Docket No. 20210001-EI
Cross-Examination
Hearing Exhibit

Exhibit No.: 2

Proffered by: Public Counsel

Short title: DEF's Response to OPC's Fourth Request to Produce Documents (17-20)

Witness(s): Gary P. Dean
Joseph Simpson

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Fuel and Purchased Power Cost Recovery Clause with Generating Performance Incentive Factor	Docket No. 20210001-EI Filed: October 13, 2021

DUKE ENERGY FLORIDA, LLC'S RESPONSE TO CITIZENS' FOURTH REQUEST TO PRODUCE DOCUMENTS (NOS. 17-20)

Duke Energy Florida, LLC ("DEF"), responds to the Citizens of the State of Florida, through the Office of Public Counsel's ("Citizens" or "OPC") Fourth Request to Produce Documents (17-20), as follows:

DOCUMENTS REQUESTED

17. Please provide the documents identified in Citizens' Interrogatory No. 34.

Response:
Please see the attached documents bearing bates numbers 20210001-DEF-000145.

18. Please provide the documents identified in Citizens' Interrogatory No. 36.

Response:

There are no documents responsive to this request.

19. Please provide the documents identified in Citizens' Interrogatory No. 38.

Response:

Please see the attached documents bearing bates numbers 20210001-DEF-000146.

20. Please provide the documents identified in Citizens' Interrogatory No. 40.

Response:
Please see the attached documents bearing bates numbers 20210001-DEF-000147 through 20210001-DEF-000155.

DUKE ENERGY FLORIDA
Bartow Replacement Power Cost (07/01/21 - 07/31/21)

Date	Fuel	Purchased Power	Total Cost
1-Jul-21	$ 30,712	$ 30,725	$ 61,437
2-Jul-21	$ 31,501	$ 25,824	$ 57,325
3-Jul-21	$ 9,812	$ -	$ 9,812
4-Jul-21	$ 17,703	$ 25,735	$ 43,438
5-Jul-21	$ 31,733	$ 17,865	$ 49,598
6-Jul-21	$ 25,794	$ 25,908	$ 51,702
7-Jul-21	$ 46,249	$ 132	$ 46,381
8-Jul-21	$ 18,814	$ -	$ 18,814
9-Jul-21	$ 30,962	$ 12,978	$ 43,941
10-Jul-21	$ 25,927	$ -	$ 25,927
11-Jul-21	$ (1,370)	$ -	$ (1,370)
12-Jul-21	$ (440)	$ -	$ (440)
13-Jul-21	$ 29,210	$ 124	$ 29,334
14-Jul-21	$ 11,356	$ -	$ 11,356
15-Jul-21	$ 40,470	$ 13,076	$ 53,546
16-Jul-21	$ 47,698	$ 117	$ 47,815
17-Jul-21	$ 40,901	$ 12,983	$ 53,884
18-Jul-21	$ 32,272	$ 13,015	$ 45,287
19-Jul-21	$ 28,151	$ 12,988	$ 41,139
20-Jul-21	$ 33,683	$ 12,975	$ 46,658
21-Jul-21	$ 41,880	$ 17,983	$ 59,863
22-Jul-21	$ 45,808	$ 17,965	$ 63,773
23-Jul-21	$ 40,256	$ 12,921	$ 53,177
24-Jul-21	$ 39,218	$ 13,000	$ 52,217
25-Jul-21	$ 48,242	$ 17,961	$ 66,202
26-Jul-21	$ 40,712	$ 35,956	$ 76,668
27-Jul-21	$ 99,885	$ 18,197	$ 118,082
28-Jul-21	$ 20,940	$ 25,793	$ 46,733
29-Jul-21	$ 23,446	$ -	$ 23,446
30-Jul-21	$ 36,080	$ 13,031	$ 49,111
31-Jul-21	$ 116,599	$ 176	$ 116,776
Total	**$ 1,084,205**	**$ 377,429**	**$ 1,461,635**

Month	System Replacement Power	Monthly Jurisdictional Factor	Retail Replacement Power
Jul-21	$1,461,635	98.72%	$1,442,926

DUKE ENERGY FLORIDA
Crystal River 4 Replacement Power Cost (07/01/21 - 07/31/21)

