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TECO’s response to Staff's Third Set of Interrogatories Nos. 3-13

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Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 6 through page 10, for questions 3 through 5.

3. For each project listed below, please explain why operating on natural gas instead of coal reduced the project's operation and maintenance (O&M) costs.

a. Big Bend Unit 3 Flue Gas Desulfurization Integration

b. Big Bend Units 1 & 2 FGD

c. Big Bend PM Minimization and Monitoring

d. Big Bend NOx Emission Reduction

e. Big Bend Unit 2 Pre-SCR

f. Big Bend Unit 3 Pre-SCR

g. Big Bend Unit 2 SCR

h. Big Bend Unit 3 SCR

i. Big Bend Gypsum Storage Facility

A. a. When any unit is combusting coal, the station's air permits require SO_2 pollution control equipment be operating. The flue gas desulfurization system for the unit processes limestone into a slurry to inject into the scrubber tower, the resulting stack gases are scrubbed of SO_2 and the byproduct from the process is gypsum. The gypsum is then processed by a separate system. In addition to the limestone and gypsum processing, wastewater treatment is required to treat the water to meet permit discharge limitations. When combusting natural gas, which has virtually no SO_2, the expenses are significantly reduced. Because the flue gases still flow through the scrubber system, the infrastructure still needs to be maintained to protect the duct work and stacks.

Big Bend Unit 3 did not combust coal in 2020, thus reducing the O&M FGD costs.

b. Please see Tampa Electric's response to Staff's Third Set of Interrogatories, No. 3(a), above. Additionally, Units 1 and 2 did not combust coal in 2020, thus reducing the O&M FGD costs.

c. When any of the station's units are not combusting coal, there is virtually no particulate matter generated. The ability to fire coal in Big Bend Units 1 and 2 was eliminated in late 2018 and Big Bend Unit 3, although permitted to combust both coal and natural gas, did not combust coal in 2020, thus significantly reducing O&M costs associated with treatment and handling costs related to particulate matter permit compliance. Big Bend Unit 4 continues to combust coal; however, Big Bend Unit 4 has the flexibility to combust either natural gas, at reduced loads, and coal. Big Bend Unit 4 can also co-fire natural gas with coal. Combusting natural gas and co-firing coal with natural gas reduces the amount of particulate matter. Big Bend Unit 4 combusted both coal and gas in 2020.

d. Big Bend Station continues to operate the NO_x pollution control systems on each of the units, regardless of whether combusting coal or natural gas. Although NO_x emissions from generating with natural gas are reduced when compared to generating with coal, the NO_x pollution control equipment must still be maintained. In 2020, reduced generation also contributed to reduced NO_x compliance costs.

e. Please see Tampa Electric's response to Staff's Third set of Interrogatories, No. 3(d), above.

f. Please see Tampa Electric's response to Staff's Third set of Interrogatories, No. 3(d), above.

g. Please see Tampa Electric's response to Staff's Third set of Interrogatories, No. 3(d), above.

h. Please see Tampa Electric's response to Staff's Third set of Interrogatories, No. 3(d), above.

i. Gypsum is generated when the Big Bend Station Units are combusting coal and the FGD system is in service. Because Units 1, 2, and 3 did not combust coal in 2020 and Unit 4 burned less coal than it had in previous years, O&M costs associated with the gypsum storage area has decreased.

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4. Please explain why the Big Bend units were operated on less coal than projected.

A. Big Bend Units 1 and 2 air compliance permits were modified to allow only natural gas combustion in preparation for the retirement of Unit 2 and construction of the Unit 1 Modernization project. Big Bend 3 also only combusted natural gas in 2020 as the cost of natural gas was the most economic alternative throughout the period.

Major outages in 2020 contributed to less generation and overall coal usage on Big Bend Unit 4. In addition, outage durations were extended due to workforce issues associated with COVID-19.

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5. Please complete the tables below by providing the 2020 projected vs. actual fuel consumption, fuel cost, and energy production for Big Bend Units 1, 2, and 3.

2020 Big Bend Fuel Consumption – Projected vs. Actual				
	Coal (insert units)		Natural Gas (insert units)	
Big Bend Unit	Projected	Actual	Projected	Actual
1				
2				
3				

2020 Big Bend Fuel Cost – Projected vs. Actual				
	Coal ($)		Natural Gas ($)	
Big Bend Unit	Projected	Actual	Projected	Actual
1				
2				
3				

2020 Big Bend Energy Production – Projected vs. Actual				
	Coal (MWh)		Natural Gas (MWh)	
Big Bend Unit	Projected	Actual	Projected	Actual
1				
2				
3				

