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May 31, 2017

VIA: ELECTRONIC FILING

Ms. Carlotta S. Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

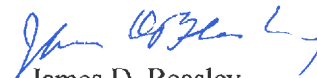
Re: Docket No. 170075-EI – Petition for approval of revisions to standard offer contract and rate schedule COG-2, by Tampa Electric Company

Dear Ms. Stauffer:

Attached for filing in the above docket is Tampa Electric Company's Response to Staff's First Data Request (No. 1) dated May 2, 2017.

Thank you for your assistance in connection with this matter.

Sincerely,


James D. Beasley

JDB/pp
Attachment

cc: Takira Thompson (w/attachment)
Paula K. Brown (w/o attachment)

**TAMPA ELECTRIC COMPANY
DOCKET NO. 170075-EI
STAFF'S FIRST DATA REQUEST
REQUEST NO. 1
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1. Please complete the following tables describing payments to a renewable provider based on the proposed tariffs included in TECO's revised standard offer contract. Please assume a renewable generator with a 50 MW output providing firm capacity with an in-service date of January 1, 2018, operating at the minimum capacity factor required for full capacity payments and a contract duration of 20 years. Please state the capacity factor assumed for the calculations. Please provide an Excel spreadsheet in support of the calculation, and provide the total Net Present Value (NPV) of all payments in 2018 dollars, with an explanation of the method and rate used to calculate the NPV.

Please provide the completed table for the following five scenarios:
 As-available energy (energy only payments)
 Normal capacity payments
 Levelized payments
 Early payments
 Early levelized payments

Year	Energy	Capacity Rate	Total Capacity Payments	Energy Rate	Total Energy Payments	Total Payments
	(MWh)	(\$/kw-mo)	(\$)	(\$/MWh)	(\$)	(\$)
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						
2026						
2027						
2028						
2029						
2030						
2031						
2032						
2033						
2034						
2035						
2036						

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2037						
Total (Nominal)						
Total NPV (\$2018)						

- A.** The payments for capacity and energy from a 50 MW a renewable facility with an in-service date of January 1, 2018 under the various options (i.e., as-available only, standard, levelized, early, and early levelized) are provided in the tables on Pages 3 through 7 of 7.

The payments are based on the renewable facility operating at an 80% capacity factor which is the minimum performance standard. From April 1st to October 31st, Tampa Electric defines capacity factor as the sum of 80% of the monthly on-peak operating factor and 20% of the monthly off-peak operating factor. From November 1st to March 31st, it is the sum of 90% of the monthly on-peak operating factor and 10% of the monthly off-peak operating factor.

To determine if the sums of the payment streams of the various payment methods were equal on a Net Present Value or Net Present Worth basis, the company multiplied the payment in each year by the Present Worth Factor which is calculated as follows:

$$\frac{1}{(1+i)^n}$$

Where:

i = discount rate = 6.976 %
n = (payment year – 2018)

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Payment Type: As-Available (Energy Only)
Committed Capacity: 50 MW
Capacity Factor: 80%

Year	Energy	Capacity Rate	Total Capacity Payments	Energy Rate	Total Energy Payments	Total Payments
	(MWh)	(\$/kW-mo)	(\$)	(\$/MWh)	(\$)	(\$)
2018	350,400	-	-	25.99	9,106,896	9,106,896
2019	350,400	-	-	31.39	10,999,056	10,999,056
2020	351,360	-	-	34.43	12,097,325	12,097,325
2021	350,400	-	-	35.17	12,323,568	12,323,568
2022	350,400	-	-	36.85	12,912,240	12,912,240
2023	350,400	-	-	36.45	12,772,080	12,772,080
2024	351,360	-	-	38.62	13,569,523	13,569,523
2025	350,400	-	-	41.34	14,485,536	14,485,536
2026	350,400	-	-	42.66	14,948,064	14,948,064
2027	350,400	-	-	44.91	15,736,464	15,736,464
2028	351,360	-	-	46.73	16,419,053	16,419,053
2029	350,400	-	-	48.48	16,987,392	16,987,392
2030	350,400	-	-	52.18	18,283,872	18,283,872
2031	350,400	-	-	54.59	19,128,336	19,128,336
2032	351,360	-	-	55.36	19,451,290	19,451,290
2033	350,400	-	-	60.55	21,216,720	21,216,720
2034	350,400	-	-	64.98	22,768,992	22,768,992
2035	350,400	-	-	62.12	21,766,848	21,766,848
2036	351,360	-	-	61.62	21,650,803	21,650,803
2037	350,400	-	-	63.02	22,082,208	22,082,208
Total (Nominal)	7,012,800		-		328,706,266	328,706,266
Total NPV (\$2018)					169,444,871	169,444,871

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Payment Type: Normal
Committed Capacity: 50 MW
Capacity Factor: 80%

