BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

TESTIMONY OF MICHAEL W. SOLE

DOCKET NO. 20210007-EI

AUGUST 27, 2021

Q. Please state your name and address.

A. My name is Michael W. Sole, and my business address is 700 Universe Boulevard, Juno Beach, Florida 33408.

Q. By whom are you employed and in what capacity?

A. I am employed by NextEra Energy, Inc. ("NEE") as Vice President of Environmental Services.

Q. Have you previously filed testimony in this docket?

A. Yes.

Q. What is the purpose of the testimony that you are filing at this time?

A. The purpose of my testimony is to explain the consolidation of ECRC projects resulting from the merger between Gulf Power and FPL. My testimony also presents for Commission review and approval Florida Power & Light Company's ("FPL" or the "Company") request for recovery through the Environmental Cost Recovery Clause ("ECRC") the modification of an existing approved project, the Lowest Quality Water Source ("LQWS") Project.

Q. Have you prepared, or caused to be prepared under your direction, supervision, or control, any exhibits in this proceeding?

A. Yes, I am sponsoring the following exhibits:

- MWS – 13 - ECRC Combined Project Summary
- MWS – 14 - Sanford Plant July 13, 2021 Consumptive Use Permit
- MWS – 15 - Sanford Consumptive Use Permit Technical Staff Report

Along with FPL's witness Renae B. Deaton, I am co-sponsoring Project Progress Reports, which are included in Exhibit RBD-3 as Form 42-5P.

Q. Please describe the relationship between FPL and Gulf.

A. Gulf was acquired by FPL's parent company, NextEra Energy, Inc., on January 1, 2019. On January 1, 2021, Gulf was legally merged into FPL; but each remained separate ratemaking entities.

FPL and Gulf will be operationally and functionally integrated in 2022. Consistent with the operational consolidation, on March 12, 2021, FPL filed with the Commission a Petition for Base Rate Increase and Rate Unification in Docket No. 20210015 that requested, among other things, authority to consolidate and unify the rates and tariffs applicable to all customers in peninsular and Northwest Florida. Additionally, on August 10, 2021, FPL, the Office of Public Counsel, Florida Retail Federation, Florida Industrial Power Users Group and Southern Alliance for Clean Energy filed a Joint Motion for Approval of Settlement Agreement ("Settlement Agreement") to resolve all matters pending in the docket. On August 24, 2021, Vote Solar and the CLEO Institute also signed on to the Settlement Agreement. If the Commission approves the Settlement Agreement, all Gulf customers will become FPL customers, and Gulf will no longer exist as a separate ratemaking entity.

Q. How does the merger between FPL and Gulf impact the implementation of the companies' ECRC programs?

A. Through the end of 2021, FPL and Gulf continue to operate separately. Beginning in January 2022, FPL will operate as an integrated company. For the purposes of the 2022 projections, FPL is proposing to consolidate the FPL and Gulf ECRC projects for the integrated company. In developing the consolidated projects, FPL combined certain projects by rules or similar subject matter into one integrated project and renumbered some projects so there is no duplication of project numbers. The list of the consolidated ECRC projects for FPL and Gulf is provided in Exhibit MWS-13.

Lowest Quality Water Source Project Modification

Q. Please briefly describe FPL's modification to the LQWS Project.

A. In 2000, FPL was required to utilize the lowest quality water source ("LQWS") in order to comply with St. Johns River Water Management District ("SJRWMD") Consumptive Use Permit ("CU Permit") 9202 for the FPL Sanford Plant. In response to the 2000 permit, the Sanford Plant relinquished 43% of its groundwater allocation and began blending cooling pond water with groundwater to create demineralized process water. FPL petitioned the Commission for approval of costs associated with these activities in Docket 030007-EI, and the costs were approved in Order No. PSC-03-1348-FOF-EI.

