March 19, 2022

To: Edison Aviles Deliz, Presidente

Negociado de Energia de Puerto Rico

comentarios@jrsp.pr.gov

https://radicacion.energia.pr.gov

CC: OIPC, PREPA and LUMA

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FROM: Victor Gonzalez, Windmar Group

Reference: Comentarios sobre factores abril- junio 2022, Caso Núm. NEPR-MI-2020-0001"

Dear All:

The purpose of this communication is to provide my suggestion for a uniform measure, kWh or MWh, for all generators and all fuels, some comments and a ask a few questions.

A. Variance and projected fuel mix and cost:

"The major contributor to the reported variance in fuel expenditures for this reconciliation period was above expected fuel prices. Bunker C fuel had the most volatility of the three types of fuel consumed.
A significantly larger consumption of Bunker C fuel than expected was reported, with Costa Sur burning more than half its consumption in Bunker C fuel instead of Natural Gas. Also, there was a considerably larger consumption of Diesel than expected, with San Juan CC burning almost all its consumption in Diesel instead of Natural Gas."

QUESTIONS:

1. **The projected DEC-FEB natural gas deliveries were not received, what assurance do you have that the projected natural gas deliveries for the MAR-JUN period will be?**

2. **When you burn Bunker C and Diesel the cost per kWh of the CO2e emissions double, are you going to put a claim to New Fortress and Naturgy for that additional cost?**

3. **Would the consumers have to pay for the additional cost per kwh when you burn Bunker C and Diesel rather than Natural Gas?**

4. **What was the additional cost per kWh of burning Diesel instead of Natural Gas?**

5. **Can you provide the kWh that are generated by "barrel" of Natural Gas?**

6. **What was the reason for SJCC December low efficiency?**

7. **Can you define efficiency and what is the expected efficiency?**

B. Consumption versus Generation

Difference between Consumption and Generation ("Trends"-tab 2022-Load-Estimation-Q3-PR) was 0.8502.

Difference between Consumption and Generation by month ("*Distribucion mensual 2022*"-tab) was from a low of 0.8084 in August to a high of 0.9027 in November. Last Fiscal Year Trends. The actuals show a low of 0.715 in October and a high of 0.9088 in December. It seems the numbers are not the same in all the tables.

QUESTIONS:

8. **What percentage of the difference is due to theft?**
9. **What is the cost of theft?**
10. **What are you doing to stop theft?**
11. **How much have you collected from theft ("Hurto")?**
12. **Do reducing theft lower the cost to all paying customers?**

C. kWh or MWH data for all generators.

APRIL-JUNE-2022 Factors Attachment 3.

Again, I request that a row showing the $/kWh or $/MWh of each plant and each fuel used by each plant be included. **What the consumer sees in his invoice is $/kWh.**

You show the $/MWh for "COMPRA ENERGIA" yet fail to do so for the generators listed under SISTEMA TOTAL. Furthermore,

ECOELECTRICA has data for both SISTEMA TOTAL and COMPRA ENERGIA but the $/MWh is only shown for the COMPRA ENERGIA.

Questions:

13. **Can you provide the $/kWh or $/MWh for all plants and fuels?**
14. **Can you provide what is the $/kWh of Ecoelectrica (fuel +capacity?**

I enclose an excel file for easier reference.

Sincerely

Attachment 3
Projected Fuel and Purchased Power Expenses for the Month
For the Months of April to June 2022

GENERACION Y PRESUPUESTO DE COMBUSTIBLE POR PLANTA
Proyección: Demanda enviada por JE 07MAR2022
(Incluyendo Acarreo y Generación Bruta)
Q4 FY2022

Attachment 3
Puerto Rico Electric Power Authority
Projected Fuel and Purchased Power Expenses for the Month
For the Months of January and March 2022