A. Please see the tables below for the 2020 projected versus actual consumption, fuel cost, and energy production.

2020 Big Bend Fuel Consumption – Projected vs. Actual				
Big Bend Unit	Coal (insert units)		Natural Gas (insert units)	
	Projected	Actual	Projected	Actual
1	0	0	2,185,570	842,929
2	0	0	3,994,250	8,539,480
3	0	0	6,576,950	14,444,355

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2020 Big Bend Fuel Cost – Projected vs. Actual				
Big Bend Unit	Coal ($)		Natural Gas ($)	
	Projected	Actual	Projected	Actual
1	0	0	8,059,071	2,403,261
2	0	0	14,809,333	28,101,459
3	0	0	25,015,602	42,872,463

2020 Big Bend Energy Production – Projected vs. Actual				
Big Bend Unit	Coal (MWh)		Natural Gas (MWh)	
	Projected	Actual	Projected	Actual
1	0	0	174,890	54,568
2	0	0	357,140	704,018
3	0	0	607,790	1,260,598

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6. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 7, lines 17 through 20, Bayside SCR Consumables. Please explain why ammonia use increases during the summer.

A. Ammonia is used to reduce NO_x emissions, which are a byproduct of combustion. Demand increases in the summer months due to increased generation, which is attributed to the warmer weather. The increased generation drives increased combustion, and therefore NO_x emissions. As a result, ammonia consumption increases in order to continue to reduce NO_x emissions to acceptable levels.

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7. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 8, lines 11 through 15, Clean Water Act Section 316(b) Phase II Study.

a. Please explain if the permit delay will increase O&M costs in 2021.

b. Please explain if the permit delay will impact the project's total capital or O&M costs. If so, please provide the estimated net difference.

A. a. The expenditures incurred are dependent upon when the NPDES permit is received. If the permit is received earlier in the year, there may be an increase in O&M costs in 2021 due to expenditures that are required by the compliance schedule in the permit. If the permit is not received until late 2021, there will be no increased O&M costs in 2021. The permit delay is not anticipated to increase total O&M costs of the project.

b. The permit delay is not anticipated to impact the overall capital or O&M costs, but it will delay the incurrence of the costs.

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8. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 8, lines 17 through 24, Arsenic Groundwater Standard Program. Please provide the total amount inadvertently charged to the project for the replacement well.

A. The total amount inadvertently charged to the project for the replacement well was $21,151.38.

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9. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 10, lines 3 through 8, Big Bend Coal Combustion Residuals (CCR) Rule. Please explain what the associated activity costs were for.

A. The costs associated with the CCR rule were related to removal of CCRs (slag and ash) from the east coalfield pond and installation of a geosynthetic liner in the pond. Also included in the costs were removal of CCR (gypsum) material from stormwater conveyances associated with the north gypsum stackout area.

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10. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 10, lines 10 through 13, Big Bend CCR Rule Phase II.

a. Please explain what the project disposal activities are.

b. Please explain the cause of the project delays.

c. Please explain if the project delays will impact the project's total capital or O&M costs. If so, please provide the estimated net difference.

A. a. Project costs resulting from disposal activities include dewatering, drying, and excavation of CCR material contained in the impoundment, loading trucks for transport, and finally disposal of material in an approved offsite landfill.

b. Contributions to project delays included delay in finalization of landfill disposal contracts, weather delays during the rainy season, additional unanticipated dewatering activities and also the inability of transporters to keep pace with the amount of material being excavated for disposal.

c. These delays will not result in an increase in the total project and O&M costs. However, the costs will be incurred at a later date.

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Capital

11. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 10, lines 3 through 8 and lines 21 through 25, Big Bend CCR Rule. Please reconcile the increased O&M costs due to project acceleration versus the decreased capital costs due to project delays.

A. There was no acceleration of the project. This project was scheduled to be completed in 2019 but due to excessive rainfall, some of the project's O&M activity related to removal and offsite disposal was delayed until 2020. The O&M costs in 2020 were higher as a result. Capital project components were delayed due to having to extend the time to remove the additional CCR material and also due to project weather delays, pushing out some capital costs from 2020 into 2021.

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12. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 10, lines 21 through 25, Big Bend CCR Rule.

a. Please explain the cause of the project delays.

b. Please explain if the project delays will impact the project's total capital or O&M costs. If so, please provide the estimated net difference.

A. a. The project delays were a result of the following: project design taking longer than expected, excessive rainfall delays, and additional dewatering needed prior to removal.

b. The project delays are not anticipated to impact the overall capital or O&M costs. However, it will delay the incurrence of the costs.

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13. Please refer to TECO witness Sizemore's direct testimony filed April 1, 2021, page 11, lines 10 through 18, Big Bend ELG Compliance. Please explain if the project delays will impact the project's total capital or O&M costs. If so, please provide the estimated net difference.

A. The project delays are not anticipated to impact the overall capital or O&M costs. However, they will impact the timing of costs incurred.