On July 13, 2021, the SJRWMD issued a final permit renewing CU Permit 9202. Pursuant to the LQWS requirement, in the renewed permit, the SJRWMD deemed

surface water to be the LQWS and required the Sanford Plant to discontinue use of groundwater. Groundwater use at the site will be replaced by St. Johns River surface water for the demineralized water treatment system and by municipally supplied potable water for other service water uses. The permit is attached as Exhibit MWS-14.

Q. Please describe the environmental law or regulation requiring the LQWS Project and its application to the requested modification.

A. Condition 14 of the CU Permit requires use of "the lowest quality water source, such as reclaimed water, surface/storm water, or alternative water supply, to supply the needs of the project when deemed feasible pursuant to District rules and applicable state law." As part of the permit renewal process, FPL was required to conduct a feasibility evaluation of using reclaimed water or surface water to replace groundwater. Based on this evaluation, the SJRWMD deemed surface water to be a feasible LQWS for the site. Therefore, pursuant to permit conditions 18 and 19, the Sanford Plant is required to transition from groundwater to surface water by August 1, 2023. Beginning August 1, 2023, groundwater can be used only as a backup source, and by August 1, 2024, the groundwater wells must be properly abandoned. The SJRWMD's Technical Staff Report describing their evaluation and determination is attached as Exhibit MWS-15.

Q. Please describe the activities related to the LQWS Project modification that FPL needs to complete.

A. In order to discontinue use of groundwater, the Sanford Plant will need to install infrastructure to connect the water treatment system to surface water from the St. Johns River. Additionally, FPL will need to increase the volume of potable water

purchased for service water purposes. Finally, the Sanford Plant must abandon the two groundwater wells currently being used.

Q. What O&M activities at the Sanford Plant are required to comply with the renewed CU Permit?

A. The main components of O&M associated with the modification to the LQWS project include switching the Land Utilization building from groundwater to potable water and an increase of potable water consumption at the plant for service water purposes.

Q. What is the estimated O&M expense associated with the modification to the LQWS Project for the Sanford Plant that FPL is requesting to recover through the ECRC in 2021 through 2022?

A. In 2022, the annual O&M expenses are estimated to increase by approximately $15,000 as a result of the modified CU Permit. The total 2022 O&M expenses for the modification of the LQWS Project are estimated to be approximately $117,000.

Q. Does FPL expect to incur any capital costs associated with the modification to the LQWS project for the Sanford Plant?

A. Yes. FPL estimates the total capital costs associated with the modification will be $4,985,750. The 2022 capital expenditures are estimated to be $3,968,250. The remainder of the capital expenditures are estimated to occur in the 2023-2024 timeframe.

Q. What capital investments at the Sanford Plant are required to comply with the renewed CU Permit?

A. The main components of the capital investment costs associated with the renewed

CU Permit include the installation of infrastructure such as piping, pumps, electrical equipment, mechanical equipment, and construction costs.

Q. Please describe the measures FPL is taking to ensure that costs associated with the modification to the LQWS Project are reasonable and prudently incurred.

A. In general, FPL competitively bids the procurement of materials and services. FPL benefits from strong market presence allowing it to leverage corporate-wide procurement activities to the specific benefit of individual procurement activities. For the Project, FPL will competitively bid the procurement and construction. FPL's Project Controls group maintains the project scope, budget, and schedule and tracks project costs through various approval processes, procedures, and databases.

Q. Did FPL anticipate that it would need to perform these activities at the time that it prepared the Minimum Filing Requirements ("MFRs") for its 2021 rate case?

A. No. At the time the MFRs were prepared for FPL's 2021 rate case, it was not known when the permit would be issued or what specific activities the permit would require.

Q. Is FPL recovering through any other mechanism the costs for the modification to the LQWS Project for which it is petitioning for ECRC recovery?

