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March 12, 2021

VIA ELECTRONIC FILING

Adam Teitzman, Commission Clerk
Division of the Commission Clerk and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Docket No. 20210015-EI
Petition by FPL for Base Rate Increase and Rate Unification

Dear Mr. Teitzman:

Attached for filing on behalf of Florida Power & Light Company ("FPL") in the above-referenced docket are the Direct Testimony and Exhibits of FPL witness Robert Coffey.

Please let me know if you should have any questions regarding this submission.

(Document 10 of 69)

Sincerely,

A handwritten signature in black ink that reads "Wade Litchfield".

R. Wade Litchfield
Vice President & General Counsel
Florida Power & Light Company

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
FLORIDA POWER & LIGHT COMPANY
DIRECT TESTIMONY OF ROBERT COFFEY
DOCKET NO. 20210015-EI
MARCH 12, 2021

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1 I. INTRODUCTION

2

3 Q. Please state your name and business address.

4 A. My name is Robert Coffey. My work address is 15430 Endeavor Dr. Jupiter,
5 Florida 33478.

6 Q. By whom are you employed and what is your position?

7 A. I am employed by Florida Power & Light Company (“FPL” or the “Company”) as
8 Vice President, Nuclear.

9 Q. Please describe your duties and responsibilities in that position.

10 A. I am responsible for the Nuclear fleet functional areas of Engineering, Operations,
11 Maintenance, Chemistry, Radiation Protection, Regulatory Affairs, Security,
12 Training, Outages and Projects.

13 Q. Please describe your educational background and professional experience.

14 A. I hold a Doctorate of Management in Organizational Leadership from the
15 University of Phoenix, Masters of Business Administration degree from Regis
16 University, and a Bachelor of Science degree in Nuclear Engineering Technology
17 from Thomas Edison State College. I also earned a Senior Reactor Operator
18 Management Certification at the Turkey Point Nuclear Power Plant.

19

20 I have spent over 38 years in the nuclear industry, beginning in the United States
21 Navy Nuclear Submarine Force where I served more than 20 years. I joined FPL in
22 2003 and held numerous positions of increasing responsibility including
23 Maintenance Director and Work Control Manager at Turkey Point and Plant

1 General Manager at St. Lucie. I was also the Site Vice President of NextEra
2 Energy's Point Beach Nuclear Plant and Vice President of the Southern Region for
3 St. Lucie and Turkey Point before serving in my current role as Vice President,
4 Nuclear.

5 **Q. Are you sponsoring any exhibits in this case?**

6 A. Yes. I am sponsoring the following exhibits:

- 7 • RC-1 Consolidated MFRs Sponsored or Co-sponsored by Robert Coffey
- 8 • RC-2 Supplemental FPL and Gulf Standalone Information in MFR Format
9 Sponsored or Co-Sponsored by Robert Coffey
- 10 • RC-3 NRC Performance Indicators
- 11 • RC-4 NRC Inspection Findings
- 12 • RC-5 NRC Regulatory Status
- 13 • RC-6 Nuclear Performance Metrics

14 **Q. Are you sponsoring or co-sponsoring any consolidated Minimum Filing**
15 **Requirements ("MFRs") in this case?**

16 A. Yes. Exhibit RC-1 lists the consolidated MFRs that I am sponsoring or co-
17 sponsoring.

18 **Q. Are you sponsoring or co-sponsoring any schedules in "Supplement 1 – FPL**
19 **Standalone Information in MFR Format" and "Supplement 2 – Gulf**
20 **Standalone Information in MFR Format"?**

21 A. Yes. Exhibit RC-2 lists the supplemental FPL and Gulf standalone information in
22 MFR format that I am sponsoring and co-sponsoring.

23

1 **Q. What is the purpose of your testimony?**

2 A. The purpose of my testimony is to: (1) provide an overview of FPL's nuclear
3 operations; (2) describe how FPL's nuclear fleet performance has yielded
4 significant benefits to FPL customers; (3) discuss FPL's changes made to improve
5 performance since the 2016 rate case; and (4) discuss the O&M expenses for the
6 2022 Test Year and the 2023 Subsequent Year and the capital expenditures from
7 2019 through 2023 for FPL's nuclear operations.

8 **Q. Please summarize your testimony.**

9 A. FPL's nuclear power plants are a source of safe, reliable, clean and cost-effective
10 base-load energy for FPL's customers. These plants are a key component of FPL's
11 energy mix that provide significant value to FPL's customers in terms of fuel
12 savings, reliability, enhanced system fuel diversity and minimization of greenhouse
13 gas ("GHG") emissions. My testimony summarizes FPL's efforts to help ensure
14 the continued safe, reliable, clean and cost-effective operation of FPL's nuclear
15 power plants to meet the significant operational and regulatory requirements for
16 these plants.