Date	Fuel	Purchased Power	Total Cost
1-Jul-21	$ (1,666)	$ (4,910)	$ (6,576)
2-Jul-21	$ (0)	$ -	$ (0)
3-Jul-21	$ -	$ -	$ -
4-Jul-21	$ -	$ -	$ -
5-Jul-21	$ -	$ -	$ -
6-Jul-21	$ 2	$ -	$ 2
7-Jul-21	$ 8,214	$ 3	$ 8,218
8-Jul-21	$ 162,956	$ 39,012	$ 201,968
9-Jul-21	$ 268,052	$ 36,107	$ 304,158
10-Jul-21	$ 162,504	$ 51,823	$ 214,327
11-Jul-21	$ 183,122	$ 25,770	$ 208,892
12-Jul-21	$ 21,767	$ -	$ 21,767
13-Jul-21	$ (534)	$ -	$ (534)
14-Jul-21	$ 24	$ -	$ 24
15-Jul-21	$ 88,602	$ 13,043	$ 101,645
16-Jul-21	$ 220,940	$ 36,007	$ 256,947
17-Jul-21	$ 97,181	$ 13,153	$ 110,334
18-Jul-21	$ 66,143	$ 13,004	$ 79,147
19-Jul-21	$ 68,093	$ 13,048	$ 81,140
20-Jul-21	$ 67,612	$ 17,902	$ 85,514
21-Jul-21	$ 4,151	$ (2)	$ 4,149
22-Jul-21	$ (4)	$ -	$ (4)
23-Jul-21	$ (667)	$ 32	$ (636)
24-Jul-21	$ (27)	$ 3	$ (24)
25-Jul-21	$ 171,904	$ 18,009	$ 189,913
26-Jul-21	$ (101)	$ 5	$ (96)
27-Jul-21	$ 17	$ -	$ 17
28-Jul-21	$ (22)	$ -	$ (22)
29-Jul-21	$ 16	$ -	$ 16
30-Jul-21	$ (288)	$ (29)	$ (317)
31-Jul-21	$ 898	$ 0	$ 898
Total	**$ 1,588,888**	**$ 271,980**	**$ 1,860,868**

Month	System Replacement Power	Monthly Jurisdictional Factor	Retail Replacement Power
Jul-21	$1,860,868	98.72%	$1,837,049

Crystal River 4 - Main Boiler Feed Pump Trip

Plant/Unit Specification	
Plant (Units)	Crystal River (Crystal River 4)
Standard System	
Standard Subsystem	
Report Details	
Event Title	Crystal River 4 - Main Boiler Feed Pump Trip
Event Type	Megawatt Loss
Event Status	Closed
Date and Time	Monday, Jun 21, 2021 at 17:35
MWH	
Repair Cost	
Employee/Contractor	Employee
Category & Cause Code	
Event Category	Operations
Event Category Detail	Equipment Failure/Malfunction
Secondary Event Categories	
Cause Code Category	Equipment / Material
Cause Code	Defective, Failed, or Contaminated
Cause Code Detail	Defective weld, braze, soldering joint, crimp, hinge, or other connection
Event Background Information	
Conditions prior to event	CR4 was operating at full load without issue
Event Description	CR4 Main Boiler Feed Pump tripped at 21:30 on 6/21/21. The first out was an external trip and several alarms associated with low control oil pressure. The boiler subsequently tripped on low drum level and the turbine was manually tripped shortly after. The station has teamed with Regional Services and TGS to continue to troubleshoot the trip and the reason for reduced control oil pressure. The unit was returned to service on 6/22/21 at 02:29 with the Standby Boiler Feed Pump and is load limited to 400 mw until control oil issues can be resolved.
What was expected?	The MBFP should not have tripped
Equipment Affected	Boiler and Turbine
Initator	Heath McDonald
Contact Information	812-453-6887
Responsible Person	James Long
Contact Information	352-586-1831

Crystal River 4 - Main Boiler Feed Pump Trip

Additional Information	
File Number	
Work Order	
Reference Number	
Project Number	
Plant Function	n/a
HPI Type	n/a
Maintenance Management	
CMMS Code	
Cause Analysis	
Type of Analysis Required	Correct Only / Trend
RCA Due	
Date Approved	
Approved By	Not Required
Executive Summary	
Operating Experiences	
OE Event	No
OE Classification	n/a
OE Applicability	
OE / Lessons Learned	
Follow-up Actions	
Action Plan Executive Summary	
Action Plan Abstract	
Closure/Lessons Learned	Replaced leaking hose inside the oil reservoir. Refurbished two oil control valves. Installed a new Woodward Governor controller.

