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Sr. Edison Avilés Deliz, et al  
Chairman, Puerto Rico Energy Commission  
Re: Regulation on Energy Efficiency and Demand Response  
Case No: CEPR-MI-2019-0015  
Response to Request for Public Comments  
Transmitted by e-mail and uploaded

### **Respondent**

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### **Introductory Comments**

We welcome the leadership assumed by the Energy Bureau under Act 57-2014, in establishing parameters and goals for energy efficiency and promoting methods for adequate demand response programs.

We appreciate that an experienced third-party administrator (TPA) is to be put in charge by the Energy Bureau to design, implement and manage the programs for energy efficiency and demand response. The first goal for Puerto Rico is to “reach 30% of energy efficiency by 2040” while the second is to provide customers with the opportunity to “reduce their peak demand”, therefore their “reliance on expensive peaking capacity units that increase energy costs for all customers”.

The world is shifting towards renewables with Levelized Cost of Energy (LCOEs) gradually decreasing in comparison to fossil fuels as reported by the latest [Energy Analysis](#) authored by Lazard, “the LCOE of utility-scale PV technologies is down approximately 13% from 2017 and the mean LCOE of onshore wind has declined close to 7%.” Also, “... ,the latest unsubsidized cost figures show the levelized cost of onshore



*wind-generated energy is between \$29/MWh and \$56/MWh, whereas coal is between \$60/MWh and \$143/MWh. The levelized cost of utility-scale solar is between \$36/MWh and \$46/MWh.”*

New opportunities provided by emerging energy microgrids combined with competitive prices for power storage solutions should be key aspects for the Energy Bureau to consider when designing the adequate energy efficiency and demand response rules.

Furthermore, the ability to combine distributed generation of energy with decentralized peer-to-peer payment channels and remove costly market intermediaries to facilitate direct producer-to-consumer energy flows will be fundamental to promote these objectives for the benefit of the end-user.

Essentially, the challenge behind demand response is how effectively and automatically the microgrid System Operator will be able to engage consumers and other stakeholders in matching low-cost energy capacity with load demand from consumption behavior.

Consumers will be able to define and adjust their energy consumption behavior as a function of their level of comfort and budget. By default, customer consumption settings will be: constant electricity consumption at the best possible price i.e. charge an Electric Vehicle or use the AC when price/energy capacity ratio is most beneficial. Since Distributed Energy Resources (DERs) carry additional generation complexities associated to the nature of renewables and power storage, it's fundamental for the demand response solution to be dynamic (evolving with the overall load demand profile at each price signal) and automatic (certain electric items activated based on positive signal).

To this end, DexGrid, as a virtual utility serving distributed energy microgrids, will enable suppliers to sell their electricity and consumers to prepay for it, all processed through frictionless peer-to-peer channels. Price signals will be derived from energy schedules and balancing energy bids provided by the Balance Responsible Parties and Services Providers (energy suppliers and provider of last resort) and influenced by demand response. These prices will be computed for each Schedule Time Unit (STU) i.e. each hour or sub-hour and disclosed in the open market for transparency and open source access by all stakeholders.



## Critical points

Transmission and Distribution (T&D) to be responsible for customers billing

Definitions from the Regulation:

Billing is defined as *"the document sent periodically by the Transmission and Distribution Provider (PREPA or its successor entity) to a Customer listing all the components, charges, and rates that make up the final cost each Customer must pay for electricity service."*

System Operator (SO) is defined as *"the entity responsible for overseeing and facilitating wholesale exchanges of electricity, operating the Electric Power Grid in a reliable and efficient manner, and ensuring open access to the Electric Power Grid, in coordination with the Transmission and Distribution Provider."*

Electric Power Grid is defined as *"the electric power transmission and distribution system of Puerto Rico."* also known as PREPA or its successor entity.

We do not believe it to be in the best interest for the growth of distributed renewable energy microgrids to hand over to PREPA, as the T&D provider for interconnected microgrids, the billing responsibility. The microgrid's SO is the *"entity responsible for **overseeing and facilitating wholesale exchanges of electricity...**"* Such exchanges, within distributed energy microgrids, imply for consumers to purchase their electricity directly from suppliers. **Therefore, removing the customer's ownership away from the SO is not only counterintuitive, but also confusing and prone to financial errors and litigations between the SO and PREPA, undermining the entire purpose of the regulations and objectives defined by the Energy Bureau.**

If the billing were to effectively be handled by PREPA for interconnected microgrids, we do not see any other choice than to operate microgrids off the grid, with the inevitable consequence for PREPA not to generate any revenue from T&D leasing fee.

As confirmed by the regulation, *"Microgrids shall have the capacity to connect to and disconnect from PREPA's transmission and distribution system in order for them to be able to operate connected to the grid as well as off the grid."*



We strongly believe that this part needs to be confirmed by the Energy Bureau.

In a similar fashion, the following needs to be clarified:

*Non-Bypassable Charge “any charge which a Qualified Electricity Consumer is required to pay irrespective of whether they receive Generation Service from the Provider of Last Resort or a Competitive Electric Power Service Company.”*

*Qualified Electricity Customer “any Customer that is statutorily allowed to purchase Generation Service from Competitive Electric Power Service Companies upon the effective date of the Regulation on Energy Wheeling. This includes Industrial Customers, Large Commercial Customers, Electric Power Service Companies, microgrids, energy cooperatives, municipal ventures, and community solar,...”*

We believe that customers of a **microgrid operating off the grid** should not be liable for the charges associated to PREPA, notably the Transition Charges and other fees (RSA). The decision by the Energy Bureau to use PREPA as the only available choice for the Provider of Last Resort should not impose off the grid customers to pay a charge for a service they are not receiving. This approach would define these Regulations as economically unfair and unreasonable to any new market entrant.

However, if the decision of the Energy Bureau is still to impose these charges, then we highly recommend the Bureau to take into account the economics pertaining to operating a microgrid off the grid, with the objective to comply with the guidelines of PS 1121 and CEPR-MI-2018-0001 “Regulation on Microgrid Development”.

### **Technical points**

Section 8.4 Dispatching Demand Response Resources;

*“The TPA shall make the demand response resources that it has acquired available to the TDP/SO for dispatch in accordance with the TDP/SO’s rules or operating procedures, as approved by the Energy Bureau.”*



How should the SO apply for allocation of demand response resources and coordinate with the TPA to dispatch these resources?

### **Recommendation**

We strongly recommend that the Energy Bureau establishes and appoints a Technical Commission to go through and design the frameworks on how to incorporate *demand response* influence into the overall *balancing price mechanism*. If the Bureau decides to do so, DexGrid would be committed to participate and share its own approach and work on this fundamental topic.

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