

**Missouri Public Service Commission**

**File No. EW-2017-0245**

**Sierra Club Comments on Emerging Regulatory Issues**

Sierra Club appreciates the opportunity to file comments in this docket regarding two topics of significant interest to our organizations – rate design and solar policy. Please note that Sierra Club is separately submitting comments on electric vehicles, along with Natural Resources Defense Council.

**What is the Commission’s role in shaping the solar landscape?**

1. Public Utilities Regulatory Policy Act (PURPA)

In order to encourage the development of co-generation and small power production facilities, Section 210 of PURPA requires large electric utilities to purchase available energy and capacity from small power producers, known as “qualifying facilities.”<sup>1</sup> FERC’s implementing regulations require states to set avoided cost rates at the utility’s full avoided cost.<sup>2</sup> Under these regulations, a utility’s full avoided cost is the incremental cost the utility would bear if it were required itself to supply or purchase the electricity produced by the small power producer. Within this framework, FERC has delegated to state commissions the responsibility to set rates for purchases from qualifying cogenerators and small power producers by electric utilities under their ratemaking authority and the discretion to determine the appropriate avoided cost methodology.

In addition to the Commission’s role in determining avoided cost methodologies, PURPA also requires utilities to adopt standard rates for purchases from QFs under 100 kW, which must be approved by the Commission.<sup>3</sup> In addition, FERC’s PURPA regulations give state commissions the authority to develop standard rates for QF larger than 100 kW.<sup>4</sup> In adopting these regulations, FERC recognized that standard rates were essential to successfully financing the development of a QF because they allow investors “to estimate, with reasonable certainty, the

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<sup>1</sup> See 16 U.S.C. § 824a-3 (2005); *American Paper Inst. v. Am. Elec. Power Serv. Corp.*, 461 U.S. 402, 405 (1983) (“Section 210 of PURPA was designed to encourage the development of cogeneration and small power production facilities.”).

<sup>2</sup> See *American Paper Inst.*, 461 U.S. 402 (1983).

<sup>3</sup> 18 C.F.R § 292.304(c)(1), (2).

<sup>4</sup> *Id.*

expected return on a potential investment before construction of a facility.”<sup>5</sup> Standard rates also reduce the transaction costs for both the QF and utility, associated with the utility’s obligation to purchase the output from QFs.

Our understanding is that Missouri currently does not have standard rates for QFs larger than 100 kW, and that the standard contract for smaller QFs does not contain a fixed contract term, nor is there a standard form contract.<sup>6</sup> We believe that in order to fulfill the purpose of PURPA to encourage the development of cogeneration and small power production facilities, the Missouri PSC should initiate a docket to review its existing policies relating to standard rates/contracts. In addition, we are informed that Missouri’s avoided cost rates include only energy costs, despite PURPA’s clear direction that avoided capacity costs also be included if applicable. Moreover, PURPA allows for other categories of avoided cost to be considered, including avoided transmission costs and avoided line losses. The Michigan PSC recently initiated proceedings to update its avoided cost methodology and is considering whether to include additional avoided cost categories.<sup>7</sup>

2. Missouri Statutory Provisions (no response provided)

3. Net metering and cogeneration rules

The Commission is responsible for implementation of the Missouri Net Metering and Easy Connection Act (Mo. Rev. Stat. 386.890), and has adopted related rules at 4 CSR 240-20.065. That statute and the Commission’s rules provide for one-to-one crediting of exports from a net metered system against a customer’s usage within the billing period. However, the statute requires that excess generation at the end of the billing period is rolled over at a rate that is “at least equal to avoided fuel cost,” and may only be carried over to subsequent bills for 12 months.<sup>8</sup>

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<sup>5</sup> 45 Fed. Reg. 12,214, 12,218 (1980).