A. No.

Q. Does this conclude your testimony?

A. Yes.

2022 Merged ECRC Project	Previously Approved ECRC Projects to be Combined	Regulatory Requirement
1 - Air Operating Permit Fees (O&M)	Gulf- 2-Air Emission Fees (O&M) FPL-1 - Air Operating Permit Fees (O&M)	Title V of the Clean Air Act Amendments of 1990
2 - Low NOX Burner Technology (Capital)	Gulf- 4-Low NOx Burners, Crist 6 & 7 (Capital) FPL-2 - Low NOX Burner Technology (Capital)	Clean Air Act Amendments of 1990
3 - Continuous Emissions Monitoring Systems (O&M & Capital)	Gulf- 5-Emission Monitoring (O&M); 5- Continuous Emission Monitoring Systems (CEMS)- (Capital) FPL- 3 - Continuous Emissions Monitoring Systems (O&M & Capital)	Clean Air Act Amendments of 1990; 40 CFR Part 75
5 - Maintenance of Stationary Above Ground Fuel Storage Tanks (O&M & Capital)	Gulf - 12-Aboveground Storage Tanks (O&M) FPL - 5 - Maintenance of Stationary Above Ground Fuel Storage Tanks (O&M & Capital)	Florida Aboveground Storage Tank Regulation, Chapter 62-762, F.A.C.
14 - NPDES Permit Fees (O&M)	Gulf - 8-State NPDES Administration (O&M) FPL - 14 - NPDES Permit Fees (O&M)	Florida Permits Regulation, 62-4.052, F.A.C.
19 - Oil-filled Equipment and Hazardous Substance Remediation (O&M and Capital)	Gulf - 6- Substation Contamination Remediation (Capital); 7- Groundwater Contamination Investigation (O&M) FPL- 19 - Substation Pollutant Discharge Prevention & Removal (O&M)	Florida Contaminated Site Cleanup Criteria, Chapter 62-780, F.A.C.; Florida Statute Chapters 376 and 403
23- SPCC Program (O&M and Capital)	Gulf- 20- SPCC Compliance (Capital); 11-Crist Bulk Tanker Unloading Secondary Containment (Capital) 11- SPCC O&M costs from General Solid & Hazardous Waste Project (O&M) FPL-23- SPCC Program (Capital & O&M)	Federal Spill Prevention Control and Countermeasures regulation, 40 CFR Part 112
27 - Lowest Quality Water Source (O&M & Capital)	Gulf - Smith Water Conservation (Capital-17 and O&M- 24) Crist Water Conservation (Capital-24 and O&M- 22) 7 - Raw Water Well Flowmeters - Plants Crist and Smith (Capital) FPL - 27 - Lowest Quality Water Source (O&M)	Facility Consumptive Use Permits issued by Florida Water Management Districts
28 - CWA 316(b) Phase II Rule (O&M and Capital)	Gulf - 30-316(b) Cooling Water Intake Structure Regulation (Capital) 6 - 316(b) O&M costs from General Water Quality (O&M) FPL - 28 - CWA 316(b) Phase II Rule (O&M & Capital)	Federal Cooling Water Intake Structure Regulations, 40 CFR Part 122 and 125
426 - Air Quality Compliance (O&M and Capital)	Gulf- Air Quality Compliance Program (Capital-26 and O&M-20) FPL-31 - Clean Air Interstate Rule (CAIR) Compliance (O&M & Capital) 29 - SCR Consumables (O&M) 33 - MATS Project (O&M & Capital) 45 - 800 MW Unit ESP (Capital)	Federal National Ambient Air Quality Standards, Clean Air Interstate Rule (CAIR) and its replacement rule Cross-State Air Pollution Rule (CSAPR), Clean Air Mercury Rule (CAMR) and its replacement rule Mercury and Air Toxics Standard (MATS), Facility Site Certification Amendments and PSD Air Construction Permit. Georgia Multi-Pollutant Rule
47 - NPDES Permit Renewal Requirements (O&M & Capital)	Gulf - 9-Crist Dechlorination System (Capital) 12-Crist IWW Sampling System (Capital) 25-Plant NPDES Permit Compliance Projects (Capital) 6-Toxicity sampling costs from General Water Quality (O&M) FPL - 47 - NPDES Permit Renewal Requirements (O&M & Capital)	State NPDES Industrial Wastewater Regulation, Chapter 62-660, F.A.C. and associated permits
50 - Steam Electric Effluent Limitations Guidelines Revised Rules (O&M and Capital)	Gulf - 29-Steam Electric Effluent Limitations Guidelines (Capital) FPL - 50 - Steam Electric Effluent Guidelines Revised Rules (O&M and Capital)	Federal Steam Effluent Limitations Guidelines, 40 CFR Part 423
54 - Coal Combustion Residuals (Capital)	Gulf- 28 (Capital) and 23-Coal Combustion Residuals (O&M) FPL- 54 - Coal Combustion Residuals (Capital)	Federal CCR regulation, 40 CFR Parts 257 and 261; Georgia CCR rule, NPDES industrial wastewater permits
Emission Allowances (O&M and Capital)	Gulf- Allowances (Capital and O&M-27) FPL- Capital	Federal Acid Rain program developed under Clean Air Act Amendments of 1990, Cross-State Air Pollution Rule (CSAPR)

