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MEMORANDUM

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To: The Ohio Manufacturers' Association Energy Group

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FERC Order 2222 Opens Electricity Markets to Customer-Generators, Utility Role Uncertain

Key Points

- The Federal Energy Regulatory Commission (FERC) Order No. 2222 expands markets by enabling distributed energy resources such as solar and batteries, including customer-generators, to aggregate and compete alongside large power plants in wholesale electricity markets.
- Distribution utilities will have new authorities as to be determined by state policymakers and regulators, with potential conflicts of interest.
- Customers will have a new ability to compete and receive compensation in wholesale electric markets for their electric generation to the grid. Without this ability, customers are reliant on the distribution utility's net-metering tariff for compensation.
- Pending legislation in Ohio repeatedly gives monopoly utilities new powers that could materialize under the guise of Order 2222 compliance, favoring the monopolies over customers and competitive

Summary

Manufacturers and policymakers should know that FERC Order 2222 continues a federal policy of encouraging innovation, competition, and open electric markets. Order 2222 will make it easier for small and medium-sized distributed energy resources (DERs) - including solar, batteries, and combined heat and power systems - to compete in wholesale electricity markets like PJM and receive compensation on equal footing with large power plants. Ohio's grid operator PJM has an Order 2222 compliance filing pending at the FERC.

In this filing, PJM leaves it to states to determine the involvement of electric distribution utilities in distributed energy resource aggregation while balancing the utilities' responsibility to maintain a reliable distribution grid. The power given to the distribution utilities by state policymakers can be one of a responsible steward of the grid, or one of a gatekeeper that can squash competition.

Problematically, pending Ohio Senate and House Bills that have been introduced with provisions in response to Order 2222 grant the utilities the power to squash competition, specifically HB 317, HB 389, HB 450, and SB 307. But the bills' stated justifications may not elucidate the true justification of these

provisions. The concerning provisions of these bills grant monopoly utilities new powers under the guise of Order 2222 that could harm competition, customers, and environmental and technological progress. Alternate policy options are needed to encourage markets over monopolies and limit the utility's role to that of a responsible steward of the distribution grid (not a gatekeeper).

Customer-Sited Distributed Energy Resources

For most of the 20th century, investments in the national electric grid targeted large power plants located far from urban centers. These plants supplied electricity to people and businesses via thousands of miles of intersecting power lines. But advancements in science and engineering have enabled small and medium-scale DERs to meet local demand, providing valuable grid services to industrial facilities, buildings, and residences.

The term DER encompasses a range of technologies and actions, including solar, wind, combined heat and power, battery storage, electric vehicles, peak load management, and energy efficiency. Even the thermal capacitance of a water heater or brick building can be a DER.

Wholesale markets have begun to respond to this trend, adopting rules and regulations that compensate DERs for select wholesale services. For example, PJM already allows compensation for demand response, energy efficiency, and energy storage capabilities. Unfortunately, these provisions often result in limited DER participation, or DERs marketing only a portion of their full-service potential. Costly and inconvenient performance and registration requirements constrain DERs even further.

Key Information

- Lacking a clear market to sell electricity to the grid, DERs traditionally have primarily offset customer load.
- DERs that provide electricity to the grid currently can receive compensation from the distribution utility's net metering tariff - not the market.
- FERC Order 2222 provides a means for DERs to receive market compensation.

The result is that most DERs only offset customer electric load, and do not provide electricity to the grid. Those DERs that do provide electricity to the grid typically receive compensation from the distribution utility's net-metering tariff.

FERC Order 2222 acknowledges that wholesale market reform has fallen behind the pace of innovation that makes the aggregation of DERs practical. By opening wholesale electricity markets to DERs, including customer-generators, Order 2222 gives manufacturers and other customers new ways to collect revenue with their DERs.

FERC Order 2222 authorizes DER owners and customer-generators to combine the capabilities of their equipment and join wholesale electricity markets as a group. By aggregating their small and medium-scale distributed energy resources, groups of customer-generators are more likely to satisfy the performance and registration requirements of wholesale market participation. This rule permits distributed energy resources to receive compensation for a broader range of built-in capabilities than current market rules allow.

What Pending Legislation is Already Addressing Ohio's Response to FERC Order 2222?

Several pending bills at the Ohio legislature appear to anticipate the need for policy and rule changes in response to Order 2222, but have provisions that could give undue power to the local utility to control customer-sited electric generation. Other pending bills have key provisions that change how distributed energy resources are compensated that would have interplay with and could conflict with Order 2222. The specific bills and their provisions of interest are HB 317, HB 389, SB 307, and HB 450.

