

PPAs: Bridging the Gap between Private Energy Sustainability Needs and Utility Infrastructure

Trey Davis, President, MEDA



Revealed

National Fuel Diversity

- America's electric companies rely on a variety of domestic fuels to generate electricity. Fuel diversity helps to protect electric companies and their customers from contingencies such as fuel unavailability, fuel price fluctuations, and changes in regulatory practices that can drive up the cost of a particular fuel. Fuel diversity also helps to ensure stability and reliability in electricity supply and strengthens national security.
- The industry relies on a variety of fuels for power generation. No individual fuel is capable of providing the energy to meet all of our nation's electricity demands. In 2015:
 - Natural gas supplied 32.7 percent.
 - Coal provided 32.4 percent of our nation's electricity.
 - Nuclear energy produced 19.3 percent.
 - Hydropower provided 6.0 percent of the supply.
 - Other renewable resources, such as geothermal, solar, and wind, provided 7.3 percent.
 - Fuel oil provided 1.7 percent of the generation mix.
 - Other miscellaneous sources provided 0.6 percent.

The Role of Renewables Nationally

- Renewable energy sources are fuels that can be naturally replenished, such as wind, solar, biomass, geothermal, and other sources. In 2014, these non-hydro renewables generated 6.9 percent of the nation's electricity. The U.S. Energy Information Administration (EIA) projects that non-hydro renewables will generate 12.1 percent of our nation's electricity in 2040.
- Expanding the use of renewable energy sources is an important part of meeting the electric power industry's goal of reducing greenhouse gas (GHG) emissions. To increase the share of renewables in the nation's fuel mix, electric companies support tax credits and increased funding for research and development, in addition to renewable energy programs in the states. In fact, 30 states and the District of Columbia have established renewable electricity standards (RES), also referred to as renewable portfolio standards (RPS).

Investment in Clean and Diverse Energy Resources

- Missouri's electric utilities recent actions include investments in renewable resources, including wind, solar, hydro and biomass that total over \$2.5 billion
- Missouri's electric utilities have retired several coal-fired plants, announced other large coal plant retirements, and have implemented the most aggressive energy efficiency programs in Missouri's history
- Additionally, in the last decade they have invested over \$3 billion in environmental upgrades at existing generation plants that have improved Missouri's air quality to levels far below limits set forth by the Environmental Protection Agency (EPA)

Missouri IOU Investment in Hydroelectric

- Empire District Electric Company's use of renewable energy dates back to 1913, when Empire's Ozark Beach Hydroelectric plant began operation near Forsyth, MO. The plant continues to provide their customers with environmentally friendly energy today.
- Ameren Missouri operates three hydroelectric energy centers, which account for approximately 4% of their generation.
- KCPL has signed a 10-year agreement to buy renewable energy from Central Nebraska Public Power and Irrigation District's three hydroelectric plants.

Missouri IOU Investment in Wind

- Empire District Electric Company was one of the first utilities in the region to incorporate wind as a significant portion of their energy mix. They executed purchased power contracts for wind well ahead of renewable mandates because they were cost-effective as well as environmentally sound. These contracts represent about 15% of their total resource mix.
- KCPL was the first utility in the country to own and operate a commercial-scale wind facility in the state of Kansas with their 100.5 megawatts Spearville Wind Generation Facility, which is now 148.5 megawatts. They also purchase power from other wind energy providers.
- Ameren Missouri has added wind power to their generation portfolio, purchasing energy from Horizon Wind Energy's Pioneer Prairie Wind Farm to serve 26,000 homes.



Missouri IOU Investment in Landfill Gas and Agricultural Methane

- In July 2012, Ameren Missouri opened the Maryland Heights Renewable Energy Center, using methane gas from a local landfill to efficiently produce enough power for 10,000 homes.
- The three million tons of decomposing waste in St. Joseph, Mo.'s landfill continually produce methane, which KCPL's Landfill Gas-to-Energy Plant converts into enough electricity to power up to 1,000 homes annually.
- KCPL also purchases electricity from the Hampton Feedlot in Triplett, MO., home to 2,500 cattle whose manure produces methane. With the help of an anaerobic digester to speed up decomposition, the biogas can generate enough energy for 200 homes.

Missouri IOU Investment in Solar

- In July 2016, KCPL opened its first 3MW solar power facility at the Greenwood Energy Center. This new facility houses 11,500 ground-mounted solar panels, which is almost 100-times larger than the KCP&L solar array at Kauffman Stadium. Additionally, these solar panels will produce 4,700 megawatt-hours of energy each year, enough to power nearly 440 homes.
- KCPL also has solar panels atop Paseo Academy that can generate 100 kilowatts of energy while teaching local children about our energy future.
- Ameren Missouri brought online in 2014 the state's largest investor-owned utility scale solar facility delivering 5.7 MW power to their customers. With more than 19,000 solar panels spanning the size of 19 football fields, they collect nearly 8 million kilowatt-hours of energy from the sun's rays every year. Also, in 2010 Ameren Missouri installed 100 kilowatts of solar photovoltaic technologies to their downtown St. Louis headquarters.



PPAs – A Balancing Act

- Based upon diversification of energy resource needs, least-cost options, and customer demand, non-mandatory investment in power purchase agreements by Missouri's IOUs have delivered safe, reliable, and affordable electricity.
- Customer demand for clean and sustainable energy resources is steadily increasing and utilities must balance serving that demand while delivering affordable energy via a reliable and modern grid.
- The concept of mandating a utility to buy energy through a long-term contract from one specific party with the "hope" that another specific party will buy it has not been found to be in best interest of the customer in Missouri.
- In addition, the concept of deregulating portions of the electric industry in an effort to increase private PPA generation opportunities would create significant concerns and potential problems around grid maintenance, grid stability, proper "fixed cost" cost recovery, and regulatory oversight.
- Why is it not possible to move ahead with statutes/regulations that make it possible for electric service providers to implement this sort of service option for customers that want it? The electric service provider could generate or purchase the renewables, add the appropriate transmission and distribution charges and charge these customers a regulated/reviewed rate for this service with out the risks of entering into a deregulated business model.

Public Policy Considerations

- Does a nonutility provider policy that would mandate the entry into a PPA put the interests of Missouri customers first?
- How do you protect customers, who don't have the power to purchase electricity from alternate suppliers, from potentially higher rates and lower reliability?
- How do you address the potential subsidization issues associated with nonutility PPA providers?
- How would the Missouri Public Service Commission regulate a hybrid market that would include regulated and nonutility regulated providers?
- How would you handle nonutility providers who would not have to abide by the same rules to bid into the regional transmission organization and what impact would that have on reliability and stability?

Questions?
