Puerto Rico Energy Commission
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February 5, 2018

Case Number: CEPR-MI-2018-0001

To: Puerto Rico Energy Commission Secretary
Re: Comments in Response to Notice of Proposed Rulemaking – Microgrid Development published on January 3, 2018.

The Puerto Rico Energy Commission is recognized for "taking the bull by the horns" and crafting proposed regulations to facilitate the deployment of electric infrastructure that will increase the level of satisfaction that the energy consumers experience on the island of Puerto Rico. Many jurisdictions on the mainland have grappled with how to create the needed regulatory framework to encourage deployment of microgrid facilities while still protecting the public from safety hazards, substandard performance, price manipulation, and detriment to the environment.
The PREC is the entity responsible for crafting the game rules of the energy space in Puerto Rico, clear rules are needed to sustain an environment where robust private investment in modern electric infrastructure is realizable. Being relatively new, the PREC has the advantage of having to confront little legacy regulation. There are Public Utility Commissions ["PUCs"] on the mainland that must address regulations that are >100 years old.

Just to get it out of the way -> The PREC will not get it perfect but sitting on the sidelines is not an option when there is still a significant amount of Puerto Ricans without electric service since September 6, 2017 [Hurricane Irma].

This submission will focus on Section 3.05 – Codes and Standards of the Proposed Rules – Regulation on Microgrid Development.

Section 3.05 – Codes and Standards
Background

1. Grid Modernization means incorporating new technologies that do not necessarily are owned/planned/operated/maintained by the incumbent utility (but are still beneficial to the public) to the grid that is currently owned/planned/operated/maintained by the Puerto Rico Electric Power Authority ["PREPA", "La Autoridad" – so my grandmother can understand]. This interaction between nonutility and utility actors at the electric distribution level requires forward-looking rules and regulations to support a level-playing field that will ultimately benefit the consumer of electricity in Puerto Rico. Grid Modernization is more about flexible regulations than the latest technologies available in the industry.
2. As a result of having a diverse array of participants/technologies interacting on the public grid, Codes and Standards are needed more than ever to ensure the safe, reliable, and resilient operation of the electric infrastructure on the island.
3. An adequate electric Resource/System Planning requires that technologies incorporated [interconnected] into the grid can frequently and reliably communicate with the grid operator [currently PREPA] on an interoperable fashion.
4. Opening the grid to accept these new technologies offered by nonutility and utility providers can yield better overall customer satisfaction if properly implemented. This implementation needs to be informed by the guidance provided by national Codes and

Standards to ensure compatibility among different components and protocols that govern the most needed utility data exchange.

Recommendations

1. Prescribe the implementation of the latest revision of **IEEE Std 1547**, that includes both electrical as well as interoperability/communications specifications, to formulate technical requirements for interconnection of inverter based microgrids, specifically as it relates to intentional islanding functions. There are regions in Puerto Rico, such as the mountains of Orocovis, where the electric demand is low enough to make the concept of "normally islanded microgrid" a possibility. This mode of operation needs to be designed and operated [communications] in coordination with the utility grid. Microgrids should be viewed as an asset to the utility grid, contributing to its stability, reliability and resiliency and not as a way to defect from the public electric network.
2. Augment the Codes and Standards Section 3.05 to include *Microgrid Commissioning Certification*. Puerto Rico Law 133-2016 already allows certain professional engineers ("PEs") to certify the interconnection of certain distributed energy resources. Properly trained PEs can streamline the process of commissioning the sought microgrid facilities.
3. Require that Microgrid Facilities are certified by properly trained PEs [see 4 below] before these facilities are allowed to serve customers.
4. Specify Training Requirements based on the Conformance Test Procedures of IEEE Std 1547.1 to qualify professional engineers on the following test and verification activities:
   (a) Type Tests
   (b) Production Tests
   (c) Microgrid Evaluation
      i. Design Evaluation
      ii. As-Built Installation Evaluation
      iii. Basic and Detailed Microgrid evaluation
   (d) Commissioning Tests and Verifications
      i. Full and Partial Conformance Testing

Respectfully submitted,

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Conformity Assessment Steering Committee

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