<sup>6</sup> See Presentation by Cypress Creek Renewables, Solar Project Development and PURPA (May 2016), available at <https://psc.mo.gov/CMSInternetData/Agenda%20Presentations/FY%202017%20Presentations/10-5-16%20Cypress%20Creek%20Renewables%20Presentation.pdf>

<sup>7</sup> See, e.g., Michigan PSC Docket No. U-18089 (In the matter, on the Commission’s own motion, establishing the method and avoided cost calculation for ALPENA POWER COMPANY to fully comply with the Public

Utilities Regulatory Policy Act of 1978, 16 USC 2601 et seq.).

<sup>8</sup> *Id.* subpart 5(3) (“If the electricity generated by the customer-generator exceeds the electricity supplied by the supplier during a billing period, the customer-generator shall be billed for the appropriate customer charges for that billing period in accordance with subsection 3 of this section and shall be credited *an amount at least equal to the avoided fuel cost* of the excess kilowatt-hours generated during the billing period, with this credit applied to the following billing period.”) (emphasis added).

Within this otherwise generally prescriptive statutory framework for net metering, the Commission's primary area of discretion seems to be in reviewing the fairness of the rate paid for excess generation. The Commission's rules at 4 CSR 240-20.065(7)(C) require utilities to pay a minimal avoided cost amount for net excess generation. For example, Ameren Missouri's residential net metering customers receive only 2.68 cents in the summer and 2.47 cents in the winter for net excess generation,<sup>9</sup> compared to retail rates of over 12 cents and 8 cents, respectively. However, the statute allows for a higher level of compensation; in other words, it sets a floor and not a ceiling on the rate for excess generation. Sierra Club urges the Commission to reconsider whether utilities should increase the level of compensation provided for net excess generation so as to adequately compensate net metering customers for the value of the energy they export to the grid.

#### 4. Avoided cost calculations.

In addition to our comments above regarding the Commission's role in determining a method to calculate avoided costs for purposes of PURPA, the Commission may also consider the costs avoided by solar in the context of setting the rate for compensation of net excess generation by net metering customers.

#### 5. Value of solar calculation

A "value of solar" study can mean several different things. Some value of solar studies add up the various avoided costs associated with solar resources, which facilitates comparison of a snapshot value to current retail rates.<sup>10</sup> Other studies look at how the value of solar resources might change over time and employ the cost-effectiveness tests familiar to energy efficiency policies in order to facilitate consideration of different points of view regarding value.<sup>11</sup>

The Commission could undertake a value of solar calculation as part of a technology-specific avoided cost calculation for purposes of PURPA, which would evaluate the specific avoided line losses, transmission, energy, and capacity costs associated with the generation profile of different types of solar resources. In addition, such a study could inform the compensation level for excess generation from net metered systems. Based on Sierra Club's experience in other states, we think it is important for the Commission to take an active role should it decide that a value of

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<sup>9</sup> See <https://www.ameren.com/-/media/missouri-site/files/Rates/UECSheet171EPPNetMetering.pdf>, at 1(c).

<sup>10</sup> See, e.g., Richard Perez, et al., Clean Power Research, The Value of Distributed Solar Electric Generation to New Jersey and Pennsylvania (2012), available at [http://www.michigan.gov/documents/mpsc/valuesolar\\_nj\\_pa\\_448375\\_7.pdf](http://www.michigan.gov/documents/mpsc/valuesolar_nj_pa_448375_7.pdf)

<sup>11</sup> See, e.g., Synapse Energy Economics, Net Metering in Mississippi: Costs, Benefits, and Policy Considerations (2014), available at <http://www.synapse-energy.com/sites/default/files/Net%20Metering%20in%20Mississippi.pdf>.

solar study is needed. Specifically, the Commission itself should contract with an independent and trusted evaluator with extensive experience doing value of solar studies. Part of that study should include consultation with stakeholders and evaluation of key sensitivities that affect the value of solar. Having different perspectives on key data inputs incorporated into the same study allows the Commission to compare apples to apples, rather than trying to compare disparate studies prepared by adversarial parties.