17

18 **II. BACKGROUND ON FPL'S NUCLEAR ENERGY OPERATIONS**

19

20 **Q. Please summarize the benefits to FPL's customers of FPL's nuclear**
21 **generation.**

22 A. FPL's nuclear generating assets are critical in maintaining electric system
23 reliability, achieving fuel cost savings, and enhancing system fuel diversity.

1 Nuclear energy has the highest capacity factor of any other energy source as
2 reported by the U.S. Energy Information Administration. FPL's Unit Capacity
3 Factor for 2020 was 90. FPL's nuclear generating assets are a critical component
4 in achieving reductions in FPL's system emissions of greenhouse gases, sulfur
5 dioxide, nitrogen oxides and particulate matter. FPL's four operating units avoid
6 more than 15 million tons of carbon dioxide emissions each year, which is
7 equivalent to removing more than 3 million cars from the road annually.

8 **Q. Please describe the reliability benefits FPL's nuclear units provide.**

9 A. FPL's nuclear units function as base-load generators, which means they operate
10 continuously to supply power to the grid. In addition to providing safe, clean, and
11 reliable power to Floridians, the nuclear fleet also provides greater flexibility in
12 responding to spikes in demand on FPL's system. The constant supply of base-
13 load power from the nuclear units allows FPL to quickly and efficiently dispatch its
14 other generating units to meet demand during system peaks. This flexibility is
15 especially important when system peaks are caused by unanticipated events, such
16 as extreme weather.

17 **Q. Please describe the fuel cost savings nuclear generation provides to FPL's**
18 **customers.**

19 A. FPL's nuclear generation has resulted in over \$20 billion in fuel savings versus
20 natural gas/fuel oil cost equivalent from January 2000 through 2020. These cost
21 savings are passed directly to FPL customers through lower Fuel and Purchased
22 Power Cost Recovery Clause charges.

23

1 **Q. Please describe FPL's nuclear plants.**

2 A. FPL's long and successful involvement with nuclear power started in the mid-
3 1960s with the first order for nuclear generation in the south. FPL's plans to build
4 nuclear units at Turkey Point were announced in 1965, and the first nuclear unit
5 achieved commercial operation in 1972. FPL is currently licensed by the Nuclear
6 Regulatory Commission ("NRC") to operate the St. Lucie Nuclear Plant, Units 1
7 and 2, and the Turkey Point Nuclear Plant, Units 3 and 4. Turkey Point Units 3 and
8 4 are pressurized water reactors designed by Westinghouse. Unit 3 commenced
9 commercial operation in 1972, and Unit 4 did so in 1973. St. Lucie Units 1 and 2
10 are pressurized water reactors designed by Combustion Engineering (now owned
11 by Westinghouse). Unit 1 went into commercial operation in 1976, and Unit 2 did
12 so in 1983. The investment to build these units in the 1960s, 1970s, and 1980s has
13 yielded significant value to FPL's customers in terms of safe, reliable, clean and
14 cost-effective, base-load energy.

15 **Q. Describe the ownership structure for FPL's nuclear units.**

16 A. FPL owns 100 percent of Turkey Point Units 3 and 4 and St. Lucie Unit 1. FPL
17 owns 85.10449 percent of St. Lucie Unit 2. The balance of St. Lucie Unit 2 is
18 owned by the Florida Municipal Power Agency, which owns 8.806 percent, and the
19 Orlando Utilities Commission, which owns 6.08951 percent.

20 **Q. How long are FPL's Turkey Point nuclear units currently licensed to operate?**

21 A. In the late 1990s, FPL had the foresight to begin the process to renew the operating
22 licenses so that the benefits of those nuclear units could continue well into the 21st
23 century. In June 2002, FPL received renewed operating licenses from the NRC for

1 Turkey Point Units 3 and 4. The renewed licenses gave FPL the authority to
2 operate each unit for 20 years past the original license expiration date. In
3 December 2019, FPL received subsequent license renewals (“SLRs”) for an
4 additional 20 years of operation for Turkey Point Units 3 and 4, making Turkey
5 Point the first nuclear facility in the U.S. to receive SLR approval from the NRC.
6 Accordingly, the current license expiration dates for FPL’s Turkey Point Units 3
7 and 4 are 2052 and 2053, respectively.

8 **Q. How long are FPL’s St. Lucie nuclear units currently licensed to operate?**

9 A. In October 2003, FPL received renewed operating licenses from the NRC for St.
10 Lucie Units 1 and 2, which provided FPL the authority to operate those units for 20
11 years past the original license expiration date. Accordingly, the current license
12 expiration dates for FPL’s St. Lucie Units 1 and 2 are 2036 and 2043, respectively.

