf

environmental sustainability is persistent, as the Commission is well aware, and merits additional dialogue beyond the scope of this testimony.

Q. Should any rate design mechanism apply to residential, commercial, industrial customers and/or other rate classes, and should it apply to existing customers and/or new customers?

A. If the Commission elects to move forward with an economic development/infrastructure sustainability rate design mechanism, subject to review of the other parties' testimony, OPC suggests that the mechanism be applied to all but the residential and lighting classes. An infrastructure-based economic development rate design mechanism that included the residential class would likely affect too large of a range of income and consumption to justify a class-wide mechanism; too many whose income or consumption indicate they need no incentive, would be afforded a rate reduction in the given geographic area.

However, exclusion of the residential class from this mechanism should be married to Commission consideration of the creation of an "income eligible" residential rate mechanism for economic development purposes. In Ameren's service territory, low-Income rate payers may, and likely do, utilize less power than more affluent ratepayers.[2] If so, a low-income

[2] Berelson, Serj "Myths of Low-Income Energy Efficiency Programs: Implications for Outreach," ACEEE 2014 Summer Study on Energy Efficiency in Buildings, http://www.aceee.org/files/proceedings/2014/data/papers/7-287.pdf

Opower, 2010. Opower National Survey of Consumer Energy Use and Attitudes, October 2010.

Tetra Tech (Tetra Tech, Inc.). 2012a. "Final Report for the Research and Analysis of Energy Usage for NV Energy Low-income Customers." P. 4–29. http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2005_THRU_PRESENT/2009-6/36086.pdf.

———. 2012b. "Final Report for the Research and Analysis of Energy Usage for NV Energy Low-income Customers." P. 4–37. http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2005_THRU_PRESENT/2009-6/36086.pdf

Winn, Caroline. Intelligent Utility. 2013.Low-income Customers Want to Engage. December 2013.

residential mechanism could have the dual benefit of improving electricity demand while also fomenting general economic development among users by freeing up scarce funds for other uses. OPC supports the proposition that if an economic development rate mechanism applicable to commercial, industrial and other business ratepayers is implemented in a geographic location, some mechanism should also be afforded to residential ratepayers in that location. A class which has seen negative wage growth in real terms from 2007-2013, while electric rates in Ameren's service territory in the same period have jumped 43.16%, merits relief as much as Missouri's praiseworthy businesses merit relief.

For the non-residential and non-lighting classes, OPC offers that an economic development rate design mechanism should be applicable to customers whose presence (new customer) or absence (existing customers) would materially impact revenue generation from the customer's class, and/or create substantially deleterious primary and secondary externalities felt within the geographic location such that the revenue generated from the class in the geographic location is substantially likely to be negatively affected going forward. Moreover, any rate incentive should be temporal in nature, decreasing over time, and only be available in conjunction with local, regional or state governmental economic development activities where public support has been offered and accepted by the customer to locate new facilities, expand existing facilities, or retain existing facilities in the geographic location.

Q. What geographic locations should be the subject to any such rate design mechanism?

A. To determine appropriate geographic locations, OPC suggests that the Commission consider the Missouri Office of Administration—Division of Budget and Planning's work entitled "Missouri Population Projections—Preferred Series."[3] This work examines projected birth, death and net migration movement on a county-wide basis from 2000 to 2030. In addition,

http://www.intelligentutility.com/magazine/article/337263/low-income-customers-wantengage

[3] Missouri Office of Administration: Division of Budget & Planning (2014) Population Projections: 2000 – 2030 Projections. http://oa.mo.gov/budget-planning/demographic-information/population-projections/2000-2030-projections

the Commission should consider known changes in population as measured between the most recent two decennial censuses. Further, within St. Louis County the Commission should consider communities considered distressed under Missouri law, all but one of which have experienced population loss as determined in the last census. On a whole, population declines are correlated with underutilized infrastructure, and would appear to be an appropriate metric from which to base an economic development rate design mechanism tied to infrastructure underutilization.

Q. What is the Missouri Population Projection—Preferred Series and what does it say with respect to counties where Ameren Missouri operates?

A. Completed in 2008, The Missouri Population Projection—Preferred Series utilized a demographic technique called the "cohort-component," where 2000 U.S. Census data was utilized to generate projections out to the year 2030 and which is presented across 114 counties and the city of St. Louis at five-year intervals. The population projected at the end of a given five-year time period served as the "beginning population" for the next five-year period.

The basic equation is as follows:

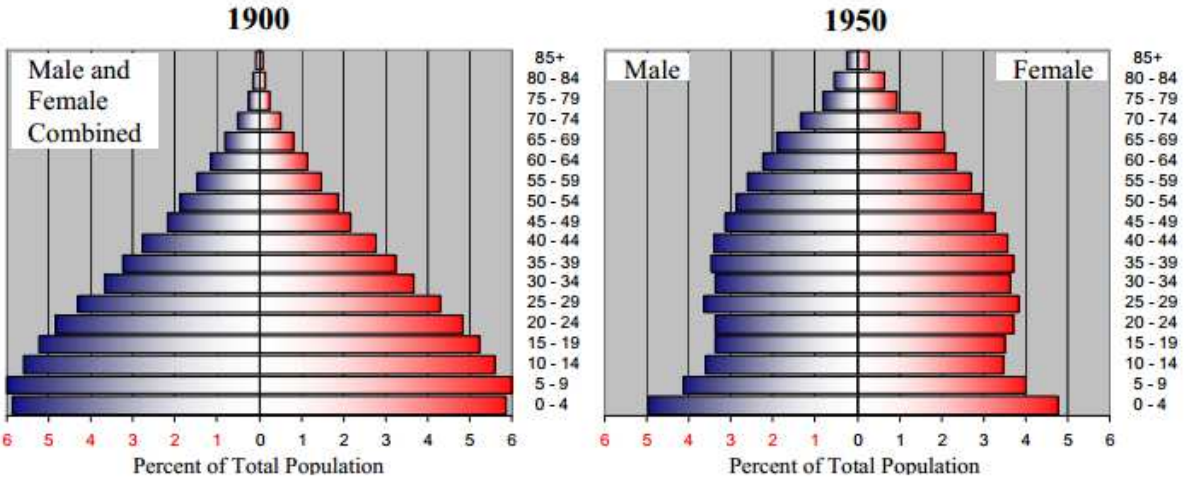
> Population at the beginning of the time period + births for the time period – deaths for the time period +/- migration for the time period = projected population at the end of the time period.[4]

