

COMMONWEALTH OF PUERTO RICO  
PUBLIC SERVICE REGULATORY BOARD  
PUERTO RICO ENERGY BUREAU

'19 MAR 26 P1:28

IN RE: REVIEW OF THE PUERTO  
RICO ELECTRIC POWER  
AUTHORITY INTEGRATED  
RESOURCE PLAN

NO. CEPR-AP-2018-0001

**SUBJECT:** PREPA'S  
CLARIFICATION QUESTIONS AND  
MOTIONS REGARDING SCHEDULE

**PREPA'S CLARIFICATION QUESTIONS AND  
MOTIONS REGARDING SCHEDULE**

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COMES NOW the Puerto Rico Electric Power Authority ("PREPA") and respectfully submits to the honorable Puerto Rico Energy Bureau (the "Energy Bureau")<sup>1</sup>, as a combined filing: (1) PREPA's clarification questions regarding the Energy Bureau's Resolution and Order issued on March 14, 2019; (2) PREPA's motion that the Energy Bureau and its consultants expedite the process for answering PREPA's clarification questions, if reasonably possible; and, (3) that the Energy Bureau revise the schedule for PREPA's compliance filing under the March 14<sup>th</sup> order, to allow PREPA to propose a new deadline after it has received answers to all of the clarification questions, and, as an interim measure, to set the due date as no earlier than 35 calendar days from the date on which it has received answers to all of the questions.

**I. INTRODUCTION**

On February 13, 2019, PREPA submitted its Integrated Resource Plan ("IRP") filing, including the main Report, its attachments, work papers, testimony and other exhibits, and motions.

<sup>1</sup> References herein to the Energy Bureau also include the former Puerto Rico Energy Commission when applicable.

On March 14, 2019, the Energy Bureau issued its Resolution and Order finding PREPA's IRP filing incomplete in certain respects. The March 14<sup>th</sup> order speaks for itself, but, in brief, the order identified certain "major" items and certain "minor" items, and, with respect to each item, the order identified how PREPA should complete or correct the item.

The March 14<sup>th</sup> order established the following schedule: (1) PREPA should file any motion for more time by March 24<sup>th</sup> (a Sunday, making the due date March 25<sup>th</sup>), (2) PREPA should file any clarification questions by March 25<sup>th</sup>, (3) the Energy Bureau would hold a Technical Conference Call for the Bureau and its consultants to answer PREPA's clarification questions on April 1<sup>st</sup> at 9:30 a.m., and (4) PREPA's compliance filing under the March 14<sup>th</sup> order is due on April 13<sup>th</sup> (a Saturday, making the due date April 15<sup>th</sup>).<sup>2</sup>

PREPA wishes to complete the process of compliance with the March 14<sup>th</sup> order in as expeditious a manner as is reasonably possible. Accordingly, PREPA, working with its outside expert IRP consultants, Siemens, has prepared its clarification questions as quickly as was practical, and is submitting them today, March 25<sup>th</sup>. The clarification questions are set forth in Section II of this filing.

In addition, PREPA respectfully requests that the Energy Bureau and its consultants expedite the process for answering PREPA's clarification questions, if that is reasonably possible. An expedited process could include the Energy Bureau and its consultants answering clarification questions on an interim, rolling basis, if the Bureau

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<sup>2</sup> Under Puerto Rico law and practice, and given that the Energy Bureau's Clerk's office is not open on weekends, items set as due on weekends normally are due on the next business day.

deems such a process to be proper and practical. The motion for an expedited clarification process formally is set forth in Section III of the instant filing.

Finally, PREPA respectfully requests that the Energy Bureau revise the schedule for PREPA's compliance filing under the March 14<sup>th</sup> order, to allow PREPA to propose a new deadline after it has received answers to all of the clarification questions, and, as an interim measure, to set the due date as no earlier than 35 calendar days from the date on which it has received answers to all of the questions. PREPA cannot *begin* work on the compliance items that are the most time-consuming -- *i.e.*, the items that require new runs of the Aurora Long-term Capacity Expansion ("LTCE") model -- until after those questions (or at least the questions directly and indirectly relating to the new LTCE runs) are answered. On average, an LTCE run, with diligent effort, takes roughly a week to prepare and conduct, including the approximately two days that it takes for the supercomputer to run the program. The IRP team can work on more than one LTCE run at a time, but there are practical limits on how many runs can be in progress at the same time. The February 13<sup>th</sup> IRP filing, which took many months to prepare, reflected 34 LTCE runs. Depending on the answers to the clarification questions, the March 14<sup>th</sup> order might be interpreted to require *more* than 34 new LTCE runs, or, it might be interpreted to require as few as 26 new LTCE runs. In addition, the March 14<sup>th</sup> order's deadline for the compliance filing does not appear to have factored in that, when PREPA complies with the order, PREPA not only will have to address the items expressly stated in the order, but PREPA also will have review its work papers, testimony, and waiver and confidentiality motions for any necessary changes and/or additions, and revise and update them if and as needed. All of that work will take



