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In Re: Review of replacement costs associated with the February 26, 2008 outage on Florida Power & Light's electrical system

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of replacement fuel costs) associated with the February 26, 2008 outage) on Florida Power & Light's electrical system)	Docket No: 090505-EI Filed: April 19, 2010

FLORIDA POWER & LIGHT COMPANY'S POST-HEARING BRIEF

Summary of Position

The Commission should approve a credit to customers' bills totaling $2,024,035 for replacement power costs ("RPC") attributable to the February 26, 2008 outage (the "Flagami Transmission Event" or "Event"). This calculation reflects replacement fuel and replacement power costs incurred in the 8-hour period immediately following the Flagami Transmission Event until FPL's system stabilized, and it recognizes that FPL took prudent and conservative measures to investigate, inspect, and analyze system components prior to safely restarting Turkey Point Units 3 and 4 after the Event. It would be unfair and serve as a major disincentive to the construction and operation of low fuel-cost generating technologies if the RPC calculation were based specifically on the outages of those two nuclear units, where there was no imprudence in their maintenance or operation.

FPL's RPC calculation is the fairest approach for all involved in that it ensures customers are properly credited for RPC attributable to the February 26, 2008 outage, while avoiding disincentives to utility investment in energy efficient and environmentally beneficial generation alternatives. FPL and other utilities should not be penalized for investing in nuclear power and other technologies such as solar and wind with lower fuel costs, the benefits of which are passed on to FPL's customers.

FPL suggests that the Commission utilize the traditional fuel cost recovery true-up

process in order to implement the RPC credit that is approved in this proceeding. That process will minimize the billing system expense and workload associated with a unique, one-time credit. If the Commission determines instead that FPL should implement a one-time credit, the credit should be issued to customers of record during the first billing cycle beginning 60 days after the Commission decides the credit amount, based on customers' consumption in that billing cycle. Either approach will result in the same total refund amount being returned to customers.

Background

On February 26, 2008, a fault occurred at FPL's Flagami substation in connection with troubleshooting a switch used to connect a shunt inductor to FPL's transmission system. The fault created conditions that, among other things, caused three fossil-fueled generating units and Turkey Point Units 3 and 4 to come offline, which is how they are designed to operate in such a situation.

This docket was opened in November 2009 to address whether FPL or its customers should be responsible for RPC associated with the Flagami Transmission Event. On December 4, 2009, FPL, the Office of Public Counsel ("OPC") and the Office of the Attorney General ("AG") executed a Proposed Resolution of Issues ("PRI") in which FPL agreed to bear the RPC attributable to the Flagami Transmission Event. In light of FPL's agreement, all parties further agreed that the scope of this docket should be limited to determining the appropriate measure of RPC for purposes of calculating the credit to be paid to FPL's customers.[1] Ex. 13 (DED-3). The Commission approved the PRI at its January 26,

[1] The PRI was adopted by the Florida Industrial Power Users Group ("FIPUG"). *See* Notice of Adoption of Proposed Resolution of Issues, filed January 20, 2010.

2010 Agenda Conference, which "obviate[d] the need for [the Commission] to make a prudence determination" with respect to FPL's actions relative to the Flagami Transmission Event. *See* Order No. PSC-10-0111-FOF-EI, pp. 2-3, Docket No. 090505-EI (issued February 25, 2010). Thus, the remaining issues for decision are: 1) how much FPL must repay; and 2) how that repayment will be refunded to customers. *See id.* at 3. FPL's positions and arguments on these two issues are discussed in detail below.

Issues and Positions

ISSUE 1: How should the replacement power costs attributable to the February 26, 2008 outage be measured, and what is the amount of such costs?

FPL: *The proper amount of the RPC to be credited to customers is $2,024,035, which reflects replacement fuel and replacement power costs incurred in the 8-hour period immediately following the Flagami Transmission Event until the system stabilized. During the outages at Turkey Point Units 3 and 4 resulting from the event, FPL took prudent and conservative measures to investigate, inspect, and analyze system components prior to safely restarting those units. It would be unfair and serve as a major disincentive to the construction and operation of low fuel-cost generating technologies if the RPC calculation were based specifically on the outages of those two nuclear units where there was no imprudence in their maintenance or operation.*

Argument

The RPC credit should be calculated based on FPL's system average fuel costs in the 8 hours immediately following the Flagami Transmission Event. Eight hours covers the

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During the hearing, OPC witness Dismukes asserted that the PRI took prudence issues "off the table" in terms of calculating the appropriate measure of RPC in this docket. Tr. 387, 392, 397. Dr. Dismukes' assertion is incorrect. As is made clear by the language of the PRI and the Commission order approving the PRI, referenced above, "[a]ll parties to this PRI and Staff may each take any position that it wishes concerning the proper measure of replacement power costs, if any, that FPL should refund to customers as a result of the Flagami Transmission Event." *See* Order No. PSC-10-0111-FOF-EI, p. 3, Docket No. 090505-EI (issued Feb. 25, 2010); Ex. 13 (DED-3); Tr. 400-01. Therefore, issues related to FPL's actions with respect to restarting the nuclear units as opposed to the transmission activities that initially caused them to come offline -- clearly remain at issue under the terms of the PRI and, as described in Issue 1, Section A of this brief, FPL believes that the evidence demonstrates its actions in returning Turkey Point Units 3 and 4 to service as promptly as possible following the Event were prudent.

entire time frame during which the Event had a significant impact on FPL's ability to operate its generating system and, as a result, FPL had to run its expensive peaking units in order to meet system load requirements. Tr. 114 (Yupp). FPL used system average cost for this 8-hour period as a basis for comparison to the peaking units to determine the net cost of replacement fuel. Tr. 117 (Yupp). Utilizing the system average cost appropriately distributes the effect of the lost generating capacity across the entire fleet of generation, as opposed to focusing the calculation inappropriately on one specific type of unit. Tr. 117 (Yupp); 177-79 (Avera).

FPL's RPC calculation reflects the "full cost" of the *transmission-created* outage that is the subject of this docket. Tr. 472 (Avera). It would be improper as a matter of policy and contrary to PSC precedent and regulatory practice to hold FPL responsible for the entire duration of the outage at Turkey Point Units 3 and 4, when the nuclear units remained offline due to startup requirements and operational issues that are unique to nuclear plants but reflect no imprudence in FPL's operation or maintenance of the units. Tr. 114-15 (Yupp); 184-85 (Avera); 45 (Stall). Penalizing FPL for RPC associated uniquely with Turkey Point Units 3 and 4 that are not a result of any imprudence in the operation or maintenance of those units would be unfair and serve as a major disincentive to the construction and operation of low fuel-cost generating technologies such as nuclear, solar and wind. Tr. 115 (Yupp); 178-79, 182-83 (Avera).

Subsection A below addresses FPL's actions in returning Turkey Point Units 3 and 4 to service following the Flagami Transmission Event and demonstrates that FPL was prudent in its handling of the equipment issues that were unrelated to the Event. Subsection B discusses FPL's calculation of the RPC related to the Event and demonstrates that using the 8-hour time frame following the Event and system average fuel costs is the appropriate measure of RPC.

Subsection C discusses how FPL's RPC calculation is consistent with Commission precedent and the policy of this Commission and the State of Florida, which encourages the development of low fuel cost generation resources. Finally, Subsection D addresses the testimony of OPC witness Dr. Dismukes and explains the problems that would result as a matter of regulatory precedent and Commission policy from holding FPL responsible for the entire duration of the outages at Turkey Point Units 3 and 4 as he proposes.

A. FPL responded prudently to return Turkey Point Units 3 and 4 to service as promptly as possible

It is important not to penalize FPL for the RPC associated uniquely with the period in which Turkey Point Units 3 and 4 were unavailable due to the Flagami Transmission Event, because FPL responded prudently to return Turkey Point Units 3 and 4 to service as promptly as possible. The record evidence is overwhelming that the circumstances that extended the outages were not related to the Flagami Transmission Event and were not the result of any improper or inappropriate actions on FPL's part. Tr. 184 (Avera); 44-45, 407 (Stall). FPL's witness J.A. (Art) Stall, a former licensed nuclear plant operator with more than 30 years of nuclear operations experience, testified largely without challenge or contradiction that the Turkey Point nuclear units were prudently and properly taken off-line following the Event. Tr. 38-40 (Stall). After the Event, FPL then took prudent and conservative measures to investigate, inspect, and analyze plant systems and components prior to safely restarting both units. Tr. 45 (Stall). The evidence strongly supports a finding that FPL's actions with respect to the nuclear units were prudent.