These projections (births, death, migration) are based on historical trends for each of the age cohorts (e.g., x% of males age 55-59 historically survive to age 60-64) and then projected on a county-by-county basis.

[4] Missouri Office of Administration: Division of Budget & Planning (2014) Population Projections: Methodology. http://oa.mo.gov/budget-planning/demographic-information/population-projections/methodology

According to the population projections, Missouri is expected to approach 6.8 million people in 2030, a growth of roughly 1.2 million people from the year 2000, or a 21% increase to the state's population. Even though Missouri's overall population is expected to increase, demographic trends suggest that the make-up will reflect nation-wide trends of an aging population where 1 out of 5 citizens will be seniors.[5] This can be seen by looking at the breakdown of age and gender cohorts in Missouri from 1900 to the 2030 projections as shown in figure 1.

Figure 1: Missouri population pyramids: population by age-sex cohort as a percentage of total population[6]



[5] MERIC (2014) Population Data Series New Population Projections Released. http://www.missourieconomy.org/indicators/population/pop_proj_2030.stm

[6] http://archive.oa.mo.gov/bp/projections/fig1.pdf

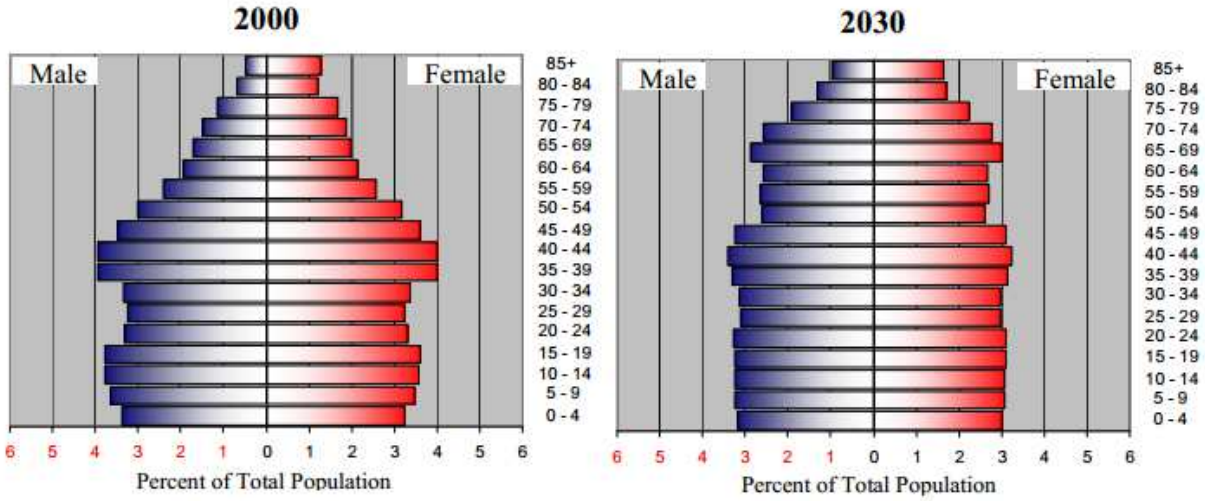


Figure 1 illustrates the historic swings in fertility rates as well as the advancement of modern medical science. According to Missouri's Office of Administration:

> As projected, Missouri's population will have a rectangular cast by 2030. Baby-boomers will swell upper sections of the pyramid to unprecedented widths and long-sustained low levels of fertility will produce consistent narrow bands in the lower half of the age distribution.[7]