significant time. PREPA believes that the most practical approach would be for PREPA, after it receives all of the answers to its clarification questions, to be given a short period within which to propose a new deadline for the compliance filing. As an interim measure, at a minimum, PREPA would request that the Energy Bureau revise the schedule and set the due date for PREPA's compliance filing as no earlier than 35 calendar days from the date on which PREPA receives answers to all of the clarification questions. In suggesting that 35 days figure, PREPA wishes to emphasize that, depending on the answers to the clarification questions, the 35 day timeline, with maximum reasonable effort, might be achievable, but that the 35 day timeline also could turn out not to be practically possible. The motion to re-set the compliance filing deadline formally is set forth in Section IV of the instant filing.

## II. CLARIFICATION QUESTIONS

PREPA respectfully submits the following clarification questions regarding the March 14<sup>th</sup> order.

March 14 <sup>th</sup> Order Items	Clarification Questions
App. A, Items I.A.3.a through I.A.3.f	<ul style="list-style-type: none"> <li>• Background: The order correctly notes that the referenced analyses involve the costs of particular San Juan land-based LNG infrastructure being apportioned in a manner such that the associated resources bear only their respective portion of the total terminal costs. This approach reflected a reasonable assumption that the terminal, to the extent that it had import capacity in excess of that required for the associated resources, could sell excess capacity to other purchasers, and, thus, the costs would be borne by other purchasers as well as by the associated resources.</li> <li>• Background: When PREPA and its outside expert IRP consultants, Siemens, were development this component of the IRP analysis, they did not know, in advance, the results that the relevant LTCE runs would yield in terms of what would be the associated resources and, thus, what would be the aggregate LNG needs of the resources.</li> <li>• <b>Question:</b> Now that PREPA and Siemens have the results of the relevant LTCE runs under the IRP, which require less LNG capacity</li> </ul>

March 14 <sup>th</sup> Order Items	Clarification Questions
	<p>than the LNG infrastructure that was modeled in the IRP, would the Energy Bureau accept as compliance with these March 14<sup>th</sup> order items an approach under which PREPA and Siemens would “right-size” the LNG infrastructure, use a cost figure for that reduced size, and fully allocate the new cost figure to the associated resources in the six new LTCE runs required by these items?</p>
App. A, Items I.A.3.g through I.A.3.l	<ul style="list-style-type: none"> <li>• <b>Question:</b> May PREPA combine these six LTCE runs with the six LTCE runs called for by Items I.A.3.a through I.A.3.f? That would cut in half the number of new LTCE runs required by these two sets of items, which are required for RPS compliance in 2019-2021 and the request from the Energy Bureau to include improved wind performance consistent with NREL assumptions. A preliminary evaluation by the Siemens team of the levelized cost of energy (LCOE) for onshore wind vs. solar PV (using NREL’s higher Capacity factors for wind) shows that solar PV is still more economical. We expect the model to pick wind over solar, even under Scenario 3. The preliminary findings can be provided to the Energy Bureau prior to the Technical Conference Call.</li> </ul>
App. A, Items I.A.3.g through I.A.3.l	<ul style="list-style-type: none"> <li>• The Energy Bureau correctly points out that by 2021 none of the plans with the exception of Scenario 3 achieve 15% compliance. However, PREPA would like to point out that in the November 8<sup>th</sup> order the Energy Bureau indicated that RPS compliance must be achieved by the end of 2021. Considering that the LTCE’s would add 600 MW to be in service by January 1, 2022, and that the 2021 resources are in service by January 1<sup>st</sup> of that year, PREPA/Siemens selected a deployment plan that would achieve or exceed compliance by January 1<sup>st</sup> 2022. For instance, S4S2 has 12.3% for the entire 2021 and by January 2022 there are resources in place for 20% compliance.</li> <li>• <b>Question:</b> With this clarification, would the Energy Bureau require the plan modified?</li> </ul>
App. A, Item I.B.1.a	<ul style="list-style-type: none"> <li>• <b>Question:</b> Does the Energy Bureau agree that this Item is duplicative of Items A.3.a through A.3.f? However, if the sensitivity requires leaving the LTCE plans constant, assigning the full costs of the LNG terminal to PREPA would only impact fixed costs and the NPV estimates as the dispatch of the generation fleet will not be affected by the higher fixed costs. This adjustment can be applied to the relevant Scenarios (all except Scenario 1).</li> </ul>
App. A, Items I.B.1.b and I.B.1.c.	<ul style="list-style-type: none"> <li>• Background: These two Items involve sensitivities where renewables capital costs would be higher or lower, and yet the two Items also direct that renewables be added at the same levels despite the higher or lower capital costs (LTCE plans constant). PREPA and Siemens do not believe that this combination would provide useful information, besides changes in fixed costs. In contrast, the sensitivity on high gas prices, would change the dispatch of the generation.</li> </ul>