St. Johns River Water Management District
Ann B. Shortelle, Ph.D., Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • 386-329-4500 • www.sjrwmd.com

July 13, 2021

Pete Holzapfel
Florida Power & Light Company
950 S Charles Richard Beall Blvd
DeBary, FL 32713-9746

SUBJECT: Florida Power & Light Company Sanford Plant, Consumptive Use Permit Number 9202-6
Volusia County, Florida

Dear Sir/Madam:

Enclosed is the permit authorized by the District on July 13, 2021. The enclosed permit is a legal document and should be kept with other important records. Please read the permit and conditions carefully because the referenced conditions may require submittal of additional information. Where possible, please submit all information required to comply with permit conditions electronically at www.sjrwmd.com/permitting via the District's e-Permitting portal.

Please be advised that the period of time within which a third party may request an administrative hearing on this permit may not have expired by the date of issuance. A potential petitioner has 26 days from the date on which the actual notice is deposited in the mail, or 21 days from publication of this notice when actual notice is not provided, within which to file a petition for an administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes. Receipt of such a petition by the District may result in this permit becoming null and void.

If you have any questions concerning the permit, please contact Callie Register in the Palm Bay Service Center at (321) 473-1328 or Kristian Holmberg in the Palm Bay Service Center at (321) 409-2121

Sincerely,

Richard Burklew, Bureau Chief
Water Use Regulation

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Post Office Box 1429
Palatka, Florida 32178-1429

PERMIT NO: 9202-6 **DATE ISSUED:** July 13, 2021

PROJECT NAME: Florida Power & Light Company Sanford Plant

A PERMIT AUTHORIZING:
The District authorizes, as limited by the attached conditions, the use of 5,475.00 million gallons per year (mgy) (15 million gallons per day (mgd annual average)) from the St. Johns River and 103.7 mgy (0.28 mgd, annual average) of groundwater from the Upper Floridan aquifer (through 2023) for commercial / industrial use in power generation through 2041.

LOCATION:
Site: Florida Power & Light Company
Volusia County

SECTION(S):	TOWNSHIP(S):	RANGE(S):
22, 31, 32	18S	30E
4, 5, 6, 7, 8, 9, 16, 17	19S	30E

ISSUED TO:
Florida Power & Light Company
950 S Charles Richard Beall Blvd
DeBary, FL 32713-9746

The permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to the permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal, rule, or ordinance.

This permit may be revoked, modified, or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes and 40C-1, Florida Administrative Code.

