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July 19, 2022

Filed Electronically via board.secretary@bpu.nj.gov

Carmen D. Diaz,
Acting Secretary of the Board of Public Utilities
44 South Clinton Avenue, 1st Floor
Post Office Box 350
Trenton, New Jersey 08625-0350

Re: Grid Modernization Public Comments Docket No. QO2010085

Dear Acting Secretary Diaz:

On behalf of the Microgrid Resources Coalition, enclosed please find comments in response to the draft Grid Modernization Study in Docket No. QO2010085

Thank you for your attention to this matter.

Very truly yours,

C. Baird Brown
Counsel to the MRC

Microgrid Resources Coalition Comment

Docket No. QO21010085

IN THE MATTER OF NEW JERSEY GRID MODERNIZATION / INTERCONNECTION PROCESS

Introduction

The Microgrid Resources Coalition ("MRC") welcomes this opportunity to submit its comments in connection with the Board of Public Utilities (the "Board") proceeding In The Matter Of New Jersey Grid Modernization / Interconnection Process on the Guidehouse report *Grid Modernization Study: New Jersey Board of Public Utilities* ("Grid Modernization Study"). [1]

The MRC is a consortium of leading microgrid owners, operators, developers, suppliers, and investors formed to advance microgrids through advocacy for laws, regulations and tariffs that support their access to markets, compensate them for their services, and provide a level playing field for their deployment and operations. In pursuing this objective, the MRC intends to remain neutral as to the technology deployed in microgrids and the ownership of the assets that form a microgrid. The MRC's members are actively engaged in developing and operating advanced microgrids in many regions of the United States.[2]

The MRC recognizes and appreciates the Grid Modernization Study's focus on incorporating distributed energy resources ("DERs") and particularly hybrid DERs such as

[1] *Available at,* https://nj.gov/bpu/pdf/publicnotice/DRAFT%20Grid%20Modernization%20Report%206-20-22.pdf

[2] Members of the MRC include: Bloom Energy, eco(n)law, Engie, Icetec, Mainspring Energy, Princeton University, Reimagine Power, Resilience Plus, Scale Microgrid Solutions, and Schneider Electric. The MRC's comments represent the perspective of the coalition and should not be construed as speaking for individual members.

microgrids in the future grid. The New Jersey Energy Master Plan adopts aggressive goals of 100 percent clean energy by 2050,[3] and we strongly support advancement of those goals through the deployment of DERs such as microgrids. The Grid Modernization Study focuses on Master Plan Strategy 2 – Accelerating Deployment of Renewable Energy and Distributed Energy Resources – and within that, primarily on broad issues affecting interconnection. We hope, nevertheless, that the Board will look further and consider the evolution of the grid and electric supply more broadly.

The current grid is centrally dispatched, and all generation is operated to optimize the grid. We believe that in a more desirable future far more generation (and storage) will be locally sited, owned and operated. Accordingly, generation will be operated first to benefit customers and communities and will contribute to the operation of the grid through market-based processes. While the MRC acknowledges that interconnection issues are critically important, and provides comments on those aspects below, we believe that many other aspects of the Master Plan, including electric vehicles, net zero homes, sophisticated rate design, and support for energy justice communities can usefully be interwoven in the analysis.

Locally focused grid architecture provides benefits.

The importance of developing resilient grid architecture is highlighted in a 2017 report prepared by the National Academy of Science, Engineering and Medicine: *Enhancing the Resilience of the Nation's Electricity System* (the "NAS Report").[4] The NAS Report concludes that the grid of the future will achieve resilience by incorporating increasing quantities of local generation, linked by flexible and adaptable, networked distribution, and coupled with intelligent

[3] *See,* State of New Jersey, *About the Energy Master Plan*, https://www.nj.gov/emp/energy/
[4] National Academy of Science, Engineering and Medicine: *Enhancing the Resilience of the Nation's Electricity System,* 2017, *available at* https://www.nap.edu/catalog/24836/enhancing-the-resilience-of-the-nations-electricitysystem

load shedding to ride through emergencies. This advanced architecture creates many benefits.

