

**Spire Inc. Filed Comments  
for  
Missouri Public Service Commission  
File EW-2017-0245**

**October 20<sup>th</sup>, 2017**

**Statement of Purpose**

Spire, Inc. (formerly Laclede Gas, with its eastern and western territories) has been operating in Missouri for the past 160 years, and is well known to the Missouri Public Service Commission (MPSC). We will therefore bypass the customary introduction about who we are to proceed directly to the issues-at-hand. Spire's objectives in submitting comments for the above docket are:

1. To ensure a level playing field is established for all sensible DER alternatives - including the direct use of natural gas – to ensure Missourians benefit from a diverse energy portfolio and retain the choice to select the best fit for their energy needs.
2. To ensure that DER policies, and all policies for that matter, are consumer-focused, just and reasonable for utilities, and agnostic in regard to technology or industry sector.

**Introduction**

Spire appreciates the opportunity to submit comments on distributed energy resources and looks forward to participating in the upcoming workshop. Natural gas can play a strong role in distributed energy - systems that provide electricity, hot water, heat for industrial purposes, space heating and cooling, refrigeration, and humidity control. As such, we believe this is an issue that warrants a holistic view. If consumer choice is limited to just one form of energy to address potential solutions for distributed energy, that would grossly and unjustly restrict consumer choice. It would likely also create suboptimal project decisions, which are significantly impacted by the unique circumstance of each situation – energy prices, availability of economic resources, restrictions on space, and requirements for both sufficient and reliable generation sources. If policies encourage additional reliance on one fuel choice to the detriment of others, when more cost-effective options could and should be available, the MPSC will err in its charter to protect Missouri consumers. From the 2015 Comprehensive State Energy Plan for Missouri:

- The affordability of energy rates significantly impacts the safety, health, and economic well-being of Missouri's families.
- Investors, from individuals to large institutions, know that a diversified portfolio reduces risks and, over time, enhances results. The same is true for a state's energy portfolio: an overreliance on any single energy source creates unnecessary risk. Diversified energy portfolios allow for flexibility to respond to price dynamics, supply constraints, energy emergencies, and changing regulatory requirements. Strategies that diversify a state's energy supply through the support of new infrastructure, technologies, and markets mitigate risk and have proven to increase in-state economic development.

Prudent energy reliability concerns would ensure diversity of energy delivery mechanisms rather than relying on just one. The key reason for Spire's concern about over-reliance upon electrification as it pertains to Missouri, is due to the realities of cold weather emergencies; specifically, "polar vortex"

events. The present electric grid alone is nowhere near capable of dealing with such events, and trying to make it so would be economically devastating<sup>1</sup>. Another reason is that it ignores the fact that natural gas has become a very economic fuel source, and its attributes of being clean burning, abundant and domestic are very appealing to consumers, especially in its use as an “all the above” approach to a more diversified and reliable solution – rather than a more narrowly focused set of solutions that are intermittent, undersized and overly reliant upon the same grid they seek to replace. Additionally, it ignores the energy efficiency benefits of direct use and site generation natural gas has always held relative to centralized electric generation.

The most recent study from the Natural Resources Defense Council (NRDC) on “*America’s Clean Energy Frontier: The Pathway to a Safer Climate Future*” notes the following goal to encourage reliance on a singular approach:

**2.3 ELECTRIFICATION: PUTTING CLEAN ENERGY TO WORK**

*The NRDC Core Scenario capitalizes on the rapid decarbonation of the electricity grid by converting many end uses that currently rely on fossil fuels (e.g., vehicles, space heaters, water heaters) to electricity.*

Spire rejects such concepts, regardless of intentions, as misguided and ignorant of inconvenient truths – that reasonable, practical and economic solutions need to be based on diverse energy options and choice, that efforts to improve efficiency are even more important than efforts to enhance supply, and that the direct use of natural gas – whether through household appliances or distributed generation – is a solution that can meet these needs here and now, in a reliable, efficient, economic, domestic, and yes, environmentally-friendly manner. Therefore, not including it in the solution set would create suboptimal results. Spire would also ask the Commission to recognize the fact that all natural gas utility customers are also electric utility customers and that practices that promote moving customers from gas infrastructure to electricity infrastructure – regardless of intentions – are inappropriate; especially if overall consumer costs increase while choices decrease.

