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GCL/Brownless - (CONFIDENTIAL) Proposed recommended order regarding DOAH Case 19-6022.

CONFIDENTIAL

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STATE OF FLORIDA

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CONFIDENTIAL

Public Service Commission

March 20, 2020

VIA HAND DELIVERY

Claudia Llado, Clerk of the Division
State of Florida Division of Administrative Hearings
The Desoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-3060

Re: DOAH Case No. 19-6022/PSC Docket No. 20190001-EI -Fuel and purchased power cost recovery clause with generating performance incentive factor

Dear Ms. Llado:

Attached please find the Florida Public Service Commission's (Commission) CONFIDENTIAL Proposed Recommended Order (PRO) in the above case. As per Judge Stevenson's Order Adopting Joint Motion on Confidentiality dated December 9, 2019, this PRO is confidential and should not be made available to the general public on DOAH's website.

Your assistance in this matter is greatly appreciated. Should you have any questions or need any further information regarding this matter, please don't hesitate to contact me at 413-6218 or sbrownle@psc.state.fl.us.

Very truly yours,

/s/ Suzanne Brownless

Suzanne Brownless
Special Counsel

CONFIDENTIAL

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

IN RE: FUEL AND PURCHASED POWER COST RECOVERY CLAUSE WITH GENERATING PERFORMANCE INCENTIVE FACTOR.
_____/

CASE NO. 19-006022
LT NO. 20190001-EI

FLORIDA PUBLIC SERVICE COMMISSION'S PROPOSED RECOMMENDED ORDER

The Florida Public Service Commission (PSC, Commission), by and through the undersigned counsel, hereby submits its Proposed Recommended Order.

RECOMMENDED ORDER

Administrative Law Judge Lawrence P. Stevenson conducted a hearing in this case on February 4-5, 2020, in Tallahassee, Florida.

APPEARANCES

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For Florida Industrial Power Users Group: (FIPUG)	Jon C. Moyle, Esquire Karen A. Putnal, Esquire Moyle Law Firm 118 North Gadsden Street Tallahassee, Florida 32301
For White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate – White Springs (PCS Phosphate)	James W. Brew, Esquire Laura W. Baker, Esquire Stone Mattheis Xenopoulos & Brew, PC 1025 Thomas Jefferson Street, NW Suite 800 West Washington, D.C. 20007
For the Commission:	Suzanne Brownless, Esquire Bianca Y. Lherisson, Esquire Florida Public Service Commission 2540 Shumard Oak Blvd. Tallahassee, Florida 32339-0850

STATEMENT OF THE ISSUES

There are two issues in this proceeding: Issue 1B: Was DEF prudent in its actions and decisions leading up to and in restoring the unit to service after the February 2017 forced outage at the Bartow plant, and if not, what action should the Commission take with respect to replacement power costs? and Issue 1C: Has DEF made prudent adjustments, if any are needed, to account for replacement power costs associated with any impacts related to the de-rating of the Bartow plant? If adjustments are needed and have not been made, what adjustment(s) should be made?

PRELIMINARY PROCEEDINGS BEFORE THE COMMISION

The Commission opened Docket No. 20190001-EI, *In re: Fuel and purchased power cost recovery clause with generating performance incentive factor,* commonly referred to as the Fuel Clause, on January 2, 2019. The Fuel Clause is a perennial docket closed, reopened, and renumbered every year in which the Commission processes all petitions filed by investor-owned electric utilities seeking to recover the cost of fuel and fuel-related activities needed to generate electricity.

Duke Energy Florida, LLC, (DEF) is an investor-owned electric utility operating in the State of Florida. DEF reaffirmed its party status in Docket No. 20190001-EI on January 3, 2019. Likewise, the Office of Public Counsel (OPC), authorized by Section 350.0611, Florida Statutes (F.S.), to provide legal representation to Florida electric utility customers before the

Commission, reaffirmed its party status in Docket No. 20190001-EI on January 4, 2019. The Florida Industrial Power Users Group (FIPUG), an association of utility customers who consume large amounts of electricity, and White Springs Agricultural Chemicals, Inc., d/b/a PCS Phosphate – White Springs (PCS Phosphate), a fertilizer company, reaffirmed their party status on January 4, 2019 and January 15, 2019, respectively.

