UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Co-Location of Large Loads at Generating Facilities	**)**	**Docket No. AD24-11-000**

POST-TECHNICAL CONFERENCE COMMENTS OF POTOMAC ECONOMICS

We appreciate the opportunity to participate in the Commission's Technical Conference on November 1, 2024 and to provide these comments on the Commission's efforts to facilitate efficient development and operation of large loads. As the independent market monitor for a number of the RTO markets in the U.S., we have been monitoring and evaluating the accelerating entry of large loads in each of the markets and the processes employed by the RTOs to interconnect them.

Rapid technological development is driving an increased pace of electricity demand growth, raising questions about whether the current planning and market processes are adequate to motivate the investment needed to maintain reliability in the coming years. A significant number of new large load customers are choosing to co-locate behind the generation meter ("BTM"). This phenomenon highlights several key problems with the planning processes and rate designs throughout the U.S. These comments briefly discuss these problems and potential solutions for the Commission to consider further in this proceeding.

Problem 1 – *The interconnection processes of some of the RTOs are too slow for large load developers and/or poorly-adapted to the needs of individual large load customers that do not want firm network service if it comes at a significant cost or results in delays in becoming operational.*

Some load customers are willing to accept less reliable service from a co-located generator, at least temporarily, if it allows them to interconnect more quickly. If there is a difference between the BTM load customer's desire for reliable service and the quality of service available from the co-located generator, the BTM load can augment this service with onsite backup generation purchased through the private market (often more easily than it could obtain firm network service from the transmission operator).

Problem 2 – *Current rate designs are not fully consistent with cost causation principles, often over-charging load customers and under-compensating generation.*

When load co-locates BTM with generation in a configuration that is otherwise identical to a standalone generator and a nearby in-front-of-the-meter ("FTM") load, the two configurations have the same impact on the power system. However, the resulting rates can be very different, highlighting a deficiency in the rate designs across regions. Transmission service charges[1] account for much of the gap between: (a) the net revenues earned on the net sales from a generator with a BTM load and (b) the net revenues received by an otherwise equivalent configuration of generation and in-front-of-the-meter ("FTM") load. This gap implies that the current rate designs are not consistent with cost causation principles because if they are not

[1] There is variation in the meaning of transmission service charges across ISO regions. In these comments transmission service charges refer to the embedded cost of building and maintaining the transmission system minus congestion revenues, loss revenues, and capacity revenues that are returned to the same customers.

equal, then, logically, they must either be under-compensating standalone generation or over-charging FTM load customers or both. When a large load interconnects BTM by contracting directly with a generator, this bilaterial arrangement allows the generator and load customer to recover this revenue discrepancy that is generally present in current rate designs.

Problem 3 – *System planners have difficulty predicting sufficiently far in advance how much load will interconnect and whether the load will be curtailable during peak conditions.*

Transmission and generation development takes longer than the development of data center loads, so reliability issues may arise when firm load interconnects faster than supply is coming online. Moreover, some load customers may switch from needing firm network service to being willing to curtail under peak conditions. If significant numbers of large loads switch from firm to curtailable in a relatively short time compared with the speed of the planning and resource development processes, it will exacerbate the risk of over-building in the face of rising demand.

Ideally, the planning processes and the wholesale market would efficiently coordinate the development of large loads along with power system infrastructure. In areas with surplus transmission capability, large loads should be able to interconnect quickly with firm network service at low cost. In areas with transmission capacity constraints, large curtailable loads should be able to interconnect quickly while the interconnection of loads seeking firm network service should take longer if necessary to ensure reliability. When large loads circumvent the interconnection process by co-locating with an existing generator, it has the same impact on reliability as allowing the load to obtain firm network service, but it may not provide adequate time for the planners to address reliability impacts.

To address these three emerging problems, we recommend the Commission consider the need for three reforms to the existing rates and planning procedures.

Reform 1 – *Require ISOs to provide an expedited non-firm interconnection service option that ensures the load can interconnect securely and avoids reliability violations by requiring the load to be curtailable.*[2]

This option would address Problem 1 by allowing large loads to be developed more quickly in FTM and manage their own reliability needs with onsite backup generation. Such loads could be allowed to return to the interconnection process for firm network service later, which would allow the load customer to repurpose a portion of any onsite backup generation to supply capacity and energy to the grid. This reform might also help speed up the interconnection processes by reducing the number of load projects that must be evaluated for resource adequacy and local reliability needs. This reform would also help address Problem 3 by providing a mechanism and incentive for large load customers to reveal in the planning process whether they intend to be curtailable under peak conditions.

Reform 2 – *Require that transmission service charges be allocated consistent with cost causation principles.*

If transmission service charges were allocated consistent with cost causation principles, the revenues to a generator minus the charges to an adjacent FTM load would be equal to the net revenues to an otherwise identical configuration of a generator with BTM load. Before deciding to allocate any portion of the transmission service charges to BTM loads, the Commission should have an adequate justification based on the cost of services received by the BTM load after

[2] This would entail requiring the load to be curtailable with some reasonable notice requirement (e.g., the day-ahead market or whatever time frame is required for capacity suppliers). In addition, if the load was not scheduled to curtail but energy shortage risks arise due to unforeseen conditions, the non-firm load should have a lower curtailment priority than firm network load.

netting the value of any related services provided by the co-located generator. Addressing these inefficiencies in the rate design would remove the incentive for large load customers to interconnect BTM in order to avoid excessive transmission service charges (i.e., Problem 2).

Reform 3 – *Require ISOs to minimize gaps between the reliability planning requirements and market requirements.*

If the system planning processes are required to satisfy higher reliability standards than the competitive wholesale markets, it will lead to more out-of-market investment and inefficiently-low levels of merchant investment. For example, suppose the planning process requires 5 GW of capacity in a local area with 3 GW of import capability, but the capacity market only requires 4 GW of capacity because it is based on lower peak load assumptions and higher ratings on import facilities. If there is 4.6 GW of generating capacity, the capacity market will show a 600 MW surplus and capacity prices will be inadequate to attract new entry, while the planning process will identify a 400 MW capacity deficiency that may cause new transmission to be built. In this case, the planning process will likely cause transmission to be built even when generation alternatives are available at lower cost, resulting in larger transmission service charges.

Over time, this planning-market gap will cause transmission service charges to exceed the market value of transmission as reflected in congestion rents, marginal loss revenue, and capacity rents. Addressing this gap would alleviate Problem 2 by reducing the magnitude of excessive transmission service charges that some large load customers seek to escape by interconnecting BTM. This reform would also alleviate Problem 3 because it would provide market incentives for merchant developers to build generation in areas where load growth is anticipated (before planners step in and build transmission for reliability).

We appreciate the Commission's efforts in this proceeding and encourage the Commission to consider the value of three potential reforms to address inefficiencies revealed by the trend of large loads co-locating with generators.

This concludes our comments.

Respectfully submitted,

/s/ Pallas LeeVanSchaick

Pallas LeeVanSchaick, Vice President
David B. Patton, President
Potomac Economics, Ltd.

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