13 **Q. Does FPL plan to renew the operating licenses for St. Lucie Units 1 and 2?**

14 A. Yes. In August 2021, FPL will file a request with the NRC for SLRs of St. Lucie
15 Units 1 and 2. If approved by the NRC, operating licenses for St. Lucie Units 1
16 and 2 will be extended for an additional 20 years, until 2056 and 2063,
17 respectively. The NRC’s review of FPL’s SLRs for St. Lucie Units 1 and 2 is
18 expected to take approximately 18 months after the request is filed. Given that we
19 have continued to deliver significant value and safe and reliable service to
20 customers through the SLRs we obtained for Turkey Point Units 3 and 4, we have
21 no reason to believe the NRC will not grant our request for SLRs for St. Lucie
22 Units 1 and 2, especially given that none have been denied to date.

23

- 1 ○ Comprehensive safety planning; and
- 2 ○ A commitment to meet or exceed all federal, state and local regulations.

3 **Q. How does the NRC measure FPL’s nuclear safety record?**

4 A. The NRC maintains and tracks a set of performance indicators as objective
5 measures of nuclear safety performance for commercial U.S. nuclear plants. These
6 indicators monitor the performance of initiating events, safety systems, fission
7 product barrier integrity, emergency preparedness, occupational and public
8 radiation safety, and physical protection (security). As shown in Exhibit RC-3, all
9 four of FPL’s nuclear units are in the “green” band of all NRC Performance
10 Indicators in 2020, indicating the best or highest rating for these indicators of
11 nuclear safety performance. As shown in Exhibit RC-4, the NRC inspection
12 findings for 2020 were also “green,” again indicating the best or highest rating for
13 these indicators of nuclear safety performance.

14 **Q. How do FPL’s nuclear plants compare to the remainder of the industry in
15 terms of the NRC performance system?**

16 A. Based on the NRC’s Performance Indicators, FPL’s plants compare favorably with
17 the remainder of the U.S. nuclear industry. The NRC uses its Performance
18 Indicators and inspection activities to determine the appropriate level of agency
19 oversight and response, including the need for supplemental inspections, senior
20 management meetings and regulatory actions.

21

22 All of the U.S. nuclear plants are listed in the NRC’s Action Matrix, which
23 categorizes each plant into one of five regulatory status columns based on overall

1 regulatory performance. The five regulatory columns in order of best-to-worst
2 regulatory performance are: (1) licensee response; (2) regulatory response; (3)
3 degraded cornerstone; (4) multiple/repetitive degraded cornerstone; and (5)
4 unacceptable performance.

5
6 As illustrated by Exhibit RC-5, none of FPL's units falls into categories requiring
7 increased regulatory oversight as of December 31, 2020. Rather, because of FPL's
8 strong regulatory performance in 2020, FPL's nuclear units are in the "licensee
9 response" column of the NRC's Action Matrix, which results in the normal
10 baseline inspection program. In summary, FPL is proud of its nuclear performance,
11 both from a safety and regulatory standpoint. However, this performance cannot be
12 sustained without continued investment in our nuclear plants and our people.

13 **Q. Please describe the operational performance of FPL's nuclear fleet as**
14 **measured by the numerical index maintained by INPO.**

15 A. The operational performance of FPL's nuclear fleet reflects a strong nuclear safety
16 and reliability record. FPL measures its nuclear plant performance using the INPO
17 index. The INPO index is a metric of nuclear plant safety and reliability widely
18 used in the U.S. nuclear power industry. In 2020, the INPO index was calculated
19 by summing weighted values of the following key indicators:

- 20 1. Unit Capability Factor (5 percent);
- 21 2. Online Reliability Loss Factor (10 percent);
- 22 3. Operational Loss Events (10 percent);
- 23 4. Unavailability of High Pressure Safety Injection System (10 percent);

- 1 5. Unavailability of Auxiliary Feedwater System (10 percent);
- 2 6. Unavailability of Emergency AC Power System (10 percent);
- 3 7. Unplanned Reactor Trips (12.5 percent);
- 4 8. Collective Radiation Exposure (10 percent);
- 5 9. Sustained Fuel Reliability (10 percent);
- 6 10. Chemistry Effectiveness (7.5 percent); and
- 7 11. Total Industrial Safety Accident (“TISA”) (5 percent).

8

9 Since 2017, FPL has taken steps to maintain the overall strong performance of its
10 nuclear operations, which resulted in a low cost per megawatt hour (“MWh”), a
11 high overall INPO Index Value, and consistently high generation. As illustrated by
12 the Nuclear Performance Metrics in Exhibit RC-6, these metrics show a
13 consistently strong performance from 2017 through 2020, resulting in increased
14 low cost output and improved reliability. As with the NRC’s metrics that I
15 discussed earlier, however, these improvements cannot be sustained without
16 continued investment in our nuclear plants.

17 **Q. What initiatives has FPL implemented since 2017 in order to achieve this**
18 **consistent strong performance for the nuclear fleet?**

19 A. FPL’s top priority remains providing safe and reliable generation. FPL has
20 maintained the safety and reliability of its nuclear fleet by following its Nuclear
21 Excellence Model (“NEM”), which is the cornerstone of its commitment to achieve
22 and sustain excellence in all aspects of its nuclear operations.