Year	Energy	Capacity Rate	Total Capacity Payments ⁽¹⁾	Energy Rate ⁽²⁾	Total Energy Payments	Total Payments
	(MWh)	(\$/kW-mo)	(\$)	(\$/MWh)	(\$)	(\$)
2018	350,400	-	-	25.99	9,106,896	9,106,896
2019	350,400	-	-	31.39	10,999,056	10,999,056
2020	351,360	-	-	34.43	12,097,325	12,097,325
2021	350,400	6.57	2,626,282	36.40	12,754,088	15,380,370
2022	350,400	6.73	4,004,630	38.95	13,649,187	17,653,817
2023	350,400	6.90	4,104,061	38.62	13,531,989	17,636,049
2024	351,360	7.07	4,205,960	41.06	14,426,190	18,632,150
2025	350,400	7.24	4,310,391	43.63	15,287,619	19,598,010
2026	350,400	7.42	4,417,415	45.42	15,916,698	20,334,113
2027	350,400	7.61	4,527,097	47.81	16,751,873	21,278,969
2028	351,360	7.80	4,639,502	49.76	17,484,059	22,123,562
2029	350,400	7.99	4,754,700	52.65	18,447,264	23,201,964
2030	350,400	8.19	4,872,758	56.33	19,739,653	24,612,411
2031	350,400	8.39	4,993,749	58.54	20,511,519	25,505,267
2032	351,360	8.60	5,117,744	59.78	21,004,047	26,121,791
2033	350,400	8.81	5,244,819	65.11	22,812,890	28,057,709
2034	350,400	9.03	5,375,050	70.38	24,659,445	30,034,495
2035	350,400	9.26	5,508,515	67.33	23,594,158	29,102,673
2036	351,360	9.49	5,645,295	65.84	23,132,603	28,777,898
2037	350,400	9.72	5,785,472	66.54	23,316,188	29,101,660
Total (Nominal)	7,012,800		80,133,438		349,222,745	429,356,184
Total NPV (\$2018)			38,306,125		178,744,183	217,050,308

(1) The capacity payment under the Normal payment option begins May 1st of 2021 which is the in-service date of the avoided unit. Each successive year's payment is based on four months at the previous year's \$/kW-mo rate and eight months at the current year's \$/kW-mo. rate.

(2) The energy rate beginning in 2021 is a weighted blend based on the projected capacity factor of the avoided unit, the estimated avoided unit energy rate, and the estimated as-available energy rate.

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Payment Type: Levelized
Committed Capacity: 50 MW
Capacity Factor: 80%

Year	Energy	Capacity Rate	Total Capacity Payments ⁽¹⁾	Energy Rate ⁽²⁾	Total Energy Payments	Total Payments
	(MWh)	(\$/kW-mo)	(\$)	(\$/MWh)	(\$)	(\$)
2018	350,400	-	-	25.99	9,106,896	9,106,896
2019	350,400	-	-	31.39	10,999,056	10,999,056
2020	351,360	-	-	34.43	12,097,325	12,097,325
2021	350,400	7.53	3,010,802	36.40	12,754,088	15,764,889
2022	350,400	7.55	4,526,995	38.95	13,649,187	18,176,182
2023	350,400	7.58	4,543,444	38.62	13,531,989	18,075,432
2024	351,360	7.61	4,560,287	41.06	14,426,190	18,986,476
2025	350,400	7.64	4,577,534	43.63	15,287,619	19,865,153
2026	350,400	7.67	4,595,195	45.42	15,916,698	20,511,893
2027	350,400	7.70	4,613,280	47.81	16,751,873	21,365,153
2028	351,360	7.73	4,631,799	49.76	17,484,059	22,115,858
2029	350,400	7.76	4,650,763	52.65	18,447,264	23,098,026
2030	350,400	7.79	4,670,181	56.33	19,739,653	24,409,834
2031	350,400	7.83	4,690,066	58.54	20,511,519	25,201,585
2032	351,360	7.86	4,710,428	59.78	21,004,047	25,714,475
2033	350,400	7.90	4,731,278	65.11	22,812,890	27,544,168
2034	350,400	7.93	4,752,630	70.38	24,659,445	29,412,075
2035	350,400	7.97	4,774,493	67.33	23,594,158	28,368,651
2036	351,360	8.01	4,796,881	65.84	23,132,603	27,929,484
2037	350,400	8.05	4,819,807	66.54	23,316,188	28,135,995
Total (Nominal)	7,012,800		77,655,861		349,222,745	426,878,607
Total NPV (\$2018)			38,306,126		178,744,183	217,050,309

1) The capacity payment under the Levelized payment option begins May 1st of 2021 which is the in-service date of the avoided unit. Each successive year's payment is based on four months at the previous year's \$/kW-mo rate and eight months at the current year's \$/kW-mo. rate.

