BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of a Working Case to Consider Policies to Improve Electric Utility Regulation.	)))	File No. EW-2016-0313

THE CRITICAL NEED TO REPLACE AGING ELECTRIC INFRASTRUCTURE AND BUILD A SMARTER AND MORE EFFICIENT GRID TO MEET CUSTOMERS' NEEDS AND EXPECTATIONS

A. Missouri's Electric Infrastructure is Aging

Missouri's electric infrastructure was, to a large degree, built decades ago to serve rapidly increasing electric energy usage. In particular, economic/industrial growth, the widespread use of air conditioning and larger houses in the suburbs fueled steady electric sales growth during the 1950s, '60s and '70s. Much of Ameren Missouri's generation, transmission and distribution system was built to serve our customers' rising energy needs, and paid for by the incremental revenues and cash flows that new electric sales brought. Now these facilities are reaching the end of their useful lives. For example:

- Ameren Missouri's four baseload coal generation plants are on average almost 50 years old;
- approximately half of Ameren Missouri's substations are over 40 years old; and
- Ameren Missouri's underground network serving downtown St. Louis has facilities that are 80 to 100 years old.

These aging facilities must be replaced and modernized to maintain the strong reliability that our customers have come to expect today, but also to meet their future energy needs and expectations. However, what has changed significantly from the past is that our customers' electric energy usage has been declining since 2007, even without taking into account the recent

loss of Noranda Aluminum, the Company's largest customer. A variety of factors are driving this decline, including Ameren Missouri's very successful energy efficiency programs and national energy efficiency standards. The consequence of these declining electric sales is that there is simply no incremental revenue stream to timely pay for the replacement of these facilities. While it is true that Ameren Missouri has access to the capital markets to finance these important projects, it is also true that the regulatory lag built into Missouri's decades-old rate setting process prevents full recovery of the cost of these investments and other elements of Ameren Missouri's costs to serve its customers. These outdated policies impede electric service providers' ability to ramp up their investments to address the aging energy infrastructure.

B. <u>The Grid Must Evolve to Meet Customers' Future Needs and Expectations</u>

The need for electric utilities to invest goes beyond simply replacing facilities that are reaching the end of their useful lives today. In the future, customers, the State of Missouri and our country will require a more robust, resilient and secure electric grid to meet customers' changing energy needs and expectations. Greater levels of generation will come from cleaner intermittent resources as electric utilities incorporate greater levels of renewable energy (e.g.: wind, solar, biomass, etc.) into their generation portfolios and more customers utilize Distributed Energy Resources (DERs), such as private solar generation on rooftops. As the future unfolds we believe that the electric system will become fully integrated in that central station generation, transmission, distribution, DERs and customers will all work together in a coordinated fashion to continuously, instantaneously and reliably maintain the balance between resources and demand ("The Integrated Grid"). Energy flows will no longer be primarily in one direction (from generation to the load) but they will be bi-directional, where not only central station generation provides energy, but utility and customer distributed resources also provide energy and ancillary

services. Increased complexity will require a much more sophisticated transmission and distribution infrastructure along with improved control, relaying and communication systems.

Distribution infrastructure (wires, switches, relaying, control systems and communication networks) will have to be replaced and upgraded to support the integrated system. Planning processes for transmission and distribution will have to be modified to accommodate bi-directional distribution flow, central station generation changes and evolving customer energy needs and expectations. Historically the grid was designed, constructed and operated to reliably transmit central station generation to meet customer demand. In the future the smart grid will not only have to continue to transmit generation to meet customer demand but it will also have to integrate micro-grids and DERs that are located on the distribution system in a much more dynamic nature than the system was ever designed or constructed to do.

When policies enable investment in advanced technologies such as smart meters, we also believe customer net demand (the difference between customer demand and their DERs) will become much more dynamic and aggregated on a real time basis to help shape and reduce overall system demand peaks, as well as minimizing environmental impacts. This will be a significant change in the way the electric system has been operated over the last 100 years in that customer net demand will also be "managed" just like central station generation and aggregated as part of the pool of resources. The ramifications of this change could reduce the need for central station generation along with adding complexity to the way that "the grid" is designed and operated today.