Line No.				JAN	FEB	MAR	APR	MAY	JUN
9	*COSTA SUR*	Gas Natural	***MCF***	2,850,020	1,925,156	3,479,178	977,981	1,031,487	1,211,903
10			MBTUX1000	2,993	2,021	3,653	1,027	1,083	1,272
11			$BBLX1000_{Equivalente}$	475	321	580	163	172	202
12			$000 TOTAL	29,515	19,849	35,468	11,228	11,884	14,045
13			$/BBL	62.14	61.86	61.17	68.88	69.13	69.53
14			$/MBTU	9.86	9.82	9.71	10.93	10.97	11.04
15			GWHR	305	207	373	390	414	499
56	*REPOWERING SJ5&6*	Destilado	BBLX1000	196	0	0	0	0	0
57			MBTUX1000	1,139	0	0	0	0	0
58			$000	19,850	0	0	0	0	0
59			ACARREO	78	0	0	0	0	0
60			$000 TOTAL	19,929	0	0	0	0	0
61			$/BBL	101.57	0.00	0.00	0.00	0.00	0.00
62			$/MBTU	17.50	0.00	0.00	0.00	0.00	0.00
63		Gas Natural	***MCF***	0	917,334	887,663	1,030,916	712,513	703,458
64			MBTUX1000	0	963	932	1,082	748	739
65			$BBLX1000_{Equivalente}$	0	153	148	172	119	117
66			$000 TOTAL	0	12,253	11,762	14,976	10,306	9,567
67			$/BBL	0.00	80.15	79.50	87.16	86.79	81.60
68			$/MBTU	0.00	12.72	12.62	13.83	13.78	12.95
69			GWHR	143	134	129	139	97	95
70	*ECOELECTRICA*	Gas Natural	***MCF***	2,268,522	2,171,524	2,115,558	2,171,786	2,185,346	2,052,193
71			MBTUX1000	2,382	2,280	2,221	2,280	2,295	2,155
72			$BBLX1000_{Equivalente}$	378	362	353	362	364	342
73			$000 TOTAL	23,492	22,395	21,562	24,937	25,179	23,781
74			$/BBL	62.13	61.88	61.15	68.89	69.13	69.53
75			$/MBTU	9.86	9.82	9.71	10.94	10.97	11.04
76			GWHR	302	290	278	287	294	270

Total Natural Gas Projected use			853	836	1,080	697	655	661
DATA FROM QUARTER RECONCILIATION FILE Jan-Feb 2022								
Natural Gas Barrels actual use								
	ECO		251	172	148			
	SJCC		-	-	-			
Natural Gas not delivered			602	664	932			
Percentage not delivered			71%	79%	86%			

Barrels used of Light destillate SJCC			273,962		151,801		152,637	
Light Destillate Price per Barrel SJCC		$	104.54	$	114.42	$	124.29	
Cost of Fuel		$	28,639,987	$	17,369,070	$	18,971,131	
Generation SJCC			79,742,000		69,916,000		64,711,000	
efficiendy			291		461		424	
$ per kWh		**$**	**0.3592**	**$**	**0.2484**	**$**	**0.2932**	
South Coast Natural Gas price per barrel								
	Costa Sur	$	75.37	$	64.43	$	80.67	
	ECO	$	69.39	$	59.32	$	74.26	
South Coast Fuel No 6 price per barrel		$	81.65	$	96.81	$	106.58	

QUESTIONS:

If the projected DEC-FEB natural gas deliveries where not received, what assurance do you have for natural gas deliveries during the MAR-JUN period?

When you burn No6 Fuel or light destillate the cost per kWh of the CO2e emissions double, are you going to put a claim to New Fortress and Naturgy for that additional cost?

Would the consumers have to pay for the additional cost per kwh when you burn oil rather than natural gas?

What was the reason for SJCC December low efficiency?

Can you define efficiency and what is the expected efficiency?

What was the additional cost per kWh of burning diesel instead of natural gas ?

Can you provide the kWh that are generated by "barrel" of natural gas?

