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DEF's Responses to Staff's First Set of Interrogatories, Nos. 1-4.

(Including Attachments for Nos. 1 and 2)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Fuel and purchased power cost recovery clause with generating performance incentive factor	Docket No. 20220001-EI Dated: March 10, 2022

DUKE ENERGY FLORIDA, LLC'S RESPONSE TO STAFF'S FIRST SET OF INTERROGATORIES (NOS. 1-4)

Duke Energy Florida, LLC ("DEF") responds to the Staff of the Florida Public Service Commission's ("Staff") First Set of Interrogatories to DEF (Nos. 1-4) as follows:

INTERROGATORIES

1. Please identify the monthly and total system and retail replacement power cost associated with the January 2021 – April 2021 Bartow Unit 4 outage. As part of your response, explain the methodology used to determine the values.

Response:

The system and retail replacement power costs for the Bartow Unit 4 outage is shown by month (January 2021 – April 2021) in the attached spreadsheet. The total replacement power cost for this outage, during the period of January 2021 – April 2021, is approximately $2.9 million (system and retail).

Replacement power costs associated with planned outages, if applicable, are not included in the calculations as DEF does not calculate replacement power costs for planned outages. To calculate the replacement power cost assuming Bartow CC had not experienced the outage, DEF ran a production cost simulation model beginning with each calendar month (January, February, March, April); this process is consistent with DEF's prior replacement power calculations. DEF ran this simulation model, applying the actual load conditions and replacement fuel costs, which produced the total system cost assuming Bartow CC was fully available. DEF then compared the resulting "with Bartow CC" system cost to the system cost calculated based on actual unit loadings (i.e., without Bartow CC). The difference between the "with Bartow CC" cost and the "without Bartow CC" cost represents the system replacement power costs during the Bartow CC Outage.

2. Please identify the monthly and total system and retail replacement power cost associated with the May 2021 – July 2021 Bartow Unit 4 outage. As part of your response, explain the methodology used to determine the values.

Response:

The system and retail replacement power costs for the Bartow Unit 4 outage is shown by month (May 2021 – July 2021) in the attached spreadsheet. The total replacement power cost for this outage, during the period of May 2021 – July 2021, is approximately $5.6 million (system and retail).

Replacement power costs associated with planned outages, if applicable, are not included in the calculations as DEF does not calculate replacement power costs for planned outages.

To calculate the replacement power cost assuming Bartow CC had not experienced the outage, DEF ran a production cost simulation model beginning with each calendar month (May, June, July); this process is consistent with DEF's prior replacement power calculations. DEF ran this simulation model, applying the actual load conditions and replacement fuel costs, which produced the total system cost assuming Bartow CC was fully available. DEF then compared the resulting "with Bartow CC" system cost to the system cost calculated based on actual unit loadings (i.e., without Bartow CC). The difference between the "with Bartow CC" cost and the "without Bartow CC" cost represents the system replacement power costs during the Bartow CC Outage.

3. For the January 2021 – April 2021 Bartow Unit 4 outage, please answer the following questions.

   a. Identify all subunits of Bartow Unit 4 that were forced offline and provide the total outage time for each subunit forced offline during this time period. As a part of this response, please provide a complete timeline of the events for each subunit.

   b. Please provide an explanation for why each subunit was forced offline during this time period. As a part of this response, please provide any related root cause analysis or event reports.

Response:

a. CC CT4A experienced a Generator winding failure 1/11/2021 at 06:09 and returned to service 4/4/2021 for an event duration of 1997.98 Equivalent fired hours ("EQ") hours.

During startup unit experiences combustion issues attributed to fuel gas quality and required combustion hardware maintenance. The unit returned to service 4/12/2021 at 2038.

CC 4B did not experience any forced outages during this time period.

CC 4C 1/1/2021 thru 1/6/2021 for an event duration of 139.63 EQ hours experienced fuel quality issues causing combustion exhaust CO exceedances that required shutdown. Unit returned to service 1/6/2021 at 1938. CC 4C tripped off-line on 1/11/2021 at 0225 for 42 EQ minutes caused by HP steam attemperator block valve controller failure. Unit returned to service 1/11/2021 at 0250.

CC 4D unit experienced fuel gas quality issues causing combustion exhaust CO exceedances that required unit to be removed from service on 1/1/2021 and returned to service 1/7/2021 at 1714 for a duration of 161.23 EQ hours. Unit experienced a trip on 1/16/2021 at 1059 due to main gas valve miss-operation for a period of 37 EQ minutes. Unit returned to service 1/16/2021 at 1136.