The Commission issued Order No. PSC-2019-0059-PCO-EI on February 13, 2019, establishing the procedures to be followed. On March 1, 2019, DEF filed its Petition for approval of fuel cost recovery and capacity cost recovery with generating performance incentive factor actual true-ups for the period ending December 2018. At that time DEF also filed the direct testimony of Jeffrey Swartz which incorporated Exhibit JS-1, filed in the 2018 Fuel Clause. On September 13, 2019, OPC filed the direct testimony and exhibits of Richard A. Polich, non-confidential Exhibits RAP-1 through RAP-2, and confidential Exhibits RAP-3 through RAP-9. On September 26, 2019, DEF filed the rebuttal testimony of Jeffrey Swartz with confidential Exhibits JS-2 through JS-4.

A Prehearing Conference was held on October 22, 2019, and Prehearing Order No. PSC-2019-0466-PHO-EI was issued on October 31, 2019. The extensive confidential materials in the testimony and exhibits of both witnesses Swartz and Polich, as well as the Commission staff proposed trial exhibits, made it impossible to conduct meaningful direct or cross examination without reference to, and discussion of, confidential material. Due to the inability of the Commission to close its November 5-7, 2019, hearing to the general public[1] in order to maintain the confidentiality of these materials, the DEF Bartow Unit 4 issues, Issues 1B and1C, were referred by the Commission to the Division of Administrative Hearings (DOAH) on November 8, 2019. All other issues in the docket were addressed at the November hearing, and the Commission's decision rendered by Order No. PSC-2019-0484-FOF-EI, issued November 18, 2019.

PRELIMINARY PROCEEDINGS BEFORE DOAH

The Administrative Law Judge conducted a noticed telephonic Status Conference on November 26, 2019, in which all parties participated, to resolve the hearing dates, the procedures used to file and handle confidential material, the need for discovery, the use of written testimony,

[1] Section 286.011, Florida Statutes (F.S.).

and the use of the Comprehensive Exhibit List (CEL) admitted into evidence at the Commission's November 5, 2019, hearing in Docket No. 20190001-EI.

At the Status Conference, the hearing dates of February 4 and 5, 2020, were set and parties were requested to confer and file a motion setting forth procedures for handling confidential material before, during, and after the hearing. The parties filed a Joint Motion on Confidentiality on December 6, 2019, which was adopted by order issued December 9, 2019. On December 12, 2019, an Order on Procedure was issued which identified the issues to be decided, reserved ruling on DEF's Motion for Protective Order, approved the use of prefiled testimony and the CEL at the hearing, and granted PCS Phosphate's Requests for Naming Qualified Representatives. On December 23, 2019, the Commission filed the relevant confidential and non-confidential portions of the record in Docket No. 20190001-EI along with a Motion Requesting Confidential Classification of portions of the record transmitted.

On January 31, 2020, a status conference was held to finalize hearing procedures. The final hearing was convened on February 4, 2020. At the hearing, DEF presented the testimony of Jeffrey Swartz, with his prefiled direct and rebuttal testimony inserted into the record as though read. DEF's Exhibit Nos. 80-82 were accepted into evidence. OPC presented the testimony of Richard A. Polich, with his prefiled testimony inserted into the record as though read. OPC Exhibit Nos. 68-76 were accepted into evidence. Exhibit Nos. 1, 100, and 101-117 were also admitted into the record.

A three-volume transcript of the final hearing was filed with the Florida Public Service Commission Clerk on February 18, 2020, and was provided to the DOAH Clerk on February 24, 2020. Citations are as follows: T for hearing transcript cites; Ex. for exhibits. All parties filed proposed recommended orders (PRO) on March 20, 2020, which have been considered in the preparation of this Recommended Order.

References to statutes are to Florida Statutes (2019), unless otherwise noted.