HB 317 Grants Utilities New Anti-Competitive Powers

HB 317 has several provisions that anticipate Order 2222 and would affect the role of the distribution utility in DER aggregations. First, HB 317 would:

"Allow the utility to aggregate the distributed energy resources of its standard service offer customers for purposes of participating in the wholesale market, consistent with orders and regulations of the federal energy regulatory commission, including provisions relating to costs and revenues;"[1]

This provision of HB 317 quite clearly is meant to change Ohio law and regulations in response to Order 2222 and gives new powers to the electric distribution utility before policymakers are even aware of the issue and how it will impact Order 2222. Policymakers should know that there is no inherent reason why a standard-service offer customer with on-site generation should be required to use its distribution utility as a distributed energy resource aggregator. A standard-service offer customer could have on-site generation, such as rooftop solar, and could choose a competitive DER aggregator of its choice. Because HB 317 pre-empts customer choice, it limits an emerging competitive market.

Second, HB 317 states that:

"No electric distribution utility may bid into the wholesale market the energy from any battery storage system that the utility invests in for distribution service."[2]

Whether a monopoly utility should be able to own and operate an electric battery - which is a competitive product - is a point of ongoing contention. At first glance, this provision of HB 317 appears beneficial for customers and markets, in that it bars monopoly distribution utilities from participating in competitive wholesale electric markets with

Key Information

- HB 317 allows distribution utilities to serve as DER aggregators over competitive providers.
- HB 317 implies utilities can own an emerging competitive DER (i.e., batteries).
- HB 389 gives utilities new powers to control and shut-off customer-owned renewable generation, a DER.
- HB 389 gives utilities control of all DERs, which could make it the default aggregator over competitive providers.
- SB 307 could allow utilities to own batteries, a DER.
- HB 450 creates a new category of DER - community solar - but fails to anticipate Order 2222's market compensation.

[1] Sub. H.B. No. 317-, Sec. 4928.143, lines 885-889.
[2] Sub. H. B. No. 317-, Sec. 4928.149, lines 1145-1147.

batteries. However, the provision also implies that a utility may invest in and thus own a battery system, thereby conveying new powers to the utility. Batteries have great promise as a new grid technology that can be adopted and deployed with competitive markets. But there is no established need for an electric monopoly to own a battery over competitive businesses. And in Ohio electric distribution utilities have not received regulatory approval for investments in and ownership of a battery.

An additional worry is that for battery storage systems to expand in the electric marketplace, they will likely need to monetize value streams from wholesale electricity markets to be economical. Thus, by banning battery systems market revenue, HB 317 would make batteries significantly more costly. Batteries should not be barred from offering their services into competitive electricity markets, and thus should be owned and operated by competitive companies that can do so.

HB 389 Grants Utilities Control Over Customer-Owned Generation

HB 389 establishes electric distribution utility run energy efficiency and peak demand reduction programs. Shockingly, the bill allows utilities to shut-down competitive customer-sited renewable energy generation with no guidance on how that authority is to be used, an audacious anti-market, anti-customer, and anti-environmental provision.

HB 389 mandates that a utility establishing an "energy savings" plan shall have "Utility control to reduce demand or impacts of intermittent resources on the grid..."[3] An "intermittent resource on the grid" is solar power, wind, combined heat and power, batteries, electric vehicles, etc. Essentially, any DER could be said to be an intermittent resource. "Utility control to reduce demand or impacts" means the local distribution utility would have the power to shut off any DER connected to their grid, including customer-owned and operated generation behind the meter. This new sweeping power bestowed to electric utilities is not clearly constrained to program participants, meaning it could affect any utility customer.

It is risky to authorize utilities to shut down customer-sited renewable generation at certain times, and at their discretion, rather than make system improvements to accommodate the generation and reduce load. Thus, this provision of HB 389 gives monopoly utilities open-ended power to thwart competitive customer generation if the utility chooses to do so. Because the bill reserves control of intermittent resources - DERs - to the electric distribution utility, HB 389 could result in the distribution utility becoming the default DER aggregator for all customers under Order 2222, even for those customers not participating in the energy savings program. In this way, HB 389 anticipates that Ohio law and regulation will need to change as required by PJM's compliance filing for Order 2222 and gives the electric distribution utility new powers that could undermine markets, competition, and technological and environmental progress, denying customers of the benefit of their investment.

SB 307 Could Allow Utilities to Own and Operate Batteries, Currently a Competitive Product

SB 307 allows for "utility-owned electric vehicle charging infrastructure," yet is silent on how this infrastructure is different from existing utility-owned infrastructure. Nevertheless, by introducing a new type of utility infrastructure, one can deduce that the electric distribution utility believes they need a law change to invest in and own new types of equipment that they currently do not have permission to own.

[3] Sub. H. B. No. 389 As Reported by the House Public Utilities Committee, Proposed Sec. 4928.6633 (F) (2), lines 140-142.

Otherwise, there would not be a need for this new definition and bill provision. Make no mistake, this expands what utilities can own and operate and the costs that the utilities can recover from captive customers.