Given the above introduction, Spire will now turn to addressing the specific questions presented by the Commission:

**1. What are the current levels of distributed energy resources (energy efficiency, distributed generation, demand-response, etc.) in Missouri?**

Spire’s comments will be limited to resource that are powered by natural gas. These comments will not include discussion of electric utility business-as-usual combined-cycle turbines.

To begin, we ask the Commission to recognize that Spire is a distributed energy company. Natural gas water heaters and furnaces are a distributed energy resource that can reduce peak electric

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<sup>1</sup> In the case of Spire’s peak winter send-out for the St. Louis region, our analyses indicate that it would take about 50,000 MW of new generation to replace natural gas use during a polar vortex-event. Given that Ameren’s current total generation is 10,200 MW (per their most recent annual report); replacing Spire’s peak natural gas send-out would require about times Ameren’s existing capacity. This would require a staggering investment; only made more so if provided by renewable energy and battery storage. Additionally, electric transmission and distribution systems would need to be proportionately increased to handle such generation capacity additions. These combined costs would need to be recovered by massive electric rate increases. On top of that resulting consumer onslaught would come massive consumer costs for replacing gas appliances with electric appliances and upgrading electric service panels (and potentially internal wiring) to accommodate all-electric building retrofits. Assuming such events come to pass, a significant consumer revolt would justifiably result.

requirements, reduce CO<sub>2</sub> emissions and reduce overall utility expenses. Replacing one electric water heater with a natural gas water heater in the average Missouri home will reduce CO<sub>2</sub>e by 4.7 tonnes and save the customer between \$150 and \$775 per year (depending on which electric utility serves them). The details associated with these savings can be made available as part of this docket upon request.

Rural extensions of natural gas transmission and distribution systems to unserved or underserved communities could greatly reduce emissions and lower cost to many thousands more of Missouri residents. Such extensions would also extend sensible consumer choices for rural Missourians.

Spire also provides considerable DER to Missouri residents in the form of energy efficiency services. We have done so successfully for many years with many millions of dollars invested and even more saved by consumers.

Combined Heat & Power (CHP, also known as cogeneration) is perhaps a more widely accepted form of DER by conventional definitions. However, such definitions can be restrictive (e.g., CHP fueled by renewable hydrogen). Even more restrictive are DER definitions that are limited to wind and solar. As far as CHP goes, there are many varieties. These include topping cycles, bottoming cycles, trigeneration, etc. It is critical that not only the direct use of natural gas be considered but also current and future natural gas fired distributed energy resources technologies: Reciprocating engines, gas turbines, microturbines, small steam turbines, and fuel cells; as well as mechanical CHP. We welcome the opportunity to participate in workshops and are willing to provide detailed examples of technologies that should be included in DER planning. For a broad overview of CHP and its variants within Missouri, please refer to the following:

- [Part 1 CHP Technology Economics Summary](#)
- [Part 2 CHP Technology Economics Summary](#)
- [Part 3 CHP Technology Economics Summary](#)

## **2. Should previous Commission policy decisions regarding demand-response aggregation be reconsidered?**

Absolutely. Demand response strategies should include the strategic use of natural gas at the point of consumption as an electricity demand response mechanism. To reiterate, the direct use of natural gas by residences and business can dramatically and inexpensively reduce peak electricity use, reduce overall utility expenses and more cost effectively reduce CO<sub>2</sub> emissions. These concepts were the focus of Mr. Tanton's recent work regarding Levelized Costs of Energy" (LCOE) that (for the first time) included alternatives to electricity. View a copy of the study here: [www.apga.org/lcoe](http://www.apga.org/lcoe).

Additional low-cost natural gas/electric hybrid approaches for DER and/or Demand Response (DR) technologies that should be worthy of further consideration include:

- The use of double-shafted induction motor generators placed in between natural gas engines and energy consuming devices such as refrigerant or air compressors.
- The employment of natural gas "pilot fuel" retrofits for common emergency "gensets" normally fueled by Diesel.

Spire is willing to provide more information on such technologies, CHP, etc., as a part of this proceeding.

**3. Should a model state tariff be designed?**

So long as that includes “all the above” solutions and participants from across the utility space, we believe such an effort could be worthwhile. Spire requests that the Commission identify the purpose and objectives of doing so and, if available, provide any model DER tariffs it may be considering. In February 2016, the Regulatory Assistance Project (RAP) produced a report titled [Designing Tariffs for Distributed Generation Customers](#). This report may be of use within this proceeding. In addition to considering model state tariffs, the Commission should:

- a. Include natural gas direct use as a distributed energy resource.
- b. Further encourage pilot programs.
- c. Examine the validity of underlying economic assumptions and associated “just and reasonable” considerations, before allowing wide spread implementation.
- d. Consider special tariffs or riders to incentivize rural gasification and economic development areas.

