

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

JRSP - SECRETARIA
NEGOCIADO DE ENERGIA
DE PUERTO RICO

2019 AUG -7 PM 1:43

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

NO. CEPR-AP-2018-0001

SUBJECT: PREPA's Partial
Compliance Filing re July 23, 2019,
Order and Motion for Leave to
Supplement Filing by August 16, 2019

**PREPA'S PARTIAL COMPLIANCE FILING RE JULY 23, 2019, ORDER, AND
MOTION FOR LEAVE TO SUPPLEMENT FILING BY AUGUST 16, 2019**

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") PREPA's Partial Compliance Filing re July 23, 2019, Order and Motion for Leave to Supplement Filing by August 16, 2019.

1. The Energy Bureau's July 23, 2019, Resolution and Order extended the due date for certain AES-related modeling and information to today, August 7, 2019. The due date had been extended by prior orders as well.

2. PREPA has attached hereto a Memorandum from Siemens PTI, PREPA's independent integrated resource plan experts, that PREPA received on August 6, 2019, late in the afternoon. The Siemens Memorandum provides or references partial compliance with the required AES-related modeling and information, but the Memorandum also identifies further analysis that is needed in order for Siemens to provide complete and correct information to the Energy Bureau for the required items. The Memorandum asks for an extension until August 16, 2019.

3. As noted above, the Memorandum references certain Long-Term Capacity Expansion ("LTCE") results, but it does not attach the modeling outputs.

4. PREPA proposes and requests leave to file, on a provisional basis, the currently available LTCE modeling results, with the understanding that they remain under review and could be modified or corrected based on further analysis.

5. PREPA also proposes to file additional LTCE results on a provisional, rolling basis, also with the understanding that they remain under review and could be modified or corrected based on further analysis.

6. PREPA apologizes sincerely to the Energy Bureau for the incomplete compliance today with the required items, which PREPA did not anticipate until yesterday.

7. WHEREFORE, the Puerto Rico Electric Power Authority respectfully requests that the Honorable Puerto Rico Energy Bureau accept this Partial Compliance Filing, direct whether it would like submission of LTCE modeling results on an interim basis, approve completion of the compliance filing by August 16, 2019, and enter any other relief as is warranted.

RESPECTFULLY SUBMITTED,

IN SAN JUAN, PUERTO RICO, THIS 7th DAY OF AUGUST, 2019

PUERTO RICO ELECTRIC POWER AUTHORITY



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CERTIFICATION OF FILING AND SERVICE

I hereby certify that on August 7, 2019, I have filed the above Partial Compliance Filing, including its attachment, with the Puerto Rico Energy Bureau at the office of the Clerk of the Puerto Rico Energy Bureau; and, further, at approximately the same time, that courtesy copies of the Filing, including its attachment, were sent via email to the Puerto Rico Energy Bureau Clerk and internal legal counsel via email to secretaria@energia.pr.gov, wcordero@energia.pr.gov, legal@energia.pr.gov, and sugarte@energia.pr.gov.

In addition, the foregoing Filing, including its attachment, was, on August 7, 2019, sent via email to the approved or pending intervenors (Arctas, Caribe GE, League of Cooperatives and AMANESER 2025, OIPC, EcoElectrica, Empire Gas, Environmental Defense Fund, Local Environmental Organizations, National, "Non Profits", Progression, SESA-PR, Renew, Shell, Sunrun, Wartsila, Windmar Group) and amicus (ACONER, AES-PR, RMI) at the following email addresses: sierra@arctas.com, tonytorres2366@gmail.com, cfl@mcvpr.com, gnr@mcvpr.com, info@liga.coop, amaneser2020@gmail.com, hrivera@oipc.pr.gov, jrivera@cnslpr.com, carlos.reyes@ecoelectrica.com, ccf@tcmrslaw.com, manuelgabrielfernandez@gmail.com, acarbo@edf.org, pedrosaade5@gmail.com, rmurthy@earthjustice.org, rstgo2@gmail.com, larroyo@earthjustice.org, jliebkemann@earthjustice.org, acasellas@amgprlaw.com, loliver@amgprlaw.com, epo@amgprlaw.com, rob.berezin@weil.com, marcia.goldstein@weil.com, jonathan.polkes@weil.com, gregory.silbert@weil.com, agraitfe@agraitlawpr.com, maortiz@lvprlaw.com, rnegron@dnlawpr.com, cfl@mcvpr.com, castrodieppalaw@gmail.com, voxpathulix@gmail.com, paul.demoud@shell.com, javier.ruajovet@sunrun.com, escott@ferraiuoli.com, mgrpcorp@gmail.com, aconer.pr@gmail.com, axel.colon@aes.com, rtorbert@rmi.org.

PREPA does not yet know what email address to use for intervenor CIAPR.

Please advise PREPA of any needed corrections or changes to the above email address list.



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MEMO TO: PREPA CEO and IRP Team

FROM: Siemens PTI/EBA

DATE: August 6, 2019

SUBJECT: AES Coal Conversion Assessment

The Siemens team would like to respectfully request an extension to the Compliance Deadline for the AES Conversion Assessment from August 7, 2019 to August 16, 2019. Under a combination of Energy Bureau orders issued on April 26, May 23, and June 12, 2019, PREPA is required to file by August 7, 2019, at 12:00 p.m., the results of a number of Long-Term Capacity Expansion ("LTCE") model runs relating to switching the AES coal plant to other fuels, including biomass and natural gas. Siemens recognizes that the Energy Bureau already has extended the time for that compliance filing for PREPA, however, additional time is needed to complete the analysis and fully address the implications of the results. Siemens considers that any technical information that will be made public regarding such important resource as AES must be thoroughly vetted and discussed, which we had not had the time to do.