1. The units came offline as required in order to protect equipment

As a result of the Event, the units came offline automatically in response to voltage fluctuations, in order to protect plant equipment. Tr. 38-40, 45 (Stall). This is exactly what

the nuclear units were designed to do – and what the Nuclear Regulatory Commission ("NRC" - the federal nuclear safety licensing agency that issues the operating licenses for the Turkey Point nuclear units) required them to do. *Id.* FPL returned the units to service as quickly and safely as possible. *Id.*

It is critical to nuclear safety that units automatically come offline in response to voltage fluctuations. Tr. 45, 430 (Stall). Allowing an under-voltage condition to continue would result in a loss of flow from the reactor coolant pumps and an increase in reactor coolant temperature. This increase in reactor coolant temperature could result in damage to the nuclear fuel and to reactor coolant pump motors. Thus, the units must be set to automatically and promptly come offline in under-voltage conditions. Tr. 38-40, 45 (Stall).

2. The Unit 3 outage was prudently planned in advance and was well executed

Equipment issues unrelated to the Flagami Transmission Event delayed restart of Unit 3, which is not uncommon during nuclear unit outages. Tr. 41 (Stall). The principal equipment issue delaying the Unit 3 restart was FPL's obligation to repair the Rod Position Indicator ("RPI") system. *Id.* The RPI system is extremely important to reactor operation, because it provides essential information to plant operators on the status of the control rods that are used to control the nuclear reaction in the reactor core. Tr. 76-78 (Stall); Ex. 32, Bates Nos. 506-09. When Unit 3 was returning to service from a refueling outage in October 2007, FPL had experienced a problem with the rod-position signal from one of the RPIs. Tr. 41, 43, 76-78 (Stall); Ex. 32, Bates Nos. 508-09. Unit 3 was at 30% power when this problem was discovered. Tr. 43 (Stall). Ordinarily, FPL would have had to shut the unit back down and repair the RPI at that time as a result of this problem. However, FPL successfully petitioned the NRC for an amendment to the Unit 3 operating license that

allowed FPL, as an interim measure, to continue operating the unit using an alternate method to determine the control rod position for the one inoperable RPI, contingent upon an NRC requirement to repair the RPI system the next time the unit shut down to below Mode 3 (*i.e.*, where the unit is no longer making nuclear power). Tr. 41-43, 76-78, 99, 424, 489-90 (Stall); Ex. 31, Bates No. 395.

By securing this license amendment, FPL was able to postpone the RPI repair until the necessary work orders, planning, and materials to perform the work were in place. Tr. 42-43, 424 (Stall); Ex. 32, Bates Nos. 508-09. This pre-planning allowed FPL to continue to provide low-cost nuclear power from Unit 3 and significantly reduce the overall outage time that would be required for the RPI repair work, whenever it ultimately was performed, for the benefit of FPL's customers. Tr. 41-44, 105-106, 407, 424 (Stall); Ex. 32, Bates Nos. 524-25.

The first time that Unit 3 was shut down such that the NRC RPI repair commitment was triggered turned out to be the Flagami Transmission Event. Tr. 42, 78 (Stall); Ex. 32, Bates No. 509. At that time, the repair of the RPI system had been prudently planned in advance, and it was well executed. Tr. 42-43, 45, 407 (Stall); Ex. 32, Bates Nos. 508-09. Mr. Stall testified about the significance of securing the ability to defer the work to the next Unit 3 outage:

> [W]e knew that if we were to shut the reactor back down and go fix [the RPI] at that point in time [October 2007] that it would have taken a very long time to do because we didn't have the parts, we didn't have the work order, we hadn't done any advance planning or testing to localize the nature of the problem. So the engineers developed an alternative methodology that we went to the NRC and, frankly, spent some regulatory margin to get their approval to allow us to continue to operate because it was the right thing for the customers to do that.

> Along came the Flagami event, and we were now obligated to do it, and we did it in much less time than it would have been in October. And to be penalized for doing the right thing for the customers is just, I think, the wrong signal.

Tr. 424 (Stall).

FPL's position that its actions with respect to the Unit 3 outage were prudent was not questioned by Dr. Dismukes and was not significantly challenged at hearing. There was speculation at hearing, however, that if Unit 3 had operated uninterrupted all the way to its planned refueling outage in the Spring of 2009, then the RPI repair work could have been done off the refueling outage's critical path and thus not cause any additional outage time. Tr. 78-81 (Stall); Ex. 32, Bates No. 509. While theoretically possible under the terms of the NRC license amendment, this speculation is completely unrealistic. Tr. 81 (Stall); Ex. 32, Bates No. 509. Mr. Stall testified that it is unusual for nuclear units to operate a full refueling cycle without any unplanned shutdowns. Tr. 44, 80-81 (Stall); Ex. 32, Bates Nos. 508-09. He also testified that he would not have felt comfortable allowing Unit 3 to continue operating for such an extended period with one of the RPIs not functioning properly. Tr. 79-80, 89, 94-95 (Stall). Therefore, he would have directed that the unit be brought offline before the Spring 2009 refueling outage to perform the repair, even if no other opportunity had presented itself. Tr. 89, 94-95 (Stall). Moreover, an opportunity *would* have presented itself, because Unit 3 experienced an unplanned outage in June 2008. Tr. 94-95, 425 (Stall). Mr. Stall testified that FPL would have performed the RPI repair work then and not waited until the next planned outage, because taking care of the RPI repair as soon as reasonably possible was "the right thing to do" from a safety and operations perspective and this outage (the June 2008 outage) would have provided a good opportunity to do so. Tr. 94-95, 425-26 (Stall).

In short, one way or the other FPL would have shut Unit 3 down to repair the inoperable RPI before the Spring 2009 refueling outage, and it would have incurred outage time comparable to what it incurred following the Flagami Transmission Event to perform that repair. Tr. 78-81 (Stall). Whenever the work was performed, the outage would have been considerably shorter than if FPL had scrambled to do the work when the RPI problem was first discovered in October 2007. Tr. 41-43, 105-06, 422, 424 (Stall). FPL's success in securing an NRC license amendment to allow continued operation of Unit 3 at that time saved FPL and customers substantial replacement power costs by minimizing the necessary repair time. *Id.* FPL should not be penalized now for that success. Tr. 422, 424 (Stall).

3. FPL prudently returned Unit 4 to service; the difficulties FPL experienced during Unit 4 restart activities could only be criticized by applying hindsight and a standard of perfection

Unit 4 was safely and properly shut down in response to the Flagami Transmission Event. Tr. 39-40 (Stall). Thereafter, FPL prudently returned Unit 4 to service as promptly as possible consistent with NRC regulatory requirements and the resolution of unrelated plant issues that arose during the outage. Tr. 45, 48-49, 63-67, 70-76, 407 (Stall).

Most of the attention at the hearing was focused on one issue that delayed the Unit 4 restart.[2] While Unit 4 was returning to service on February 29, 2008, the water level in one of the four steam generators exceeded a set point of 75 percent, so the plant operators

[2] There was substantially less discussion at the hearing about the automatic turbine shutdown (i.e., reverse power relay trip) at Turkey Point Unit 4, which was unrelated to the manual shutdown caused by the water level in one of the steam generators. The automatic turbine shutdown occurred on February 28, 2008, when Unit 4 was returning to service. Tr. 48, 418-21 (Stall). A relay for a protective circuit did not function properly, and a contact failed. Tr. 48, 420 (Stall). The relay had a mechanical issue that was identified during post-failure testing. Tr. 48 (Stall). The malfunction was a random mechanical failure. *Id.* FPL concluded that the relay at issue failed independent of the vibration from the trip following the Flagami Transmission Event, and the failure would have occurred during FPL's next shutdown even if the Flagami Transmission Event had not occurred. Tr. 419-21 (Stall).

initiated a manual reactor shutdown as required by plant procedures. The plant was shut down safely, and the restart was then recommenced. Tr. 43-44 (Stall).