FINDINGS OF FACT

Bartow Unit 4

1. The principal dispute in this case involves operation of a steam turbine manufactured by Mitsubishi Hitachi Power Systems (Mitsubishi). [T. 42] The steam turbine was originally designed for Tenaska Power Equipment, LLC (Tenaska) to be used in a 3x1

configuration with three M501 Type F combustion turbines connected to the steam turbine with a gross output of 420 MW. [T. 42; Ex. 80, 109]

2. Prior to purchasing the steam turbine, DEF contracted with Mitsubishi to evaluate the steam turbine design conditions and to update heat balances for a 4x1 configuration. [T. 42] The 4x1 configuration means that four Siemens 180 megawatt (MW) Type 501 F combustion turbines are each connected to a heat recovery steam generator all four of which are in turn connected to the steam turbine. [Ex. 70]

3. At the time of purchase, Mitsubishi provided inlet pressure and temperature limits for the high pressure and intermediate pressure sections of the steam turbine, but not for the low pressure section of the steam turbine. [T. 378] Mitsubishi did provide design limits for the condenser. [Ex. 80]

4. The low pressure section of the steam turbine is a tandem compound design in which steam enters the center, moves through two opposing turbine sections, each of which is comprised of four sets of blades, and then exhausts into a condenser. [Ex. 70] The final sets of blades are the 40 inch L-0 blades. [T. 324]

5. Each 40 inch L-0 blade is twisted with a "root end" that connects it to the hub, a snubber at the mid-point or mid-span, and a shroud with airfoil tips at the top. As the steam turbine spins up to its operating speed of 3600 rpm, each blade elongates and starts to untwist. The snubbers and airfoil tips are designed to contact each other and create a stabilizing central and outer ring. If a snubber or airfoil tip fails, the blades can vibrate excessively and cause sudden catastrophic failure. [Ex. 80]

6. Combined cycle units blend steam from the combustion turbines as the heat recovery steam generators start up with steam to the steam turbine. [Ex. 80] These blending events result in brief periods of higher steam temperatures and flows into the condenser near the steam turbine's L-0 blades which are located in the low pressure section of the steam turbine. [Ex. 70]

Nameplate capacity

7. The nameplate capacity of the steam turbine is 420 MW, which was established by agreement of Mitsubishi, Progress Energy Florida, LLC (DEF's predecessor), and the EPC contractor (Kiewit) based on selection of heat balance cases and subsequent testing of the installed steam turbine. [T. 263-4]

8. The nameplate capacity of a steam turbine is not a control mechanism or a limit that the operator must stay below, but is the byproduct of operating the unit within the design parameters provided by the manufacturer at various combinations of steam flows, steam temperatures, steam pressures, ambient temperatures, humidity, etc. [T. 376-77]

Contract provisions

9. The 2008 Progress Energy-Mitsubishi contract establishes a Net Steam Turbine Electrical Output of 391.67 MW and a Net Steam Turbine Maximum Electrical Output of 420.07 MW. [Ex. 110] Initial onsite testing of the steam turbine verified that the steam turbine could, in fact, meet the liquidated damage MW performance guarantees, i.e., 420.07 MW. [T. 268]

10. The Low Pressure Admission Steam Pressure, Temperature, and Exhaust Pressure figures stated in Sections 3.2.5 and 3.2.5.2 of the 2008 Progress Energy-Mitsubishi contract are not operating limits, but calculated estimates of what conditions will exist when achieving either a 391.67 MW (4x1 configuration without duct firing heat balance case) or 420.07 MW (3x1 with duct firing heat balance case) output. [T. 266-68]

Operating periods

11. DEF has classified the periods in which Bartow Unit 4 has been operational since placed into service in June 2009 as follows: Period 1- from June 2009 until March 2012; Period 2 – from April 2012 until August 2014; Period 3 – from December 2014 until April 2016; Period 4 – from May 2016 until October 2016; and Period 5 – from December 2016 until February 2017. [Ex. 80]

Operating parameters

12. When the steam turbine was commissioned in 2009, the operating parameters were established by the Mitsubishi steam turbine operating manual. [T. 377] Initially, no operating parameters or flow limits were given to DEF by Mitsubishi for the low pressure section of the steam turbine. [T. 267-8] DEF and Mitsubishi's assumption during Period 1 operation was that if the operating pressure and temperature limits for the high pressure and intermediate pressure sections of the steam turbine given to DEF were followed, the inlet steam flow, pressure, and temperature for the low pressure section would be acceptable. [T. 272, 377-78; Ex. 80] DEF operated the steam turbine at all times within the operating parameters given to it by Mitsubishi during Period 1, and continued to do so as these parameters changed in Periods 2-5. [T. 374-75, 379-80]