C. Additional Investment is Required to Build this Smarter, Cleaner and More Efficient Grid

Investment will be needed to support the smarter grid of tomorrow and to provide the benefits it promises to customers. Investment in the next generation of smart meters is necessary to allow customers to monitor their energy usage and implement the automated energy efficiency and conservation measures available. Smart distribution facilities are also needed to enable "self-healing," which quickly restores service after an outage without human intervention, to allow more sophisticated monitoring of the grid and provide modern security protections. Upgrades to transmission facilities provide similar benefits.

Investments will also have to be made to enable the interconnection of DERs and micro-grids to the system, and the integrated operation of a dynamic grid that can regularly accommodate multi-directional flows of power. Finally, investments in central station renewable generation will be needed as electric utilities transition their generation portfolios to cleaner and more diverse energy resources.

D. Infrastructure Investment Yields Long-Term Customer and Statewide Benefits

A modern, reliable, resilient infrastructure provides significant customer and statewide benefits. In particular, a modern grid improves reliability and reduces the duration of outages when they do occur, both of which result in meaningful customer savings. It can reduce operations and maintenance costs. It provides improved energy security, reducing the risk of physical and cyber-attacks. It provides enhanced customer choice, including enabling customers to take advantage of modern energy efficiency and energy conservation options, which helps them manage their peak energy usage, reduce their bills, as well as help the environment by deferring the need to construct additional baseload generation. Construction of a modern grid

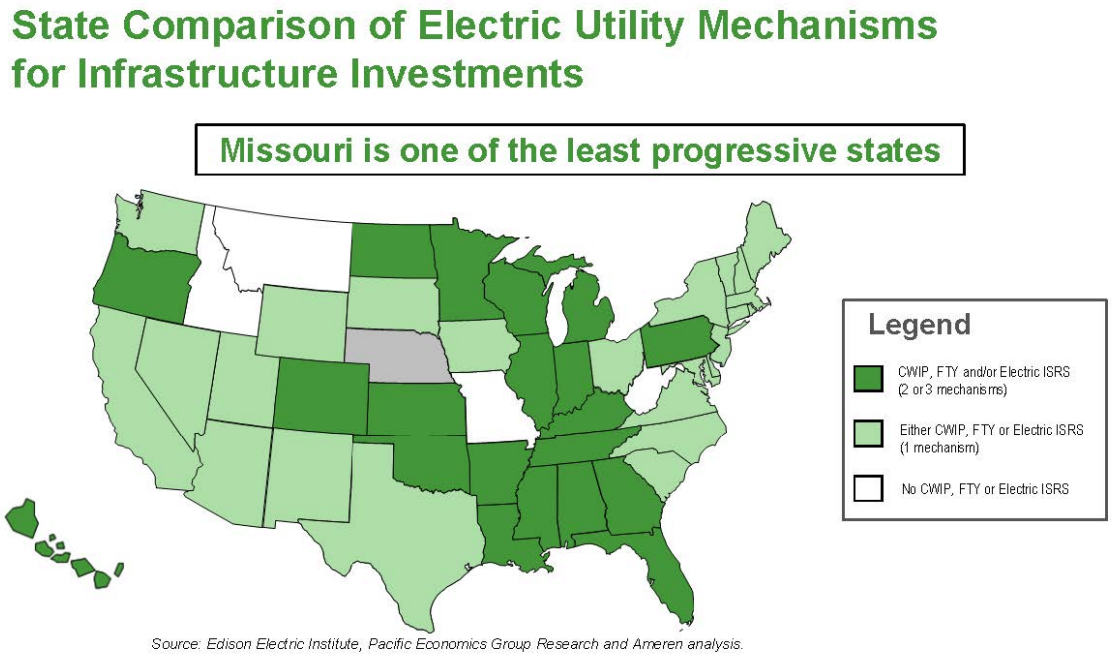
also facilitates economic development, increasing employment through the workers who construct the new electric facilities, and industrial customers that expand their footprint in Missouri to take advantage of a modern electric grid. Finally, a modern grid would facilitate the development of micro-grids and smart cities as well as the greater use of electric vehicles, bringing customers the advantages of these technological advances.