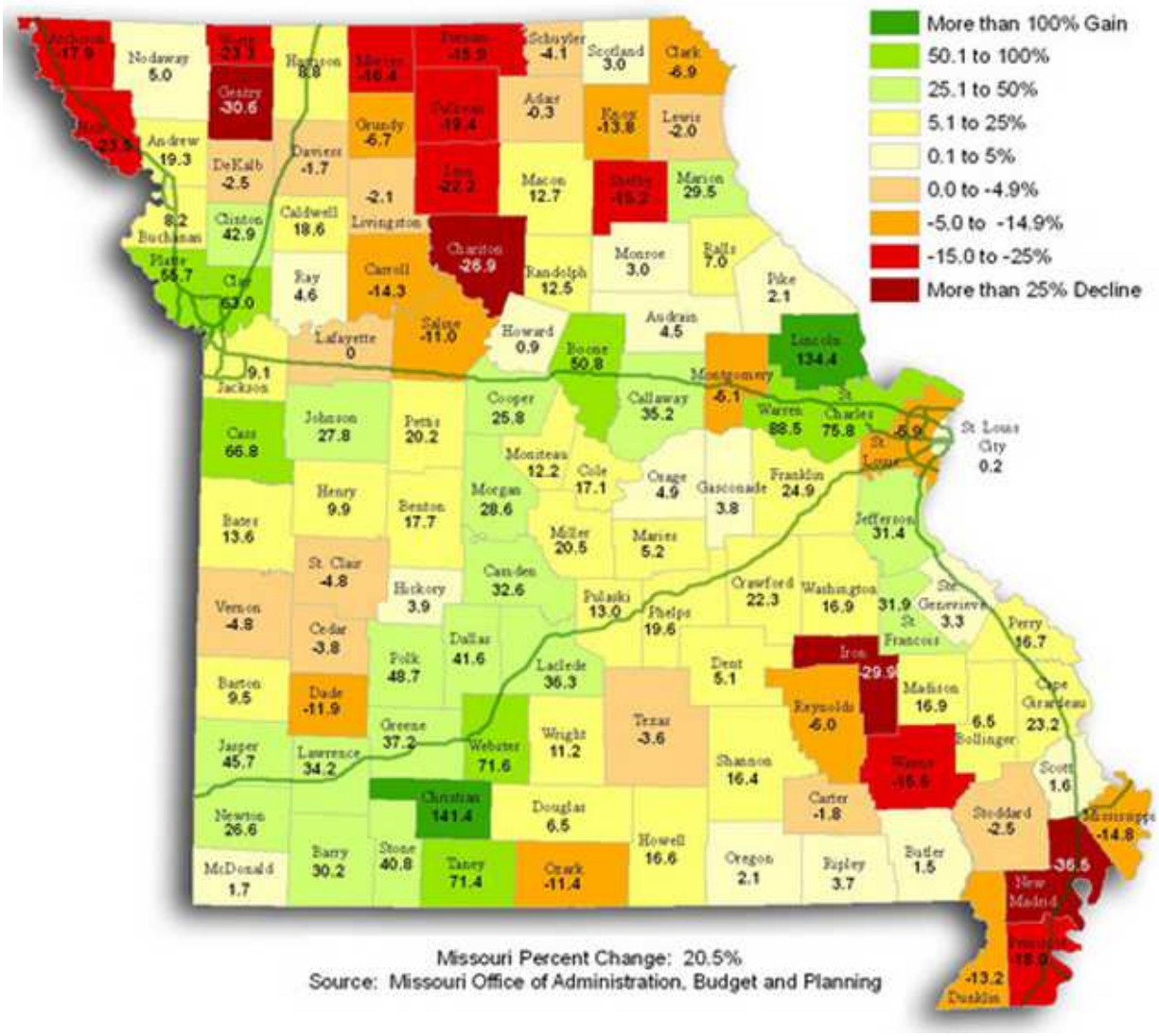
Additionally, population migration patterns suggest that residents will be more densely concentrated near and around larger cities.

As a result of the combined effects of aging and population migration, 39 (largely rural) out of 114 counties are projected to experience a decline in population by 2030. Figure 2 is a map of the projected percent change in population by county from 2000 to 2030.[8]

[7] http://oa.mo.gov/budget-planning/demographic-information/population-projections/population-trends

[8] MERIC (2014) Population Data Series New Population Projections Released. http://www.missourieconomy.org/indicators/population/pop_proj_2030.stm.

Figure 2: Missouri Percent Change in Population, 2000 to 2030.



Based on information supplied in Ameren Missouri's minimum filing requirements, table 1 includes all counties Ameren Missouri services at least in part and the projected negative population shift from 2000 to 2030.

Table 1: 2000-2030 Projected Negative Population Shift within Ameren Missouri Counties

County	% Change	County	% Change
Adair	-0.3	Livingston	-2.1
Caroll	-14.3	Mississippi	-14.8
Chariton	-26.9	Montgomery	-5.1
Clark	-6.9	Pemiscot	-18
Daviess	-1.7	Reynolds	-6
Dekalb	-2.5	St. Louis County	-5.9
Dunklin	-13.2	Saline	-11
Gentry	-30.6	Schuyler	-4.1
Iron	-29.9	Stoddard	-2.5
New Madrid	-36.5	Sullivan	-19.4
Linn	-22.2		

Q. Why is a population decline significant?

A. Declining population is correlated to less economic activity in a given area, property devaluation, higher crime, smaller workforce and lower tax rolls. In certain circumstances, a declining population can also create a labor shortage, which can have a large impact in counties with labor-intensive sectors. The aforementioned projected declines (and increases in other counties) are far greater than what was seen during the last two census releases.

Q. What counties experienced a population decline as measured between the 2000 and 2010 censuses?

A. Table 2 provides a list of the same counties and the known negative changes in population as measured between the most recent two decennial censuses (2000-2010). [9]

[9] Missouri: County Population Change 2000 to 2010 Numeric and Percent Change
http://archive.oa.mo.gov/bp/pdffiles/MoCoPop2000-2010.pdf

Table 2: 2000-2010 Negative Population Shift within Ameren Missouri counties

County	% Change	County	% Change
Audrain	-1.3	Linn	-7.2
Carroll	-9.6	Monroe	-5.1
Chariton	-7.2	New Madrid	-4.1
Clark	-3.7	Pemiscot	-8.7
Dunklin	-3.6	Reynolds	-0.1
Gentry	-1.8	St. Louis City	-8.3
Howard	-0.7	St. Louis County	-1.7
Iron	-0.6	Saline	-1.6
Knox	-5.3	Scotland	-2.8
Lewis	-2.7	Sullivan	-7

Q. What population loss has occurred and is projected to occur in St. Louis County?

A. St. Louis City is expected to remain relatively flat in terms of population, but lost 8.3% of its population between 2000 and 2010. St. Louis County lost 1.7 of its population in that same period and is projected to lose approximately 60,000 residents overall by 2030. This change represents a loss of 5.9% (2000 to 2030), and would be the greatest statewide loss in terms of absolute residents because of the county's overall size. Because of St. Louis County's dense population and broad socio-economic range of municipalities, there is much variation within the county itself, portions of the county are reasonably expected to remain flat in population, other portions are expected to grow. Most population loss is expected to be felt in the northern part of the county, which also corresponds to the geographic locations of its legally designated distressed communities.