Quarter Summary, Purchased Power Costs

COGENERATORS		Dec-21 kWh produced	Dec-21 Cost	Dec-21 CER Cost	Cost per kWh	Jan-22 kWh produced	Jan-22 Cost	Jan-22 CER Cost	Cost per kWh	Feb-22 kWh produced	Feb-22 Cost	Feb-22 CER Cost	Cost per kWh
AES	Coal	248,612,009	$ 23,961,306.97	$ -	$ 0.0964	209,859,576	$ 21,666,853.91	$ -	$ 0.1032	147,170,112	$ 18,204,293.08	$ -	$ 0.1237
Ecoeléctrica	Natural Gas	245,934,482	***38,093,606.45***	-	$ 0.1549	257,156,191	***34,256,314.47***	-	$ 0.1332	253,454,523	***37,836,550.63***	-	$ 0.1493
RENEWABLES	**RENEWABLES**												
AES Ilumina	PV	2,832,050	$ 457,007.87	$ 89,179.68	$ 0.1929	3,087,767	$ 498,272.96	$ 97,209.63	$ 0.1929	2,807,769	$ 453,089.68	$ 88,423.92	$ 0.1929
Horizon Energy	PV	1,675,542	242,786.04	52,745.75	$ 0.1764	1,972,026	285,746.57	62,098.28	$ 0.1764	1,696,002	245,750.69	53,407.04	$ 0.1764
Humacao Solar Project	PV	4,853,332	825,066.44	-	$ 0.1700	5,714,655	971,491.35	-	$ 0.1700	5,211,659	885,929.92	-	$ 0.1700
Landfill Gas Technologies Fajardo (LFGT)	Landfill Gas Technologies Fajardo (LFGT)	433,644	43,364.40	2.90	$ 0.1000	290,092	29,009.20	2.90	$ 0.1000	340,556	34,055.60	3.40	$ 0.1000
Landfill Gas Technologies Toa Baja (LFGT)	Landfill Gas Technologies Toa Baja (LFGT)	734,126	73,412.60	7.34	$ 0.1000	1,235,821	123,582.10	12.36	$ 0.1000	1,013,027	101,302.70	10.13	$ 0.1000
Oriana Energy	PV	6,524,494	963,298.45	176,892.75	$ 0.1748	7,215,179	1,082,738.62	195,598.65	$ 0.1772	6,768,419	1,015,696.03	183,480.48	$ 0.1772
Pattern Santa Isabel	WIND	11,879,892	1,930,375.33	-	$ 0.1625	11,582,439	1,887,126.79	$0.00	$ 0.1629	12,735,868	2,075,054.97	-	$ 0.1629
Punta Lima Wind Farm	WIND	-	-	-		-	-	-		-	-		
San Fermín Solar Farm	PV	2,254,972	340,003.10	69,479.58	$ 0.1816	2,586,420	393,653.12	79,892.22	$ 0.1831	1,945,111	296,045.89	59,562.78	$ 0.1828
Windmar Cantera Martinó	PV-DG	224,441	41,072.70	7,872.75	$ 0.2181	433,711	79,369.11	15,150.67	$ 0.2179	377,210	69,029.43	13,226.22	$ 0.2181
Windmar Coto Laurel SolarFarm	PV	1,526,327	233,528.03	53,394.74	$ 0.1880	1,681,980	259,312.24	58,853.18	$ 0.1892	1,404,536	219,107.62	49,160.95	$ 0.1910
TOTAL COGENERATORS	**TOTAL COGENERATORS**	494,546,491	62,054,913.42	-	$ 0.1255	467,015,767	55,923,168.38	-	$ 0.1197	400,624,635	56,040,843.71	-	$ 0.1399
TOTAL RENEWABLES	**TOTAL RENEWABLES**	32,938,820	5,149,914.96	449,575.49	$ 0.1700	35,800,090	5,610,302.06	508,817.89	$ 0.1709	34,300,157	5,395,062.54	447,274.92	$ 0.1703
GRAND TOTAL	**GRAND TOTAL**	**527,485,311**	**$ 67,204,828.38**	**$ 449,575.49**	$ 0.1283	**502,815,857**	**$ 61,533,470.44**	**$ 508,817.89**	$ 0.1234	**434,924,792**	**$ 61,435,906.25**	**$ 447,274.92**	$ 0.1423