The steam generators in a nuclear unit provide the steam that turns the main turbine-generator, which generates electricity. It is vital to the steam generators' safe operation that the water level inside them is neither too high nor too low, because either extreme can impact their ability to generate steam within the prescribed operating parameters. When the Turkey Point nuclear units are initially returning to power operation after a shutdown, the water level in the steam generators must be controlled initially by manual adjustment of valves that introduce water from the feedwater heaters. Then, as the turbine-generator becomes more heavily loaded, the control of the steam generator water level is transitioned to larger, automatically-controlled valves. There are several factors that interact in a complex manner to impact the steam generator water level during power ascension. Controlling the water level manually is especially challenging, so there is good reason to move through the initial power ascension quickly and thus transition onto automatic feedwater control. On the other hand, rapid power ascension can cause fluctuations in the water level that are difficult to control. Tr. 100, 108 (Stall).

So, reactor operators face something of a dilemma each time they restart a Turkey Point nuclear unit: they want to move quickly to the realm of automatic water-level control, but they want the power ascension to take place gradually enough not to create challenging water-level fluctuations. This balance is neither impossible nor easy to achieve, as witnessed by the fact that FPL is typically able to bring its nuclear units back on line without having to trip the units due to water-level fluctuations, but at the same time there are well over a hundred instances where utilities across the country, including FPL, have reported reactor trips due to water-level

fluctuations. *Id.*

As it routinely does for any event that causes a reactor trip or delays restarting a nuclear unit, FPL conducted a "root cause analysis" to determine what led to the steam generators exceeding the water-level set-point.[3] Tr. 56 (Stall); Ex. 31, Bates Nos. 410 – 81. According to the root cause analysis, "[t]his manual reactor trip challenged plant systems and caused financial consequences by adding an unplanned unit cycle and delaying start up …."[4] Tr. 59 (Stall); Ex. 31, Bates No. 412. In explaining what was meant by "challenged," Mr. Stall explained that the safety systems were exercised, but "we know in this particular case all of those safety systems functioned properly." Tr. 59 (Stall). He explained that FPL's operators are trained to handle a manual reactor trip as part of ensuring redundancy in operator training in the backup systems. *Id.* According to the root cause analysis, the root cause of the water level issue and manual reactor trip was insufficient guidance in FPL's procedures for the rate of initial loading of the main generator and for stabilizing power. Ex. 31, Bates No. 413. As Mr. Stall explained, however, this does not mean FPL's documents or operators were deficient. Rather, he said it is extremely difficult to prescribe in an operating procedure precisely how the operators should load the generator, because operators need as

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[3] As Mr. Stall explained at the hearing, a Root Cause analysis is conducted when, after a condition report is initiated for an unexpected situation at a nuclear plant, FPL assembles a cross-functional team to evaluate all of the possible causes and FPL narrows the potential causes to what are considered "contributing causes" and the "root cause" of the particular event, in this case the 75 percent level in the steam generator and attendant manual reactor trip. Tr. 61-62, 97-98 (Stall). Mr. Stall testified that "tens of thousands" of these condition reports are written at any particular nuclear plant site in a given year and "it is not out of the ordinary for something to be in a root cause [analysis], particularly in a problem statement which is broad and sweeping, that is not necessarily borne out later on when the root cause … is finished." Tr. 107-08 (Stall).

[4] On cross-examination during the hearing, Mr. Stall corrected the misstatement in the root cause analysis that the manual reactor trip delayed restart of both Turkey Point nuclear units by approximately 30 hours. Tr. 60, 98 (Stall); Ex. 31, Bates No. 412. Mr. Stall said it did not delay restart of both units by 30 hours – only Unit 4. *Id.*

much flexibility as possible to be able to react to the many changing variables involved in startup.[5]

Only in hindsight and through applying a standard of perfection could the operators have known that the loading rate they were using would lead to a reactor trip or that there might have been a better loading rate to use. Tr. 66-67, 74-75 (Stall). At the time, the operators reasonably believed they were doing the right thing to balance the competing considerations described above. Tr. 66 (Stall). Discussing the root cause analysis (specifically, Ex. 31, Bates No. 420), the following exchange occurred between Mr. Stall and Mr. Beck, counsel for OPC:

> Mr. Beck: They [the turbine operator and the senior reactor operator] continued to increase main generator load while steam generator levels not stable, is that right?
>
> Mr. Stall: Yes.
>
> Mr. Beck: I take it that's something they weren't supposed to do?
>
> Mr. Stall: Well, I think putting myself in their shoes, since I have been in that position in the past myself, I believe at the time in the control room they felt as though the steam generator levels were sufficiently stable in order for them to continue to increase load. It was only in hindsight after the event that you could go back and look at the data and draw a conclusion that perhaps we know because it resulted in a … reactor trip that they could have let those levels stabilize out a little bit longer.
>
> But at that point in time they knowingly moved forward believing that [the steam generator levels] were, in fact, stable enough to continue forward. And that's based on their experience. As I indicated, the operator at the controls had multiple start-ups on his resume.
>
> Mr. Beck: Mr. Stall, you said they felt it was stable, but if you go down to number C, or the letter C, it says the operator crew failed to stop, slow down when unsure. Do you see that?

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[5] It is typical at FPL and across the nuclear industry not to include overly specific criteria in nuclear operating procedures in order to provide adequate flexibility to well-trained operators to manage each start-up situation appropriately. Tr. 64 (Stall).

> Mr. Stall: I see that.
>
> Mr. Beck: Doesn't that say the operators were unsure and they just kept going anyhow?
>
> Mr. Stall: I don't believe that the operators were unsure. As I indicated, these operators have started up these units in the past. They have a sense around when it's stable enough or not stable enough in order to continue to load the generator. These operators at Turkey Point have exhibited in many occasions that they do know when to stop when they are unsure. They would not have knowingly proceeded in the face of an instability that they didn't think was manageable to try to attempt to put this unit on-line. They believed at that time that they were doing the right thing.
>
> Now, you know, it's pretty simple to look back after the event and say, well, you know, you would have recognized that these levels were perhaps oscillating a little bit more than they might have under a different circumstance, and maybe you were unsure and should have stopped. But I don't believe that for one moment that they were unsure of themselves at that moment in time and proceeded. They are just not trained that way.

Tr. 65-67 (Stall). The operators involved in this particular situation were "fully qualified" by the NRC and "very experienced," and they were trained to understand the variables that can influence the water level in the steam generators and to try to balance the loading of the generator as quickly as possible while maintaining the stability and not causing an oscillation in water level. Tr. 64, 67-68, 72 (Stall).

Mr. Stall explained that, while the root cause analysis referred to a "knowledge gap" by some operators with respect to the shrink-and-swell phenomena associated with steam generator loading during restart, it was important to understand that knowledge gaps necessarily exist from operator to operator, particularly as retiring operators are transitioned to new operators. Tr. 74 (Stall). Testifying to the importance of not holding the operators to a standard of perfection, Mr. Stall stated as follows:

> I think it's important to realize that these operators are really doing a herculean job out there, and there are going to be particularly as we begin to

> transition operators who are retiring out in with new operators, there are going to be knowledge gaps going forward that we are going to find. And, yes, some of those knowledge gaps are going to manifest themselves in an event like this. But I don't think that the standard can be perfection, either. I think that you have to step back and look at the process from a broader point of view and not focus in on every knowledge gap that results in some deficiency, and say that, well, you know, obviously these operators weren't well trained, because we have demonstrated in the past the ability to start these units up, and nobody is going to be perfect. These events are going to happen from time to time, and I don't think we should be holding these operators to standards of perfection, which is what I feel like we are doing in this particular case.