#### 6. Development and construction of utility-scale or community solar projects

Sierra Club strongly supports the development of utility-scale solar (and wind) energy projects in Missouri, or serving Missouri customers. The costs of solar development are declining dramatically,<sup>12</sup> resulting in wholesale prices that are very competitive with coal and natural gas production. Furthermore, through the power purchase agreement mechanism, these prices are set for terms that often exceed 15 years, thereby eliminating fuel price volatility risks. As a step to increasing the utilities' solar portfolio the Commission plays an important role in ensuring that utilities use accurate and current cost figures for solar and other renewable resources in their integrated resource plans and do not restrain models employed in that planning process to select only an artificially limited quantity of solar.

A second step that the Commission could take is to require utilities to issue requests for proposals for utility-scale solar in order to better understand the prices and contract terms that developers of utility-scale solar might offer. The responses to such an RFP would allow for procurement decisions to be based on the most current and location-specific information, and give the Commission more insight into the costs of utility-scale solar in Missouri. The Commission should not delay in encouraging cost-effective investment in utility-scale solar, as significant investment tax credits for this resource will begin to phase out in 2019.<sup>13</sup>

Sierra Club also supports the development of community solar programs throughout Missouri. These programs allow a wider range of customers to obtain the direct bill-reduction benefits of solar,<sup>14</sup> even if their housing situation does not allow for on-site solar. In addition, community solar programs take advantage of economies of scale, allowing customers to “buy

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<sup>12</sup> See Galen Barbose and Naim Dargouth, U.S. Department of Energy, Tracking the Sun IX: The Installed Price of Residential and Non-Residential Photovoltaic Systems in the United States (2016), available at [https://emp.lbl.gov/sites/all/files/tracking\\_the\\_sun\\_ix\\_report.pdf](https://emp.lbl.gov/sites/all/files/tracking_the_sun_ix_report.pdf).

<sup>13</sup> See <http://www.utilitydive.com/news/as-solar-price-drops-utility-interest-spurs-growth-in-non-traditional-mark/425896/>.

<sup>14</sup> To be clear, many studies show that the value exceeds the retail rate, meaning that all customers benefit when anyone else on the system installs a solar system that exports energy to the system. See <https://www.brookings.edu/research/rooftop-solar-net-metering-is-a-net-benefit/#>. However, customers who have on-site, net metered solar systems receive additional, direct benefits on their bill due to the net metering credits.

into” the system at a lower price than would be available for the smaller systems customers can have installed on their own property. For customers interested in having their energy supplied through renewable resources, community solar provides a much more tangible and concrete way to achieve that goal compared to “green power tariffs,” which allow customers to support utility procurement of renewable energy credits but do not typically result in incremental or additional solar resources on the grid. The Interstate Renewable Energy Council’s Model Rules for Shared Renewable Energy Programs provides an excellent overview of the benefits of shared or community solar programs, as well as model rules for development of such programs.<sup>15</sup> According to the National Conference of State Legislators, at least 15 states have legislation authoring shared or community solar programs.<sup>16</sup> Other states, including Missouri, have made community solar available through Commission action, at least on a pilot basis.

Community solar programs are most enticing to customers when participation provides the same benefits that customers with individual net-metered systems would experience, namely, valuing generation by the community solar system at the retail rate and providing an offset on a customer’s bill. In contrast, programs that require customers to pay more than the approved retail rate for generation from their block of a community solar program do not provide access to solar on the same terms that a home-owning customer would receive, and are therefore less likely to attract customer participation.

7. Other states (no response provided)

### **What is the Commission’s role in implementing modified rate design proposals?**

Rate design is an essential component of the Commission’s responsibility to ensure that rates are just and reasonable. Therefore, Sierra Club recommends that the Commission take an active role in encouraging rates to be designed to achieve public policy objectives such as peak load reduction, and to protect vulnerable customers from excessive or unpredictable rates. Sierra Club is aware that this Commission has previously expressed support for moving away from declining block rates and towards time-of-use rates, but has generally relied upon the parties to rate cases to come forward with proposals to modify rate design. As a frequent and close observer of the adversarial rate case process, however, the Commission is undoubtedly aware that adjudicated cases can be a challenging setting in which to evaluate modified rate design proposals that make significant changes to the existing rate structure. Sierra Club therefore recommends that the Commission adopt some of the procedural practices recently suggested in a

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<sup>15</sup> The IREC report is provided as Attachment A.