13. During Period 2, as a result of finding blade damage on the L-0 blades during a scheduled outage in March 2012, Mitsubishi concluded that damage to the blades was caused by operation of the steam turbine in Period 1 over 420 MW, resulting in excessive steam flow to the low pressure section of the steam turbine, which created higher back-end loading on the L-0 blades. [Ex. 116] At that time, Mitsubishi set for the first time a low pressure section inlet pressure limit of 118 psig (pounds per square inch in gauge) measured by proxy at the intermediate pressure exhaust. [T. 378; Ex. 80]

14. During Period 3 In December 2014, Mitsubishi installed Type 3 (v1) blades and increased the intermediate pressure exhaust pressure limit to 126 psig in order to increase steam turbine output to 450 MW. [Ex. 80] Mitsubishi also established an "Avoidance Zone" in March 2015 related to low pressure inlet pressure and condenser backpressure. [T. 378; Ex. 116]

15. During Period 4 in May 2016, Mitsubishi installed a second revised Type 3 blade and decreased the intermediate pressure exhaust limit to 119 psig while still attempting to increase the steam turbine output to 450 MW. [Ex. 80]

16. During Period 5 in the fall of 2016, a pressure transmitter was added to the low pressure turbine to directly measure low pressure steam pressure. [T. 378] The limit on the intermediate pressure exhaust was lowered to 111.5 psig at that time with the expectation that the unit would produce 390 MW. [Ex. 80]

17. Since the removal of the L-0 blades and installation of the pressure plates in March 2017, Mitsubishi has continued to impose the low pressure inlet pressure limit of 111.5 psig. [T. 379]

Outages

18. Bartow Unit 4 was placed into service in June 2009 and has experienced five outages involving L-0 blade damage or replacements. The first planned outage for Bartow Unit 4 occurred in March 2012 for value work and inspections of the L-0 blades that revealed damage to L-0 turbine-end blade snubbers. Subsequent outages occurred on August 2014, April 2016, October 2016, and February 2017. [Ex. 80]

19. Every time there was an outage, whether planned or forced, subsequent inspection revealed damage to the L-0 blades located in the low pressure section of the steam turbine. The original L-0 blade configuration was a Type 1. Mitsubishi installed a re-engineered version of the Type 1 blades in April 2012. This re-engineered Type 1 blade was replaced in December

2014, when Mitsubishi installed a Type 3(v1) blade and conducted blade telemetry testing with the goal of both correcting the blade problems and increasing the output of the unit to 450 MW. The Type 3(v1) blades had hard-facing on the mid-span snubber contact surfaces. In April 2016, there was a forced outage in which new Type 3(v2) blades with hard-facing on the mid-span snubber, as well as on the Z-lock contact surfaces, were installed. In October 2016, these blades were found to be damaged and were replaced by the original (non-re-engineered) version of Type 1 blades in December 2016. In February 2017, the Type 1 blades were again found to be damaged and were replaced with a pressure plate in March 2017, effectively decreasing the output of Bartow Unit 4 to 390 MW. [Ex. 80]

20. During the 8-year period in which the series outages occurred, DEF worked both independently and with Mitsubishi to determine the cause of the blade damage. [Ex. 80] After the April 2017 outage, DEF formed three working groups: a root cause team to investigate and prepare a root cause analysis; a restoration team to bring the unit back on line; and a long-term solution team for operation of the Bartow unit. [T. 42]

Mitsubishi Root Cause Analyses

21. Mitsubishi produced a Report of Telemetry Test for 40" L-0 (2015 Mitsubishi Report) on March 18, 2015, in which it reiterated its earlier conclusion that the operation of the steam turbine in Period 1 over 420 MW resulted in excessive steam flow to the low pressure section of the steam turbine, which created high back-end loading on the L-0 blades calculated as pounds per hour per surface area on the blades. [T. 78-80; Ex.116] As a result of its conclusion that too much steam was being introduced into the low pressure section of the steam turbine, in April 2012, for the first time, Mitsubishi had imposed a low pressure inlet pressure limit of 118 psig measured at the low pressure exhaust. [T.378; Ex. 80]