Crystal River 4 - Boiler Tube Leak

Plant/Unit Specification	
Plant (Units)	Crystal River (Crystal River 4)
Standard System	Boiler/Steam Generator
Standard Subsystem	Boiler/HRSG Tubing
Report Details	
Event Title	Crystal River 4 - Boiler Tube Leak
Event Type	Boiler Tube Failure
Event Status	Closed
Date and Time	Wednesday, Jul 07, 2021 at 00:01
MWH	
Repair Cost	
Employee/Contractor	Employee
Category & Cause Code	
Event Category	Operations
Event Category Detail	Equipment Failure/Malfunction
Secondary Event Categories	
Cause Code Category	Equipment / Material
Cause Code	Defective, Failed, or Contaminated
Cause Code Detail	Defective or failed material
Event Background Information	
Conditions prior to event	Crystal River 4 was operating for several weeks with a small tube leak, waiting for a maintenance outage window.
Event Description	Crystal River 4 was retired on 7/7 at 23:43 to repair a tube leak that had developed in the rear gas path several weeks earlier. The leak was identified in a steam cooled wall panel at a soot blower penetration. The unit was returned to service on 7/11 at 17:04.
What was expected?	The unit should operate between outages without tube leaks.
Equipment Affected	Boiler and system generation
Initator	James Long
Contact Information	352-586-1831
Responsible Person	James Long
Contact Information	352-586-1831
Additional Information	
File Number	
Work Order	
Reference Number	
Project Number	
Plant Function	n/a
HPI Type	n/a

Crystal River 4 - Boiler Tube Leak

Maintenance Management	
CMMS Code	
Cause Analysis	
Type of Analysis Required	Correct Only / Trend
RCA Due	
Date Approved	
Approved By	Not Required
Executive Summary	
Operating Experiences	
OE Event	No
OE Classification	n/a
OE Applicability	
OE / Lessons Learned	
Follow-up Actions	
Action Plan Executive Summary	
Action Plan Abstract	
Closure/Lessons Learned	Boiler tube leak was repaired and the unit was returned to service. Boiler Tube Failure Report and photographs have been attached to the event report.

Attachments

Title	Description	Date	Size	Type
CRN Unit 4 Boiler Tube	Failure Report	07/13/2021	82K	pdf
CRN Unit 4 Boiler Tube	Photographs	07/13/2021	3,804K	pptx

Crystal River Unit 4 - Main Boiler Feed Pump Trip

Plant/Unit Specification	
Plant (Units)	Crystal River (Crystal River 4)
Standard System	Feedwater
Standard Subsystem	Boiler Feed Pump
Report Details	
Event Title	Crystal River Unit 4 - Main Boiler Feed Pump Trip
Event Type	Megawatt Loss
Event Status	Closed
Date and Time	Thursday, Jul 15, 2021 at 18:30
MWH	
Repair Cost	
Employee/Contractor	Employee
Category & Cause Code	
Event Category	Operations
Event Category Detail	Equipment Failure/Malfunction
Secondary Event Categories	
Cause Code Category	Equipment / Material
Cause Code	Defective, Failed, or Contaminated
Cause Code Detail	Defective weld, braze, soldering joint, crimp, hinge, or other connection
Event Background Information	
Conditions prior to event	CR4 was operating at overpressure without issue
Event Description	CR4 Main Boiler Feed Pump tripped at 18:30 on 7/15/21. The first out on the Main Boiler Feed Pump was low control oil pressure. At 18:32, the boiler tripped on low drum level and the turbine was manually tripped shortly after. Local investigation of the Main Boiler Feed Pump reviled a substantial oil leak at the control oil cabinet. The source of the oil leak was found to be leaking flange due to lose bolts. The flange bolts were retorqued and tested for leaks. Engineering is investigating the cause of the lose bolts.
What was expected?	The Main Boiler Feed Pump should not have tripped.
Equipment Affected	Boiler and Turbine
Initator	TJ Snodgrass
Contact Information	740-208-9225
Responsible Person	James Long
Contact Information	352-586-1831

Crystal River Unit 4 - Main Boiler Feed Pump Trip

Additional Information	
File Number	
Work Order	
Reference Number	
Project Number	
Plant Function	n/a
HPI Type	n/a
Maintenance Management	
CMMS Code	
Cause Analysis	
Type of Analysis Required	Correct Only / Trend
RCA Due	
Date Approved	
Approved By	Not Required
Executive Summary	
Operating Experiences	
OE Event	No
OE Classification	n/a
OE Applicability	
OE / Lessons Learned	
Follow-up Actions	
Action Plan Executive Summary	
Action Plan Abstract	It is believed the cause was several system surges due to feed pump trips and auto starting additional pumps. No smoking gun has been found that could have caused the bolts to back out. PDM/engineering is looking at potential vibration issues.
Closure/Lessons Learned	Vibration issues resulting from system surges due to feed pump trips and auto starting of additional pumps may have contributed over time in causing the bolts to back out. Equipment was repaired and returned to service.

