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: November 15, 2021

JOINT POST HEARING BRIEF OF THE OFFICE OF PUBLIC COUNSEL, THE FLORIDA INDUSTRIAL POWER USERS GROUP, WHITE SPRINGS AGRICULTURAL CHEMICALS, INC. D/B/A PCS PHOSPHATE, AND THE FLORIDA RETAIL FEDERATION

The Citizens of the State of Florida, through the Office of Public Counsel, ("OPC"), The Florida Industrial Power Users Group ("FIPUG"), White Springs Agricultural Chemicals d/b/a PCS Phosphate ("PCS"), and the Florida Retail Federation ("FRF"), collectively the Joint Parties, pursuant to the Order Establishing Procedure in this docket, Order No. PSC-2021-0074-PCO-EI, issued February 9, 2021, and Amendatory Orders No. PSC-2021-0074A-PCO-EI issued April 30, 2021, No. PSC-2021-0211-PCO-EI issued June 7, 2021, and No. PSC-2021-0340-PCO-EI issued September 14, 2021, hereby submit this Joint Post Hearing Statement.

STATEMENT OF POSITION

In this docket, the sole disputed issue related to Duke Energy Florida, LLC ("DEF," "Duke," or Company") is simply a prudence determination regarding Duke's actions in operation of the over 700-megawatt Crystal River Unit 4 on the evening of December 17, 2020. As a result of management failures, the Duke operating team at CR4 failed to follow established startup procedures and damaged the plant when

attempting to synchronize or "sync" the generator to the grid. The unit was out of service for 98 days as a direct result.

The standard of review for prudency determinations 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." *S. Alliance for Clean Energy v. Graham*, 113 So. 3d 742, 750 (Fla. 2013). DEF is obligated to prove that it met this standard by a preponderance of the evidence. *Dep't of Transp. v. J.W.C. Co.*, 396 So. 2d 778, 788 (Fla. 1st DCA 1981). The evidence DEF presented to the Commission in attempting to explain the outage is riddled with inconsistencies and raises more questions than it answers. DEF's evidence is patently insufficient to meet DEF's burden of proof. The Commission should not allow DEF to punish their customers for the company's $14.4 million mistake.

ISSUE 1C: Has DEF made appropriate adjustments, if any are needed, to account for replacement power costs associated with the January 2021 to April 2021 Crystal River Unit No. 4 outage? If appropriate adjustments are needed and have not been made, what adjustments should be performed?

Joint Parties: *No. The utility bears the burden of proof for recovery of costs claimed. DEF did not demonstrate that its actions causing damage to the plant and the related outages were reasonable and prudent, or that replacement power costs should be borne by customers.*

Argument

On December 16, 2020, DEF returned Crystal River Unit 4 (CR4) to service after a planned outage, and DEF was beginning to bring another unit, Crystal River 5 (CR5), online the following day. However, after only being back online for one day, CR4 tripped due to a boiler feed water pump issue on December 17, 2020, at 19:10. Tr. 346; Ex. 8 at 2-3. Once CR4 tripped, it required an immediate response. Ex. 64 at 4. In order to return the unit to service, DEF needed to synchronize Unit 4 to the grid again. While synchronization to the grid can be done either automatically or manually, the standard operating procedure at CR4 is to synchronize to the grid automatically. Tr. 335; Ex. 8 at 2. At CR4, synchronization to the grid has been performed automatically since 2017 and has rarely been done manually. Tr. 371-72; Ex. 8 at 2.