<sup>16</sup> See National Conference of State Legislators, State Net Metering Policies (last updated Nov. 3, 2016), available at <http://www.ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx#statenet>

letter by dozens of groups to the National Association of Regulated Utility Commissioners (NARUC) (Attachment B), including:

- Assessment and analysis of state conditions and sound data when determining the need and pace for rate-design change;
- Collaborative, upfront, open, docketed processes that explore the range of rate-design options in advance of or in lieu of rate cases;
- Data-driven rate-design inquiries;
- Pilots and testing for novel or untested rate designs prior to wide-scale adoption;
- Consideration and accommodation for low-income and vulnerable customers in rate design; and
- Sufficient opportunity to educate customers on new/shifting rate designs well in advance of their implementation and the development of tools to do so.

At the same time, the Commission need not reject modest rate design changes that are well-supported by the evidence in the context of an ongoing rate case. We also encourage the Commission, when initiating collaborative processes to discuss rate design, to provide concrete guidance to the collaborators and require accountability from that process in the form of specific data to be gathered, studies to be conducted, and objectives to be achieved. It is sometimes the case that collaborative processes or stakeholder discussions on very general topics such as rate design become bogged down due to a lack of specific direction from the Commission or a timeline on which results are to be reported. The Commission should also consider engaging experts at the Regulatory Assistance Project, who provide their services at no cost, to facilitate discussions among stakeholders and therefore ensure a more productive process.

Missouri has had numerous stakeholder workshops and open dockets such as this one to discuss rate design, but these have not typically led to concrete improvements in rate design. The Commission plays an indispensable role in moving utilities and stakeholders from evaluation to implementation and as such, it is appropriate for the Commission to require utilities to propose specific rate designs in future rate cases;<sup>17</sup> doing so does not predetermine the adoption of such a rate, but does ensure that it will be presented for the Commission's consideration in a ready-to-implement form, rather than as an amorphous concept.

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<sup>17</sup> In ER-2016-0156, the Commission entered an order on September 28, 2016 approving various stipulations and agreements among the parties, including one in which KCP&L-GMO agreed to undertake a comprehensive study of time-varying rates and propose such rates in its next case.

The Commission and Staff have also requested comment on several specific rate design topics, discussed further below:

1. Residential time of use rates.

Sierra Club strongly supports the adoption of time-of-use rates for residential customers because such rates encourage customers to use less energy at peak times and therefore allow the utility to reduce the transmission, distribution and generating capacity it needs to serve customers. Time of use rates come in many forms. In the classic form, kilowatt hours consumed during certain hours of every day of the year (or of the peak season) cost more than kilowatt hours consumed during the off-peak period. Customer ability to respond (and therefore customer control and peak-load reduction) is enhanced when the on-peak period is as narrow as possible. Taken to the next level, a critical peak pricing structure imposes higher prices only on a limited number of days when the utility expects load to peak, and provides some kind of notice to customers (typically 24 hours) that the next day will be a critical peak day. Peak time rebates similarly focus on the highest-usage days, but utilize a carrot rather than a stick by offering customers who curtail their usage a rebate payment.<sup>18</sup>

Sierra Club supports offering time-of-use rates on an opt-in basis, at least in the first several years of implementation, in order to allow customers time to adjust and protect customers who have very little ability to control their usage (such as those with home medical devices or vulnerable members of the household). In order to entice customers to opt into a time-varying rate, the rate should be (1) simple and understandable, and (2) well-marketed and supported by trained customer service specialists. The utility can also help to educate consumers by providing shadow billing information – that is, showing customers on the default rate what their monthly bill would have been had they opted into the time of use rate. Finally, utilities can offer customers who opt into the time of use rate a limited “hold harmless” period, in which the customer will pay a bill based on the standard tariff if it is lower than the customer’s bill on the time of use tariff.