23

1 In support of its NEM, FPL has continued to implement its Self-Improving
2 Culture/Learning Organization philosophy through the Continuous Improvement
3 Process (“CIP”), which engages employees to develop and implement solutions to
4 operate more efficiently without compromising safety. This effort has resulted in
5 the implementation of several innovative and dynamic ideas that benefit the
6 customer.

7 **Q. What are some examples of CIP initiatives that have been or will be**
8 **implemented to operate more efficiently without compromising safety?**

9 A. Some examples of CIP initiatives include developing the infrastructure to increase
10 work efficiency through technology, automation, artificial intelligence/machine
11 learning, robotics and drones. Development and adoption of this technology has
12 automated work processes, training programs, resource awareness and work force
13 analytics, dynamic scheduling and work packages, equipment reliability trending,
14 and value based maintenance.

15 **Q. How does the FPL Nuclear Fleet use robotics and drones to increase work**
16 **efficiency?**

17 A. FPL is using cost saving robotics and drones to reduce more routine work and
18 lower industrial and radiological safety risks. FPL uses Spot, an agile mobile robot,
19 the first to be used in the nuclear industry to monitor and increase equipment
20 reliability through real-time online monitoring of equipment performance to
21 mitigate issues. Spot can enter high radiation areas and perform inspections,
22 limiting exposure to FPL personnel. Spot can stay in these areas much longer than
23 a team member, allowing it to perform more detailed inspections. Spot has many

1 capabilities that are useful in an industrial environment. Spot can read gauges,
2 detect doors, and status fire protection equipment. Spot can go up and down stairs
3 easily, fit into tight spaces, self-correct and stand up without human interference.
4 FPL also uses autonomous drones to perform data collection on canal temperatures,
5 monitor the environment including crocodile nest monitoring, wetland surveys and
6 algae bloom detection.

7 **Q. How does the FPL Nuclear Fleet use artificial intelligence/machine learning to**
8 **increase equipment reliability?**

9 A. Having a clear understanding of how equipment is performing is a fundamental
10 factor in our drive to continuously improve equipment reliability. Our Center of
11 Work Excellence (“CWE”) team is implementing a comprehensive monitoring and
12 diagnostic software program to provide on-demand, easily accessible trending and
13 modeling. The innovative software helps our fleet reduce more routine work
14 through improved detection of equipment performance and predict the useful-life
15 and time-to-failure of equipment, which helps identify the scope and frequency of
16 maintenance through value based maintenance, and provides advanced predictive
17 analytics. Further, instead of spending time gathering data to create a report,
18 artificial intelligence is used to pull the needed data into one easy to read dashboard
19 enabling personnel to spend more time analyzing trends instead of gathering data.
20 The new program directly supports the safe, reliable and event-free operation of our
21 fleet, helping FPL identify and mitigate risk while building margin.

22

1 **Q. How does the FPL Nuclear Fleet use artificial intelligence/machine learning to**
2 **increase work efficiency?**

3 A. The FPL Nuclear fleet is changing how we plan, schedule, and execute work
4 activities through the use of digital work packages and computer based procedures
5 to streamline and automate work processes. Digital work packages automate work
6 assignments and integrate with planning and scheduling. Personnel are auto
7 assigned to work assignments based on expertise and availability. There is also a
8 simplified workflow to generate Work Order Package and add materials from
9 previous work orders with cost information. Computer based procedures integrated
10 approximately 2,000 existing procedures into digital procedures that are dynamic,
11 less prone to errors and automate the close-out process.

12
13 The CWE is also changing how we train for work activities. A library of videos for
14 training before performing specific tasks has been developed by CWE. We have
15 implemented new virtual reality training programs that enable more efficient
16 execution of work activities while reducing risk. For example, the crane simulator
17 enables on demand training without taking a crane out of service and affords
18 trainees valuable time behind the controls to practice a variety of scenarios,
19 including worst case scenarios. Additionally, the new firearm simulator is able to
20 create a more realistic experience for the on-site security officers, allowing trainers
21 to modify the scenario in the midst of a session and easily create new scenarios.
22 These simulators help security focus on the fundamentals, such as grip, stance,
23 breathing and situational awareness, during each training session.

1 These are just a few examples of how FPL has created benefits through utilizing
2 CIP to identify ways to operate more efficiently and create value for customers
3 while at the same time maintaining high standards of quality and safety.

4 **Q. Please describe the personnel safety performance of FPL’s nuclear fleet.**

5 A. FPL measures its nuclear fleet personnel safety performance using an INPO
6 performance indicator known as the TISA rate. The current TISA rate over the 18-
7 month period ending December 31, 2020 for the nuclear fleet is 0.00, the best
8 possible rating that can be achieved. The FPL fleet ranks Top Decile in the
9 industry for this indicator. The TISA rate measures the injury rate for all
10 employees and contractors that work at our nuclear sites, and it is based on the total
11 number of injuries per 200,000 man-hours worked over an 18-month period. An
12 injury rate is an effective measure of personnel safety performance because it takes
13 into account the amount of work undertaken during the reporting period in man-
14 hours. The injuries in the TISA rate are industrial in nature and not radiological.
15 The TISA rate includes injuries that would involve radiological consequences, but
16 there have been none at FPL’s sites. FPL is committed to conducting its nuclear
17 operations in a safe and responsible manner that avoids injuries of all kinds and
18 promotes the physical safety and well-being of its employees.