Three hours after CR4 initially tripped, the DEF operator crew[1] attempted to automatically synchronize (auto-sync) to the grid about 12 seconds after 10 p.m. (or more precisely, the system-generated military timestamp of 22:00:12.608). Tr. 403; Ex.8 at 2. However, two lockout relays tripped and this auto-sync attempt failed. Ex. 8 at 3. As described below, the DEF crew persisted in attempting to automatically sync the unit to the grid in rapid succession without success. Following the first failed synchronization attempt, the standard DEF procedure called for the crew to perform

[1] The Joint Parties will use the term "crew" since DEF witness Simpson and other evidence pointed to the fact that there was a "crew" staffing the synchronization effort and it included a supervisor. Tr. 430, 445-446; Ex. 8 at 4.

a walkdown, (i.e. inspecting various potential failure modes in turn, and if an issue is discovered, correcting the issue, resetting the system, and attempting synchronization again). Ex. 54 at 3. Whether anyone on the crew actually conducted a walkdown is in serious doubt, but the crew attempted to auto-sync again at 22:00:16.924 (just 4.3 seconds after the first failed attempt) which similarly failed as a different set of lockout relays tripped. Ex. 8 at 3. The crew immediately initiated a third attempt at 22:00:20.132 (just 3.2 seconds after the second attempt). Ex. 8 at 3. All three auto-sync attempts failed. Ex. 8 at 4.

Approximately 11 minutes after the three failed attempts to auto sync CR4 to the grid, DEF decided to attempt to "reset" the synchronization circuit by "green-flagging" (leaving open) the breaker in auto, placing the sync switch in manual, and then "red-flagging" (forcing closed) the breaker. Ex. 8 at 2. Instead of resetting the synchronization circuit, this action caused the CR4 generator to attempt to sync to the grid dangerously out of phase. Ex. 8 at 2. This instantly caused significant damage to the generator rotor before other relays could open seconds later, and created enough grid instability to trip the Citrus Combined Cycle PB1 offline. Ex. 8 at 2. Ultimately, that damage resulted in a forced outage to CR4 for several months[2] and replacement power costs of $14.4 million. Ex. 67 at 2.

[2] CR4 was offline for 98 days and did not return to service until March 25, 2021. Ex. 54 at 6.

Following the events of December 17, 2020, DEF selected a team consisting solely of DEF employees to conduct a Root Cause Analysis (RCA). After producing several versions, DEF completed the final version of the RCA on February 16, 2021. Tr. 336; Ex. 8; Ex. 64. The final RCA attributed the synchronization failure, plant damage, and outage costs to two root causes and seven contributing causes, and the RCA recommended 18 different corrective actions in an effort to prevent this event from reoccurring. Ex. 8 at 4-7. The two root causes basically concern a failed backup "check" relay and individual operator performance error, which DEF claims excuses plant management from imprudence responsibility. As is explained below, the responsibility for this preventable operations failure falls directly on DEF's poor operations management.

1) DEF Management Failed to Ensure that its Established Emergency Operation Procedures Were Followed

The initial trip of CR4 at 19:10 on a winter evening, required that DEF respond immediately. Ex. 64 at 4. DEF's first version of the RCA explained that, "Operations should have stopped when unit 4 initially tripped on low drum level and consulted Generator Trip Emergency Operating Procedure [EOP] 1." Tr. 400; Ex 64 at 4. This clearly did not occur because the Emergency Operating Procedure was never reviewed, referenced, or relied upon in the three hours following the 7 PM trip. Tr. 397-400; Ex. 64 at 4. Incredibly, the first version of the RCA notes that when the RCA team conducted interviews of individuals involved in this event, the RCA team

learned that when CR4 trips due to a boiler feed water pump issue, which is not uncommon, the EOP is typically not consulted. Ex. 64 at 4. In short, even though DEF had an established procedure to be followed in the event that CR4 tripped, the EOP was not followed in this case and apparently was routinely disregarded by DEF operations in similar circumstances. That DEF employees regularly fail to consult emergency procedures pursuant to company policy demonstrates a serious disregard for safety and a lack of judgment on the part of DEF management. DEF's eventual deletion of the reference to the applicability of its EOP in these circumstances in its final RCA version does not in any way detract from the accuracy of that initial observation.