PERMIT IS CONDITIONED UPON:
See conditions on attached "Exhibit A", dated July 13, 2021

AUTHORIZED BY: St. Johns River Water Management District
Division of Regulatory Services

By: _____

Ann Shortelle
Executive Director

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 9202-6
Florida Power & Light Company Sanford Plant
DATE ISSUED July 13, 2021

1. With advance notice to the permittee, District staff with proper identification shall have permission to enter, inspect, observe, collect samples, and take measurements of permitted facilities to determine compliance with the permit conditions and permitted plans and specifications. The permittee shall either accompany District staff onto the property or make provision for access onto the property.

2. Nothing in this permit should be construed to limit the authority of the St. Johns River Water Management District to declare a water shortage and issue orders pursuant to Chapter 373, F.S. In the event of a declared water shortage, the permittee must adhere to the water shortage restrictions, as specified by the District. The permittee is advised that during a water shortage, reports shall be submitted as required by District rule or order.

3. Prior to the construction, modification or abandonment of a well, the permittee must obtain a water well permit from the St. Johns River Water Management District or the appropriate local government pursuant to Chapter 40C-3, F.A.C. Construction, modification, or abandonment of a well will require modification of the consumptive use permit when such construction, modification, or abandonment is other than that specified and described on the consumptive use permit application form.

4. Leaking or inoperative well casings, valves, or controls must be repaired or replaced as required to eliminate the leak or make the system fully operational.

5. The permittee's consumptive use of water as authorized by this permit shall not interfere with legal uses of water existing at the time of permit application. If interference occurs, the District shall revoke the permit, in whole or in part, to curtail or abate the interference, unless the interference associated with the permittee's consumptive use of water is mitigated by the permittee pursuant to a District-approved plan.

6. The permittee's consumptive use of water as authorized by this permit shall not have significant adverse hydrologic impacts to off-site land uses existing at the time of permit application. If significant adverse hydrologic impacts occur, the District shall revoke the permit, in whole or in part, to curtail or abate the adverse impacts, unless the impacts associated with the permittee's consumptive use of water are mitigated by the permittee pursuant to a District-approved plan.

7. The permittee shall notify the District in writing within 30 days of any sale, transfer, or conveyance of ownership or any other loss of permitted legal control of the Project and/or related facilities from which the permitted consumptive use is made. Where permittee's control of the land subject to the permit was demonstrated through a lease, the permittee must either submit documentation showing that it continues to have legal control or transfer control of the permitted system/project to the new landowner or new lessee. All transfers of ownership are subject to the requirements of Rule 40C-1.612, F.A.C. Alternatively, the permittee may surrender the consumptive use permit to the District, thereby relinquishing the right to conduct any activities under the permit.

8. A District-issued identification tag shall be prominently displayed at each withdrawal site by permanently affixing such tag to the pump, headgate, valve, or other withdrawal facility as provided by Rule 40C-2.401, F.A.C. The permittee shall notify the District in the event that a replacement tag is needed.

9. The permittee's consumptive use of water as authorized by this permit shall not adversely impact wetlands, lakes, rivers, or springs. If adverse impacts occur, the District shall revoke the permit, in whole or in part, to curtail or abate the adverse impacts, unless the impacts associated with the permittee's consumptive use of water are mitigated by the permittee pursuant to a District-approved plan.

10. The permittee's consumptive use of water as authorized by this permit shall not reduce a flow or level below any minimum flow or level established by the District or the Department of Environmental Protection pursuant to Section 373.042 and 373.0421, F.S. If the permittee's use of water causes or contributes to such a reduction, then the District shall revoke the permit, in whole or in part, unless the permittee implements all provisions applicable to the permittee's use in a District-approved recovery or prevention strategy.

11. The permittee's consumptive use of water as authorized by the permit shall not cause or contribute to significant saline water intrusion. If significant saline water intrusion occurs, the District shall revoke the permit, in whole or in part, to curtail or abate the saline water intrusion, unless the saline water intrusion associated with the permittee's consumptive use of water is mitigated by the permittee pursuant to a District-approved plan.