Given the significance of the change in rate structure, introduction of time-of-use rates is best preceded by a collaborative workshop format to discuss issues of rate design and ensure that customer education programs are developed and tested prior to introducing the rate.

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<sup>18</sup> See Jim Lazar and Wilson Gonzalez, *Smart Rate Design for a Smart Future*, at pp. 44-45 (2015), available at <http://www.raponline.org/wp-content/uploads/2016/05/rap-lazar-gonzalez-smart-rate-design-july2015.pdf>.

## 2. Inclining block rates.

Sierra Club supports the adoption of inclining block rates, especially during the peak season. Inclining block rates provide an overall incentive to conserve electricity, consistent with the objectives of MEEIA. Inclining block rates also have the effect of reducing bills for lower-usage customers, who tend to be low-income. While inclining block rates are not designed specifically to reduce peak load, they can have that effect in that the customer has the greatest ability to reduce their usage at the time of day when they are using the most electricity, which for some customers will be the system peak times (especially insofar as temperature-related loads are more discretionary than other loads in the home). Especially where inclining block rates utilize existing kilowatt-hour thresholds and make modest changes to the energy rate, introduction of inclining block rates represents a modest change to rate design that does not necessarily require a workshop or collaborative process. A robust consumer education program contemporaneous with the rollout of the inclining block rate will help customers understand and take steps to achieve the enhanced bill savings that this rate design offers.

## 3. Effect on energy efficiency and renew[able] energy.

It is critical for the Commission to understand and consider the impact of any rate design change on incentives for energy efficiency and renewable energy. On this point, we commend to the Commission and Staff's attention a March 2017 paper by Brendan Baatz at ACEEE (American Council for a Clean Energy Economy), entitled *Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency*.<sup>19</sup> The paper examines data from recent pricing pilot studies and literature to address three questions: "(1) What effect do various rate structures have on overall consumption of electricity? (2) What effect will recently proposed changes in rate design have on payback of various energy efficiency measures? [and] (3) What are the implications of various rate design options for low-income customers?"

For example, the study compares empirical data on the impacts of various time of use rate treatments on peak demand and overall consumption. More focused time-of-use rates such as critical peak pricing and peak time rebates achieved 2-3 times the peak load reductions as classic time of use rates.<sup>20</sup> This suggests that while critical peak pricing and peak time rebate programs may be more significant changes in rate design, the rewards they offer in terms of peak savings are substantial. The Commission can play an important role in ensuring that the state's utilities evaluate more targeted time-varying rate designs alongside classic time-of-use rates.

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<sup>19</sup> The report is attached to these comments (Attachment C) and available at <http://aceee.org/research-report/u1703>.

<sup>20</sup> *Id.* at p. 13, Table 4.

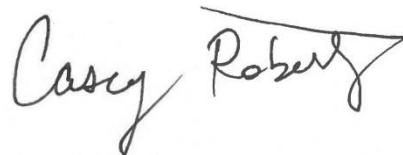


Rate design can have a significant effect on adoption of distributed generation technologies, in much the same way that the payback period for an investment in energy efficiency technologies is shortened when the fixed portion of the bill decreases, and when tiered (i.e., inclining block) rates are implemented. Time of use rates, in which exports from DG systems are valued at the retail rate, can provide financial incentives for customers to orient DG systems in a way that maximizes their value to the utility system at system peak times.

In summary, Sierra Club appreciates the opportunity participate in this workshop and commends the Commission and the Staff's initiative in engaging stakeholders on these emerging issues. Furthermore, we hope that Staff will provide a set of recommended actions after considering the written and oral comments of participants, to ensure that the Commission is fully apprised of important policy actions that it might take to advance state policy in these areas.

Dated: May 1, 2017

Sincerely,

A handwritten signature in black ink that reads "Casey Roberts". The signature is written in a cursive style with a horizontal line above the name.

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