

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the 2017 Integrated Resource)
Plan Annual Update for Union Electric Company) File No. EO-2018-0038
d/b/a Ameren Missouri (Ameren Missouri))

**COMMENTS OF RENEW MISSOURI ADVOCATES REGARDING
AMEREN MISSOURI’S 2017 INTEGRATED RESOURCE PLAN**

COMES NOW, Renew Missouri Advocates (“Renew Missouri”), pursuant to 4 CSR 240-2.080 and the Commission’s October 17, 2017 *Order Establishing Time to Respond*, and submits the below comments concerning Union Electric Company d/b/a Ameren Missouri’s (“Ameren Missouri”) 2017 Integrated Resource Plan.

I. Resource Cost Assumptions for Wind and Solar

The Commission’s Chapter 22 rules and the IRP process are intended to serve the fundamental objective of the resource planning process, which is “to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in a manner that serves the public interest.” 4 CSR 240-22.010(2). Embedded within this objective is a need to accurately analyze various supply-side generation resource types in terms of their expected future costs.

Renew Missouri endorses and reiterates the comments of Wind on the Wires regarding the resource cost assumptions for wind and solar in Chapter 6 of Ameren Missouri’s IRP. Ameren Missouri’s assumptions for these dynamic resources fail to adequately capture both the current market price of the technologies and the potential future prices. A closer analysis of other jurisdictions and the literature regarding the downward cost curves of wind and solar generation would yield a very different set of scenarios in Chapter 9.

Wind and solar have been the fastest-growing electricity resources in recent years, and are likely to become the dominant electricity resources in the United States over the 20-year planning horizon on which this IRP focuses. Ameren Missouri remains far behind its Midwestern and Great Plains utility peers in terms of wind and solar investments, even with the recently announced additions of 700 MW of wind and 100 MW of solar.¹ The Company's IRP analysis should strive to examine scenarios that would close this gap.

II. Solar PV and Battery Storage Adoption

The Commission's rules explicitly require that utilities "consider and analyze demand-side efficiency and energy-management resources on an equivalent basis with supply-side alternatives..." 4 CSR 240-22.010(2)(A).

The first part of this rule concerns traditional utility-sponsored energy efficiency programs, or DSM. Here, the comments filed by the Natural Resources Defense Counsel are instructive. While Renew Missouri agrees that Ameren Missouri's Chapter 8 analysis fails reflect the likely efficiency potential over the next 20 years, we recognize that the ongoing RFP and stakeholder process to develop Ameren's MEEIA Cycle III Plan is succeeding in attracting broad and bold ideas to deepen and expand the Company's DSM efforts. Renew Missouri believes this approach will allow Ameren Missouri to better value all demand-side efficiency equally to supply-side resource and to come closer to meeting the MEEIA statutory goal of achieving "all cost-effective energy efficiency." Section 393.1075, RSMo.

The second part of the above-quoted rule concerns itself with "energy-management resources" on the demand side of the meter. These resources may include many things, but for

¹ "Opportunity Blowing By: Ameren Missouri Should Take Advantage of Low-Cost Wind." Renew Missouri, September 2017. <https://renewmo.org/re-news/wind-energy/opportunity-blowing-ameren-missouri-take-advantage-low-cost-wind/>

this planning period the dominant resource to consider are: 1) distributed solar PV; and 2) battery storage. In Chapter 3, Ameren Missouri recognizes that “[a]dvancements in solar and battery storage technologies make it increasingly easier for the end use customers to actively participate in their energy consumption and contribute to a greener and cleaner environment.” However, Renew Missouri believes that Ameren Missouri drastically underestimates the degree to which adoption of these two technologies will affect overall customer demand as well as the potential for creative rate designs and utility-sponsored DSM programs.

The declining cost of solar technologies is well documented, and it is unnecessary to reiterate those trends here. It is worth noting that the predicted slow-down of solar prices does not seem to be occurring as many predicted. Rather prices continue to decline for solar modules, but also for inverters, labor, and other soft costs. As utility prices continue to rise, the economic incentive for installing solar only increases further. Interest in behind-the-meter solar systems for large-scale commercial and industrial customer continues to grow as well, as more corporations commit to greater renewable energy targets. Renew Missouri believes that Ameren Missouri’s projections of customer demand fails to appreciate the seismic role that customer solar deployment will play in the future.

Regarding battery storage, the global market for advanced energy storage technologies is expected to more than double in the next 6 years, from \$8.8 billion in 2017 to \$17.4 billion in 2024.² Due to tremendous declines in price and advances in technology and deployment, the Energy Storage Association estimates that the industry will deploy 35 GW of new energy storage

² “Global Advance Energy Storage Market Outlook Trend and Opportunity Analysis, Competitive Insights, Actionable Segmentation and Forecast 2024.” Energias Market Research, February 27, 2018. <https://www.energiasmarketresearch.com/global-advance-energy-storage-market-outlook/>

systems in the U.S. alone by 2025.³ One of the primary attractions of energy storage is its ability to improve grid *reliability*, which the Commission’s rules explicitly link to the fundamental objective of the resource planning process. 4 CSR 240-22.010(2). Ameren Missouri’s analysis of storage options (Chapter 6) and its projections of customer demand fail to adequately consider the technology’s potential.

Another major effect of battery storage is its effect on the deployment of intermittent resources, specifically wind and solar. In the next decade, energy storage has the potential to overcome solar’s variability and turn it into a dispatchable technology. A new study from the National Renewable Energy Labs (NREL) shows that solar paired with storage can dramatically improve resiliency and, if valued correctly, can be far more economical than previously thought.⁴ If these predictions are even moderately borne out, Ameren Missouri’s assumptions regarding distributed energy adoption will fall well short.

Furthermore, the ability of energy storage to be strategically dispatched unlocks an incredible array of demand response-type programs, allowing customer to reduce their individual load factors and allowing utilities to significantly smooth out load. Renew Missouri believes that a combination of customer-adopted storage and utility storage options (e.g. demand response programs, utility-scale storage, incentives for customer storage, etc.) will reduce or eliminate the need for natural gas peaking capacity in the near future. Ameren Missouri’s planned natural gas and coal additions (Chapter 6) likely do not consider the role that energy storage could play in displacing the need for future fossil fuel generation.

³ “35 x 25: A Vision for Energy Storage.” The Energy Storage Association. November 2017. http://energystorage.org/system/files/attachments/esa_vision_2025_final.pdf

⁴ “Valuing the Resilience Provided by Solar and Battery Energy Storage Systems.” National Renewable Energy Laboratory. January 30, 2018. <https://www.cleangroup.org/wp-content/uploads/Valuing-Resilience.pdf>

WHEREFORE, Renew Missouri submits these comments for the Commission's consideration in this case.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was mailed, faxed, or emailed to all counsel of record on this 28th day of February, 2018.

/s/ Andrew J. Linhares
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