12. The permittee's consumptive use of water as authorized by the permit shall not cause or contribute to flood damage. If the permittee's consumptive use causes or contributes to flood damage, the District shall revoke the permit, in whole or in part, to curtail or abate the flood damage, unless the flood damage associated with the permittee's consumptive use of water is mitigated by the permittee pursuant to a District-approved plan.

13. All consumptive uses authorized by this permit shall be implemented as conditioned by this permit, including any documents incorporated by reference in a permit condition. The District may revoke this permit, in whole or in part, or take enforcement action, pursuant to Section 373.136 or 373.243, F.S., unless a permit modification has been obtained to address the noncompliance. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

14. The permittee shall use the lowest quality water source, such as reclaimed water, surface/storm water, or alternative water supply, to supply the needs of the project when deemed feasible pursuant to District rules and applicable state law.

15. This permit does not convey to the permittee any property rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.

16. A permittee may seek modification of any term of an unexpired permit. The permittee is advised that Section 373.239, F.S., and Rule 40C-2.331, F.A.C., are applicable to permit modifications.

17. This permit will expire on July 13, 2041.

18. Maximum annual groundwater withdrawals for commercial / industrial use must not exceed 103.7 million gallons (0.284 million gallons per day (mgd) average) in 2021 through 2023.

19. The maximum annual surface water use must not exceed 5,475.00 million gallons (15.00 million gallons per day (mgd) average) for commercial / industrial use in 2021 through 2041. Annual surface water withdrawals, including amounts for circulation through the existing intake structure, must not exceed 50,445 million gallons (138.21 mgd average).

20. The permittee must operate wells 3 (station ID 17680) and 4 (station ID 17681) for backup use only beginning no later than August 1, 2023. Both of these wells must be properly abandoned by August 1, 2024.

21. Pumps SW-1 (Station ID 497528) and SW-2 (Station ID 497537), CW3A (Station ID 2956), CW3B (Station ID 2957), LF3A (Station ID 22457), and LF3B (Station ID 22456), and wells 3 (Station ID17680) and 4 (Station ID 17681) must be equipped with totalizing flow meters or an alternative method for measuring flow must be implemented. Withdrawals from the ground water wells are measured utilizing a totalizing in-line flow meter. The totalizing flow meter must maintain a 95% accuracy, be verifiable and be installed according to manufacturer specifications.

    The permittee has elected to implement an alternative method for pumps SW-1 (Station ID 497528), SW-2 (Station ID 497537), CW3A (Station ID 2956), CW3B (Station ID 2957), LF3A (Station ID 22457), and LF3B (Station ID 22456) where the pump on/off times are electronically recorded. The flow is determined using the running times of the pumps and the appropriate pump log curves and pump rate as a basis for calculating the quantity of water withdrawn from the St Johns River. The permittee may not alter the approved alternative method without prior written approval from the District. The method must maintain 90% accuracy and be verifiable.

22. Total withdrawal, from pumps SW-1 (Station ID 497528) and SW-2 (Station ID 497537), CW3A (Station ID 2956), CW3B (Station ID 2957), LF3A (Station ID 22457), and LF3B (Station ID 22456) and well numbers 3 (Station ID 17680) and 4 (Station ID 17681), as listed on the application, must be recorded continuously, totaled monthly, and reported to the District every six months for the duration of the permit using District Form No. EN-50. The reporting dates each year will be as follows:

Reporting Period	Report Due Date
January-June	July 31
July-December	January 31

23. The permittee must implement the Water Conservation Plan submitted to the District on June 8, 2020, in accordance with the schedule contained therein.

24. The permittee must maintain all flowmeters and alternative methods for measuring flow. In case of failure or breakdown of any meter, the District must be notified in writing within 5 days of its discovery. A defective meter must be repaired or replaced within 30 days of its discovery.