(2) The energy rate beginning in 2021 is a weighted blend based on the projected capacity factor of the avoided unit, the estimated avoided unit energy rate, and the estimated as-available energy rate.

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Payment Type: Early
Committed Capacity: 50 MW
Capacity Factor: 80%

Year	Energy	Capacity Rate	Total Capacity Payments	Energy Rate ⁽¹⁾	Total Energy Payments	Total Payments
	(MWh)	(\$/kW-mo)	(\$)	(\$/MWh)	(\$)	(\$)
2018	350,400	4.65	2,792,907	25.99	9,106,896	11,899,803
2019	350,400	4.77	2,862,251	31.39	10,999,056	13,861,307
2020	351,360	4.89	2,933,317	34.43	12,097,325	15,030,642
2021	350,400	5.01	3,006,148	36.40	12,754,088	15,760,236
2022	350,400	5.13	3,080,788	38.95	13,649,187	16,729,975
2023	350,400	5.26	3,157,281	38.62	13,531,989	16,689,270
2024	351,360	5.39	3,235,674	41.06	14,426,190	17,661,864
2025	350,400	5.53	3,316,014	43.63	15,287,619	18,603,633
2026	350,400	5.66	3,398,349	45.42	15,916,698	19,315,048
2027	350,400	5.80	3,482,729	47.81	16,751,873	20,234,602
2028	351,360	5.95	3,569,205	49.76	17,484,059	21,053,265
2029	350,400	6.10	3,657,828	52.65	18,447,264	22,105,092
2030	350,400	6.25	3,748,653	56.33	19,739,653	23,488,305
2031	350,400	6.40	3,841,733	58.54	20,511,519	24,353,251
2032	351,360	6.56	3,937,124	59.78	21,004,047	24,941,172
2033	350,400	6.72	4,034,885	65.11	22,812,890	26,847,775
2034	350,400	6.89	4,135,074	70.38	24,659,445	28,794,520
2035	350,400	7.06	4,237,752	67.33	23,594,158	27,831,910
2036	351,360	7.24	4,342,979	65.84	23,132,603	27,475,582
2037	350,400	7.42	4,450,820	66.54	23,316,188	27,767,008
Total (Nominal)	7,012,800		71,221,514		349,222,745	420,444,259
Total NPV (\$2018)			38,306,125		178,744,183	217,050,308

(1) The energy rate beginning in 2021 is a weighted blend based on the projected capacity factor or the avoided unit, the estimated avoided unit energy rate, and the estimated as-available energy rate.

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Payment Type: Early Levelized
Committed Capacity: 50 MW
Capacity Factor: 80%

Year	Energy	Capacity Rate	Total Capacity Payments	Energy Rate ⁽¹⁾	Total Energy Payments	Total Payments
	(MWh)	(\$/kW-mo)	(\$)	(\$/MWh)	(\$)	(\$)
2018	350,400	5.46	3,277,949	25.99	9,106,896	12,384,845
2019	350,400	5.48	3,289,438	31.39	10,999,056	14,288,494
2020	351,360	5.50	3,301,202	34.43	12,097,325	15,398,527
2021	350,400	5.52	3,313,249	36.40	12,754,088	16,067,337
2022	350,400	5.54	3,325,586	38.95	13,649,187	16,974,772
2023	350,400	5.56	3,338,218	38.62	13,531,989	16,870,206
2024	351,360	5.59	3,351,153	41.06	14,426,190	17,777,343
2025	350,400	5.61	3,364,399	43.63	15,287,619	18,652,018
2026	350,400	5.63	3,377,963	45.42	15,916,698	19,294,661
2027	350,400	5.65	3,391,852	47.81	16,751,873	20,143,725
2028	351,360	5.68	3,406,075	49.76	17,484,059	20,890,134
2029	350,400	5.70	3,420,639	52.65	18,447,264	21,867,903
2030	350,400	5.73	3,435,552	56.33	19,739,653	23,175,205
2031	350,400	5.75	3,450,824	58.54	20,511,519	23,962,342
2032	351,360	5.78	3,466,462	59.78	21,004,047	24,470,509
2033	350,400	5.80	3,482,475	65.11	22,812,890	26,295,365
2034	350,400	5.83	3,498,873	70.38	24,659,445	28,158,318
2035	350,400	5.86	3,515,664	67.33	23,594,158	27,109,822
2036	351,360	5.89	3,532,858	65.84	23,132,603	26,665,461
2037	350,400	5.92	3,550,465	66.54	23,316,188	26,866,653
Total (Nominal)	7,012,800		68,090,894		349,222,745	417,313,639
Total NPV (\$2018)			38,306,125		178,744,183	217,050,308

(1) The energy rate beginning in 2021 is a weighted blend based on the projected capacity factor or the avoided unit, the estimated avoided unit energy rate, and the estimated as-available energy rate.