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1 **IV. CAPITAL EXPENDITURES FOR FPL'S NUCLEAR BUSINESS UNIT**

2

3 **Q. Please summarize the principal drivers of capital expenditures for FPL's**
4 **Nuclear Business Unit.**

5 A. There are two principal drivers of capital expenditures in the Nuclear Business
6 Unit: meeting regulatory commitments and sustaining long term operations by
7 addressing equipment obsolescence and life cycle management. To accomplish
8 these goals, FPL invests in equipment to enhance nuclear safety and improve
9 equipment reliability. These investments will allow FPL to maximize fuel savings,
10 enhance system fuel diversity and provide for the safe and reliable operation of its
11 nuclear units through their renewed license terms.

12

13 FPL plans to implement projects to meet NRC regulatory requirements including
14 commitments made in order to obtain the SLR for Turkey Point. The NRC
15 approved SLR for Turkey Point in 2019, securing low-cost energy for FPL's
16 customers for an additional 20 years. As a requirement of receiving the operating
17 license extensions, FPL had to make certain commitments requiring capital
18 expenditures.

19

20 FPL continues to implement long-term equipment reliability projects that support
21 the safe, reliable and event-free operation of St. Lucie and Turkey Point.
22 Equipment Reliability is essential for safe and cost-effective operation of a nuclear
23 power plant and also for Life Cycle Management and Aging Management

1 supporting power plant life extension. The primary components addressed in these
2 projects consist of replacement and refurbishment of pumps, motors, valves,
3 breakers and turbines. FPL has planned specific equipment reliability projects
4 through 2023 to address industry operating experience, manage degradation, and
5 optimize how regularly scheduled equipment reliability scope is performed.

6 **Q. Please list the specific equipment reliability projects FPL has planned through**
7 **2023.**

8 A. FPL plans to implement numerous equipment reliability projects over the next
9 several years. The most significant of these projects are:

- 10 1. St. Lucie and Turkey Point digital control system replacement
- 11 2. St. Lucie Non-Segregated Phase Bus (“Non-Seg Bus”) replacement;
- 12 3. Turkey Point Reactor Coolant Pump (“RCP”) upgrade project;
- 13 4. St. Lucie integrated reactor head assembly.

14 **Q. Please describe the St. Lucie and Turkey Point digital control system**
15 **replacement project and explain why it is necessary.**

16 A. The St. Lucie and Turkey Point digital control system replacement project is
17 similar to many capital projects implemented at St. Lucie and Turkey Point in the
18 past to ensure reliable operations are maintained through the life of the plants. The
19 current equipment is not likely to last through the subsequent license renewal term.
20 The analog spare parts are becoming obsolete in the industry resulting in increased
21 maintenance cost and loss of vendor support to replace the obsolete components
22 when necessary. Replacing the analog control systems will increase reliability,
23 reduce system maintenance and reduce the number of system surveillances required

1 to be performed. This will also result in reductions in O&M costs for the life of the
2 plant for both sites as well as reduce operational risk.

3

4 The Turkey Point digital system replacement will be completed in the spring 2022,
5 spring 2023 and fall 2023 refueling outages. The St. Lucie digital system
6 replacement is planned to be completed in the fall 2024 and spring 2025 refueling
7 outages.

8 **Q. Please describe the St. Lucie Non-Seg Bus replacement project and explain
9 why it is necessary.**

10 A. The Non-Seg Bus duct is an assembly of bus conductors with associated
11 connections, joints and insulating supports confined within a metal enclosure
12 without inter-phase barriers. At St. Lucie, the Non-Seg Buses are utilized to
13 provide interface connections between the 4kV and 6.9kV transformers and the
14 4kV and 6.9kV switchgears.

15

16 The Non-Seg Bus and associated components at St. Lucie have shown signs of
17 degradation which will continue if corrective actions are not taken. Failure of a
18 Non-Seg Bus can lead to partial or complete loss of offsite power. In this condition,
19 the Emergency Diesel Generators would be the only emergency power source for
20 the safety buses. Thus, replacement of the Non-Seg Bus in Units 1 and 2 are
21 necessary to maintain reliability of the safety systems and for plant operation.

22

1 Cable Buses have been proven to be more reliable than Non-Seg Buses and are not
2 prone to the problems associated with Non-Seg Buses. The cable buses are also
3 almost maintenance free; thus, the Non-Seg Buses at St. Lucie Units 1 and 2 are
4 being replaced with equivalent cable buses.