**4. Should changes be made to the Integrated Resource Planning (IRP) process to accommodate increased use of distributed energy resources?**

Yes; but we feel this would make the most sense if IRP’s are, in fact “integrated” and the primary object is to foster “least-cost planning” (LCP). Since the inception of IRP within the 1992 Energy Policy Act, IRP’s are typically highly segregated (and unequal); with one form for electricity and another for gas. Rarely are electric and gas IRP’s combined; but it does happen. Such programs should be considered “best practice.”

**5. What information about distributed energy resources do the Regional Transmission Organizations need?**

As principally a gas utility, we feel we may not be able to provide a sufficient answer to this question.

**6. Is any new behind-the-meter technology or hardware needed to accommodate or facilitate the development of distributed energy resources?**

See reply to questions 3. Natural gas direct use is behind the meter and does not require new smart grids and increased costs thereof. Natural gas direct use is proven technology that works reliably and will reduce consumer cost. CHP can work without being integrated into the electric grid, but still reduce the demands on the grid, or it can be integrated. The integration into the electric grid for such facilities, as with any DER, can be expensive, but a cost/benefit analysis would show whether that makes sense. We are not aware that any new technologies or hardware are needed for this interface.

**7. Will any distribution system upgrades be required to accommodate or facilitate the development of distributed energy resources?**

As principally a gas utility, we feel we may not be able to provide a sufficient answer to this question.

**8. What process should be developed to provide for resource accreditation, including consideration of capacity factors?**

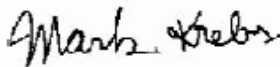
- Require a six month to a year demonstration for projects to prove their performance before connection to the grid and accrediting them as a resource for planning and operational consideration. Six months should be the minimum for projects with normal fuel contracts (e.g. natural gas fired CHP) and at least one year for projects using seasonal and/or variable (intermittent) energy source (e.g. solar photovoltaic).
- Focus on capacity credit (a.k.a. “capacity value”) as much if not more so than capacity factor. The MPSC is certainly aware that grid reliability is dependent more on forward looking capacity value than the retrospective capacity factor. Use of at least a five-year rolling average, or longer, should be considered for assigning capacity values to intermittent resources.
- Finally, the Commission should consider a recent state appellate court decision defining third party aggregators of DER as “public utilities.” In North Carolina, the Court of Appeals ruled that certain types of net metering—third part owned—violated the monopoly franchise afforded Duke Energy. In third party owned net metering project a roof or land is “leased” by the building owner to a third party for installation of solar panels. The output is then sold to the building owner and by extension (if excess to building demand) to the utility. NC WARN, a member-based nonprofit, was acting as a public utility by providing solar electricity to a church. The Court affirmed the Utilities Commission ruling that such arrangements effectively create a public utility<sup>2</sup> out of the third party, in violation of the “regulatory compact” Such arrangements, except in very limited conditions, should be prohibited.

**9. Are there any other issues related to distributed energy resources that should be brought to the Commission’s attention?**

Yes; we again refer the Commission to the previously cited hearing testimony of Tom Tanton. Mr. Tanton’s comments regarding “just and reasonable” rates, and honoring the “regulatory compact” (among others) provide critical first principles for regulatory evolution. These concepts reiterate many of those of Spire’s. Also, going forward, be mindful of “lease” arrangements by third parties’ installers encumbering consumers’ property as well as self-dealing between utility affiliated businesses.

In closing, Spire urges the MPSC to keep the playing field level by letting natural gas be part of the solution set and let consumers decide for themselves. Missourians will thus be able to choose between best available options that maintains and further develops a diverse, effective and more integrated energy infrastructure in Missouri that helps meet the goals of increasing efficiency and lowering emissions while maintaining reasonable costs and choice for consumers.

Respectfully submitted,



Mark Krebs  
Energy Policy and Standards Specialist

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<sup>2</sup> <https://www.courtlistener.com/opinion/4427106/state-of-nc-ex-rel-utills-commn-v-nc-waste-awareness-reduction/>