25. In order to ensure that the volume of water withdrawn and recorded by the permittee is accurate to within +/- 5% of actual flow (+/- 10% of flow when using an alternative method), the meter accuracy or flow rate from each withdrawal point must be validated once every 10 years and recorded on either the Flow Meter Accuracy Report Form (EN-51) or Alternative Method Flow Verification Report Form (whichever form is applicable). The validation documents must be provided to the District upon request.

26. The permittee shall submit, to the District, a compliance report pursuant to subsection 373.236(4), F.S., every 10 years during the term of the permit. The permittee shall submit the report by July 13, 2031. The report shall contain sufficient information to demonstrate that the permittee's use of water will continue, for the remaining duration of the permit, to meet the conditions for permit issuance set forth in the District rules that existed at the time the permit was issued for 20 years by the District. At a minimum, the compliance report must:

    - meet the submittal requirements of section 4.2 of the Applicant's Handbook: Consumptive Uses of Water, August 29, 2018;
    - include documentation verifying that the source is capable of supplying the needs authorized by this permit without causing harm to water resources;
    - include documentation verifying that the permittee is implementing all feasible water conservation measures;
    - document that the lowest acceptable quality water source, including reclaimed water or surface water (which includes storm water), must be utilized for each consumptive use;
    - ensure that all monitoring requirements are met;
    - and include information documenting that the projected allocation is needed.

CONSUMPTIVE USE TECHNICAL STAFF REPORT
13-Jul-2021
APPLICATION #: 9202-6

Owner: Pete Holzapfel
Florida Power & Light Company
950 S Charles Richard Beall Blvd
DeBary, FL 32713-9746
(386) 575-5211

Applicant: Same as Owner

Agent: Not Applicable

Compliance Contact: Kelly A Napoli
700 Universe Blvd
Juno Beach, FL 33408-2657
(561) 694-4015

Greg Boswell
Florida Power & Light
950 S Highway 17 92
Debary, FL 32713-9746
(386) 575-5243

Project Name: Florida Power & Light Company Sanford Plant
County: Volusia

Objectors: No

Authorization Statement:
The District authorizes, as limited by the attached conditions, the use of 5,475.00 million gallons per year (mgy) (15 million gallons per day (mgd annual average)) from the St. Johns River and 103.7 mgy (0.28 mgd, annual average) of groundwater from the Upper Floridan aquifer (through 2023) for commercial / industrial use in power generation through 2041.

Recommendation: Approval
Reviewers: Callie Register; Kristian Holmberg

Abstract:

This is a renewal of an existing commercial / industrial permit with a 92% reduction in surface water allocation and a 100% decrease in groundwater use. Total water allocated for plant processes and cooling is up to 5,475.00 mgy (15 mgd) of surface

water through 2041 and 103.7 mgy (0.28 mgd) of groundwater through 2024 when groundwater use will be discontinued. Surface water from the St. Johns River is also used for circulation through the power plant's cooling pond and intake / discharge structure, thus up to 50,445 mgy (138.21 mgd) of surface water will be withdrawn and discharged back to the St. Johns River. Previously, total pumped amounts were allocated and did not reflect the amount discharged back to the river. The allocation reflects only the amount of water that will be consumed, not re-circulated. In addition, the actual pumped surface water amount is decreasing by approximately 23% (from 180.22 to 138.21 mgd) because of system efficiency improvements. Staff is recommending a 20-year permit duration with 10-year compliance reporting.

PROJECT DESCRIPTION

Project Location:
The Florida Power and Light (FPL) Sanford Plant (the Plant) is located in the City of DeBary in Volusia County. U.S. Highway 17-92 is adjacent to the Plant on the eastern border of the property, and the St. Johns River basin is adjacent to the Plant on the south / southwest property boundary. The surface water pumps are located on a canal immediately downstream of Lake Monroe, in the Middle St. Johns River basin. The groundwater wells are located approximately five miles north of the Plant within the Volusia Blue Spring-shed.