Crystal River 4 Main Boiler Feed Pump

Plant/Unit Specification	
Plant (Units)	Crystal River (Crystal River 4)
Standard System	Feedwater
Standard Subsystem	Boiler Feed Pump
Report Details	
Event Title	Crystal River 4 Main Boiler Feed Pump
Event Type	Lessons Learned
Event Status	Outage required to address problem
Date and Time	Friday, Jul 16, 2021 at 09:07
MWH	
Repair Cost	
Employee/Contractor	Employee
Category & Cause Code	
Event Category	Operations
Event Category Detail	Equipment Failure/Malfunction
Secondary Event Categories	
Cause Code Category	Overall Configuration
Cause Code	Installation/design configuration
Cause Code Detail	Installation/design configuration
Event Background Information	
Conditions prior to event	Crystal River 4 Main Boiler Feed Pump Turbine had tripped several times in 2021, giving a generic 'Low Control Oil' first out alarm. Several issues with the lube oil system were identified and corrected prior to the last trip on 7/16/21.
Event Description	Crystal River 4 Main Boiler Feed Pump Turbine tripped on 7/16, indicating the generic 'Low Control Oil Pressure' first out alarm. Station leadership requested Regional Services electrical engineering to take the lead in troubleshooting what was suspected to be an intermittent electrical issues in the MBFP Turbine control wiring. Troubleshooting was completed on 7/20 and the unit was released to ECC on 7/21 after post maintenance testing. Information related to troubleshooting is attached.
What was expected?	MBFP should run without issues.
Equipment Affected	MBFP and unit generation
Initator	James Long
Contact Information	352-586-1831
Responsible Person	James Long
Contact Information	352-586-1831

Crystal River 4 Main Boiler Feed Pump

Additional Information	
File Number	
Work Order	
Reference Number	
Project Number	
Plant Function	n/a
HPI Type	n/a
Maintenance Management	
CMMS Code	
Cause Analysis	
Type of Analysis Required	Correct Only / Trend
RCA Due	
Date Approved	
Approved By	Not Required
Executive Summary	
Operating Experiences	
OE Event	No
OE Classification	n/a
OE Applicability	
OE / Lessons Learned	
Follow-up Actions	
Action Plan Executive Summary	
Action Plan Abstract	Regional Engineering Recommendations Continue to pursue replacement option of Laurence Valves as their intermittent reset behavior needs to be addressed. Awaiting formal quote from manufacturer but conversations with Chris Taylor at Severe Service Specialists indicate there is a drop in Laurence valve replacement as the installed model is obsolete. Quotation expected this week with lead time approximately 16 weeks. Cost is unknown at this time. Complete the in-flight Woodward 505D project on U5. The new Woodward 505D was instrumental in this troubleshooting activity as it helped confirm which inputs did NOT actuate and helped lead to the 12T. Review for completeness/correctness and resurrect PassPort EC/ACT CC 88929 and implement in spring outage. The modification was intended to bring all of the U4 MBFPT Trips in to the DCS to discern with input to trip string initiated the actual trip. This would allow U4 to be aligned with U5 DCS to improve response following future MBFPT. Currently, the First Outs on Unit 4 only indicate ¿External Trip¿ whereas the Unit 5 First Outs are discrete inputs providing confirmation of which device initiated trip.
Closure/Lessons Learned	

Crystal River 4 Main Boiler Feed Pump

Attachments

Title	Description	Date	Size	Type
Joe Simpson's Final Report	Email and attachments	07/21/2021	1,647K	msg
Joe Simpson's Final Report	Email and attachments	07/21/2021	408K	pdf
Joe Simpson's Final Report	Email and attachments	07/21/2021	264K	pdf
Joe Simpson's Final Report	Email and attachments	07/21/2021	74K	pdf
Joe Simpson's Final Report	Email and attachments	07/21/2021	175K	pdf