Tr. 74-75 (Stall). These operators were well trained and have demonstrated the ability to successfully navigate the complexities involved in startup on many occasions, but they cannot be held to a standard of perfection.[6] *Id.*

In determining whether a Company's actions were prudent, it is inappropriate to apply hindsight. The Florida Supreme Court has reversed Commission orders where the assessment of responsibility was based on information that came to light only after the fact. *See Florida Power Corp. v. Public Service Comm'n.*, 456 So.2d 451 (Fla. 1984). Without impermissible reliance on hindsight, the Turkey Point Unit 4 reactor operators' decisions in loading the main generator and controlling the steam generator water level cannot be validly criticized. Moreover, no party proffered a witness with the experience and qualification of Mr. Stall on evidence relating to the operation of FPL's nuclear units. The evidence strongly

[6] Mr. Stall was asked during the hearing whether the manual reactor trip could have been avoidable through improved operator communication or peer checking, and Mr. Stall said he did not believe it was significant that peer checking was not used and he does not believe the manual trip could have been avoided based on his knowledge of how operators are trained and their approach to operations. Tr. 91-92, 102-03 (Stall). Concerning communications with a peer, Mr. Stall said "having been the experienced operator who has done this successfully, I think that … even if he had communicated … on this specific point with some of his peers, that they could have very well c[o]me to the same conclusion that he did, that, yes, I think that … we're stable enough to continue to increase power." Tr. 103 (Stall).

supports a finding that the outage time at Unit 4 beyond the initial outage time for which FPL has accepted responsibility was not the result of inappropriate or imprudent actions on FPL's part. Tr. 407 (Stall).

3. The length of the outages at Turkey Points 3 and 4 was not unusual

The total outage duration, including the equipment issues that emerged independently of the Event, was approximately 158 hours for Unit 3 and 107 hours for Unit 4. Tr. 44 (Stall). Mr. Stall testified that these types of outage durations are not unusual based on his extensive experience in the nuclear industry, and there was no record evidence to the contrary. Because of the complex technology used in nuclear generating plants and conservative operating philosophies used in their operation, most units will have one or more unscheduled outages during each 18-month fuel cycle. Unscheduled shutdowns are not evidence of problems or deficiencies in the design or operation of the nuclear units. Rather, those shutdowns demonstrate that safety systems are working properly (in the case of automatic plant shutdowns, such as occurred at both Units 3 and 4 in response to the Flagami Transmission Event) and that plant operators are trained to and exhibit the right behaviors to conservatively shut a nuclear unit down (in the case of manual plant shutdowns, such as described above for Unit 4). Tr. 44 (Stall).

Typically, it takes approximately 48 hours to bring a single nuclear unit back on line after an unexpected plant shut down, assuming no complications or emergent work. Tr. 53, 406 (Stall). Restarting two nuclear units following an unexpected shutdown of both units is certainly more challenging than restarting a single unit. This unique set of circumstances certainly lengthens the typical 48-hour timeframe that would be required to restart a reactor following an unplanned shutdown, but a 48-hour time frame is a reasonable measure of the

expected normal length of time to bring a unit back on-line following an unplanned outage. Tr. 40, 53-55 (Stall). As discussed above, the outage time beyond the 48-hour time frame was not the result of inappropriate or imprudent actions on FPL's part. Tr. 53-55, 406 (Stall).

In any case, a sufficient amount of time is necessary to restart equipment that was shut down and to perform all tests required by the NRC operating licenses before it can return to service. Additionally, it is FPL's and standard nuclear industry practice to provide special training to plant operators immediately prior to plant start up using a plant-specific control room simulator, which adds incremental time to the plant startup sequence after an unplanned reactor shutdown. Tr. 40-41 (Stall). The NRC reviewed and had no issues with the outages or with the restart of both units. Tr. 45, 84 (Stall).

4. FPL's customers have benefitted substantially from the Turkey Point nuclear units

As Mr. Stall testified at the hearing, it is important not to overlook the substantial benefits customers have received from the performance of Turkey Point Units 3 and 4. Putting into perspective the outages following the Flagami Transmission Event relative to the overall superior performance of these two nuclear units in 2008, Mr. Stall testified in part as follows:

> [Y]ou have to back up and look at the performance of these units in the aggregate. When we look at 2008, … we have two nuclear units down there that outperformed the industry average by over 4 percent in capacity factor, which gave the customers a benefit of *about 25 days of extra generation that they wouldn't have had* if we had just performed at that average.

Tr. 435 (Stall) (emphasis added). Therefore, despite the unexpected outages that were initiated by the Flagami Transmission Event, the overall generation performance of Units 3 and 4, as measured by the capacity factor and equivalent availability factor, were both above industry average in 2008 even with the outage that was triggered by the Flagami

Transmission Event.[7] This means that FPL's customers received the benefit of considerably more low-cost nuclear-generated energy in 2008 than they would if Units 3 and 4 had performed at industry average levels. Tr. 45-46 (Stall); 185-86 (Avera).

FPL's customers have enjoyed the benefits of the low fuel cost associated with the Turkey Point nuclear units for many years in the lower fuel adjustment they have paid in their bills. Tr. 185 (Avera). Indeed, since 1990 alone, FPL's customers have saved approximately $7.7 billion in fuel costs as a result of the operation of Turkey Point Units 3 and 4. This is approximately $3 billion more than the return that OPC witness Dismukes asserts FPL earned over the 37-year period that the Turkey Point units have been in operation. Customers clearly saved additional billions of dollars over the period before 1990 as well. Tr. 442-44 (Yupp).

In light of the substantial benefits to customers from FPL's management of Turkey Point Units 3 and 4 during 2008 and over the long term, it would be especially inappropriate to penalize FPL for outage time that was not the result of imprudence in the operation and maintenance of the nuclear units, or to apply hindsight or a standard of perfection to the nuclear unit operations.

B. <u>FPL's calculation of RPC reflects the full costs of the transmission-created Event</u>

FPL's calculation of the total system RPC is $2,024,035, which includes $1,405,682 of replacement fuel costs and $618,353 of purchased power costs. Tr. 119 (Yupp). FPL's RPC calculation reflects (1) costs associated with replacement fuel that was required to off-

[7] The average combined capacity factor for the two units in 2008 was substantially above the industry average, and the combined equivalent availability also was better than the 2008 average equivalent availability factor for U.S. nuclear units. Tr. 45-46 (Stall).

set the loss of generation that occurred as a result of the Event; and (2) costs associated with off-system power purchases that FPL executed immediately following the Event. Tr. 114 (Yupp).

1. Calculation of replacement fuel costs

In response to the Flagami Transmission Event, FPL ran gas-turbine peaking units at its Fort Lauderdale, Port Everglades and Fort Myers sites.[8] Tr. 115 (Yupp). As shown in Exhibit 7 (GJY-6), FPL generated 11,430 MWh from those peaking units in the 8-hour period following the Event, after which time those units were shut down and FPL returned to meeting system load requirements with normally operating generating resources. Tr. 116-17 (Yupp), Ex. 7 (GJY-6). FPL's fuel cost for generating 11,430 MWh from the peaking units was $1,992,270. Tr. 116 (Yupp). That figure thus represents the total, or "gross" cost of replacement fuel that FPL incurred as a result of the Flagami Transmission Event. *Id.* However, to determine how much incremental fuel cost was incurred as a result of the Event, one must net against this gross replacement fuel cost the amount FPL would have paid for fuel if the Flagami Transmission Event not occurred. *Id.*

Absent the Event, FPL would have generated the 11,430 MWh with the full range of its other, normally available generation resources. Tr. 116-17 (Yupp). Therefore, a fair measure of the power costs FPL would have incurred in the absence of the Flagami Transmission Event is what FPL's system average cost would have been without the Event. Tr. 117

[8] The cost of running these peaking units was calculated utilizing data from FPL's February 2008 A4 Schedule, as filed with the Commission, and actual MWh production from these units during the 8-hour period immediately following the event. Information on the peaking units and inputs into the calculation are provided in Exhibits 2-7 (GJY-1 through GJY-6). In order to determine the total cost of running FPL's peaking units after the Event, FPL multiplied the MWh production from each site by the production cost ($ per MWh basis) for each site.