22. Using telemetry testing in December 2014, Mitsubishi concluded that high stresses on the L-0 blades were observed with blade loading above 16,200 $lb/hr/ft^2$ when combined with condenser pressure between 3 inHg and 4.5 inHg. [Ex. 116] Mitsubishi labeled this the "Avoidance Zone" and told DEF to limit the amount of time it ran the steam turbine in this zone, but did not provide any time limits or a means to automatically keep out of the Avoidance Zone. [T. 379-80]

23. In its 2015 Mitsubishi Report, Mitsubishi stated that the L-0 blades could be modified and output from the plant could be safely increased from 420 MW to 450 MW as long as the intermediate pressure exhaust pressure was limited to 126 psig. [Ex. 116; Ex. 80]

24. Mitsubishi produced a second root cause analysis report on September 22, 2017. In this root cause analysis, Mitsubishi concluded that the 4x1 configuration was creating higher blade loading than Mitsubishi's fleet experience. Mitsubishi also concluded that all blade damage from Period 1 through Period 5 was caused by dynamic loads from non-synchronous self-excited vibration/flutter. Mitsubishi provided different rationales for the damage to the L-0 blades from Periods 3 through 5: operation in the Avoidance Zone, low mechanical damping due to the application of hardening materials on the contact surfaces of the L-0 blades, and blending steam from the 4th gas turbine at high load. [Ex. 82]

25. Mitsubishi also proposed an upgraded blade design and the installation of a Blade Vibration Monitoring System to achieve a 450 MW output. [T 386] Mitsubishi represented that this improved blade would be available in October 2018. [Ex. 82]

DEF Root Cause Analysis

26. DEF's Root Cause Analysis (RCA) report was issued on February 6, 2018. [Ex. 80] DEF evaluated all five outages, from June 2009 until February 2017, from both operational and design points of view. Operational factors included: excessive steam flow in the low pressure section of the steam turbine; steam blending operations and excessive pressure at the low pressure turbine exhaust; and pressure pulses during hood/curtain spray operations. [Ex. 80] DEF was unable to correlate any one of these factors with the five outages. [Ex. 80] DEF's study of the 40" L-0 blades was largely deductive since the design data for the blades is proprietary to Mitsubishi, although Mitsubishi did conduct blade telemetry testing in December 2014 when the Type 3(v1) blades were installed. DEF studied the shroud fretting fatigue, application of hard facing on mid-span snubbers and shroud Z-lock surfaces, and blade fitment.

27. Based on its analysis, DEF concluded that the 40" L-0 blades provided by Mitsubishi did not possess sufficient design margin to operate under the operating parameters provided by Mitsubishi for the 4x1 CC configuration. [Ex. 80; T. 385-86]

Replacement power costs

26. DEF replacement power costs for the February 17, 2017, outage are $11.1 million (system) and approximately $11.0 million (retail). [T. 339]

Bartow Unit 4 derating

27. Replacement power costs from April 2017 until September 28, 2019, for the reduction in MW output at Bartow Unit 4 from 420 to 380 MW are $5,016,782. [Ex. 117]

CONCLUSIONS OF LAW

Jurisdiction

28. The Division of Administrative Hearings has jurisdiction of the subject matter and the parties to this proceeding pursuant to Sections 120.569 and 120.57(1), F.S.

29. The Commission has the authority to regulate electric utilities in the State of Florida pursuant to the provisions of Chapter 366, F.S., including Sections 366.04, 366.05, and 366.06, F.S.

30. An "electric utility" is defined as "any municipal electric utility, investor-owned electric utility, or rural electric cooperative which owns, maintains, or operates an electric generation, transmission, or distribution system within the state." Section 366.02(2), F.S.

31. Duke Energy Florida, LLC, is an investor-owned electric utility operating within the State of Florida subject to the jurisdiction of the Commission pursuant to Chapter 366, F.S.

32. OPC, FIPUG, and PCS Phosphate are parties in Docket No. 20190001-EI, which included the issues to be resolved here, and as such are entitled to participate as parties in this proceeding.

Nature of Proceeding, Burden of Proof and Applicable Legal Standards

33. This is a de novo proceeding. Section 120.57(1)(k), F.S. Petitioner, DEF, has the burden of proving, by a preponderance of the evidence, that it acted prudently in the operation of Bartow Unit 4 up to and restoring the unit to service after the February 2017 forced outage. Additionally, DEF must prove by a preponderance of the evidence that no adjustment to replacement power costs should be made to account for the fact that after March 2017, and the installation of a pressure plate, Bartow Unit 4 could no longer produce its rated nameplate capacity of 420 MW. Department of Transportation v. J.W.C. Co., 396 So. 2d 778, 788 (Fla. 1st DCA 1981); In re: Investigation of Forced Shutdown of Crystal River No. 3, 81 FPSC 249 (1981); Section 120.57(1)(j), F.S.