There is clear evidence that these benefits are real based on the experience in other states. For example, as a result of investing to upgrade and modernize its electric infrastructure, Illinois has materially reduced the number of outages its customers face each year, it has enabled customers to modify their usage during peak periods to reduce their bills and it has created thousands of new jobs, while maintaining affordable electric rates.

E. <u>Sound Energy Policy is Needed to Support Infrastructure Investments</u>

As many other states have recognized, sound energy policies that support infrastructure investments are a necessary prerequisite for electric energy companies to make incremental infrastructure investments that will provide these benefits. Particularly when demand for electricity is stagnant or declining, policies must be implemented that address the disincentive to invest that is caused by excessive regulatory lag. As we have already stated in previous filings in this proceeding, there are many ways to do this that have been successfully implemented in other states. For example, performance-based rates are used in states such as Illinois and Arkansas. FERC and Georgia are examples of jurisdictions that utilize formulaic rates to reduce or eliminate lag on capital investments. Other states have used forward test years or infrastructure riders, or permitted Construction Work in Progress (CWIP) to be included in rate base. Even Missouri has used "construction accounting" for specific construction projects, which, if implemented on a system-wide basis as Plant-In-Service Accounting (PISA), would

significantly reduce the current financial disincentives created by regulatory lag. There are many ways to address the disincentive that regulatory lag provides. As the map below shows, one or more of these policies has been implemented in almost every state.



Independent organizations and numerous publications have also recognized this problem. For example, the American Society of Civil Engineers published its Report Card for America's Infrastructure that explains in detail the critical need for electric infrastructure improvements. See http://www.infratructurereportcard.org/a/#p/energy/conditions-and-capacity, as well as the 2016 update: http://www.infrastructurereportcard.org/wp-content/uploads/2016/05/ASCE-Failure-to-Act-Report-for-Web-5.23.16.pdf. See also, http://www.ibtimes.com/aging-us-power-grid-blacks-out-more-any-other-developed-nation-1631086 and "The Case for Smart Grid," a *Public Utilities Fortnightly* article attached hereto.

F. <u>Rate-Setting Policy in Missouri is Not Keeping Pace with Needed Investment</u>

Unfortunately, Missouri's rate-setting policy, which sets future rates based on a backward look at expenses and capital investment, maximizes regulatory lag and provides a strong

financial disincentive for electric utilities to make needed investments. In a rising operating cost and capital investment environment (which we are clearly in now), rates set in this way are out of date from the moment they take effect. In an environment of no electric sales growth and increasing investment needs, rates never reflect electric utilities' true cost of service and losses are never made up. In this environment, limiting capital investment is necessary in order for an electric utility to have any reasonable chance to earn its authorized return, which is at odds with the State of Missouri's energy needs for the future.

The chart that Kansas City Power & Light Company (KCP&L) showed at the workshop held in this proceeding on September 13 provided a stark illustration of the deficiencies of Missouri's regulatory framework for a utility that aggressively invests in its infrastructure. KCP&L earned far below its authorized return for *10 years in a row* while it aggressively invested in its system.

A review of investment levels and achieved returns for Ameren Missouri tells a different, but in some ways similar, story to that of KCP&L's. From 2007 through 2011 Ameren Missouri invested at approximately 2X its depreciation rate and, like KCP&L, Ameren Missouri never came close to earning its authorized return. Beginning in 2011, Ameren Missouri reduced its capital investment levels, and by 2015 Ameren Missouri's ratio of capital investments to depreciation had fallen to 1.37—in the bottom 1/8th of electric utilities in the country—while it began earning returns closer to its authorized return. Although actual returns in any given year are influenced by a variety of factors, including weather and nuclear plant outages, reducing capital investments, along with reducing expenses, have been necessary to provide Ameren Missouri with any reasonable opportunity to earn its authorized return.