(Yupp); 183 (Avera). To derive that figure, FPL started with its actual system average cost reflected in the February 2008 A Schedules. Tr. 117 (Yupp). It then adjusted this actual system average cost to remove the effects of the higher generation costs that FPL incurred as a result of the outages of Turkey Point Nuclear Units 3 and 4. *Id.* In other words, had the outages at Turkey Point 3 and 4 not occurred, FPL's system average cost would have been lower in February 2008. *Id.* Therefore, FPL lowered the system average cost for February 2008 to account for these outages.[9] Tr. 117, 150-51 (Yupp). This adjustment had the effect of increasing FPL's calculated replacement fuel cost, compared to the result that would have been obtained by using unadjusted system average costs. The cost of generating the 11,430 MWh with the adjusted system average cost was $586,588. Tr. 118 (Yupp); Ex. 9 (GJY-8).

FPL's net replacement fuel cost is therefore derived by subtracting the $586,588 that FPL would have incurred at its adjusted system average cost if the Flagami Transmission Event had not occurred, from the $1,992,270 "gross" replacement fuel cost that FPL incurred to run its peaking units in the 8-hour period following the Event. Tr. 119 (Yupp). This yields a net system replacement fuel cost value of $1,405,682. *Id.*

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[9] As discussed above, FPL adjusted its system average cost for February 2008 to account for the lost MWh production from Turkey Point Units 3 and 4. Turkey Point Units 3 and 4 would have generated approximately 118,783 MWh from 13:10 on February 26, 2008 through the end of the month (82 hours and 50 minutes). Other units on FPL's system were required to replace this generation. FPL calculated a replacement generation cost on a dollar per MWh basis utilizing the actual mixture of natural gas, light fuel oil and heavy fuel oil from the February 2008 Schedule A3. Ex. 8 (GJY-7). This generation cost was then multiplied times the 118,783 MWh to yield the fuel costs that FPL incurred in absence of the nuclear units. This figure was netted against the cost of fuel for the same MWh production for Turkey Point Units 3 and 4. The difference was subtracted from FPL's total fuel expenditures on Schedule A3 and that figure was divided by the total MWh of generation for the month on Schedule A3. This process resulted in an adjusted system average cost of $51.32/MWh, or $1.30/MWh less than the original Schedule A3 value. The calculation formulas are shown on Ex. 8 (GJY-7) under the sections entitled "Cost Impact Calculation" and "Adjusted System Average Cost".

2. Calculation of power purchase costs

Immediately following the Flagami Transmission Event, FPL also began to purchase off-system power to help off-set the generation that was lost as a result of the Event. These purchases were in addition to the operation of peaking units described above. FPL purchased a total of 5,214 MWh from six different entities throughout the afternoon/evening of February 26, 2008. Tr. 119 (Yupp). FPL incurred total purchased power costs of $885,935 ($169.91/MWh), including a capacity payment to one entity. *Id.* If the Event had not occurred, FPL would have produced the 5,214 MWh with its own generation. *Id.* Multiplying the adjusted system average cost discussed above times the 5,214 MWh yields a cost of approximately $267,582 that would have been incurred in the absence of the Event to produce the power. *Id.* Therefore, the net cost differential of the purchases that FPL made in response to the Event was $885,935 minus $267,582, or $618,353. *Id.* The details of the purchased power cost calculations are shown in Ex. 10 (GJY-9).

3. Total system RPC

As discussed above, FPL's total RPC is $2,024,035 for the 8-hour period following the Event that it took FPL to stabilize the system. Tr. 119 (Yupp). This is the sum of FPL's net replacement fuel cost of $1,405,682 and its net power purchase cost of $618,353. *Id.*

As was discussed in discovery, depositions and during the hearing, an alternative appropriate measure RPC would be the additional fuel and power costs incurred during the time that each Turkey Point nuclear unit would have been offline following the Flagami Transmission Event if unrelated plant issues had not extended the outage. Tr. 406 (Stall); Ex. 27, Bates Nos. 318-19; Ex. 32, Bates Nos. 498-506; Ex. 33, Bates Nos. 542-43, 582-93, 606-12. This outage time was estimated at 48 hours for each unit. Tr. 406 (Stall). Under FPL's

system-average approach described above, the RPC calculation for an outage duration of 48 hours each for Turkey Point Units 3 and 4 results in an RPC value of $3,507,899. Tr. 444 (Yupp); Ex. 24 (GJY-11). Under OPC witness Dismukes' approach of looking specifically to the avoided cost of nuclear units, the RPC value would be approximately $6.6 million.[10]

FPL believes that 48 hours is the maximum justifiable outage time for purposes of calculating the RPC. As discussed in Section A above, there was no imprudence with respect to the extended outages at Turkey Point Units 3 and 4 that were unrelated to the Flagami Transmission Event, so there is no reasonable basis for holding FPL responsible for the entire outage duration based on the facts of this case. And as discussed below, a decision to hold FPL responsible for more than the 48 hours it would typically take to return the nuclear units to service would be contrary to Commission precedent and inconsistent with the regulatory policy of the State which supports the continued development of low fuel cost generation.

C. FPL's RPC calculation is consistent with Commission precedent and regulatory policy

This Commission and others around the country have consistently limited disallowances of RPC to the portion of outages that are directly associated with imprudent actions. To do otherwise would send the wrong message with respect to investment in low fuel cost generation. Further, penalizing FPL for replacement power costs associated uniquely with Turkey Point Units 3 and 4 that are not a result of any imprudence in the operation of those units would be unfair. Tr. 182-83 (Avera). Therefore, FPL has calculated replacement fuel costs

[10] FPL's responded to Staff Interrogatory No. 42 (Ex. 27, Bates Nos. 318-19) with a production costing simulation comparing FPL's system, assuming no unit outages from the Flagami Transmission Event, with four alternative outage scenarios. Ex. 27, Bates Nos. 318-19. Where the outage time attributable to the Flagami Transmission Event is 48 hours at each nuclear unit, the RPC value calculated in response to Interrogatory No. 42 is $6,596,794. Ex. 27, Bates Nos. 318-19.

for the 8-hour period during which the Flagami Transmission Event had a significant impact on the company's ability to operate its generation system and based that calculation on what its system average fuel costs would have otherwise been during that period if all generating resources were available and able to operate. Tr. 114-15 (Yupp); 177-79 (Avera).

1. Use of System Average Fuel Cost sends proper signals for investment in low fuel cost generation

Penalizing FPL for replacement power costs associated uniquely with Turkey Point Units 3 and 4 that are not a result of any imprudence in the operation of those units would be unfair and serve as a major disincentive to the construction and operation of low fuel-cost generating technologies such as nuclear, solar and wind. Tr. 184 (Avera). If the RPC for a transmission outage were calculated based exclusively on the low fuel cost generating resources that happened to be affected by the outage, then investors' risk exposure would be increased even in those cases where there has been no imprudence in operating those resources. Tr. 182 (Avera). This would create a clear disincentive to invest in fuel-efficient generation alternatives, including nuclear, solar and wind, because their low cost would increase the potential penalty from unrelated outages. Tr. 182-83 (Avera). For example, using the low fuel cost of Turkey Point Units 3 and 4 as the sole basis to compute RPC in this case would unfairly increase the penalty for the Flagami Transmission Event even though that outage was unrelated to the operation of the nuclear units. Tr. 184-85 (Avera). In contrast, calculating the RPC based on system average costs, as FPL has done, does not focus the penalty on FPL's investment in low fuel cost generation and thus avoids a disincentive to the development of these important resources. *Id.*

Dr. Avera was questioned at the hearing about whether there is precedent for this Commission to support the use of system average cost in calculating the RPC related to the

Flagami Transmission Event. Tr. 247-48 (Avera). Dr. Avera said that he is not aware of precedent specifically on point, but noted that this case is unique in that he is not aware of a prior case at this Commission or any other where a generation-related RPC credit has been imposed as a result of a transmission-created unit outage for which the utility has accepted responsibility. *Id.* He testified that this is a case of first impression for the Commission, and the Commission should use this opportunity to promote continued investment in low fuel cost generation by deciding as a policy matter that, if a nuclear unit shutdown occurs due to events and factors unrelated to prudence in the operation of the nuclear unit, the Company should not be penalized. Tr. 249-50 (Avera). To avoid penalizing the Company for an independent and unrelated event, any credit to customers resulting from an off-site event for which the utility has accepted responsibility should be measured based on the system average cost as opposed to the avoided nuclear fuel cost. Tr. 250 (Avera).

