Comments on Staff's Report, EW-2017-0245
Submitted by Natural Resources Defense Council
May 16, 2018

Natural Resources Defense Council (NRDC) appreciates the opportunity to provide comments to the Missouri Public Service Commission (PSC or Commission) in response to PSC Staff's April 5, 2018 Report on Distributed Energy Resources (Staff Report).[1] The Staff Report was issued as part of its proceeding on Emerging Issues on Utility Regulation. The Commission should be commended for opening this very important proceeding for the customers of Missouri, and the outstanding work of Commission Staff on the content and quality of this Staff Report. The topics of this proceeding are far ranging and implicate the nuts and bolts of regulation and electricity policy in the state.

Integrated Distribution Planning

NRDC supports the recommendation of Commission Staff to continue discussions on the role of Distributed Energy Resources (DER) and their utilization in Missouri. NRDC supports the definition of DER as utilized by Staff in the Staff Report and believe that it covers the breadth of types of DER. Additionally, NRDC agrees with Staff's focus on and the need for distribution system planning. As noted in the Staff Report, the growth of DER is expected to follow an adoption curve. Initiating this process to begin planning for the growth of DER, the policies that are necessary to advance and integrate DER, and put the utilities on a path to successfully integrate and utilize DER will assist the Commission in meeting the overarching goals of the state to ensure a reliable and safe electricity system at affordable cost. As the Staff Report notes, "Planning is key to properly deploying DER."[2] Additionally, the Staff Report recommends that the next utility integrated resource plans (IRP) include "any cost-effective DER in alternative resource plans."[3] NRDC concurs with the Staff Report's recommendation. Identifying cost-effective DER resources and including them in a utility IRP will help keep overall utility costs down. Furthermore, the Commission should also consider directing the utilities to identify locations for potential non-wires alternatives as part of the next IRP.

NRDC notes that distribution system planning should not only be aligned with the utilities' IRP filings, but also with the utilities' MEEIA submissions. NRDC agrees with the Staff Report that DER has value in the MEEIA policy framework. As such, ensuring that a utility distribution system plan is aligned with the IRP and MEEIA filings will assist in identifying and capturing the variety of values from DER and that these planning filings are integrated with each other.

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[1] *In the Matter of a Working Case to Explore Emerging Issues in Utility Regulation*, "Staff Report on Distributed Energy Resources," Missouri Public Service Commission, File No. EW-2017-0245 (issued April 5, 2018).
[2] Staff Report at 25.
[3] *Id.*

NRDC also agrees with Commission Staff on the need for creating a new rule within Rule 22 to address DER. Additionally, the Staff Report provides a detailed overview of grid modernization technologies and the status of adoption and integration at the utilities. As the Staff Report notes, potential utility investments in response to DER cover many parts of the distribution grid.[4] Furthermore, the Staff Report states that during the workshops in this proceeding, "each of the electric utilities touched on their vision for or acknowledged the future of the distribution system as it relates to DER integration."[5] The Staff Report indicates that revisions to Rule 22 will address distribution system planning requirements; NRDC recommends that Staff interpret that broadly to include not only near-term needs to replace aging infrastructure, but also to require the utilities to provide a vision and plan for infrastructure investments, the need and purpose for those investments, and how the utility plans to integrate those investments across the utility operations.

A key component of a distribution system planning analysis is the collection of data, and an important data collection process is a hosting capacity analysis. NRDC recommends that the Commission consider requiring the utilities to do a hosting capacity analysis, and to make the results of the analysis public, as part of this process. Hosting capacity is defined as the amount of DERs (in particular, solar PV) that can be accommodated on a given point in the distribution system without impacting power quality or reliability under existing control and infrastructure configurations.[6] In essence, a given point in the distribution system has a certain amount of available capacity at any given time to accommodate additional generation, such as solar. Hosting capacity analyses identify that threshold of available capacity. They provide valuable information to determine not only the capabilities of the distribution system, but also to identify optimal locations for solar, as well as to identify areas where non-wires alternatives may be deployed to defer or replace more costly capital investments. Solar can also be paired with other technologies, such as storage or greater use of energy efficiency or demand response, to enhance hosting capacity that is lacking at that point in the system.

As noted in the Staff Report, the utilities are all at various points of integrating their various internal systems with each other. To support this, the Commission should also consider the importance of interoperability to ensure that these infrastructure investments not only meet any requirements that may be determined in the upcoming draft rule consideration, but are expressly included as a key component of any utility investment.

[4] *Id.* at 38.
[5] *Id.* at 38.
[6] "Distribution Feeder Hosting Capacity: What Matters When Planning for DER?," Electric Power Research Institute at 2 (April 2015).