34. The legal standard for determining whether replacement power costs are prudent is "what a reasonable utility manager would have done, in light of the conditions and

circumstances that were known, or should [have] been known at the time the decision was made." Southern Alliance for Clean Energy v. Graham, 113 So. 3d 742, 750 (Fla. 2013).

Issue 1B: Was DEF prudent in its actions and decisions leading up to and in restoring the unit to service after the February 2017 forced outage at the Bartow plant, and if not, what action should the Commission take with respect to replacement power costs?

35. Based on the testimony and exhibits admitted in this proceeding, DEF has shown by a preponderance of the evidence that it acted prudently in the operation of Bartow Unit 4 up to and including the February 2017 outage. DEF is entitled to recover the retail replacement power costs of approximately $11 million.

36. OPC argues that DEF did not operate Bartow Unit 4 prudently because it ran the unit at its full steam flow capacity and in excess of 420 MW during Period 1 (June 2009 through March 2012), and thereby permanently damaged the steam turbine and rendered it incapable of ever producing 420 MW again. This contention is based, in part, on the premise that the 420 MW nameplate capacity of the steam turbine is an operating limit which can never be exceeded.

37. The record does not support this argument. Over the last 10 years, Mitsubishi has never stated that the steam turbine was incapable of safely producing more than 420 MW. On the contrary, Mitsubishi has twice (December 2014 and May 2016) provided DEF with operating parameters and modified L-0 blades that Mitsubishi stated would allow DEF to produce 450 MW. [T. 378; Ex. 80] The fact that the steam turbine did not produce 450 MW during these periods when all parties concede that DEF adhered to all of the operating parameters it was given by Mitsubishi does not, by itself, prove that the steam turbine is incapable under any set of operating conditions of safely doing so. Nor does it prove that the unit is at this time incapable of producing 420 MW under any set of operating conditions.

38. The record demonstrates that the 420 MW nameplate maximum capacity number was a negotiated contractual guarantee: the trigger which would invoke the contractual liability provisions in the 2008 Progress Energy-Mitsubishi contract. [Ex. 110] Operators do not directly control the MW production of the unit. MW production is a "fall out" of the actual physical inputs into the steam turbine: steam temperature, steam flow, steam pressure, etc.

39. The original equipment manufacturer, here Mitsubishi, has the responsibility to provide the physical inputs that affect the MW output to the utility operator and to design the steam turbine with the appropriate testing equipment to measure those inputs. Mitsubishi did not

initially provide any operational parameters for the low pressure section of the steam turbine nor include any testing equipment to directly measure it. [T. 267-68] It is reasonable for DEF to have relied upon Mitsubishi's expertise that such testing was not required and that it could operate its equipment within the parameters given.

40. In support of its argument that DEF acted imprudently, OPC also relies on Mitsubishi's opinion at the time of the March 2012 outage that excessive steam flow to the low pressure section of the steam turbine caused excessive blade vibration and damage to the L-0 blades. The record does not support Mitsubishi's conclusion. The pressure limits on the low pressure section of the steam turbine were decreased in Periods 2, 4, and 5, coupled with changes to the L-0 blades. [Ex. 80] The reduction in low pressure steam pressure was in part based upon Mitsubishi's telemetry testing in December 2014. However, notwithstanding lowering the low pressure section steam pressure from 118 psig to 111.5 psig, and operating outside of the Avoidance Zone identified by Mitsubishi's December 2014 telemetry tests, the L-0 blades continued to be damaged after operation for increasingly shorter periods of time. Most significantly, in Period 5, the Type 1 L-0 blades of the same design used in Period 1 were found to be damaged after only 2 months of operation with the lowest low pressure steam pressure and output of the steam turbine limited to 390 MW. [Ex. 80]

41. From Periods 2 through 5, the theory that excessive steam loading produced L-0 blade damage was repeatedly tested by both Mitsubishi and DEF, who found this potential cause inadequate to fully explain each instance of blade damage, the only damage ever reported to have been experienced by Bartow Unit 4's component parts. Likewise, Mitsubishi's redesign of its Type 1 L-0 blades and substitution of Type 3 blades in Periods 2 through 4 indicate that Mitsubishi came to believe in September 2017 that the 4x1 configuration was producing greater non-synchronous self-excited vibration/flutter than previously experienced in its fleet. That is, Mitsubishi came to believe that its blades needed to be once more redesigned which it has committed to do.