5 **Q. What is the Turkey Point RCP upgrade project and why is it necessary?**

6 A. Nuclear power plants rely on cooling systems to ensure safe, continuous operation
7 of the nuclear reactor. The purpose of the RCP is to provide forced primary coolant
8 flow to remove and transfer the amount of heat generated in the reactor core. The
9 nuclear industry has seen a rise in the effects of an aging RCP fleet, including
10 component fatigue cracking issues, seal issues, increased vibration and bearing
11 failure. While not a safety issue, potential RCP failures could cause a plant
12 shutdown and potentially extended shutdown if replacement rotating elements are
13 not available. Turkey Point will refurbish or replace the original RCPs to ensure
14 safe and reliable operation into the renewed license term.

15 **Q. Why is the St. Lucie integrated reactor head assembly necessary?**

16 A. The head assembly is a mechanical assembly of various components required to
17 provide cooling of the control rod drive mechanism (“CRDM”), radiation shielding
18 for the CRDM, and the duct work for the air cooling system. All these components
19 are assembled with the reactor vessel head into a single assembly that can be lifted
20 in one lift and moved to the storage stand as a single structure during refueling. The
21 integrated head assembly provides the ability to disconnect the head area cables,
22 the head vent piping, and other instrumentation lines in one step. The integrated
23 reactor head assembly at St. Lucie will simplify the disassembly/reassembly of the

1 reactor head to reduce outage critical path time by nearly 2 days and reduce outage
2 costs. It will also address reliability and life cycle management issues in support of
3 plant operations.

4 **Q. Are FPL's projected nuclear capital expenditures from 2019 through 2023**
5 **necessary and reasonable?**

6 A. Yes. FPL's 2019-2023 capital expenditures include costs to implement projects to
7 meet NRC commitments and to invest in equipment to maintain nuclear safety and
8 improve equipment reliability for long term operation of the plants. This
9 investment will be necessary to ensure FPL's nuclear facilities maximize fuel
10 savings, enhance system fuel diversity, improve efficiency, and allow for the safe
11 and reliable operation of its nuclear units through their renewed license terms.

12 **Q. Do the forecasts for 2022 Test Year and 2023 Subsequent Year O&M costs for**
13 **the Nuclear Business Unit exceed the Commission's benchmark using 2018 as**
14 **the benchmark year?**

15 A. No. FPL's 2022 Test Year and 2023 Subsequent Year O&M for Nuclear
16 Production does not exceed the Commission's benchmark, using adjusted 2018 as
17 the benchmark year. For the 2022 Test Year, Nuclear's O&M funds request is
18 approximately \$30 million below the benchmark. For the 2023 Subsequent Year,
19 Nuclear's O&M request is approximately \$26 million below the benchmark.

20 **Q. What efforts has the Nuclear Business Unit implemented to reduce O&M**
21 **costs?**

22 A. FPL implemented several CIP initiatives that have resulted in benefits to the
23 customer. As illustrated in RC-6, FPL's cost per MWh has decreased substantially

1 since the last rate case. In fact, FPL is in the top decile for one of the lowest nuclear
2 O&M costs in the industry. FPL could not achieve this reduction in costs without
3 the implementation of these CIP initiatives.

4 **Q. Are FPL's projected nuclear O&M expenditures for test year 2022 and**
5 **subsequent year 2023 necessary and reasonable?**

6 A. Yes. FPL's test and subsequent year expenditures include costs necessary to
7 ensure FPL's nuclear facilities maximize fuel savings, enhance system fuel
8 diversity, and allow for the safe and reliable operation of its nuclear units through
9 their renewed license terms. In total, FPL estimates capital expenditures of \$1.6
10 billion from 2019 through 2023, of which \$1.1 billion will be incurred from 2021
11 through 2023.

12 **Q. Does this conclude your direct testimony?**

13 A. Yes.

Florida Power & Light Company

CONSOLIDATED MFRs SPONSORED OR CO-SPONSORED BY ROBERT COFFEY

MFR	Period	Title
SOLE SPONSOR:		
F-04	Historic Subsequent	NRC SAFETY CITATIONS
CO-SPONSOR:		
B-16	Prior Test Subsequent	NUCLEAR FUEL BALANCES
C-08	Test Subsequent	DETAIL OF CHANGES IN EXPENSES
C-15	Historic Test Subsequent	INDUSTRY ASSOCIATION DUES
C-34	Historic Subsequent	STATISTICAL INFORMATION
C-43	Test Subsequent	SECURITY COSTS
F-08	Test Subsequent	ASSUMPTIONS

Florida Power & Light Company

**SUPPLEMENT 1 - FPL STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR
 CO-SPONSORED BY ROBERT COFFEY**

Schedule	Period	Title
SOLE SPONSOR:		
F-04	Subsequent	NRC SAFETY CITATIONS
CO-SPONSOR:		
B-16	Test Subsequent	NUCLEAR FUEL BALANCES
C-08	Test Subsequent	DETAIL OF CHANGES IN EXPENSES
C-15	Test Subsequent	INDUSTRY ASSOCIATION DUES
C-34	Subsequent	STATISTICAL INFORMATION
C-43	Test Subsequent	SECURITY COSTS
F-08	Test Subsequent	ASSUMPTIONS