Q. Does OPC have any recommendations on how to approach St. Louis County?

A. If the Commission elects to move forward with an economic development/infrastructure rate design mechanism, OPC suggests that St. Louis County's density, municipal make-up, and diverse economic range be taken into consideration. The Commission should strongly

consider that a further designation, "distressed community," be utilized to allow certain sections of St. Louis County to be eligible for the proposed mechanism and to exclude those areas within the County that clearly need no incentive to foment growth.

Q. How is a distressed community defined?

A. Section § 135.530, RSMo, defines a distressed community as:

> either a Missouri municipality within a metropolitan statistical area which has a median household income of under seventy percent of the median household income for the metropolitan statistical area, according to the last decennial census, or a United States census block group or contiguous group of block groups within a metropolitan statistical area which has a population of at least two thousand five hundred, and each block group having a median household income of under seventy percent of the median household income for the metropolitan area in Missouri, according to the last decennial census.[10]

Q. What communities within St. Louis County are currently considered distressed under the aforementioned definition?

A. According to the Missouri Rebuilding Communities Tax Credit Program, the following communities listed in table 2 have been designated as "distressed communities" in St. Louis County: [11]

[10] http://law.justia.com/codes/missouri/2005/t10/1350000530.html

[11] Missouri Department of Economic Development (2014) Rebuilding Communities Tax Credit Program Application & Guidelines. http://www.ded.mo.gov/upload/ProgramAndApplications.pdf

Table 2: Distressed communities within St. Louis County

Bel-Ridge	Hillsdale	Pagedale
Berkeley	Jennings	Pine Lawn
Breckenridge Hills	Kinloch	Riverview
Cool Valley	Maplewood	Velda City
Country Club Hills	Marlborough	Velda Village Hills
Edmundson	Normandy	Vinita Park
Ferguson	Northwoods	Wellston
Flordell Hills	Norwood Court	

Q. Can you provide similar population declines for these communities?

A. The Missouri Population Projection—Preferred Series does not break down population projections at the municipal level. However, specific data on municipal population decline at the St. Louis County level was made available through the assistance of St. Louis's East-West Gateway Council of Governments and is based on US Census data from 2000 to 2010 as seen in table 3.

Table 3: St. Louis County "distressed communities" population change 2000-2010

City	% Change	City	% Change
Bel-Ridge	-11.2	Marlborough	-2.5
Berkeley	-10.8	Normandy	-2.81
Breckenridge Hills	-1.5	Northwoods	-8.96
Cool Valley	10.6	Norwood Court	-9.6
Country Club Hills	-7.7	Pagedale	-8.6
Edmundson	-0.7	Pine Lawn	-22.1
Ferguson	-5.4	Riverview	-9.2
Flordell Hills	-11.7	Velda City	-12.1
Hillsdale	-0.1	Velda Village Hills	-3.2
Jennings	-4.9	Vinita Park	-2.3
Kinloch	-33.6	Wellston	-6.98
Maplewood	-12.8		

As seen in table 3, 22 of the 23 distressed communities experienced population decline from 2000 to 2010.[12] As an aside, even though St. Louis City is projected to have a flat growth projection, it, too, is listed as a distressed community.

Q. Should a rate design mechanism be available only at the discretion of the company?

A. No. The rate design mechanism should be an automatic process where a customer is eligible under the Commission's explicit criteria. This testimony will later provide evidence as to what has happened to date in situations where the rate design mechanism was solely at the discretion of the utility.

Q. What are the appropriate eligibility criteria for any such rate design mechanism?

A. OPC would suggest the following eligibility criteria:

- A Missouri county other than St. Louis County which has experienced a population decline as measured by the difference in population counted between the last two decennial censuses and which is projected to experience a decline in population going forward according to the Missouri Population Projection—Preferred Series; or,
- A specific municipality within St. Louis County that has been classified as a "distressed community" under § 135.530, RSMo, and
- Consistent with the Commission-approved Economic Development Rider authorized for KCPL-MO and GMO:
    - Projected average monthly peak demand of at least 200 kW during the first two years
        - The next three years, customers need to maintain an average monthly peak demand of at least 200 kW

[12] The single distressed community experiencing a population increase is actually rather small in terms of population, and so, the 10.6% increase represents comparatively little actual growth.

- Annual load factor projected to equal or exceed 55% within two years of the date the customer first received service
  - The next three years, customer must maintain 55% for year's three to five.
- Beneficial location of new or expanded facilities.
- Prohibition on load shifting for existing/expanding customers.
- Offered in conjunction with Federal, State, Regional or Local governmental economic development activities.

- Other criteria should include:
  - Creation of new permanent full-time jobs in the designated geographic location;
  - Minimum capital investment commitment.

- Revenue to be received from customer over the term of the contract should be greater than the applicable incremental cost to provide electric service—ensuring a positive contribution to fixed costs.