42. OPC takes the position that not only was DEF obligated to contact Mitsubishi prior to operating the unit above 420 MW, it was obligated to confirm in writing with Mitsubishi that operation above 420 MW would not cause damage to the unit. Further, OPC assumes that if DEF had contacted Mitsubishi, it would have been told not to operate the unit above 420 MW or would have been given different operating parameters to follow.

43. There is no support for OPC's positions in this record. Nowhere does the Progress Energy-Mitsubishi contract specify an obligation for DEF to contact Mitsubishi prior to operating the unit above 420 MW nor to get such confirmation in writing. The legal standard is that a utility must act reasonably given the information it knew or should have known. DEF's decision to run the unit to produce more than 420 MW while staying within the parameters given to it by Mitsubishi was standard practice and reasonable.

Issue 1C: Has DEF made prudent adjustments, if any are needed, to account for replacement power costs associated with any impacts related to the derating of the Bartow plant? If adjustments are needed and have not been made, what adjustment(s) should be made?

44. OPC takes the position that a reduction of $5,016,782 to DEF's replacement power costs should be made for DEF's failure to produce 420 MW from Bartow Unit 4. This position is dependent on a finding that DEF's operation of Bartow Unit 4 in Period 1 caused the unit to be unable to produce its rated capacity of 420 MW in Periods 2 through 5 and to date. No evidence has been produced in this proceeding supporting that conclusion. On the contrary, OPC does not contest that DEF operated the steam turbine at all times within the operating parameters given to it by Mitsubishi during Period 1 and continued to do so as these parameters changed in Periods 2-5. [T. 346] DEF followed standard operating protocols and made adjustments to the operating protocols based on its research and that of Mitsubishi. DEF has acted prudently at all times in the operation of Bartow Unit 4.

45. OPC's own witness testified that he had no idea whether the L-0 blade damage occurred in Period 1 during the 50% of the time when the unit was producing 420 MW or the 50% of the time that it was producing more than 420 MW. [T. 352] OPC's witness also conceded that from Period 2 through 5 DEF did not operate Bartow Unit 4 imprudently. [T. 351] Due to the problems experienced by the unit, both DEF and Mitsubishi concluded in 2017 that the steam turbine should have a pressure plate installed so that Bartow Unit 4 could be operated as a combined cycle unit until a plan was devised to restore the unit to full capacity. It is inherently contradictory to acknowledge that the unit was operated prudently in Periods 2-5 and then conclude that the installation of a pressure plate on the advice of Mitsubishi, and the resultant reduction in capacity, was imprudent.

46. Having found DEF's actions to be prudent with regard to the operation of Bartow Unit 4 for Periods 1 through 5, no adjustment to replacement power costs should be made for the reduced MW production of the unit.

CONCLUSION

Based on the Findings of Fact and Conclusions of Law set forth herein, it is RECOMMENDED that the Florida Public Service Commission enter a final order finding that Duke Energy Florida, LLC acted prudently in the operation of its Bartow Unit 4 plant up to and in restoring the unit to service after the February 2017 forced outage and that Duke Energy Florida, LLC is entitled to recover replacement power costs of approximately $11.0 million (retail) and that no reduction in replacement power costs should be made for the reduced MW production of the unit from April 2017 until September 28, 2019.

Respectfully submitted this 20th day of March, 2020.

/s/ Suzanne Brownless
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Attorneys for Florida Public Service Commission Staff

IN RE: FUEL AND PURCHASED POWER COST RECOVERY CLAUSE WITH GENERATING PERFORMANCE INCENTIVE FACTOR.

CASE NO. 19-6022
20190001-EI

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 20th day of March, 2020, a true and accurate copy of the foregoing was filed with DOAH by hand delivery and a true and correct copy was also provided by U. S. Mail to the following counsel of record:

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