FUEL COSTS

	FUEL TYPE	TOTAL	GENERATION			TOTAL	GENERATION			TOTAL	GENERATION		
STEAM													
SAN JUAN	NO. 6												
	PROPANE												
	LIGHT DESTILLATE	$ 12,539,514.58	177,736,000.00		$ 0.0706	$ 11,726,664.61	112,821,000.00		$ 0.1039	$ 12,450,464.60	99,858,000.00		$ 0.1247
SOUTH COAST	NO. 6												
	natural gas	18,895,357.77	179,580,000.00			11,093,448.16	280,980,000.00			11,963,230.13	300,860,000.00		
	LIGHT DESTILLATE	4,695,826.45			$ 0.1314	28,329,214.57			$ 0.1403	38,708,104.06			$ 0.1684
PALO SECO	NO. 6												
	PROPANE												
	LIGHT DESTILLATE	21,548,201.63	146,099,000.00		$ 0.1475	22,557,623.47	144,460,000.00		$ 0.1562	12,855,215.82	81,936,000.00		$ 0.1569
AGUIRRE	NO. 6												
	PROPANE												
	LIGHT DESTILLATE												
	ADDITIVE	51,211,226.09	345,700,000.00		$ 0.1481	53,913,944.37	328,730,000.00		$ 0.1640	53,360,816.76	301,030,000.00		$ 0.1773
	TOTAL STEAM PLANTS	$108,890,126.52	**849,115,000.00**		$ 0.1282	$127,620,895.18	**866,991,000.00**		$ 0.1472	############	**783,684,000.00**		$ 0.1650
GAS													
MAYAGUEZ	LIGHT DESTILLATE	$ 2,612,354.88	13,274,400.00		$ 0.1968	$ 533,354.90	2,546,400.00		$ 0.2095	$ 425,632.73	2,124,300.00		$ 0.2004
SOUTH COAST TURB	LIGHT DESTILLATE	-				3,564.00				19,456.53			
PALO SECO TURB	LIGHT DESTILLATE	1,440,887.38	4,891,000.00		$ 0.2946	358,879.34	1,178,000.00		$ 0.3047	245,533.90	875,000.00		$ 0.2806
AGUIRRE POWER BLOCK	LIGHT DESTILLATE	-	-			-	-			-	17,707,000.00		$ -
YABUCOA	LIGHT DESTILLATE	549,259.35	2,300,000.00		$ 0.2388	103,910.04	410,000.00		$ 0.2534	97,854.07	370,000.00		$ 0.2645
DAGUAO TURB	LIGHT DESTILLATE	1,094,471.01	3,989,000.00		$ 0.2744	173,084.19	586,000.00		$ 0.2954	145,865.29	480,000.00		$ 0.3039
VEGA BAJA	LIGHT DESTILLATE	-	-			1,054.09	-			169.83	-		
JOBOS (GUAYAMA) TURB	LIGHT DESTILLATE	1,060,470.33	4,240,000.00		$ 0.2501	119,858.90	464,000.00		$ 0.2583	107,781.68	393,000.00		$ 0.2743
VIEQUES	LIGHT DESTILLATE	-	-			-	-			-	-		
CULEBRA	LIGHT DESTILLATE	-				-				-			
AGUIRRE COMBINED	LIGHT DESTILLATE	12,970,849.53	48,565,000.00		$ 0.2671	5,087,073.47	17,504,000.00		$ 0.2906	5,130,197.30	-		
CAMBALACHE GAS TURBINES	LIGHT DESTILLATE	4,034,411.07	17,699,000.00		$ 0.2279	638,326.55	2,491,000.00		$ 0.2563	980,710.46	4,057,000.00		$ 0.2417
SAN JUAN COMBINED CYCLE	LIGHT DESTILLATE	28,640,176.06	79,742,000.00		$ 0.3592	17,369,315.77	69,916,000.00		$ 0.2484	18,971,159.93	64,711,000.00		$ 0.2932
	TOTAL GAS PLANTSTOTAL GAS PLANTS	$ 52,402,879.61	**174,700,400.00**		$ 0.3000	$ 24,388,421.25	**95,095,400.00**		$ 0.2565	$ 26,124,361.72	**90,717,300.00**		$ 0.2880
NATURAL GAS													
SOUTH COAST NG	NATURAL GASNATURAL GAS	18,895,357.77				11,093,448.16				11,963,230.13			
Eco Electrica	NATURAL GASNATURAL GAS	23,006,270.38				20,641,823.02				25,051,528.40			
Ecoelectrica Credit	NATURAL GASNATURAL GAS	(199,704.76)				(221,908.24)				(260,360.00)			
SAN JUAN NG	NATURAL GASNATURAL GAS	$ -				$ -				$ 1,509,085.13			
SAN JUAN NG	NATURAL GAS Apr 2021	$ -				$ -				$ -			
	Total N. Gas	$ 41,701,923.39				$ 31,513,362.94				$ 38,263,483.67			
	TOTAL ALL PLANTS	$184,099,571.75				$172,429,231.21				############			
	Total Consumption less Ecoelectrica	161,293,006.13				152,009,316.43				156,971,278.22			
	Total Comsumption as per J-28 Report	161,293,006.13				152,009,316.43				156,971,278.22			
	Diff	-				-				-			
	Total Generacion	**161,293,006.13**	**1,023,815,400.00**		$ 0.1575	**$ 152,009,316**	**962,086,400.00**		$ 0.1580	**$ 155,462,193**	**874,401,300.00**		$ 0.1778
		$ 228,947,410	1,551,300,711		$ 0.1476	$ 214,051,605	1,464,902,257		$ 0.1461	$ 217,345,374	1,309,326,092		$ 0.1660

QUESTIONS:

Are the cost per kWh on this table what your report establishes?

What is your estimate of the cost per kWh of the CO2e emissions of the different generators?