March 14 <sup>th</sup> Order Items	Clarification Questions
	<ul style="list-style-type: none"> <li>• <b>Question:</b> Does the Energy Bureau agree to withdraw or waive the sensitivities on renewable capital costs?</li> </ul>
App. A, Item II.A.1	<ul style="list-style-type: none"> <li>• Background: In the Energy Bureau case regarding the San Juan 5&amp;6 contract, PREPA asked a clarification question regarding whether the Bureau was requiring PREPA to include the San Juan 5&amp;6 conversions in all IRP Scenarios or just in the applicable Scenarios. The Bureau's November 28, 2018, Resolution stated the latter.</li> <li>• Background: PREPA and Siemens concluded that the San Juan 5&amp;6 conversions were not applicable to Scenario 1, which is the "no new natural gas delivery infrastructure" Scenario. PREPA and Siemens continue to believe that that is a reasonable conclusion.</li> <li>• <b>Question:</b> Does the Energy Bureau agree to withdraw or waive this Item?</li> <li>• <b>Question:</b> Alternatively, does the Energy Bureau agree that PREPA and Siemens, to comply with this Item, need only run revised versions of S1S2B and S1S3B, rather than having to re-run all of the Scenario1 LTCEs? PREPA notes that S1S1B also could be re-run, if the Bureau deems that necessary, but that no other S1 versions should be re-run.</li> </ul>
App. A, Item II.A.2	<ul style="list-style-type: none"> <li>• Background: PREPA and Siemens do not understand the rationale for re-running Scenario 1, the "no new natural gas delivery infrastructure" Scenario, to add sensitivities for fuel conversions of existing units to burn natural gas, with or without adding San Juan 5&amp;6 infrastructure as a fixed resource. If San Juan 5&amp;6 is added, then this item is duplicative of Item II.A.1. If San Juan 5&amp;6 is not added, then there are no new natural gas supply sources, and adding the fuel conversions does not appear to generate useful information.</li> <li>• Background: Moreover, other than San Juan 5&amp;6, there are no other units that make practical sense to convert to natural gas.</li> <li>• Background: The new CCGT installed in Costa Sur in some of the plans is using the gas currently burned at Costa Sur 5 &amp; 6 and EcoEléctrica. If we don't allow this option to be taken by the plan it is likely that at least EcoEléctrica will stay not giving any additional information.</li> <li>• <b>Question:</b> Does the Energy Bureau agree to withdraw or waive this Item?</li> <li>• <b>Question:</b> Alternatively, does the Energy Bureau agree that PREPA and Siemens, to comply with this Item, need only run revised versions of S1S2B and S1S3B, rather than having to re-run all of the S1 LTCEs? PREPA notes that S1S1B also could be re-run, if the Bureau deems that necessary, but that no other S1 versions should be re-run.</li> </ul>
App. A, Item II.C.1	<ul style="list-style-type: none"> <li>• Background: This Item would apply only to Scenarios 2, 4, and 5 and potentially the ESM Plan.</li> <li>• Background: See our observations under "App. A, Items I.A.3.g through I.A.3.l", regarding how the deployment was selected.</li> </ul>