Microgrids, as the name suggests, can operate as self-contained control areas that balance included loads with included generation. This allows them to "island" from the grid and continue to serve included load, maintaining customer and community functions despite grid disruptions. Sectionalized distribution systems that can rely on local DERs can serve the same purpose on a broader scale. The ability, with autonomous or semiautonomous controls, to use local generation to ride out disruptions to the larger grid are the key to customer, community, and grid resilience. This is equally as true of cyberattacks as it is of "superstorms" and grid caused wildfires. The Grid Modernization Study acknowledges the issue of resilience[5] but does not follow through on this theme.

Microgrids also advance grid safety. Microgrids today are fully digital islands in a largely analog grid, and undergrounding internal microgrid distribution is standard industry practice. None of the MRC members reports any incident in which the operation of a microgrid has caused serious harm to people or facilities.

Rapid Decarbonization

U.S. and global investment are falling short of the effort needed to avert a climate catastrophe.[6] Moreover, U.S. utilities' investment is a small corner of the low-level U.S. investment, and utilities do not have the capacity to deploy the needed resources.[7] To meet New

[5] Grid Modernization Study at ¶ 1.
[6] International Energy Agency, *World Energy Investment 2020* (July 2020) at 15-17, https://www.iea.org/reports/world-energy-investment-2020/power-sector
[7] 2021 investment in renewable energy in the US was $47 billion according to Bloomberg New Energy https://www.bloomberg.com/news/articles/2022-03-03/u-s-clean-energy-draws-record-105-billion-private-investment#:~:text=Of%20last%20year's%20private%20investment,Sustainable%20Energy%20in%20America%20Factbook.%E2%80%9D. 2021 renewable energy investment in U.S. by utilities was $10.9 billion according to the Rocky Mountain Institute, https://rmi.org/rmi-reality-check-covid-not-clean-energy-drove-rise-in-electricity-burden/

Jersey, U.S., and international climate goals we need strong encouragement for private investments in clean energy. Microgrids are often self-funding investments based on customer energy savings and sales of services to the grid, and they provide additional private incentives in the form of resilience benefits. Moreover, microgrids, which are designed to balance internal load and generation, typically include substantial renewable generation which they operate to balance. Utility scale renewable generation typically requires separate grid balancing services.

Energy Justice

There is no more urgent need to be served in considering the architecture of the grid than assisting communities that have been historically underserved by utilities and often made to suffer the ill effects of traditional fossil fuel power plants in their neighborhoods. Members of these energy justice communities often pay a high proportion of their incomes for basic energy consumption. They should be enabled to leverage their energy purchasing power to invest in DERs to serve their needs. Such investments will create jobs and build wealth in energy justice communities and help eliminate legacy fossil fuel utility plants in those communities. Where such investments create microgrids that serve critical facilities in the community or, where regulatory frameworks permit, microgrids that serve large segments of the community, they serve even broader purposes. New Jersey currently has very limited support for multiple customer microgrids where additional customers are also thermal customers of the microgrid.[8]

Grid Services from DERs and Microgrids.

[8] NJ Rev. Stat. §48.3-77.1

As discussed, microgrids have advanced digital controls. Digitizing analog circuits between distribution substations and customers creates a fully digitized distribution ecosystem that allows energy efficiency and optimization in microgrids, building management systems, and electric vehicle ("EV") charging. Building electrification rapidly evolves to microgrids. Moreover, whether through direct dispatch of DERs operating under prior agreements with the grid operator, or through a "transactive energy" tariff that allows customers to directly respond to price signals, a more fully digitized grid can achieve extensive energy savings on the distribution grid and prepare the grid to respond flexibly to emergencies. As microgrids, even at the residential level, come online that include storage, smart thermal energy management, smart appliances, EVs, and other controllable demands and resources, utilities can save money for all customers and provide additional levels of resiliency to neighborhoods. Work is underway to aggregate these customers into virtual power plants,[9] which can be accomplished in states like New Jersey that permit retail electric choice by creating a special purpose retail supplier to provide incentive rates to customers and serve as a wholesale aggregator to make direct sales to PJM.