2) There is Abundant Evidence of Management's Inadequate Training and Oversight of Operator(s)

Although DEF looks to blame an individual operator for failing to follow operating procedure, DEF's own evidence and testimony fail to establish that DEF management ever properly trained the operator in generator synchronization or that a complete operating procedure even existed. The final version of the RCA cites several contributing causes of the event, including "Individual underestimated the problem by using past events as a basis," "Practice of 'hands-on' experience LTA[3]," and "Incomplete/situation not covered." However, all of these contributing factors paint

[3] "LTA" stands for "less than adequate." Tr. 372

the picture of an inadequately trained and ill-prepared operations workforce rather than the simple human performance error of one employee.

Under the "Individual underestimated the problem by using past events as a basis" contributing cause listed in the RCA, DEF stated that the operations "crew" (not simply the individual operator) attempted unsuccessfully to synchronize to the grid four times "without a questioning attitude and without consulting the Operations Superintendent and/or Station Manager." Ex. 8 at 4. However, Witness Simpson admitted on cross-examination that the operator *did* seek counsel from his supervisor during the various synchronization attempts. Tr. 430. This contradicts the RCA's statement that the crew did not exhibit a questioning attitude during the event and instead indicates inadequate supervisory oversight.

Under the "Practice or 'hands-on' experience LTA" contributing cause listed in the RCA, DEF confirmed that additional training resources for its operations staff are needed. Ex. 8 at 4. The evidence certainly bears this out since DEF did not provide a specific training course on generator synchronization prior to December 17, 2020. Ex. 54 at 2-3. Alarmingly, the only training documentation that DEF could provide for the operator on duty during this event showed that, at best, the operator attended training courses which "may" have included generator operation and synchronization. Tr. 377; Ex. 54 at 2-3. As evidenced by the corrective action which plainly falls in the category of lessons learned, DEF now requires a specific lesson plan on generator

synchronization. Ex. 8 at 6. The necessity of this corrective action demonstrates the inadequacy of the training provided to DEF's operators of such a crucial stage of power plant operations. Tr. 346.

Under the "Incomplete/situation not covered" contributing cause, the RCA documents that "the written communications did not address situations likely to occur during the completion of the process." Ex. 8 at 4. The RCA specifically notes that the Start-up Procedures at the time of the event stated, "If auto-synchronization is inoperable on unit 4, then use manual sync listed in Enclosure 5." Ex. 8 at 4. However, the RCA team's investigation uncovered that the Enclosure 5 instructions were incomplete, and that they stopped mid-step. Ex. 8 at 4. DEF asks the Commission to conclude that an individual employee's performance is one of the two root causes of this event, yet DEF's own investigative team uncovered that the materials DEF provided to its employees to rely upon were incomplete. Such a glaring lapse of preparation falls squarely on the shoulders of DEF management, not on those of an individual employee.

3) Walkdown Procedure Ignored

DEF's exhibits and witness consistently stated that the proper procedure following a failed synchronization attempt is to conduct a walkdown to the relay panels, look for indications that a relay was tripped, push a button or manipulate the relay back to its normal position, and either return to the control room or communicate that

information to the operator in the control room before attempting to synchronize again. Tr. 401-402, 405-406; Ex. 54 at 3. Unfortunately, the execution of this protocol was not consistent, as demonstrated by the evidence.

The final version of the RCA states that walkdowns were conducted after each failed synchronization attempt, and Witness Simpson repeated this claim during his testimony. Tr. 401; Ex. 8 at 2. However, in an edit to an earlier version of the RCA, Barbara Martinuzzi, a DEF employee and member of the RCA team, commented that "the operators did not complete a thorough walkdown after each trip…" Ex. 64 at Bates 200. This conflict in the evidence, as well as the brief and undisputed timeline of events casts serious doubt on DEF's adherence to its own protocol.

Even more suspicious are the time-stamps of when the auto-sync attempts took place. The RCA states that only 4.3 seconds elapsed between the first and second auto-sync attempts, and that only 3.2 seconds elapsed between the second and third auto-sync attempts. Ex. 8 at 3. Although Witness Simpson initially suggested that it is physically possible for a walkdown to have been conducted in such a short period of time, he later conceded that it would have been difficult to have made a deliberate, fact-based decision in the seconds between the auto-sync attempts. Tr. 413-414. Witness Simpson also conceded that he was not on shift that night; therefore, he could not testify definitively whether or not the walkdowns occurred. Tr. 414, 440. In light of the absence of any eyewitness testimony, the best evidence of whether or not proper

walkdowns occurred are the timestamps, and those timestamps suggest that no complete walkdowns, or the necessary fact-based decision making process, could have possibly been completed in the mere seconds between auto-sync attempts. These lapses in judgment cast serious doubt on DEF's prudence claim.