The PREB in its order accepted 3 options for conversion to natural gas as the primary and most feasible option:

- 1) Convert existing boilers to burn natural gas
- 2) Heavily fired Combined Cycle (HFCC) using a new gas turbine (GT) exhaust as preheated combustion air to the existing boiler.
- 3) Combined Cycle Repowering using a large new GT and Heat Recovery Steam Generator (HRSG)

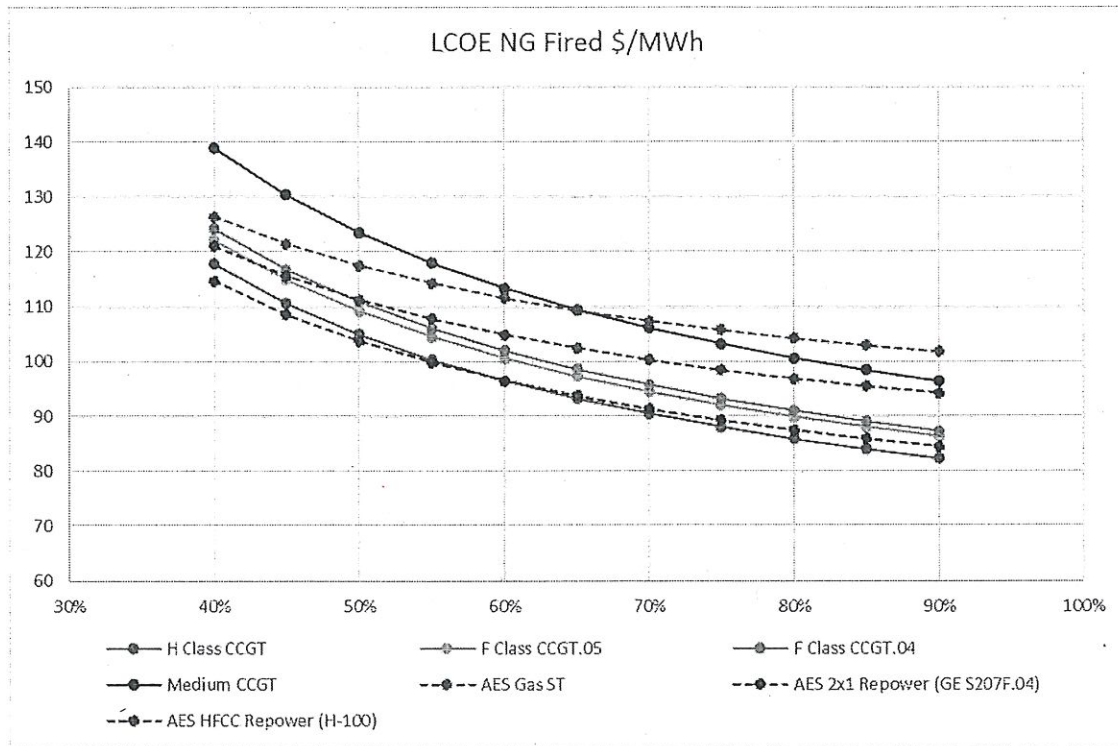
For all these cases the Siemens team have developed capital and operating costs as well as performance estimates as shown in Table 1, which took a time to develop as these options are not traditional investments.

Table 1: AES Natural Gas Conversion Options (per generating unit)

	AES Gas ST	AES 2x1 Repower	AES HFCC Repower
Manufacturer		GE	Hitachi
Model Turbine		\$207F.04	H-100
Type	ST	CC 2x1	CC 1x1
Capacity MW (per unit)	227	585	321
Fuel	NG	NG	NG
VOM (2018\$/MWh)	3.90	1.75	2.61
FOM(2018\$/kW-yr)	60.00	22.09	33.12
Regas Terminal related FOM (2018\$/kw-year)	76.00	88.16	88.16
Heat Rate at 100% Rated Capacity Btu/kWh	10,164	7,582	9,100
Capital Costs (2018\$/kW)	198.24	854.45	507.79
Capital Investment (\$000)	45,000	500,000	163,000

All three conversion options have been offered to the LTCE Aurora model. The figure below shows the LCOE of the three options and as can be seen the most economical is the Repower to a 2x1 combined cycle that competes with the options of a new F Class Combined Cycle and it is similar to the H-Class.

Figure 1: LCOE for AES Natural Gas Conversion Options



Given the similarity of LCOE of the conversion options and the new generation, the results of the LTCE need to be analyzed in detail and fully vetted internally before PREPA's files its response.

At this moment we have finalized the assessment of other fuels as Biomass / Biofuels that were not found to be viable and we are processing with the analysis of the results of Scenario 2 (aka Scenario 4).

Next, after we fully analyze the results of Scenario 2, we need to process Scenarios 1, 3, 5 and the ESM. And while this is expected to be faster than Scenario 2, it also requires time.

The load flow analysis is also progressing.

The Siemens team has been working diligently in the assessment. However, given the complexity of the simulations and results, we would like to request additional time to perform further testing and present results that truly represent the most economical solution based on the input assumptions made.