Experiments around the country are advancing transactive energy systems that allow all customers to respond to real time prices and micro-locational prices that can vastly improve the efficiency of the grid. This includes exports as well as demand response. There is a national policy discussion about how these developments mesh with Federal Energy Regulatory Commission Order 2222, and whether incumbent utilities can serve as Distribution System Operators ("DSOs") to facilitate these markets or whether independent DSOs are required. However, they happen, effective markets for DER and microgrid services coupled with better interconnection policies will be more effective in expanding DERs than interconnection alone. As an example, Southern

[9] *See, e.g., The Role of Virtual Power Plants in a Decentralized Power Grid,* Power (August 3, 2020), *available at* https://www.powermag.com/the-role-of-virtual-power-plants-in-a-decentralized-power-grid/

California Edison is undertaking a systemwide pilot permitting all customers to take advantage of real time rates that reflect local congestion on the distribution system, and the California Public Utility Board has now opened a proceeding to consider expanding this approach statewide. [10]

DER Obligations

Behind the meter resources appropriately do not pay distribution or transmission charges. Resources that serve load within the distribution system, either behind a collective point of common coupling or with a dedicated purchaser in the same distribution segment, should not pay transmission charges.

Utility planning has historically taken the form of "planning for the peak." It is time to plan the peak instead. Wastewater utilities around the country review interconnection requests from large new uses and often require installation of pretreatment facilities. In an analogous fashion, large power users should be required to take responsibility for their own ability to reduce or self-serve load at peak, not just through (often inept) imposition of demand charges but though requirements to install physical facilities.

Grid Modernization Study Recommendations

Findings 1, 2, 4 and 5. We strongly support these recommendations. Better standards and faster transparent processes will make a big difference. We are concerned that limiting speedier processes to small solar systems without battery storage will be counterproductive in the long run. All DER should get more expedited transparent process.

[10] Order Instituting Rulemaking to Advance Demand Flexibility Through Electric Rates (July 14, 2022), *available at* https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M492/K688/492688471.PDF

Findings 3, 6 and 7. Maps are good, and we support moving to a flexible queue and clustered study to more fairly allocate interconnection costs. However, as the Grid Modernization Study recognizes, there are significant areas in ACE and PSE&G territories that are closed out to new interconnections.[11] These historically underinvested areas of the grid, especially where they correspond to underserved communities, should be upgraded systematically at shareholder and ratepayer expense, not at local expense.

Finding 8. We strongly support integrated planning. That planning should extend to new grid architecture to derive the full benefits of expanding DERs.

Finding 9. We view this as the most important area of the Grid Modernization Study recommendations, but also an area where far more new thinking is needed. First, microgrids operate as single controllable resources even though they typically contain multiple kinds of resources. They have sophisticated microgrid controllers that have the capability of internal load balancing. Their risks to the system are generally far less than the sum of their parts, while their benefits are typically greater. The Grid Modernization Study acknowledges that the FERC SGIP protocol does not deal well with hybrid resources.[12] This needs concerted engineering work.

Second, we strongly concur that to the extent that performance of renewable and non-renewable resources is required to be separated for regulatory purposes, that can be accomplished by metering and software, not by duplicative hardware. Moreover, we support the idea that clean fuel sources that can provide balancing energy within a microgrid and increase longer term resilience should be considered for inclusion in net metering. Such balancing services are a substitute for balancing provided for the grid and should be a preferred use of fuel resources when they allow expansion of renewable energy and resilience.

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[11] Grid Modernization Study at ¶ 3.4.
[12] Grid Modernization Study at ¶ 1.2.

Finally, as we move toward transactive energy and real time prices available to all customers, an approach to carbon incentives that is price-based, not technology based, may be a better avenue. All generators over 25 MW in New Jersey currently must purchase Regional Greenhouse Gas Initiative ("RGGI") allowances, which are priced in regular auctions. The Board could impose a carbon emission price equal to the RGGI auction price on emissions by smaller generators (including back-up diesel generators). That would allow such generators to respond to other price incentives in an appropriate, balanced way rather than simply being included or excluded. Revenues from such charges could be applied to other Energy Master Plan objectives such as reducing interconnection costs in energy justice areas.

Conclusion

The MRC greatly appreciates the work that has gone into the Grid Modernization Study and strongly supports most of its recommendations. We respectfully suggest that the final report could be improved by examining certain of other dimensions including:

- Treating microgrids as single controllable resources for purposes of interconnection.
- Exploring more effective ways to support energy justice communities.
- Seeking more consistent, performance-based metrics for decarbonization.
- Improving markets for DER services to the grid.
- Examining a more resilient architecture for the grid.

To the extent that these topics are beyond the scope of the final study, we further suggest that the Board use its new "sandbox" or other means at its disposal to explore them further.