Q. Would a new rate design mechanism promote efficient utilization of the Company's existing infrastructure?

A. A rate design targeted to attracting new customers or retaining existing customers in areas where existing infrastructure is currently underused or is projected to be underutilized, and as outlined in this testimony, could be a viable new rate design mechanism. Furthermore, confining the mechanism to counties projected to experience declining population rates and distressed communities in St. Louis County can produce additional positive externalities for the region as a whole.

Q. Would a new rate design mechanism be reasonably related to the cost of serving eligible customers?

A. As contemplated by OPC, a properly designed and targeted economic development rate mechanism should bear a reasonable relationship to the cost of serving eligible customers. Were a discount to be considered that might allow a customer to pay below the utility's cost to serve the customer's class, the application for such a discount should be considered and approved specifically by the Commission.

The relative success of KCP&L-MO and GMO's economic development design mechanisms, and the continued promotion of similar such riders in other states, suggest that a an economic development rate design mechanism can work and remain reasonably related to the cost of serving eligible customers. Moreover, and to be discussed in greater detail later in this testimony, an incremental cost analysis should be performed on an annual basis to verify that benefits outweigh costs in promoting such a mechanism.

Q. Would a new rate design mechanism be in the public interest?

A. An Economic Development Rider designed to encourage business development in areas where population has declined or is projected to decline could act, if properly designed, as a preventive measure against existing and/or future economic hardship. The mechanism must be designed to attract capital expenditures to the State, diversify Ameren Missouri's customer base, create jobs, and serve to improve the efficient utilization of existing facilities and transmission infrastructure. As OPC reviews additional testimony supplied by the other parties on these questions, OPC may make additional recommendations.

Q. Please comment on similar rate design mechanisms in Missouri, currently or historically, including the existing Economic Re-Development Rider available to portions of the City of St. Louis, and their effectiveness.

A. Ameren Missouri currently has two Economic Development Riders both designed to encourage new industrial and commercial development and to retain existing load where possible. The components of the two riders can be broken down as follows:

1.) **Ameren Missouri Rider ERR: Economic Re-Development Rider**

- **Site specific:** to previously vacant sites (of at least 180 days) within St. Louis City (service territory maps provided in tariff).
- **Eligibility:** to 3(M) Large General Service Rate, 4 (M) Small Primary Service Rate, or 11 (M) Large Primary Service Rate.
    - Must have average monthly peak of at least 500 kW during each contract year.
    - Only available in conjunction with Federal, State, Regional or Local governmental economic development activities.
    - Not available to successor customer that results in load shifting from one location on Company's system to a qualifying site—unless approved by Company.
    - Limited to loads, which in the Company's sole judgment, utilize existing infrastructure in a manner which is beneficial to the local electric service delivery system.
- **Incentive provisions:** Can come in two forms and are at the discretion of the Company.
    - Facilities and relocation charges
        - Upon customer's request and Company's consent.
        - Net relocation cost chargeable to customer may be offset in part by an amount not to exceed 50% of any net annual revenue estimated to be derived from customer's premises.
        - And not utilized in meeting the Company's tariff provisions governing extensions to non-residential customers.
    - Discount from standard tariff
        - Customer enters into contract with Company that is mutually agreeable.
        - Customers eligible for a 15% discount from otherwise applicable base rate tariff charges, before application of taxes.
        - Customers have to have annual peak demand of at least 500 kW and an annual load factor exceeding 55%.
        - Discount remains in effect for 60 months (5 years).

- No customers residential or retail in nature.

- **Results**: According to Ameren Missouri's response to Staff data request 0441:

  No customer has participated in the Economic Re-Development Rider (ERR) tariff.

2.) **Ameren Missouri Rider EDRR: Economic Development and Retention Rider**

- **Site specific:** No.
- **Eligibility:** to 3(M) Large General Service Rate, 4 (M) Small Primary Service Rate, or 11 (M) Large Primary Service Rate.
  - Only available at Company's sole discretion
  - Applicable only to customers who: 1) are either currently being serviced by other electric options or have other viable electric options available to choose from; 2) have an obligatory affidavit stating customer's intent to use other viable electric option
  - Must have average monthly peak of at least 500 kW during each contract year.
  - Annual load factor projected to equal or exceed 55% during the entire term of Rider
  - Only available in conjunction with Federal, State, Regional or Local governmental economic development activities.
- **Incentive provisions:** Are at the discretion of the Company.
  - Contract, service, terms and conditions agreed with Company.
  - Revenues received from customer over the term of the contract shall be greater than the applicable incremental cost to provide electric service, as determined by the Company, ensuring a positive contribution to fixed costs.
  - Discount from standard tariff
    - Not to exceed 15% discount before tax additions
    - Not to exceed five-years in length

- **Results**: According to Ameren Missouri's response to Staff data request 0441:

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  **

Q. Please continue.

A. It is unclear why there have been no participants to date under either Rider. A cursory look at Ameren Missouri's webpage suggests that information on these Riders may not be readily accessible to the public. Ameren Missouri does have an Economic Development section on their website.[13] However, there are no links, descriptions, or notices of the availability of the aforementioned Riders to prospective customers. Only through a specific search query on Ameren's webpage would a customer be taken to the Electric Full Service Rates for Ameren Missouri, which essentially is Ameren Missouri's tariff sheet broken down into its component parts.[14] Such a query requires the customer to know in advance precisely what to look for.

Q. What about KCP&L-MO and GMO? Do they offer an Economic Development Rider?

A. Yes, they do. Both KCP&L-MO and GMO offer an Economic Development Rider that has proven to be more successful to date.

