

Senate Grid Modernization

I am Caleb Arthur CEO of Missouri Sun Solar & Smart Energy Solutions. I also set as the MOSEIA elected President (Missouri Solar Energy Industries Association) and also the elected Vice President of the Missouri Clean Energy District (Missouri Commercial and Residential PACE).

We have 1,200 solar customers, 200 energy efficiency customers, and 50 battery storage residential and commercial customers spread throughout the state of Missouri. Our goal is to provide cost effective free market solutions to our customers through private investments that have totaled \$30 Million of revenue in our first 4 years of business with a guaranteed customer electric savings of \$80-\$90 million. Recently Sun Solar was ranked by Inc 5000 magazine as the nation's 9th fastest growing private energy company. We also have the privilege of being ranked as the 2nd fastest growing company in Missouri. Sun Solar has 130 employees and is growing. 98% of our solar customers are Net Metered and tied into the local utility grid.

Distributed Generation (customer side) solar and battery storage will and do play a huge part in the Grid Modernization portfolio of every state including Missouri.

From Electric Power Research Institute

Our current electric grid uses many technologies that date back to the time of Thomas Edison, requiring the electricity industry to seek new ways in which power can be generated, delivered and used in ways that minimize environmental impacts, enhance markets, improve reliability and service, reduce costs and improve efficiency. Utilities are beginning to modernize the electric grid through the gradual development of a "smart grid" that uses information and communication technologies to manage electricity more efficiently. Due to the complexity, number and scale of the systems and devices involved in a smarter grid, technology communication between the various systems is key to successful implementation. Research can address these issues while furthering innovation in grid modernization efforts.

Missouri has a great foundation for solar being tied into the utility grid. A recent study paid for by local utility shareholders showed that solar net metering provides a net positive benefit for all ratepayers and the utility. When you have solar panels pumping clean renewable energy into the grid you get frequency regulation, voltage regulation, and security for the grid. You offset Carbon emissions and also build a generation portfolio that didn't cost anything for other ratepayers to build. Most solar systems will produce twice the amount of power a typical home consumes during the day. This energy is resold to their neighborhood through the utility companies' electric lines.

Sonnen lithium batteries work not only for power outage but load shifting and peak power shaving. The system reads a 3 day weather forecast and creates a model for peak efficiency. All utilities need to do is help finance through the existing electric bills and educated ratepayers on why they need a lithium battery storage solution tied into

sales were leased—the highest rate of car leasing than at any time in over a decade—two-thirds of all new residential solar installations were third-party owned. Similar to car leasing, third-party solar ownership can be advantageous for a number of reasons. Many residents do not have the full upfront investment capital for solar systems and lack knowledge of local permitting and incentive programs. Other entities, like nonprofits and schools, cannot access tax credits and rebates that companies can access. And for many others, installation and maintenance are major barriers. Therefore, it often makes sense to involve a third-party developer in investing and installing a solar system. Residents sign long-term contracts in exchange for electricity prices typically lower than retail rates.

Third-party ownership of solar typically takes one of two forms: a lease or a power purchase agreement (PPA). Under a lease, the lessee pays a fixed monthly fee that is not tied to the amount of power generated, while under a PPA, the lessee agrees to purchase all of the electricity produced by the solar system. Increasingly, companies like SolarCity, Sungevity, and Sunrun have seen success in the residential solar market. In fact, third-party-owned systems make up 60 to 90 percent of new residential systems in Arizona, California, Colorado, and Massachusetts. And in Georgia, third-party ownership could accelerate an already booming solar industry.

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Thank you,

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