Florida Power & Light Company

**SUPPLEMENT 2 - GULF STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR
CO-SPONSORED BY ROBERT COFFEY**

Schedule	Period	Title
SOLE SPONSOR:		
F-04	Subsequent	NRC SAFETY CITATIONS
CO-SPONSOR:		
B-16	Test Subsequent	NUCLEAR FUEL BALANCES



NRC Performance Indicators for St. Lucie and Turkey Point

As of December 31, 2020

	TURKEY POINT UNIT 3	TURKEY POINT UNIT 4	ST. LUCIE UNIT 1	ST. LUCIE UNIT 2
Initiating Events Cornerstone				
Unplanned Reactor Scrams per 7000 Critical Hours (Automatic and Manual)	GREEN	GREEN	GREEN	GREEN
Unplanned Reactor Scrams with Loss of Normal Heat Removal	GREEN	GREEN	GREEN	GREEN
Unplanned Scrams with Complications	GREEN	GREEN	GREEN	GREEN
Mitigating Systems Cornerstone				
Mitigating System Performance	GREEN	GREEN	GREEN	GREEN
Safety System Functional Failures	GREEN	GREEN	GREEN	GREEN
Barriers Cornerstone				
RCS Activity	GREEN	GREEN	GREEN	GREEN
RCS Leakage	GREEN	GREEN	GREEN	GREEN
Emergency Preparedness Cornerstone				
Emergency Response Organization (ERO) Drill/Exercise Performance	GREEN	GREEN	GREEN	GREEN
ERO Drill Participation	GREEN	GREEN	GREEN	GREEN
Alert and Notification System Performance	GREEN	GREEN	GREEN	GREEN
Occupational Radiation Safety Cornerstone				
Occupational Exposure Control Effectiveness	GREEN	GREEN	GREEN	GREEN
Public Radiation Safety Cornerstone				
RETS/ODCM Radiological Effluent Occurrence	GREEN	GREEN	GREEN	GREEN
Physical Protection Cornerstone				
Protected Area Security Equipment Performance Index	GREEN	GREEN	GREEN	GREEN

GREEN	WHITE	YELLOW	RED
Acceptable Performance Licensee Response Band	Acceptable Performance Increased Regulatory Response Band	Acceptable Performance Required Regulatory Response Band	Unacceptable Performance Plants Not Normally Permitted To Operate Within This Band

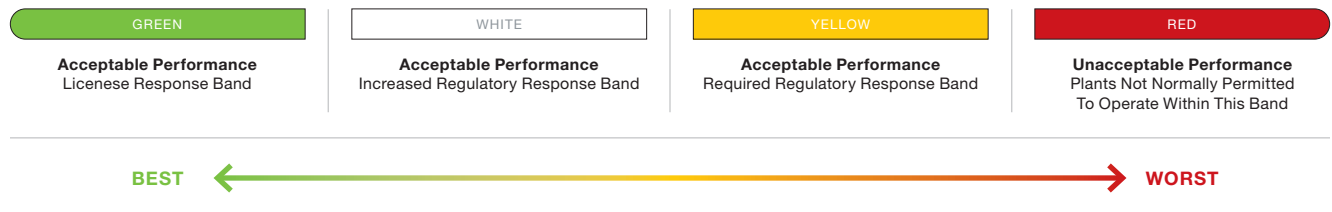




NRC Inspection Findings for St. Lucie and Turkey Point

As of December 31, 2020

	TURKEY POINT UNIT 3	TURKEY POINT UNIT 4	ST. LUCIE UNIT 1	ST. LUCIE UNIT 2
Initiating Events	GREEN	GREEN	GREEN	GREEN
Mitigating Systems	GREEN	GREEN	GREEN	GREEN
Barriers	GREEN	GREEN	GREEN	GREEN
Emergency Preparedness	GREEN	GREEN	GREEN	GREEN
Occupational Radiation Safety	GREEN	GREEN	GREEN	GREEN
Public Radiation Safety	GREEN	GREEN	GREEN	GREEN
Physical Protection	GREEN	GREEN	GREEN	GREEN