1.) **KCPL-MO & GMO Economic Development Rider**

- **Site specific:** No.
- **Eligibility:** to company's Medium General Service, Large General Service, or Large Power Service rate schedules.

[13] https://www.ameren.com/business-partners/ec-dev
[14] https://www.ameren.com/missouri/rates/electric-full-service-bundle

- Must have *projected average monthly peak of at least 200 kW* during first two years.
  - Must maintain average monthly peak of at least 200 kW during years three to five.
- Annual load factor *projected to equal or exceed 55%* within two years of the date the customer first receives service.
  - Must maintain 55% or above for years three to five.
    - If not able to be met…
- *Other criteria can be utilized including:*
  - *100 or more new permanent full-time jobs created or percentage increased in existing permanent full-time jobs;*
  - *Capital investment of $5 million or more*
  - *Additional Off-peak Usage*
- Only available in conjunction with Federal, State, Regional or Local governmental economic development activities.
- Not available to successor customer that results in load shifting from one location on Company's system to a qualifying site—unless approved by Company.
- No selling or providing goods and/or services directly to the general public
- Revenues to be received from customer over the term of the contract shall be greater than the applicable incremental cost to provide electric service—ensuring a positive contribution to fixed costs.

- **Incentive provisions:** Can come in two forms and are at the discretion of the Company.
  - Discount from standard tariff
    - Pre-tax revenues under Rider shall be determined by reducing otherwise applicable charges according to rate schedule, by:
      - *Year 1 = 30%*
      - *Year 2 = 25%*
      - *Year 3 = 20%*

- *Year 4 = 15%*
- *Year 5 = 10%*

  - *Optional Year 6 = 10% if Company determines utilization of existing infrastructure is beneficial to the local electric delivery system.*

- **Incremental Cost Analysis:**

  - *A confirmation that revenues received from customers under the rider are sufficient to cover the utilities increased costs to service, the utility will provide an analysis of the results in their triennial and annual updates filed under the Commission's Chapter 22 Electric utility Resource Planning Rules.*

- **Results**: In October, 2013, KCP&L and KCP&L GMO received approval for revised Economic Development Rider tariffs. Since that time, there have been four applications approved for an EDR in both the KXCP&L jurisdiction and the GMO jurisdiction, for a combined total of eight.

Q. Please continue.

A. On a whole, KCPL-MO/GMO has offered a more attractive, flexible, and successful Economic Development Rider than Ameren Missouri has. There is a greater range in the eligibility criteria and more attractive savings opportunities for prospective customers. The resulting participation in new and existing/expanding customers taking advantage of this Rider suggests that the greater Kansas City region and ratepayers on a whole are benefiting from its inclusion. According to KCP&L's responses to OPC inquires, the targeted companies appear to be creating goods or services that are being exported out of the region and bringing back wealth, jobs and economic value.

A cursory look at KCP&L's website demonstrates that their Rider is readily accessible to the public. Like Ameren Missouri, KCP&L has an Economic Development section on their website. [15] Unlike Ameren Missouri, there are clear links that include a description of the

[15] http://www.kcpl.com/about-kcpl/economic-development/incentives

Economic Development Rider incentives, the application material, eligibility criteria, and contact information all without having to leave the Economic Development section or otherwise search through the Company's tariff.

Q. Does Empire Electric have an Economic Development Rider?

A. No.

Q. Please comment on any similar rate design mechanisms in other states and their effectiveness.

A. Attached hereto is GM-1, a breakdown of Economic Development Rider parameters from neighboring states, including: the applicable utility company, discounts provided, and qualifications imposed. Attachment GM-2 includes copies of each of the Economic Development Rider tariff sections that are included in attachment GM-1 for further detail.

Although there is variation among utilities in how Economic Development Riders are being designed and implemented, many of the same parameters are consistent, including:

- Rider is only offered to Commercial and Industrial customers of a certain size.
- It is temporal in nature—not designed to last in perpetuity.
- Revenues received are greater than the applicable incremental costs to provide electric service—ensuring a positive contribution to fixed costs.
- Load-shifting is largely prohibited.

OPC has been unable to locate an Economic Development Rider centered on maintaining or otherwise preventing the underutilization of existing infrastructure, though, this attribute appears to be a by-product of the larger intent of encouraging economic growth. The suggestions made by OPC in this testimony have been formulated under the direction of the questions posed by the Commission. If the Commission elects to move forward with such a rate design mechanism, a rider targeted at communities and counties likely to experience a

significant population decline would help ensure that economic opportunities are centered on sections of Ameren Missouri's service territory most at risk of infrastructure underutilization.

III. CLASS COST OF SERVICE STUDY

Q. Has OPC prepared a class cost of service (CCOS) study for this case?

A. Yes. OPC has prepared a CCOS study and is submitting two versions, the details of which will be explained later in this testimony.

Q. What is the main purpose of performing a CCOS Study?

A. The primary purpose of a CCOS study is to determine the COS for each customer class by allocating costs in a reasonable manner. Class COS studies also provide guidance for determining how rates (e.g., customer charges) should be designed to collect revenues from customers within a class, depending on customer usage levels and patterns.

Q. Please outline the basic elements of the CCOS study.

A. The three primary steps that must be taken in order to perform a CCOS include functionalization, classification, and allocation of costs.

The first step is the functionalization of costs, which involves categorizing accounts by the type of function with which an account is associated. Accounts can be categorized as being related to Production, Transmission, Distribution, Customer Accounts, etc., depending on the electric utility functions of which they are a part.