Interconnection Rules

Additionally, NRDC recommends that the Commission consider the creation of a working group to evaluate updates to Missouri's existing interconnection rules.[7] With the technological advancement in recent years, coupled with advances in standards and policy, it is time to consider revisions to these rules. For example, IEEE 1547 has been finalized, allowing certain advanced inverter functions to operate. FERC has also completed significant updates to the Small and Large Generator Interconnection Protocol. Both of these protocols now form the foundation of most states' interconnection rules.

Value of Solar

While NRDC believes that it is worthwhile for Missouri to undertake a Value of Solar study, it does agree with the Staff Report that an important first step in doing such a study is to first understand the existing nature of the distribution system and focus on distribution system planning. The value of any DER is time and location dependent. A hosting capacity analysis, as recommended above, will greatly assist in providing information that can be used as an initial part of any valuation methodology.

Residential Rate Design

On the topic of residential rate design, NRDC supports several of the recommendations contained in the Staff Report.[8] Notably, NRDC agrees on the need for greater customer education about rates and the differing costs to serve customers throughout the day, possible unbundling of electricity rates, and greater use of time of use rates. NRDC also appreciates that Staff identified the overlap between rate design and DER adoption; understanding that rate design will have an impact on DER adoption is an important component of any analysis on DER adoption rates and impacts on the distribution system. NRDC believes that the plan proposed by Staff to phase in certain rate design attributes is a good starting point. However, NRDC has a few concerns with certain aspects of the plan with regard to rate design.

As it relates to TOU considerations, NRDC would recommend that in the short term, while small differentials between peak and off-peak may assist in educating customers, it will be unlikely to elicit significant customer response. NRDC believes that the differential should be significant enough to encourage customer response and be based on cost of service principles. In other words, an analysis should be completed by the utilities showing when its system peaks, and when each customer class peaks, including in relation to the system peak. This information is important to understand the nature of customer demand and will assist in the distribution system planning activities recommended above. NRDC recommends that for any pilots or phase

[7] Staff Report at 10, 39. Staff recommends a workshop to discuss the final version of 1547, which may be a beneficial to stakeholders, which NRDC would support, but we believe that in addition to the finalization of 1547, there is a sufficient need to review the existing interconnection rules. A working group to update the interconnection rules can also review updates to 1547 as part of its responsibilities.

[8] Staff Report at 50-53.

in of new rates, that a variety of rate designs be considered to determine customer acceptance and customer response. For example, a utility could pilot a low differential TOU rate and a high differential TOU rate, and report back to the Commission on customer acceptance and understanding of those rates, as well as customer response to those rates, and any associated savings from those trials.

While the Commission has previously determined it lacks authority to implement decoupling, NRDC nonetheless emphasizes the importance of this mechanism to align the utility business model with investment in and acceptance of DER and enabling rates. Without decoupling, the utility retains its traditional conflict between encouraging an efficient rate and encouraging energy sales. In other words, any consideration of a move to a TOU rate must ensure revenue neutrality to the greatest extent possible and be vigilant against fluctuating revenues from year to year. The "throughput incentive" must be broken to remove that conflict and provide a level playing field for an efficient rate (like TOU) to have a chance to succeed.

In addition, NRDC opposes the Staff Report's recommendation to implement residential demand charges in 2025. If a goal of the Commission is to reduce system peak, then the Commission should consider that a TOU rate might accomplish the same goal (amongst many other goals that a TOU can accomplish). TOU rates have a proven track record of customer acceptance and providing customers with tools to manage their energy bills (and impact system peak). Demand charges, on the other hand, are largely untested, are required for residential customers in just a few jurisdictions, and raise serious questions about customer understanding and acceptance. NRDC recommends that, before jumping headlong into relatively untested rate structures, the Commission first consider its rate design goals and principles, then do a study to determine which rate design would best accomplish those goals. Additionally, by collecting information about residential customer usage and its relation to system peak, the Commission will have better information about whether the residential class peak is coincident with utility system peak. Experts tend to agree that the residential class does not peak at the same time as the system and thus does not "drive" system peak.[9] Thus, if the goal is to develop rate designs that help shave peak, there would be questionable value to using a residential demand charge. In essence, there are number of data-driven questions that need to be addressed in advance of considering any move to a residential demand charge rate, in addition to customer education needs.

CONCLUSION

NRDC congratulates the Commission Staff on this well done and comprehensive report on distributed energy resources and its recommendations to the Commission. NRDC looks forward to working with Staff and other parties to consider and implement many of the recommendations in this Staff Report. We thank the Commission and Commission Staff for the opportunity to provide these comments.

[9] https://www.raponline.org/wp-content/uploads/2016/05/lazar-demandcharges-ngejournal-2015-dec.pdf.