CC ST4S Steam turbine experienced a trip 1/5/2021 at 2237 due to piping failure in the steam seal system. Unit returned to service 1/10/2021 at 1605 for a duration of 113.47 EQ hours.

b. No root cause has been completed on the fuel contamination outages. The root cause for the 4A generator failure was provided in DEF's Response to OPC's Second Request to Produce, number 2, in docket number 20210001, as the two events had a common failure mechanism.

4. For the May 2021 – July 2021 Bartow Unit 4 outage, please answer the following questions.

a. Identify all subunits of Bartow Unit 4 that were forced offline and provide the total outage time for each subunit forced offline during this time period. As a part of this response, please provide a complete timeline of the events for each subunit.

b. Please provide an explanation for why each subunit was forced offline during this time period. As a part of this response, please provide any related root cause analysis or event reports.

Response:

a. Bartow CC experienced 7 events during the requested timeframe. They are defined below.

CC CT4B Experienced 5 events during this time period. The outages are as follows:

- Bartow CC 4B offline 5/1/2021 at 17:32, online 5/2/2021 at 02:55, duration 5.38 hours, EQ Hours 0.22; Shutdown due to bad gas quality causing blade path spread and high emissions
- Bartow CC 4B offline 5/1/2021 at 23:08, online 5/4/2021 at 12:37, duration 61.48 hours, EQ Hours 02.56; Shutdown due to bad gas quality causing blade path spread and high emissions
- Bartow CC 4B offline 5/4/2021 at 14:15, online 5/5/2021 at 00:16, 10.02hour duration, EQ Hours 0.42; Shutdown due to bad gas quality causing blade path spread and high emissions
- Bartow CC 4B offline 5/5/2021 at 01:22, online 5/9/2021 at 18:47, 113.42 hours duration, EQ Hours 4.73; Shutdown due to bad gas quality causing blade path spread and high emissions
- Bartow CC 4B offline 5/9/2021 at 21:46 online, 5/10/2021 at 13:01, duration 15.25 hours, EQ Hours 0.64; Shutdown due to bad gas quality causing blade path spread and high emissions

CC CT4C

- Bartow CC 4C offline 5/2/2021 at 2:55, online 11/6/2021 at 16:07, duration 4,525.20 hours, EQ Hours 188.55; 4C Generator stator ground tripped offline

CC CT 4D

- Bartow CC 4D offline 5/29/2021 at 0:00, online 5/29/2021 at 2:00, duration 2.00 hours, EQ Hours 0.08; Pilot isolation valve found leaking solenoid valve & body was replaced

b. 4C Generator stator went to ground and tripped offline. Root cause was already provided, above as there was a common failure mechanism on the generator failures, *see* DEF's Response to Staff's Interrogatory 3b. Contaminated fuel did not produce a root cause document.

AFFIDAVIT

STATE OF FLORIDA

COUNTY OF PINELLAS

I hereby certify that on this 22 day of February, 2022, before me, an officer duly authorized in the State and County aforesaid to take acknowledgments, personally appeared ANTHONY SALVAREZZA, who is personally known to me, and he/she acknowledged before me that he/she provided the answers to interrogatory numbers 3 and 4 from STAFF'S FIRST SET OF INTERROGATORIES TO DUKE ENERGY FLORIDA, LLC DBA DUKE ENERGY (NOS. 1-4) in Docket No(s). 20220001-EI, and that the responses are true and correct based on his/her personal knowledge.

In Witness Whereof, I have hereunto set my hand and seal in the State and County aforesaid as of this 22 day of February 2022.

Anthony Salvarezza

DEANNA LEE CARVER
Commission # GG 239923
Expires July 18, 2022
Bonded Thru Troy Fain Insurance 800-385-7019

Notary Public
State of Florida, at Large

My Commission Expires: July 18, 2022

AFFIDAVIT

STATE OF FLORIDA

COUNTY OF PINELLAS

I hereby certify that on this 22nd day of February, 2022, before me, an officer duly authorized in the State and County aforesaid to take acknowledgments, personally appeared GARY DEAN, who is personally known to me, and he/she acknowledged before me that he/she provided the answers to interrogatory numbers 1 and 2 from STAFF'S FIRST SET OF INTERROGATORIES TO DUKE ENERGY FLORIDA, LLC DBA DUKE ENERGY (NOS. 1-4) in Docket No(s). 20220001-EI, and that the responses are true and correct based on his/her personal knowledge.

THE FOREGOING INSTRUMENT was sworn to and subscribed before me by means of ☐ physical presence or **X** online (video) notarization by GARY DEAN, who is personally known to me.

In Witness Whereof, I have hereunto set my hand and seal in the State and County aforesaid as of this 22 day of February, 2022.

Gary Dean

Notary Public
State of Florida, at Large

My Commission Expires:

SANDRA COPE
Notary Public – State of Florida
Commission # GG 170695
My Comm. Expires Mar 8, 2022
Bonded through National Notary Assn