The second step involves taking those functionalized costs and then classifying them as being demand-related, energy-related or customer customer-related, depending on the function with which they are associated.

Q. Can you explain what you mean by demand-related costs?

A. Yes. Demand-related costs are associated with meeting maximum electricity demands. Electric substations and line transformers are designed, in part, to meet maximum customer demand requirements. The most common demand allocation factors used in a CCOS are those related to system coincident peaks (CP) or peak day requirements and customer class non-coincident peaks (NCP).

Q. Can you explain what you mean by energy-related costs?

A. Energy-related costs are defined as those that tend to change with the amount of electricity produced and can be thought of as volumetric-related costs.

Q. Can you explain what you mean by customer-related costs?

A. Customer-related costs are those associated with connecting customers to the distribution system, metering household or business usage, and performing a variety of other customer support functions.

Q. What is the third and final step?

A. After costs have been functionalized and classified, they are allocated to each respective customer class to represent a reasonable share of jurisdictional costs. Allocation factors are developed based on ratios that represent the proportion of billing determinants or total units (total number of customers, total annual energy consumption, etc…) attributable to a certain customer class. These ratios are then used to calculate the proportion of various cost categories for which a class is responsible.

Q. Is this a relatively simple process?

A. No. Some costs can be identified clearly and directly assigned to a function or category, while others are more ambiguous and difficult to assign. The primary challenge involves treatment of what are known as "joint and common" costs. Given their shared or integrated nature, these joint and common costs can be difficult to compartmentalize into any particular

function or category. The process of developing cost allocation factors for these can become subjective and are often imbued with various interpretations and emphases.

Q. Which customer classes has OPC used in its CCOS study?

A. OPC's model includes a residential class (residential), a small general service class (SGS), a combination large general service/small primary service class (LGS/SPS), a large power service class (LPS), a large transmission class (LTS), and a lighting class (lighting). Both versions of OPC's study of the Ameren system employ the same customer classes.

Q. On what data is OPC's CCOS study based?

A. The data used in OPC's CCOS study come from two sources. Data related to investments, expenses, and revenues are from the Staff Accounting Schedules filed on December 5, 2014. Data used to develop allocations related to peak demands, annual energy usage, investment weightings and customer counts come from the Company's direct testimony work papers.

Q. How did OPC allocate intangible plant in its CCOS study?

A. Intangible plant (account no. 301) is related to organization costs and includes all fees paid to the federal or state government for the privilege of incorporation, along with related expenditures. OPC used a gross plant allocator for intangible plant because intangible plant should be allocated to each customer class according to the benefits each class receives from the service the company provides.

Q. How did OPC allocate production plant in its CCOS study?

A. Production plant involves the cost of structures, land, and equipment that are used in power generation. Because demand and energy components of a system's load are important in determining production plant costs, OPC used allocators that account for both. In version one of the CCOS, OPC used an "average and 4CP (4 coincident peak)" allocator. The average portion comes from average annual energy use, and the 4CP represents coincident peak

demand based on the class demands during the 4 highest monthly system peak hours. In version two of the study, OPC used an "average and excess 4NCP (4 non-coincident peak)" allocator for production plant, which is the only difference between the two versions of the study. The average portion is again estimated from average energy use. Excess demand comes from the difference between the sum of all classes' peak demand, irrespective of when it occurs, and average annual energy usage.

Q. Why has OPC conducted two versions of the CCOS study?

A. The "average and 4CP" version of the study is OPC's preferred method, but the "average and excess 4NCP" version is being submitted for consideration only if the Commission rejects the use of the "average and 4CP" method. It is OPC's belief that the "average and excess 4NCP" allocation disproportionately assigns costs to both the residential and SCS classes by concentrating too heavily on a few peak hours and assigning too little weight to annual energy usage.

Q. Why do you use multiple peaks in order to develop the measures of coincident and non-coincident peak used in your production allocators?

A. For both methods, using multiple measures of the peak reduces the probability of relying on an anomalous single peak as the basis of the allocator. Regarding the "average and 4CP" method, a particular class's contribution to the coincident peak can vary widely. The following table illustrates the variance that occurs in class contribution to the 4 coincident peaks in the present "average and 4CP" study:

	Residential	SGS	LGS/SPS	LPS	LTS	Lighting
Jun-13	45.5%	10.7%	29.0%	8.1%	6.8%	0.0%
Jul-13	46.5%	11.1%	28.4%	7.7%	6.4%	0.0%
Aug-13	46.4%	11.7%	27.6%	7.8%	6.5%	0.0%
Jan-14	54.3%	8.7%	23.4%	5.8%	7.0%	0.8%

Lighting, for example, contributes to only one of the coincident peaks used in the study, and the range of contributions of the resident class is from 45.5% to 54.3%. Using only one of these peaks could, therefore, misrepresent a class's contribution to the measure of the system peak.

Q. How did OPC allocate transmission plant?

A. Transmission plant involves the cost of structures, land, and equipment that are used in connection with transmission operations. Transmission facilities are put in place to provide reliable service throughout the year, even during periods of scheduled maintenance, and can at times substitute for generation. Transmission facilities also help minimize the cost of generation facilities through the sales or purchases of power. Accordingly, transmission plant costs can be allocated in the same manner as production plant. Therefore, OPC used the same allocators for transmission plant as were used for production plant.

Q. How did OPC allocate distribution plant?

A. Distribution plant involves the cost of structures, land and equipment used in connection with distribution operations. By means of the distribution plant equipment, high-voltage energy from the transmission system is reduced to lower voltages, delivered to the customer, and monitored in order to determine the amount of energy the customer uses.