March 14 <sup>th</sup> Order Items	Clarification Questions
	<ul style="list-style-type: none"> <li>• <b>Question:</b> Does the Energy Bureau agree that this Item does not require its own independent LTCE re-runs and instead can be included in whatever other LTCE re-runs of Scenarios 2, 4, and 5 that PREPA and Siemens otherwise must conduct under other Items in order to comply with the March 14<sup>th</sup> order after the order is clarified?</li> </ul>
App. A, Item II.C.3	<ul style="list-style-type: none"> <li>• Background: PREPA and Siemens can provide more details on the justifications for the limits. At least some of that information already is available to the Energy Bureau and its consultants.</li> <li>• Background: Scenario 3's LTCE runs already include the results of very high limits on the amounts of solar and battery storage additions, as directed by the Energy Bureau.</li> <li>• Background: The information that is useful here is information on the way forward with practical limits.</li> <li>• <b>Question:</b> Would the Energy Bureau agree to withdraw or waive this Item?</li> <li>• <b>Question:</b> Alternatively, would the Energy Bureau agree that PREPA and Siemens, in order to comply with this Item, need only re-run Scenario 3 in an LTCE run that uses the reference costs of solar and battery storage additions? PREPA and Siemens believe that such a re-run would provide the essential information that appears to be sought by this Item.</li> </ul>
App. A, Item II.D.2.a	<ul style="list-style-type: none"> <li>• Background: PREPA and Siemens understand Item II.D.2.a to be the specific statement of what is intended by Item II.D.2.</li> <li>• Background: PREPA and Siemens are unclear on what is the concern or objective underlying this Item.</li> <li>• Background: PREPA and Siemens conducted a screening assessment using LCOE and even with higher capacity factors the wind resources have higher projected costs than solar.</li> <li>• Background: PREPA and Siemens respectfully submit that they do not see this Item as a compliance Item, and instead see it as a new requirement to re-run up to all 34 LTCEs, possibly with additional permutations, using different data.</li> <li>• <b>Question:</b> Would the Energy Bureau agree for PREPA to account for this item in the screening phase of the study?</li> <li>• <b>Question:</b> Alternatively, would the Energy Bureau confirm that this Item is intended to apply only to such other LTCE runs that are required to be re-run under other Items in order to comply with the March 14<sup>th</sup> order, and not to all 34 LTCEs.</li> </ul>
App. A, Item III.B	<ul style="list-style-type: none"> <li>• Background: PREPA submitted to the Energy Bureau the programs that identified as viable for EE and DR in Puerto Rico with levels of adoption that considered as viable for implementation.</li> <li>• Background: The Energy Bureau ordered PREPA to include 2% per year reduction in EE and in response to this PREPA increased the</li> </ul>



March 14 <sup>th</sup> Order Items	Clarification Questions
	<p>levels of adoption so the limit would be met and by year 10 most of the eligible customers (95% in most cases) have been subscribed to the plan.</p> <ul style="list-style-type: none"> <li>• Background: Further gains in EE could not be substantiated at this time and would have very little impact on the IRP decisions and implementation plan.</li> <li>• <b>Question:</b> Would the Energy Bureau agree to withdraw or waive this Item?</li> <li>• <b>Question:</b> Alternatively, would the Energy Bureau agree to running a sensitivity on the preferred plans?</li> </ul>
App. A, Item III.C	<ul style="list-style-type: none"> <li>• Background: PREPA and Siemens currently are not aware of reliable analysis and data that indicates that the offshore wind potential of Puerto Rico is comparable -- in terms of the potential as such and also taking into account other factors such as location, permitting feasibility, project costs, resulting energy prices, etc. -- to situations in the Northwest US mainland or Europe.</li> <li>• Background: Preliminary studies<sup>3</sup> for Puerto Rico do identify potential, but the projected costs are significantly higher than those of photovoltaic.</li> <li>• Background: To provide an authoritative, detailed answer on this subject would require an expensive and time-consuming new study. For example, water depths and other factors would have to be assessed to determine where offshore turbines might be practical from an engineering perspective.</li> <li>• Background: The IRP as filed includes very substantial amounts of solar PV installations. If offshore wind were to turn out to be practical and to be cost-competitive with solar PV, then, offshore wind can be expected to replace some of the solar PV. The same consideration applies to onshore wind generation.</li> <li>• <b>Question:</b> Would the Energy Bureau agree to withdraw or waive this Item or to supplementation with a requirement of adding to the IRP the requirement than in its implementation PREPA should not limit the RFP's to only PV, but open it to all renewable options in the island in particular wind onshore and offshore.?</li> <li>• <b>Question:</b> Alternatively, would the Energy Bureau agree to withdraw or waive this Item at this time, subject to the possibility of the Bureau issuing this Item as a requirement of information at a time after the refiled IRP is found to be complete?</li> </ul>