4) The Record Demonstrates that DEF Management Provided Inadequate Supervision of Operator(s)

DEF failed to meet its burden of proof to show appropriate and competent supervision. In the RCA, DEF admits that the "the operations crew attempted unsuccessfully to synchronize to the grid four times without a questioning attitude and without consulting the Operations Superintendent and/or Station Manager." Ex. 8 at 4. DEF failed in many ways to ensure that the power plant operations were appropriately supervised.

In an earlier version of the RCA, DEF acknowledged that just months prior to the accident, DEF reduced the number of supervisor positions from 11 to 6, which prompted many experienced Operations Team Supervisors (OTS) to leave. Tr. 419; Ex. 64 at Bates 160. In addition to reducing the number of supervisor positions, DEF apparently expected the remaining reduced number of supervisors to know more and cover more ground. Tr. 337; Ex. 64 at Bates 160. DEF management's priorities appeared to be more on wringing efficiencies and not on the safe operation of the generation unit at CR 4. DEF management's decision to cut supervisory positions was

a calculated risk, and DEF – not DEF's customers – should be responsible for the consequences of that decision.

Additionally, a RCA team member made a comment in a previous version of the RCA which further demonstrates the absence of proper supervision at the time of the event. The edit states, "It isn't the OTS who is tasked with knowing how to sync the unit online. It is preferable, but not a requirement to know each technical aspect of the position being supervised." Ex. 64 at Bates 160. This statement is concerning for several reasons. First, the OTS *should* know how to sync the unit to the grid, which DEF admitted is an important process in power plant operations. Tr. 346. Second, supervisors *should* know the technical aspects of each position that they supervise so that in emergency situations, such as this event, the supervisor can effectively navigate through and assist with the emergency. DEF's failure to require supervisors to know the intricacies of the positions they supervise further demonstrates DEF's negligent supervisory structure and is inconsistent with DEF's prudence assertion.

Not only did DEF fail to require procedural competency from their supervisors, but the company admitted that what little training that DEF did provide to supervisors was inadequate to prepare them for emergency situations. DEF's RCA team found that OTS experience consisted of shadowing for approximately three months and that shadowing only provides for training on conditions that exist at the time during the

shadowing[4]. Ex. 64 at Bates 165. The final version of the RCA even included a corrective action to evaluate the OTS training and consider increased shadowing time and rotation to improve proficiency. Ex. 8 at 6. This evidence shows that DEF recognized that they inadequately trained their supervisors, and it also exhibits the systemic nature of the poor supervisory environment that management provided up to and during the event rather than evincing poor judgment of a single employee.

Duke failed to prove by a preponderance of the evidence that management provided proper supervision during the event. DEF management cut the number of supervisors almost in half, refused to require comprehensive procedural competency from its supervisors, and failed to provide adequate on-the-job training opportunities for those supervisors. Such poor management decisions are not the decisions that a prudent utility company would make.

5) DEF's Root Cause Assessment Downplayed the Pressure on CR4's Operation's Team to Return the Unit to Service and Exposed DEF Management's Poor Training and Supervision

December 17, 2020, was not a typical day for DEF. CR4 had just gone back into service the day before after a planned outage, and DEF was in the process of bringing CR5 back into service when CR4 suddenly tripped at 19:10. Ex. 8 at 2-3. At that point, DEF had to put the start-up of CR5 on hold, attempt to start up CR4, and

[4] "The amount of training did not adequately address normal, abnormal and emergency working conditions." Ex. 64 at Bates 165.

then resume the start-up of Unit 5. Ex. 64 at Bates 181. Combined, the two units provide more than 1,400 MWs of baseload capacity to the Duke system. Tr. 433. DEF's RCA team acknowledged in an early version of the RCA that,

> "Priorities regarding unit operation changed multiple times in less than two hours, adding time pressure to complete the tasks and move on to additional tasks. Station was attempting to respond to meet system requirements. (unit 4 running, start-up on unit 5, unit 4 tripped, put unit 5 on hold, start-up unit 4, out of phase sync event happened, start-up unit 5)."