One new type of equipment that would likely be included in many electric vehicle charging stations is a battery. Because electric vehicle charging will be intermittent but have high power requirements, it may make sense in some cases to install a battery with the charging stations to limit the cost of line capacity upgrades and wholesale market power costs. Batteries can charge at a lower power over time from the distribution utility and then discharge intermittently at high power more quickly to electric vehicles, potentially lowering construction, and operating costs. While batteries in some cases will improve the technical and economic feasibility of the electric vehicle charging station, at issue is who will own the battery. Under SB 307, if electric distribution utilities are allowed to own batteries the battery cost would be paid for through captive customers' rates. This contrasts with restructured states like Ohio, where competitive providers own the batteries, and the cost would be paid for through market revenue.

As stated previously, batteries are an emerging competitive electric product. There is no established reason to allow distribution utilities to own batteries. Where batteries can lower the cost of a charging station or an electric distribution infrastructure upgrade, that service can be bid out competitively by the customer or in some cases by the utility. Competitive ownership would also allow the battery to be used in wholesale electric markets, thus gaining additional revenue, and lowering the overall cost of battery deployment.

The concern is that SB 307 would give utilities new authority to own an emerging competitive product: batteries. Combined with HB 389 or HB 317, the utility can then serve as the batteries' DER aggregator in wholesale electric markets. But HB 389 would then bar the utility from operating the battery in wholesale electric markets. This confluence could be counterproductive to the policy goals of SB 307, as it could result in fewer revenue streams for batteries that support electric vehicle charging, thus more expensive electric vehicle charging, and therefore less electric vehicle charging investment.

HB 450 Establishes a Community Solar Program

HB 450 creates new compensation mechanisms for community solar facilities that are up to 10 Megawatts (MW), or up to 45 MW if located on a distressed site. Early versions of HB 450 created a new law for "virtual net metering" that was tagged to the existing net metering law. As discussed in this memo, a net-metering law exists because electricity market compensation for DERs has not existed. The current version of the bill would compensate customers of the community solar project an 11-cent credit per kWh and compensate the customer's distribution utility 2 cents per kWh. These crediting mechanisms rely on the distribution utility to credit customers. As described herein, Order 2222 gives a new, market-driven alternative to net-metering and other crediting mechanisms that can be used for community solar projects.

PJM's compliance filing for Order 2222 establishes a maximum distributed energy resource project size at 5 MW. Thus, many of the community solar projects contemplated by HB 450 would likely qualify as a DER and could even be aggregated together. HB 450's crediting mechanism for wholesale electric energy, capacity, and ancillary services should thus anticipate that many community solar projects will receive compensation directly from the wholesale electricity market. Virtual net-metering or flat cent/kWh compensation rates are thus not aligned with market-based compensation mechanisms for community solar subscribers.

PJM's Order 2222 Compliance Proposal Will Require Regulatory and Policy Action in Ohio

PJM's proposal to comply with Order 2222 introduces several specific roles for electric distribution utilities. First, DER aggregators must solicit the relevant electric distribution utility for all necessary data required to file an application to register with PJM.[4] Second, the relevant electric distribution utility reviews all proposed DER aggregations and submits a recommendation for approval or denial to PJM.[5] And third, each electric distribution utility is authorized to override the dispatch of DERs contained within an aggregation.[6] These roles, combined with FERC's determination that electric distribution utilities may themselves compete in wholesale electricity markets as DER aggregators, signal a major conflict of interest.

While the reliability of the distribution system certainly requires the information and expertise of electric distribution utilities, we hesitate to confirm the ability of each electric distribution utility to fairly adjudicate between free market mechanisms and their own financial interests. In this area, policymakers should respond with regulation that encourages transparent and appropriate involvement of electric distribution utilities and eliminates unchecked conflicts of interest to ensure that DER aggregation arrives in Ohio to support fair and competitive electricity markets.

Key Information

- PJM leaves important discretion to states to implement Order 2222.
- DER aggregators will need information from electric distribution utilities, a potential barrier.
- Electric utilities will recommend approval or denial of certain projects to PJM, a potential conflict of interest.
- Electric distribution utilities can override the dispatch of DERs, a potential barrier and conflict of interest.
- Policymaker and regulator action will be necessary to check the electric distribution utility's conflict of interest.

[4] Order No. 2222 Compliance Filing of PJM Interconnection, L.L.C., Sec. (I) (iii), pages 6-7. https://pjm.com/directory/etariff/FercDockets/6522/20220201-er22-962-000.pdf.
[5] Order No. 2222 Compliance Filing of PJM Interconnection, L.L.C., Sec. (I) (iv), page 7.
[6] Order No. 2222 Compliance Filing of PJM Interconnection, L.L.C., Sec. (I) (ix), pages 10-13.