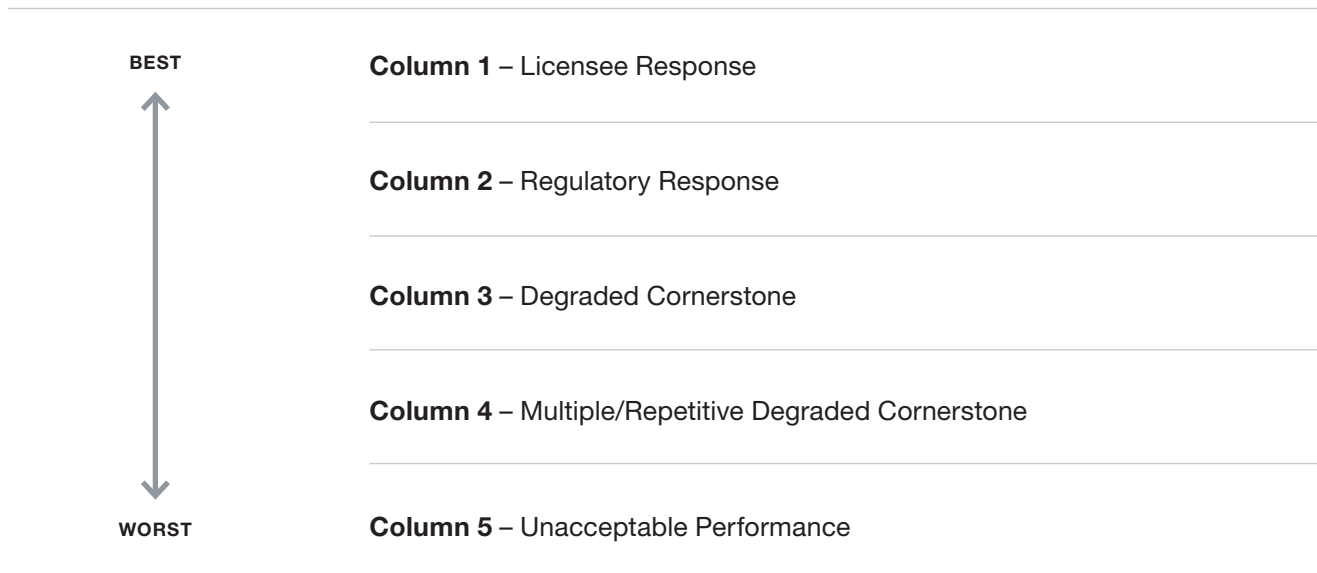




NRC Regulatory Status for St. Lucie and Turkey Point

As of December 31, 2020

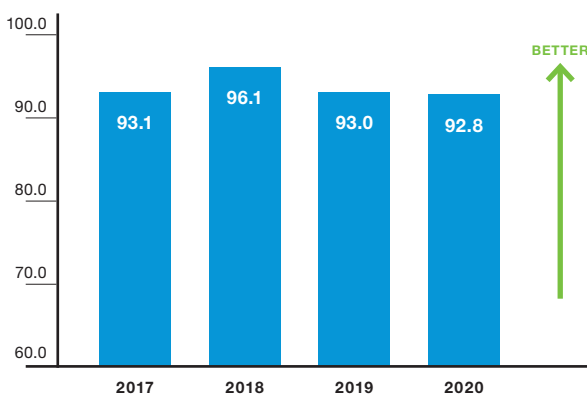
TURKEY POINT UNIT 3	TURKEY POINT UNIT 4	ST. LUCIE UNIT 1	ST. LUCIE UNIT 2
Column 1 Licensee Response	Column 1 Licensee Response	Column 1 Licensee Response	Column 1 Licensee Response





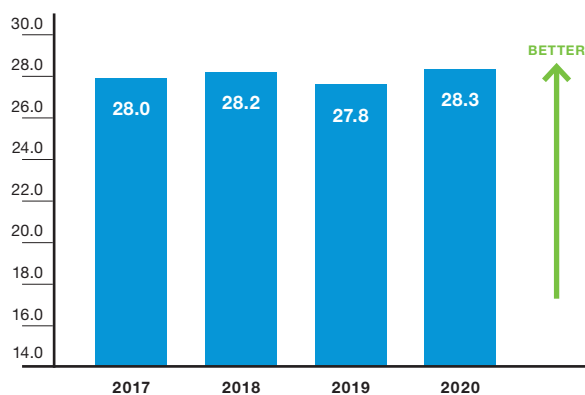
FPL Nuclear Performance Metrics

INPO Index

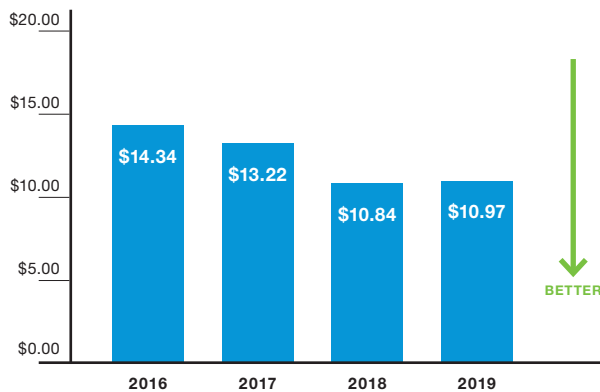


Generation (MM MWh)

FPL Share



Cost per MWh



*FERC Form 1: Non-Fuel O&M less Fuel Expenses;
Nuclear Generation (MWh)*