Ex. 64 at Bates 181.

However, the final version of the RCA omitted any references to the stressful environment facing CR4's operations team to restore both units to service. CR4. Ex. 8 at 2. Regardless of the phrasing employed in the final RCA, the DEF operations team employees were under some degree of pressure that night and were apparently scrambling to bring CR4 back into service. This pressure exposed the alarming training and supervisory weaknesses in DEF's operations management, especially how it responds to emergency situations.

6) Missing Laminated Synchronization Guide

DEF management overlooked another aspect of the operations of CR4. While CR5 had a readily accessible generator synchronization guide laminated and affixed directly to the generator output breaker, the CR4 generator output breaker had no such guide at the time of the event. Ex. 8 at 5. While it is impossible to say definitively whether having such a guide in CR4 on the night of the event would have resulted in

a better outcome, it is telling that one of the first things DEF did within days of the event, well before the RCA was completed months later, was to create and affix such a guide to CR4's generator output breaker. Tr. 432; Ex. 8 at 5. Actions often speak louder than words.

7) DEF Witness Testimony is Inconsistent with RCA Root Causes

In addition to the previously addressed discrepancies in the RCA, the testimony provided to support the conclusions of the RCA is similarly flawed. The final RCA lists two root causes for the event and the resulting damage: 1) a failed Beckwith Manual sync check relay, and 2) operator error. Ex. 8 at 4. However, Witness Simpson stated in his pre-filed testimony that,

> "…had the operator closed the breaker one second later, no damage would have occurred (and the failure of the relay would have gone unnoticed until the next scheduled test or potentially the next attempt at manual synchronization.)"

Tr. 339.

In other words, if the operator had properly operated the generator synchronization machinery, then CR4 would have successfully synced to the grid with no resulting damage. If Witness Simpson's testimony is accurate, then the failed relay should more accurately be described as a contributory cause rather than a root cause, leaving the operator's error as the sole root cause of the damage and resulting outage. As previously discussed, DEF failed to prove that DEF management ever even *trained* this operator (or any other DEF operator) in generator synchronization, and DEF

never created a training lesson plan on generator synchronization until after this event. The conflict between Witness Simpson's testimony and the RCA further exposes DEF's failure to meet its burden of proof in this case.

Conclusion

In order to recover the $14.4 million that DEF requests in this docket, DEF needed to prove by a preponderance of the evidence that it operated as a prudent utility with regard to the December 17, 2020, outage and damage to CR4. DEF utterly failed to meet that burden. DEF provided the Commission an extensively curated report, riddled with inconsistencies and written exclusively by DEF employees, and the testimony of an employee who was not present for the event in question and whose testimony differed from the report in several important areas. The discrepancies in the RCA and Witness Simpson's testimony raised many questions that were not answered and show that DEF's evidence was insufficient to meet DEF's burden of proof. Therefore, based on the factual record, the commission should find that DEF has failed to carry its burden of proof that it acted prudently on the evening of December 17, 2020, when synchronizing CR4 to the grid. Consequently, DEF's customers should not be forced to pay $14.4 million dollars for the 98 days CR4 was out of service as a direct result of the series of DEF errors noted in the DEF's Root Cause Analysis Report, during questioning at hearing, and detailed in this post-hearing brief.

Dated this 15th day of November 2021.

Respectfully submitted,

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CERTIFICATE OF SERVICE
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I HEREBY CERTIFY that a true and correct copy of the foregoing Joint Parties' Brief has been furnished by electronic mail on this 15th day of November 2021, to the following:

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