**COMMONWEALTH OF PUERTO RICO**

**PUERTO RICO ENERGY COMMISSION**

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| **IN RE: ENERGY COMMISSION INVESTIGATION REGARDING THE STATE OF PUERTO RICO'S ELECTRIC SYSTEM AFTER HURRICANE MARIA** | **CASE NO. CEPR-IN-2017-0002**<br>**Subject: Request for Public Comments**<br><br>**Issue: Implementation of regulatory actions to facilitate the tasks of restoring electric service and encourage the deployment of new technologies.** |

# COMMENTS OF ADVANCED ENERGY MANAGEMENT ALLIANCE

Pursuant to Chapter V of Regulation No. 8543 and the Puerto Rico Energy Commission's March 27, 2017 Resolution initiating the ongoing investigation, Advanced Energy Management Alliance ("AEMA")[1] submits these comments regarding the Request for Public Comment CASE NO. CEPR-IN-2017-0002.

AEMA is a trade association under Section 501(c)(6) of the Federal tax code whose members include national distributed energy resource companies and advanced energy management service and technology providers, including demand response ("DR") providers, as well as some of the nation's largest demand response and distributed energy resources. AEMA members support the incorporation of distributed energy resources ("DER" or "DERs"), including advanced energy management solutions, to achieve electricity cost savings for

[1] Advanced Energy Management Alliance website: http://aem-alliance.org.

[2] At DOE, the Infrastructure Security and Energy Restoration ("ISER") program within the Office of Electric

consumers, contribute to reliability and resilience, and provide sustainable solutions for a modern electric grid. This filing represents the collective consensus of AEMA as an organization, although it does not necessarily represent the individual positions of the full diversity of AEMA member companies.

## I. Introduction

AEMA appreciates the opportunity to provide comments to the Puerto Rico Energy Commission ("Commission") investigation on implementing actions to restore electric service and encourage deployment of new technologies. AEMA, through federal, state, and local advocacy, has provided a range of solutions to state and federal regulators and is eager to serve as a resource on implementing DER and DR to the Commission.

Therefore, in these comments, AEMA provides recommendations and examples for a path forward to restoring the electric grid while implementing clean, distributed, cost-effective, and sustainable technologies that can serve to bolster the grid against future natural disasters. AEMA recommends that the Commission take the following actions:

1. *Develop a comprehensive plan for both immediate rebuild and longer term grid operation that includes microgrids, energy storage, and distributed energy resources;*
2. *Open a proceeding on resilience with the objectives of defining the needs of resilience in the Commonwealth, how those needs have changed as a result of Hurricane Maria, and how to incorporate distributed energy resources as part of the resilience efforts; and*
3. *Direct PREPA to develop an Integrated Resource Plan that includes DER, DR, Microgrids, and Non-Wires Alternatives ("NWA") as part of the grid planning and fully*

*allows third party and consumer participation.*

## II. Develop a Comprehensive Plan that includes DER

Crucial to ensuring that the electric grid of Puerto Rico is rebuilt in such a way that provides reliable energy for its consumers and businesses--both immediately and for the longer term--is comprehensive planning that takes resilience and resilient technologies into account. Several efforts are underway to assist in planning for both grid rebuild and a longer term plan for the electric grid. One such project is the Puerto Rico Energy Resiliency Working Group, led by New York Power Authority in partnership with Consolidated Edison NY, Electric Power Research Institute, Long Island Power Authority, Puerto Rico Electric Power Authority, Smart Electric Power Alliance, Southern California Edison, U.S. Department of Energy, and with support from Navigant Consulting. The document, anticipated to be available by December 2018, seeks to assess the damage to the grid, provide rebuild recommendations and cost estimates, and develop an implementation roadmap. Other groups are undertaking similar activities that should be reviewed by the Commission for applicability and leveraged to arrive at cost-effective, environmentally sustainable, and resilient solutions for the grid of Puerto Rico.