Asked whether investors would be "surprised" if the Commission approved the disallowance recommended by OPC, Dr. Avera responded that investors would perceive that the risk of disallowance of fuel costs has indeed increased beyond what they expected:

> I think they would regard it as a new risk. How material it would be, I think, depends on the nature of the decision. But you have got to remember an investor looks at the possibilities, and the amount in this case might be dwarfed by the amount in a future case where there is a bigger difference between the system average cost and the fuel efficient cost, and more megawatts effected for a longer period of time. So this is an unlimited kind of unspecified type of risk, and that's the sort of thing that really shakes up investors, things they can't get their arms around.

Tr. 217-18 (Avera). Adding to the risk of disallowances associated with fuel efficient generating resources creates disincentives that are contrary to sound regulatory policy. Tr. 182-83 (Avera). Similarly, increasing the penalty because of legitimate operational issues unique to

Turkey Point and unrelated to the triggering transmission disturbance, would heighten the disincentive and would unfairly penalize investors. *Id.*

FPL's RPC calculation identifies the cost attributable only to the transmission-created outage, by using system average fuel cost and the time it took to stabilize FPL's system following the Flagami Transmission Event. Tr. 464 (Avera). Separating the low fuel cost and extended recovery times unrelated to this Event from the FPL calculation is the fairest way to recognize FPL's responsibility for the transmission-created outage without penalizing FPL for the fact that the outage happened to affect prudently operated nuclear units. *Id.* Specifically linking the RPC to the transmission-created outage and separating the nuclear-related costs is sound economics and regulatory policy. *Id.*

2. Precedent supports only holding FPL responsible for the portion of the outage attributable to the Event for which FPL has accepted full responsibility

Precedent of this Commission supports FPL's position. For example, in Order No. 23232, issued on July 20, 1990 in Docket No. 900001-EI, the Commission required the refund of RPC for Turkey Point Unit 3 during the period March 29 through April 1, 1989, stating that this outage time was the responsibility of FPL's management because operator training is directly a management function. On March 29, 1989, FPL had agreed with the NRC to take Turkey Point Unit 3 offline because FPL's nuclear unit operators failed to pass NRC licensing requalification exams. The three days for which FPL was ordered to refund RPC were part of a much longer series of outages extending throughout the Spring of 1989, but the Commission only disallowed RPC associated specifically with the requalification exam. Order No. 23232 states:

> However, the outage concurred with a previously scheduled outage for equipment safeguards testing that was set to begin on April 1, 1989. During this planned outage, FPL identified and performed essential repairs. Thus,

> even though management was responsible for the outage, replacement fuel costs were prudently incurred commencing April 1. Therefore, only replacement fuel costs for the period March 29 through April 1, 1989, should be disallowed.

See Order No. 23232, Docket No. 900001-EI (issued July 20, 1990); Tr. 495-96 (Keith); 355-57 (Dismukes).

Similarly, in Order No. PSC-09-0024-FOF-EI issued on January 7, 2009 in Docket No. 080001-EI, the Commission held FPL responsible for the portion of the outage at Turkey Point 3 for which the Commission concluded FPL had not met its burden of demonstrating its actions were prudent. *See* Order No. PSC-09-0024-FOF-EI, Docket No. 080001-EI (Jan. 7, 2009)[11]; *see also* Order No. 9950, Docket No. 810001-EU (issued April 15, 1981); *aff'd Florida Power Corp. v. Cresse*, 413 So. 2d 1187 (Fla. 1982) (holding Florida Power Corporation ("FPC") responsible for a portion of an outage at Crystal River No. 3, because FPC did not have a replacement decay heat pump in stock when the in-service unit failed).

Applying the same principles here, FPL should only be responsible to refund RPC for the 8-hour period following the Flagami Transmission Event during which FPL had to run

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[11] This is the order in the case referred to at the hearing as the "drilled hole" case. As Dr. Avera pointed out at the hearing, the drilled hole case and this case are substantially different. As Dr. Avera described:

> Here there is no allegation that there was a problem with the plant. At least that's not the basis of OPC's claim of using the full amount. And I think that is the problem, that we are penalizing a plant that has been prudently operated just because it happened to be the one that was affected by a transmission outage. And I think the way that I recommend we calculate it, which was to identify the pure transmission cost, was the correct way to account for the replacement cost in this case.

Tr. 275 (Avera). Dr. Dismukes agreed that the order in the drilled hole case only required FPL to refund replacement power costs incurred during the 5-day extension of the outage related to the drilled hole incident, and FPL was not responsible for the outage time prior to the five-day extension Tr. 358 (Dismukes).

gas-fired peaking units and purchase power before the grid was stabilized. In no event should the calculation of replacement power costs extend beyond the 48 hours that it would typically take to return Turkey Point Units 3 and 4 to service following an unplanned shutdown, assuming no complications or emergent work. Tr. 496 (Keith).

OPC requested and received official recognition for two Gulf States Utilities Company orders, from the Texas Public Utilities Commission ("TPUC") and Louisiana Public Service Commission ("LPSC"), concerning outages at the River Bend nuclear plant. *See* LPSC Order No. U-20647, pp. 26-28, Docket No. U-20647 (issued July 27, 1994) ("LPSC Order") affirmed in relevant part (and vacated in part on grounds unrelated to this case) in *Gulf States Utilities Co. v. Louisiana Public Service Commission,* 689 So2d 1337 (Louisiana Supreme Court, 1997); *Re Gulf States Utilities Company*, Texas Public Utility Commission, Docket No. 10894, 19 Tex. P.U.C. Bull. 1401, pp. 37-39 (issued Aug. 19, 1993) ("TPUC Order"). None of the disallowances addressed in those orders is analogous to the present situation, where an off-site transmission event initiated the nuclear unit outage. Both orders involve the same factual circumstances because the River Bend nuclear plant at issue serves customers in Texas as well as Louisiana. The LPSC and TPUC Orders discuss several outage events, but Dr. Dismukes acknowledged that none involved an off-site incident in the bulk transmission system, such as the Flagami Transmission Event. Tr. 360.

OPC appears to have cited those orders because one of the outage extensions that they address involved a transformer. However, unlike the transmission substation involved in the Flagami Transmission Event, the transformer at issue in those orders was dedicated to providing power during River Bend start up and it was imprudence on the part of the utility with respect to the transformer that extended the outage of the nuclear units. Tr. 277-78

(Avera). Moreover, both orders disallow RPC associated with certain portions of the total River Bend outage time while allowing Gulf States to recover the RPC associated with other portions. Thus, neither order is precedent for what OPC proposes here: that FPL should be held responsible for the entire outage duration at both Units 3 and 4 notwithstanding that both units were returned to service safely and as promptly as possible, with no evidence of imprudent operation or maintenance at either unit.[12] To the contrary, both orders support FPL's position in this docket that not all of the replacement power costs should be assigned to the utility. Similar to the Commission precedent discussed above, this Commission should strike a fair balance in the allocation of the replacement power costs between customers and the Company.

D. OPC's RPC calculation ignores PSC precedent and sends improper signals for investment in low fuel cost generation

Dr. Dismukes' recommendation that FPL be responsible for RPC covering the full period of time that Turkey Point Units 3 and 4 were offline following the Flagami Transmission Event is inconsistent with Commission precedent and contrary to Florida's policy of promoting investment in low fuel cost generation.[13] For FPL to be held responsible

[12] It is worth noting that the LPSC concluded Gulf States was only *partially* at fault for the extension of the River Bend shutdown associated with the transformer failure. *See* LPSC Order at 28. While the LPSC believed Gulf States should have had a transformer in reserve to avoid extended outage time, it went to pains to divide the responsibility for the outage and only deny cost recovery for the portion of the outage extension that was the utility's responsibility. Even OPC's witness Dismukes agreed that cost recovery for only a portion of the outage period was disallowed by the LPSC. Tr. 361-62.