G. Missouri's Policies Must Keep Pace

If Missouri wants to facilitate the replacement of aging infrastructure and the modernization of the electric grid to provide the benefits that customers have come to expect, and to position Missouri for further economic growth, its policies must change. As stated above, there are many options to address the issue of regulatory lag, from forward test years, to formula rates, to infrastructure riders, to plant-in-service accounting, to including CWIP in rate base. But incremental steps, such as reducing discovery times in rate cases to slightly shorten the 11-month rate case process will not be sufficient to enable needed infrastructure investment.

H. Investments that Would Be Enabled

Attached hereto as Appendix A is a list of the infrastructure projects that Ameren Missouri could undertake over the next five years to benefit customers, if regulatory lag were appropriately mitigated. While beneficial incremental investments of $4 billion over a ten-year period have been identified, we have presented a detailed plan for incremental infrastructure investment of $1 billion over a five-year period to balance the need to address our aging infrastructure with related rate impacts. Additional projects of approximately $1 billion could be accelerated in this five-year time frame should it be deemed appropriate. These investments will allow Ameren Missouri to implement the following customer beneficial projects:

- Accelerate the replacement of substations in excess of 40 years old to preserve and enhance reliability and enhance system security.
- Upgrade several substations to a modern design that increases resiliency when short circuits occur, provides isolation points for service restoration, and includes smart diagnostics and advanced relaying to detect and correct problems faster.
- Proactively replace underground cable to preserve and enhance reliability.

- Automate distribution facilities to minimize outages and enhance security.
- Replace Ameren Missouri's out-of-date meters with smart meters that provide customers modern service options that would facilitate much greater penetration of energy efficiency programs as well as peak load management programs. These programs will be critical as Ameren Missouri retires more baseload generating units and works to minimize the need to construct additional large energy centers.

Although this list reflects realistic projects that could be undertaken, the scheduling of specific projects would depend on operational conditions. Moreover, these projects have not been engineered, so actual costs may vary from the high-level estimates provided. As noted earlier this list includes additional beneficial incremental investments beyond the $1 billion limit in years 1 through 5 and as a total for years 6 through 10. Although we believe it is important to implement as many customer-beneficial projects as are feasible in the current low interest environment, it is also critical to keep customer rates competitive to maintain the advantage of low electric rates that Missouri currently enjoys. We believe we can make the incremental investments and keep our rates very low.

If we are able to find a path forward that meaningfully mitigates regulatory lag, Ameren Missouri would be able to provide an even more detailed list of future investments that would be enabled by the specific mechanism that is adopted. We are also open to submittal of infrastructure plans and further discussion of these plans with stakeholders to ensure that these incremental investments are consistent with better meeting the needs of our customers.

Ameren Missouri remains committed to advancing the discussions of these important issues with all stakeholders. We realize changes to the regulatory structure will require changes for all parties, including electric energy companies. We welcome accountability measures

requiring that we demonstrate improvements in the frequency of outages, duration of outages, customer engagement metrics, and other metrics that encourage the electric service provider to accomplish improvements aligned with better serving customers and providing broader benefits to the State of Missouri to attract and retain businesses. But we remain convinced that Missouri must take steps now to adopt a modern regulatory framework that promotes a smarter and stronger grid so:

- customers continue to receive the reliable service they have come to expect;
- customers can benefit from the greater conveniences, choices and controls afforded to them by the modern technology that is benefitting residents in other states;
- we can take advantage of the low interest environment to enhance our infrastructure; and
- we can create good-paying jobs in Missouri.

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Respectfully submitted,

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