In addition, agencies such as the Department of Energy ("DOE")[2], Small Business Administration ("SBA")[3], Federal Emergency Management Agency ("FEMA")[4], and U.S. Department of Agriculture ("USDA")[5] have programs to provide both technical and financial assistance that could be leverage for the benefit of the Puerto Rico grid rebuild efforts. Congress

[2] At DOE, the Infrastructure Security and Energy Restoration ("ISER") program within the Office of Electric Delivery and Energy reliability could be a good starting point.
[3] The SBA provides loans to small businesses that could be used for distributed energy resource applications.
[4] See Hazard Mitigation Grant Program: https://www.fema.gov/hazard-mitigation-assistance
[5] The Rural Utilities Service program at USDA has grant opportunities that could be helpful to the Commission.

supports these federal programs; a bipartisan group of U.S. Senators even sent a letter to Senate leadership urging a more resilient, sustainable rebuild of the electric grid in Puerto Rico.[6] Trade groups like AEMA, Solar Energy Industries Association, American Public Power Association, National Rural Electric Cooperative Association, and others can also contribute valuable expertise and case studies.

In sum, this plan should include the full value of distributed energy resources to a more resilient system, consider local demand and resources, allow for third party and consumer participation, and create transparency during restoration and rebuild proceedings.

## III. Open a Resilience Proceeding that Includes DER and DR

AEMA recommends that the Commission open an administrative or rulemaking docket to examine resilience on a Commonwealth and local basis, incorporating the multiple publicly available definitions of resilience. This proceeding will necessarily address a multitude of matters on a regional basis, including, but not limited to, the physical characteristics of resilience under a range of circumstances, how those required characteristics can be met, the prioritization of those characteristics, and whether the utility is adequately procuring resources to sufficiently secure and compensate resources with those identified attributes.

Energy storage and distributed energy resources are already contributing to both reliability and resilience in many states. The Commonwealth of Puerto Rico could leverage those experiences for the benefit of its own electric grid. In a Notice of Proposed Rulemaking on Energy Storage and DER, the Federal Energy Regulatory Commission ("FERC") cites multiple studies that have found that distributed energy resources contributed both to reliability and to

[6] Bipartisan letter from U.S. Senators: https://www.franken.senate.gov/files/documents/171026RebuildingPuertoRicoInfrastructureLetter.pdf

resilience by providing "greater reliability through consumer reliance upon distributed energy resources to provide resilience from bulk power and distribution service interruptions" and "power outage mitigation or critical power support during outages (resilience) and power quality improvement (enhanced reliability)."[7]

While Puerto Rico is not a wholesale power market, the same principles and benefits of these resources to reliability and resilience hold true. AEMA believes that learning from experience in states that have already deployed resources that contribute to resilience and reliability will enable the Commonwealth to aggressively pursue deployment of DER and DR on the grid.

AEMA provides the following three examples to demonstrate that DER and DR should be included in this resilience plan:

- PJM Interconnection credited DR with helping the grid withstand the Polar Vortex, stating: "Although demand response is usually only needed by grid operators in the summer, operators also successfully deployed it during the power emergencies occasioned by the bitter cold 'Polar Vortex' weather in January 2014. As PJM set multiple winter peak records early that month, it called on demand response, and received more megawatts as load reductions than it could obtain as generation from all but the very largest generating stations. . . . In the midst of those challenging

[7] Ibid, at FN 31, *citing Responses in a High Distributed Energy Resources Future*, at 26-28 (Report 1, Nov. 2015), https://emp.lbl.gov/sites/all/files/lbnl-1003823_0.pdf (Berkeley Lab Report); DNV-GL, *A Review of Distributed Energy Resources: New York Independent System Operator*, at 18 (Sept. 2014) (DNV-GL Report), http://www.nyiso.com/public/webdocs/media_room/publications_presentations/Other_Reports/Other_Reports/A_Review_of_Distributed_Energy_Resources_September_2014; U.S. Department of Energy, *The Potential Benefits of Distributed Generation and Rate-related Issues that May Impede Their Expansion: A Study Pursuant to Section1817 of the Energy Policy Act of 2005* (Feb. 2007), https://www.ferc.gov/legal/fed-sta/exp-study.pdf.; IEA, *Repowering Markets: market design and regulation during the transition to low-carbon power systems*, at 33 (2016)

conditions, demand response—responding to PJM's dispatch as a wholesale market resource—helped maintain the reliability of the system."[8]