[13] FPL disagrees with Dr. Dismukes' calculation of the replacement power cost for the entire time the units were offline. As shown in Interrogatory 42(d) from Staff's First Set of Interrogatories in this Docket (Ex., 27 Bates Nos. 318-19), FPL's calculation of RPC for the entire time the two units were offline following the Flagami Transmission Event is $14,557,536 using the more accurate production costing method to calculate RPC as opposed to a manual calculation. Tr. 149, 168-69 (Yupp). OPC witness Dismukes testified that OPC did not attempt to calculate its RPC proposal using a production costing model, and did not

for the entire time the nuclear units were out of service would be unprecedented in Florida and elsewhere. FPL should not be held responsible for unrelated equipment issues involved in returning the units to service for which there was no imprudence on FPL's part. Neither FPL's witness Avera nor OPC's witness Dismukes is aware of any state commission precedent for holding FPL responsible for replacement power costs calculated based on the entire time the units were out of service where there has been no finding of imprudence with respect to the operation of maintenance of the power plant. Tr. 249-50 (Avera); 353-54, 379-80 (Dismukes). Dr. Dismukes agreed that regulators, such as this Commission, are legally bound to allow utilities the opportunity to recover prudently incurred costs. Tr. 354 (Dismukes). Despite Commission precedent and the fact that FPL must be allowed an opportunity to recover prudently incurred costs, Dr. Dismukes said his recommended disallowance would be the same irrespective of whether FPL was found to be imprudent with respect to the hours of operation associated with the outage extension at Turkey Point Units 3 and 4 that is the subject of this docket. Tr. 380. Thus, the underlying premise for Dr. Dismukes' proposal – that prudence of operation of the affected plants is irrelevant and that strict liability attaches – would be a stark departure from long-standing precedent of this Commission.

Dr. Dismukes' proposal that the RPC be based on the fuel costs associated with the nuclear units and time they were out of production focuses only on the lost production from

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have any objection to using such a model to calculate the RPC (although he did not have the information needed to independently verify FPL's model results). Tr. 377-78. No party challenged Mr. Yupp's calculation using the more accurate production modeling approach before or during the hearing. In any event, for the reasons discussed herein, FPL believes this is not the proper amount of RPC for which FPL should be held responsible.

the nuclear plant, thus conflating transmission-related costs with generation-related costs.[14] Tr. 310-11; Ex. 14 (DED-4). This is exactly the same as the calculation that would be done if the nuclear plant had been removed from service due to imprudent plant operations. Dr. Dismukes' failure to recognize this distinction opens the door to opportunistic regulation, where the penalty would be unrepresentatively large when low fuel cost generation happens to be impacted by the transmission-created outage but unrepresentatively small if only high fuel cost generation were affected. Tr. 467 (Avera).

Besides departing from the "true value" of the transmission-created costs, Dr. Dismukes' approach exposes utilities to future disallowances that, to use his words, are "unknown, speculative, and yet to be identified." Tr. 325 (Dismukes) (emphasis in the original). The lower the fuel costs and greater the energy efficiency of a particular unit that happens to be affected by a transmission-created outage, the greater the unwarranted disallowance penalty under Dr. Dismukes' approach: in other words, "regulation by lottery."

Dr. Dismukes correctly observes that "consistency is more important to nuclear and renewable power cost recovery than setting policy in a one-time opportunistic fashion." Tr. 336 (Dismukes). A consistent policy is far superior to opportunistic treatment. Unfortunately, Dr. Dismukes' approach, which would penalize a utility opportunistically if

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[14] Dr. Dismukes' argument that customers will be sent proper price signals through use of OPC's proposed RPC methodology lacks merit. OPC's proposal does not track marginal or opportunity costs more closely than FPL's. Marginal cost is an instantaneous concept in real time. Florida's fuel adjustment mechanism is not structured to send customers real-time price signals of system cost. As FPL witness Keith explained in his rebuttal testimony, customers pay bills based on projected, levelized fuel factors that average fuel costs over the course of a calendar year. Moreover, the true-up for differences in actual costs due to an unanticipated event such as the Flagami Transmission Event will be reflected in the levelized fuel factors one or two years after they occur. Thus, regardless of the approach taken to calculating RPC for an outage, the customers would not receive a meaningful price signal from the RPC. Tr. 496 (Keith).

transmission events cause a prudently operated nuclear unit to come offline, works directly against this worthy goal of regulatory consistency. Tr. 473 (Avera). Increasing exposure to uncertain and speculative risk of disallowance for prudently operated low fuel cost generating units undermines the energy efficiency policy that Florida leaders have determined is in the interest of customers, the environment, and the economy. In fact, it would work directly against the consistency in incentives that Dr. Dismukes recognizes is so important (Tr. 336). Tr. 471-72 (Avera). That is why the Company's RPC approach of isolating transmission-related costs is more effective regulatory policy.

Dr. Dismukes refers to the relatively small amount at issue in the case compared to the massive investment required for nuclear plants and renewable options. However, there is no dollar limit to disallowances under his RPC approach. This open-ended and uncertain exposure would be a real disincentive to nuclear and renewable generation and would undermine present and future state and federal incentives. Tr. 478 (Avera).

Dr. Dismukes makes a series of assertions in support of his proposed RPC calculation that are simply wrong and must be corrected:

- Dr. Dismukes incorrectly suggests that there is no relationship between the proposed RPC credit in this proceeding and nuclear plant development cost recovery policy. Tr. 475-76 (Avera). To the contrary, there are two important links between this case and Florida's nuclear development cost recovery policy. First, that policy confirms the importance to Florida of encouraging the development of nuclear power in the state. As stated by Dr. Dismukes, "The Commission, and the Florida Legislature, have clearly defined a strong and supportive policy for nuclear power plant development." (Tr. 335). Second, the effectiveness of this policy will be undermined by the potential for

opportunistic disallowances due to transmission-created outages of the kind proposed by Dr. Dismukes, when there has been no finding of imprudence in nuclear operations. Disallowances can have a chilling effect on future investment in nuclear generation. Tr. 476-77 (Avera).

- Dr. Dismukes incorrectly claims that FPL's approach would shelter the Company from the consequences of supporting reliability and undermine distributed energy resources. Under the Company's proposal, the price of transmission reliability is set consistent with its cost so that economically rational decisions can be made regarding investments in reliability and distributed energy resources. A stable and consistent price is more conducive to rational economic choices over reliability investments than the opportunistic and fluctuating penalty that would result from Dr. Dismukes' approach.[15] Tr. 478-79 (Avera).

- Dr. Dismukes incorrectly asserts that adopting FPL's proposals in this docket will create a "moral hazard" and FPL will be incented to perform less efficiently if it can recover its replacement power costs for the unplanned outages resulting from the Flagami Transmission Event.[16] FPL's top priority is safe operations at all of its nuclear plants.

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[15] There was discussion at the hearing about the October 8, 2009 FERC Order approving the Stipulation and Consent Agreement ("Stipulation") for alleged violations of reliability standards in connection with the February 26, 2008 transmission outage pursuant to which FPL agreed to spend $5 million within three years of the effective date of the Stipulation to further enhance the reliability of FPL's portion of the bulk electric system, subject to approval of FERC and NERC staff. Commissioner Skop questioned whether those investments would be made in Florida and FPL confirmed that they would be. *See* Letter from John Butler to Lisa Bennett dated March 22, 2010, Docket No. 090505-EI.