OPC's study functionalizes and allocates distribution plant in a way that reflects that distribution facilities provide service at primary and secondary voltage levels, and that some large industrial customers potentially have large electrical requirements for which they choose to take service at primary voltage. Therefore, OPC used different allocation factors in order to allocate costs at different levels of the distribution system.

Q. How did OPC allocate meter-related facilities?

A. Meter-related facilities are generally attributable to each individual customer. When a new customer is added to the system, a new expenditure occurs. Accordingly, meter costs are generally classified as customer related. OPC used a weighted meter investment to allocate meter costs.

Q. How did OPC allocate service-related facilities?

A. Service facilities are customer related. Therefore, OPC allocated service costs based on weighted meter investment.

Q. Please give a summary of the allocations you used for distribution costs.

A. The functional categories and allocations for distribution plant are as follows:

360-362	Distribution Substations	Demand at Primary Station
364	Poles, Towers, and Fixtures	Demand at Primary, Weighted Meter Investment, Demand at Secondary
365	Overhead Conductors & Devices	Demand at Primary, Weighted Meter Investment, Demand at Secondary
366	Underground Conduit	Demand at Primary, Weighted Meter Investment, Demand at Secondary
367	Underground Conductors & Devices	Demand at Primary, Weighted Meter Investment, Demand at Secondary
368	Line Transformers	Transformer Demand, Weighted Meter Investment
369	Services	Weighted Meter Investment
370	Meters	Weighted Meter Investment

Q. How did OPC allocate general plant?

A. General plant involves structures, land, and equipment that are used in support of production, transmission, and distribution plant. It was allocated using a composite allocator based on net non-general plant.

Q. What method did OPC use to allocate expenses?

A. When possible, OPC directly assigned expenses. In all other cases, OPC followed the principle "expenses follow plant" and used the same allocators for the expense accounts that were used for the related production, transmission, and distribution plant accounts. "Expenses follow plant" simply means that operation and maintenance costs associated with a particular type of plant were allocated in the same way as the corresponding plant.

Q. How did OPC allocate power production expenses?

A. OPC divided the power production expenses into demand-related and energy-related purchased power costs. OPC used the demand-related allocators from my study to allocate demand-related expenses. OPC allocated energy-related expenses based on class kWhs at generation.

Q. How did OPC allocate transmission expenses?

A. OPC used the same allocator for transmission expenses that was used for related transmission plant.

Q. How did OPC allocate distribution expenses?

A. OPC used the same allocator for distribution expenses that was used for related distribution plant. OPC allocated expenses that are not associated with distribution plant, such as supervision and engineering, with an aggregate distribution expense allocator based on the sum of the primary portion of accounts 364-367.

Q. How did OPC allocate customer account expenses?

A. OPC used unweighted customer numbers to allocate some account expenses. For meter reading (account 902), OPC used a weighted meter reading allocator. For uncollectible accounts, (account 904), OPC used the Company's allocator. For the rest, OPC used a composite customer account allocator.

Q. How did OPC allocate customer service expenses and sales expenses?

A. OPC used allocators based on customers, weighted customers, or a composite allocator for customer service and sales expenses, including accounts 907, 908, 909, 910, 911, 912, 913, and 916.

Q. How did OPC allocate administrative and general (A&G) expenses?

A. OPC allocated property insurance expense (account 924) based on non-general gross plant. OPC allocated rents (account 931) and maintenance of general plant (account 935) based on general plant. OPC allocated the A&G accounts related to regulatory commission expenses (account 928), franchise expense (account 927) and miscellaneous expense (account 930) based on overall cost of service. OPC allocated the remaining A&G accounts based on payroll.

Q. How did OPC allocate property taxes?

A. OPC based the allocation of property taxes on allocated total gross plant.

Q. How did OPC allocate state and federal income taxes?

A. OPC allocated these taxes according to rate base because a utility company's income taxes will be a function of the size of its rate base. Accordingly, the revenue contributed by a class for income taxes should be in proportion to the amount of rate base required to serve the respective class.

Q. Please describe the results of Public Counsel's class cost of service study.

A. The results of Public Counsel's class cost of service study are shown in Attachment GM-3 and Attachment GM-4. Since the purpose of a CCOS study is to determine the relative cost responsibility of customer classes, the results are based on the assumption that total company revenues remain constant. Lines 11 and 12 of each schedule show the current revenue and percentage of total revenue, respectively, by class. Line 32 of each schedule shows the change in class revenue percentage required to achieve equalized rates of return. This study indicates that in order to equalize class rates of return, the residential class would require a 0.27% revenue neutral reduction under the "average and 4CP" method or a 3.42% increase under the "average & excess 4NCP" method. To equalize class rates of return, the SGS class would require a 2.35% revenue neutral reduction under the "average & 4CP" method or a 0.33% revenue neutral increase under the "average and excess 4NCP" method. According to both versions of the CCOS study, the LGS/SPS class would need to be reduced, the LPS class would need to be increased, the LTS class would need to be increased, and the lighting class would need to be reduced.

Q. What is the relative importance of the CCOS results in developing rate design?

A. The results provide the Commission with a general rule in setting the just and reasonable rate for the provision of service based on costs. In addition, other factors are also relevant considerations when setting rates including the value of a service, affordability, rate impact, rate continuity, and rate shock.

Q. Based on OPC's CCOS study results, what is your recommendation regarding revenue neutral shifts?

A. OPC's CCOS study shows that both the residential and small general service classes are near the system average and should not receive a revenue neutral rate increase.

Q. Does this conclude your testimony?

A. Yes, it does.