- After Hurricane Irma, DR helped maintain balance between supply and demand to stabilize the Florida electric grid. As thousands of customers were rapidly having their power restored, demand threatened to outpace supply due to generation outages from the storm. Without DR, this imbalance could have created another blackout for consumers who had already been without power for an extensive period due to the Hurricane. Fortunately, Tampa Electric Company (TECO) had the foresight to contract for a diverse set of resources, and dispatched DR. In this case, DR provided grid resilience, allowing the grid to bounce back from a major disturbance.
- In another recent example, Hurricane Harvey unleashed 33 trillion gallons of rain water along the Gulf of Mexico and caused a range of energy impacts, including coal-to-gas switching as coal piles were too wet for conveyer systems to handle. However, the Texas Medical Center - the largest medical center in the world – was able to sustain its air conditioning, refrigeration, heating, sterilization, laundry, and hot water needs throughout the storm thanks to a combined heat and power (CHP) installation operated by Thermal Energy Corp (TECO). The 48MW CHP system operated without interruption during the storm.
- System operators recognize that DERs can enhance system resilience. The New York Independent System Operator, in their 2017 DER Roadmap, states: "DER can help grid operators by *improving system resilience* [emphasis added], energy security, and fuel diversity. DER can lower consumer prices, improve market efficiency, and allow consumers to take greater control of their electricity use and costs through a variety of new technologies."[9]

AEMA supports the inclusion of DER and DR as part of any plan resulting from a proceeding on grid reliability and resilience for Puerto Rico.

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[8] Petition For Rehearing En Banc Of PJM Interconnection, L.L.C., Electric Power Supply Ass'n v. FERC at 10-11, No. 11-1486 (D.C. Cir. July 7, 2014).

[9] Distributed Energy Resources Roadmap for New York's Wholesale Electricity Markets, A Report by the New York Independent System Operator, January 2017, Page 4. http://www.nyiso.com/public/webdocs/markets_operations/market_data/demand_response/Distributed_Energy_Resources/Distributed_Energy_Resources_Roadmap.pdf

## IV. Direct PREPA to Include DER, DR, Microgrids, and NWA in the Integrated Resource Plan

While PREPA and the Commission have been working to develop and execute on an Integrated Resource Plan ("IRP"), AEMA supports an IRP that would fully include and value the benefits of DER, DR, microgrids, and NWA. In addition, this IRP should remove any barriers to third party and consumer participation in the Puerto Rico grid. Several utilities[10] have undertaken similar efforts, including PG&E[11] in California, Con Edison[12] in New York, National Grid[13] in Rhode Island, that consider NWA in resource planning. Local demand and capacity needs should also be taken into considering during this planning process.

Throughout the IRP development, AEMA recommends a transparent and collaborative process that includes all stakeholders, including third parties offering DER and microgrid solutions. Consumers and communities should be fully engaged throughout the process to allow for choice in their energy future. Rate structures, market participation, access to data, and installation barriers should be considered as the IRP is advanced. AEMA discussed these topics in testimony in New York regarding DER participation in replacing lost capacity from nuclear energy resources.[14]

## V. Conclusion

In conclusion, AEMA proposes that the Commission develop or leverage a comprehensive rebuild plan and longer term plan; open a resilience proceeding that identifies the

[10] See story for summary of projects: https://www.utilitydive.com/news/non-wires-alternatives-whats-up-next-in-utility-business-model-evolution/446933/
[11] PG&E Distribution Resource Plan http://aceee.org/sites/default/files/pdf/conferences/eer/2015/Richard_Aslin_Session_1B_EER15_9.21.15.pdf
[12] Con Edison BQDM Program: https://conedbqdmauction.com
[13] National Grid Rhode Island Non-Wires Alternative: http://www.ripuc.org/eventsactions/docket/4545-NGrid-Presentation-DemandLink-Pilot_5-14-15.pdf
[14] Advanced Energy Management Indian Point Testimony: http://aem-alliance.org/download/120984/

characteristics of resilience needed for the Commonwealth; and ensure that any Integrated Resource Plan allows for full participation by third parties providing DER, DR, microgrids, and NWA.

We appreciate the Commission's consideration of these comments and AEMA remains ready to serve as a resource to the Commission as this important work continues on the grid in the Commonwealth. Please reach out should the Commission have any questions or comments regarding this filing.

Respectfully Submitted,

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