[16] Moral hazard arises when an economic agent is insulated from the negative consequences of their actions. As defined by the same classic regulatory policy text cited by Dr. Dismukes, "*Moral hazard* is the failure of a person to behave in a fully responsible way *because* there are no penalties for misbehavior." (James C. Bonbright, Albert L. Danielsen, and David R. Kamerschen, *Principles of Public Utility Rates* (1988), page 40, emphasis in

Tr. 45 (Stall). Dr. Dismukes overlooks the fact that the NRC would not permit refueling outages to be performed in an unsafe manner. As witness Stall testified, FPL operates its nuclear plants pursuant to a complex set of requirements set forth in the NRC operating licenses and in applicable NRC rules, regulations, and orders. The NRC has virtually unlimited authority to take actions necessary to ensure protection of the public health and safety. Thus, even if a licensee were inclined to allow its performance to lag in response to a "moral hazard" (which is certainly not the case for FPL), this intrusive regulatory regime would make it impossible for the licensee to do so without a significant regulatory response from the NRC. If the NRC were to have concerns regarding the performance of FPL's nuclear power plants, it has a wide range of compliance tools and enforcement mechanisms to compel compliance with NRC regulatory requirements. Moreover, the NRC can exert significant leverage through licensing activities at other plants in FPL's fleet.

In light of the NRC regulatory regime and the business construct around outage performance at FPL and in the nuclear industry, the suggestion that FPL's approach to planned refueling and maintenance outages and unplanned outages would be changed based on a decision by the Commission in this docket is absurd. Tr. 405-06 (Stall). On cross-examination, Dr. Dismukes acknowledged that FPL's nuclear units are subject to substantial oversight by multiple regulatory agencies. Tr. 373-74 (Dismukes). FPL would not change its aggressive approach to performing refueling outages safely and quickly if this Commission adopts FPL's system-average approach to determining replacement power costs for the Flagami Transmission Event. FPL's approach results

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the original). Tr. 470 (Avera).

from a strong and long-standing culture of striving for excellence in nuclear operations, in order to operate the nuclear units safely and make the benefits of their low fuel costs available to customers as much of the time as possible. The specifics of how the Commission would determine replacement power costs are not a factor in how FPL approaches nuclear operations. Tr. 405 (Stall).

- Dr. Dismukes allegations about a transfer of wealth are unfounded. There is no basis for Dr. Dismukes' claim that FPL is proposing "to transfer close to $14 million in consumer wealth to itself and its shareholders" Tr. 323 (Dismukes). On the contrary, the Company has agreed to reimburse customers for the transmission-related costs that resulted from what Dr. Dismukes agreed was a transmission-created outage. Under regulatory policy in Florida (as in most states and federal jurisdictions), a utility is allowed to recover prudently incurred fuel and purchased power costs without profit or loss. Tr. 371 (Dismukes); 468 (Avera). The Company did not profit from recovery of fuel costs and it should not suffer a loss beyond that necessary to pay for costs associated with the transmission-created outage. FPL has agreed to reimburse customers for the full costs from the transmission-created outage of February 26, 2008. Tr. 467-68 (Avera).

Finally, Dr. Dismukes' assertion (Tr. 329) that "FPL's customers pay (on average, total customers) a considerable amount in base rates relative to other peer utilities" is irrelevant for evaluating the benefits that FPL's nuclear units provide to customers. It ignores the enormous fuel savings that customers receive from the operation of Turkey Point Units 3 and 4, which are described in Section A above. Further, to get a true measure of what FPL customers pay, one should look at the customers' total bill. Based on information from the Florida Municipal Electric Association and JEA, FPL's residential monthly 1,000

kWh bill for January 2010 was the lowest of all the Florida investor-owned utilities ("IOUs"), municipal utilities, and electric cooperatives, and was 28% below the average of Florida utilities. Based on data from the Edison Electric Institute, FPL's residential monthly 1,000 kWh bill for July 2009 was 10% lower than the IOU national average. FPL's residential 1,000 kWh bill for February 2010 was again the *lowest* among the Florida IOUs. Tr. 498 (Keith).

Conclusion

This docket presents the Commission with a unique situation. Turkey Point Units 3 and 4 tripped offline as a result of an Event unrelated to nuclear unit operation. The Company has accepted responsibility for that Event, but there is nothing to suggest imprudence in how the nuclear units were then returned to service. To the contrary, substantial evidence supports the conclusion that there was no imprudence in the operation and maintenance of the nuclear units during or following the Event. The approximate $2 million credit proposed by FPL is a reasonable measure of RPC associated with the Event. This calculation reflects replacement fuel and replacement power costs incurred in the 8-hour period immediately following the Flagami Transmission Event until FPL's system stabilized, and it recognizes that FPL took prudent and conservative measures to investigate, inspect, and analyze systems and components prior to safely restarting Turkey Point Units 3 and 4 after the Event. It would be unfair and serve as a major disincentive to the construction and operation of low fuel-cost generating technologies if the RPC calculation were based solely on those two nuclear units, where there was no imprudence in their maintenance or operation.

ISSUE 2: What is the appropriate method to credit customers for the replacement power costs determined pursuant to Issue 1?

FPL: *The Commission should utilize the traditional fuel cost recovery true-up process to implement the RPC credit in order to minimize the billing system expense and workload associated with a unique, one-time credit. Using this method, FPL would reflect the credit in the 2010 net true-up, where it would serve to reduce 2011 fuel cost recovery factors.

If the Commission determines that FPL should implement a one-time credit, the credit should be issued to customers of record during the first billing cycle beginning 60 days after the Commission decides the credit amount, based on customers' consumption in that billing cycle. Implementing a one-time credit based on 12 months of consumption would be costly, complex and would delay implementation.*

Argument

There is no contrary record evidence to that presented by FPL on Issue 2. OPC's witness presented no testimony on Issue 2, and OPC stated "no position" with respect to it. Moreover, no party took the position that a one-time refund should be based on 12 months of consumption. *See* Order No. PSC-10-0151-PHO-EI, p. 8, Docket No. 090505-EI (issued March 12, 2010).

FPL suggests that the Commission utilize the traditional fuel cost recovery true-up process in order to implement the RPC credit that is approved in this proceeding. That process will minimize the billing system expense and workload associated with a unique, one-time credit. Using this traditional method for refunds, FPL would reflect the credit in the 2010 net true-up, where it would serve to reduce 2011 fuel cost recovery factors for all customers. Tr. 291 (Keith).

If the Commission determines instead that FPL should implement a one-time credit, the credit should be issued to customers of record during the first billing cycle beginning 60 days after the Commission decides the credit amount, based on customers' consumption in that billing cycle. Using this method would minimize the cost, complexity and delay

associated with implementing a one-time credit based on 12 months of consumption. This is the most efficient means to implement a one-time credit and has been utilized by the Commission recently in Docket No. 080001-EI (Turkey Point Unit 3 "drilled hole" or "pressurizer piping incident" case) and Docket No. 090001-EI (2009 net true-up over-recovery). Tr. 292 (Keith).

In the case of a one-time credit based on the customers' current consumption, FPL would be able to modify the programs developed for the refund of replacement power costs associated with the Turkey Point Unit 3 pressurizer piping incident, which would reduce the cost to implement this type of credit to $70,000 and would require 60 days of implementation time. By contrast, the original cost to implement the refund of the Turkey Point Unit 3 pressurizer piping incident was $220,000 and required three months to implement. Tr. 292 (Keith).

FPL does not believe that there is any practical or equitable reason why the one-time credit contemplated in this proceeding should be calculated based on the prior 12 months of consumption. That approach would be more costly and would delay the implementation of the credit due to the amount of time required to perform the necessary computer coding and integration testing as described in the Direct Testimony of FPL witness Keith. Tr. 293 (Keith). If the Commission were to require the credit to be implemented using 12 months of consumption, FPL would not be able to implement the credit before the August 2010 billing cycle and would incur approximately $120,000 to perform the programming and testing. Moreover, basing the credit on one month's consumption will better match the timing of the credit to the duration of the event prompting the credit, which was a very short period of time. Tr. 294-95 (Keith).

Under any method for calculating the credit, customers will receive the entire amount of the credit as determined by the Commission in this proceeding. Tr. 295 (Keith).

Conclusion

A replacement power cost refund of $2,024,035 is appropriate, and it should be reflected in the 2010 fuel adjustment clause true-up process where it will serve to reduce 2011 fuel cost recovery factors for all customers.

Respectfully submitted this 19th day of April, 2010.

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CERTIFICATE OF SERVICE
Docket No. 090505-EI

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