<sup>3</sup> The web site of the United States Department of Energy, Energy Information Administration, on its Puerto Rico Profile Analysis web page, cites the following study relating to offshore wind: Rodríguez, Héctor M., Gerardo Carbajal, and Edwar Romero, Preliminary Cost Assessment for Offshore Wind Energy in Puerto Rico, Universidad del Turabo (July 2015), p. 5.



March 14 <sup>th</sup> Order Items	Clarification Questions
App. B, Item 3	<ul style="list-style-type: none"> <li>• Background: The Matlab model regression model was developed by Siemens for carrying out load forecasts and was not specifically developed for the Puerto Rico IRP.</li> <li>• <b>Question:</b> Would the Energy Bureau agree to withdraw or waive this item at this time, subject to the possibility of the Bureau issuing this item as a requirement of information, for any particular sensitivity that the Bureau deems should be run by Siemens, at a time after the refiled IRP is found to be complete?</li> </ul>
App. B, Item 4	<ul style="list-style-type: none"> <li>• Background: This item correctly assumes that formulae have been removed for some items in the referenced work papers. The referenced work papers are tied to model outputs from the GCPM gas model and others, and the reason for not including all formulae in the reference work paper. Siemens can provide a version of the work paper with formulas referencing the raw model output data as well.</li> </ul>

### III. MOTION TO EXPEDITE CLARIFICATION PROCESS

For the reasons discussed earlier in this filing, PREPA respectfully moves that the Energy Bureau and its consultants expedite the process for answering PREPA's clarification questions, if that is reasonably possible. As stated earlier, an expedited process could include the Energy Bureau and its consultants answering clarification questions on an interim, rolling basis, if the Bureau deems such a process to be proper and practical.

### IV. MOTION TO RE-SET COMPLIANCE FILING DEADLINE

For the reasons stated earlier in this filing, PREPA also respectfully moves that the Energy Bureau issue an order that provides that PREPA, after it receives all of the answers to its clarification questions, has a specified short period within which to propose a new deadline for the compliance filing. As an interim measure, at a minimum, PREPA would respectfully request that the Energy Bureau revise the schedule and set the due date for PREPA's compliance filing as no earlier than

35 calendar days from the date on which the Energy Bureau and its consultants complete the process for answering PREPA's clarification questions, without prejudice to PREPA being allowed to seek additional time, if necessary, based on the answers to the questions.

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WHEREFORE, the Puerto Rico Electric Power Authority respectfully requests that the Honorable Puerto Rico Energy Bureau and its consultants answer the foregoing clarification questions on a reasonable but expedited schedule and that the Energy Bureau grant the foregoing two motions.

RESPECTFULLY SUBMITTED,

IN SAN JUAN, PUERTO RICO, THIS 25<sup>th</sup> DAY OF MARCH, 2019

**PUERTO RICO ELECTRIC POWER AUTHORITY**



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### **CERTIFICATION OF FILING AND SERVICE**

I hereby certify that on March 25, 2019, I have filed the above filing with the Puerto Rico Energy Bureau in hard copy format at the office of the Clerk of the Puerto Rico Energy Bureau, at the Seaborne Building Plaza (old World Plaza Building), 268 Munoz Rivera Avenue, Plaza Level, Suite 202, San Juan, Puerto Rico, 00918; and, further, at approximately the same time, that courtesy copies of the filing were sent via email to the Puerto Rico Energy Bureau via email to [secretaria@energia.pr.gov](mailto:secretaria@energia.pr.gov) and [mcintron@energia.pr.gov](mailto:mcintron@energia.pr.gov), and to the office of the Energy Bureau's internal legal counsel via email to [legal@energia.pr.gov](mailto:legal@energia.pr.gov) and [sugarte@energia.pr.gov](mailto:sugarte@energia.pr.gov).



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