Background:
The FPL-Sanford Plant was originally constructed in 1929. Unit 1 operated until 1964 and unit 2 from 1947-1964. In 2003, the Plant underwent re-powering to expand the system generating capacity and improve Plant efficiency by installing new equipment and utilizing modern processes at three generating units, units 3, 4, and 5. The re-powering resulted in a 43% reduction in groundwater use. At that time, the facility connected to the Volusia County potable water line rather than supply potable water to the facility via the on-site Upper Floridan aquifer wells as historically done. In 2012, unit 3 was retired and currently the Plant consists of two steam electric generating units (units 4 and 5) with a total nameplate megawatt (MW) output of 2,232 MW. Units 4 and 5 are natural gas-fired combined cycle units.

Water Use Description:
The primary consumptive use of surface water at the site is to replace water lost to evaporation in a closed recirculating cooling water system within a 1,100-acre cooling pond north of the Plant. The cooling pond water is primarily made up of power generation process water with some contributions from stormwater collected at the site and water from the St. Johns River. The overall volume of the cooling pond is 3.1 billion gallons. Units 4 and 5 main condenser cooling water system uses water drawn from the cooling pond to cool the steam condensers. There is an annual average cooling pond blowdown of approximately 5,000 gallons per minute (gpm). The cooling pond system is closed with no regular discharges, except for testing and emergency releases. Over the past five years, the site used up to 11.8 mgd of water from the St. Johns River for the Cooling Pond. The Cooling Pond is a dam and must operate within a specific water

level range for dam safety purposes. The Plant, in order to adhere to dam safety protocols may need to discharge water to the St. Johns River in order to prepare for a large amount of rainfall. After a storm event, it may be necessary to re-fill the Cooling Pond from the St. Johns River. The amount of surface water proposed for cooling (14.5 mgd) accounts for the historic average amount used to replenish evaporative losses plus an estimated amount needed in case of emergency to re-fill the Pond. In addition, the Plant will continue to withdraw surface water to blend with plant waste stream water and recirculate to the St. Johns River through the Plant's unit 3 intake and discharge canal.

Current supply to the Plant's water treatment facility's Ultrafiltration System and Reverse Osmosis is a blended source of feed water comprised of groundwater (approximately 300-400 gpm) and water from the cooling pond (also approximately 300-400 gpm). Groundwater is used at the site for process water, service water and fire suppression. As part of this renewal, all of these groundwater uses will switch to other sources and the wells will be abandoned. At that time, process water uses will be provided by treated surface water (up to 0.50 mgd) and service water (approximately 0.012 mgd) and fire suppression needs will be provided by Volusia County potable supply, as needed. FPL needs to maintain the groundwater supply for the process water system at the facility until the switch to surface water comes on line by August 2023. In addition, a backup groundwater supply is being provided for redundancy and testing during the first year after the switch from groundwater to surface water in years 2023 - 2024. After the testing period is over, FPL will abandon wells 3 (station ID 17680) and 4 (station ID 17681) by December 31, 2024. Until well abandonment, the groundwater flows will continue to be measured using in-line flowmeters. The ability to switch from groundwater to St. Johns River water is contingent on Florida Department of Environmental Protection approval.

The Plant currently has four active pumps: the cooling pond pumps (LF3A/3B) and the circulating water pumps (CW3A/3B). Two surface water pumps (OCW 3A and 3B) were removed in 2014 and will be replaced with a new single pumping structure (including proposed pumps SW-1 and SW-2). Pumps SW-1 and SW-2 will provide the water to replace groundwater use. The six surface water pumps (four active and two proposed) measure and record flow with a District-approved alternative method. The Plant uses a Distributed Control System (DCS) input and calculation for the Unit 3 circulating water pumps (Pumps CW3A and CW3B) and the Sanford Plant Industrial Cooling Pond makeup pumps (LF3A & LF3B). An input signal to the DCS is fed from the main breaker for each pump motor. The input signal lets the DCS know whether the pump motor breaker is open (pump off) or the pump motor breaker is closed (pump on). The DCS looks at this signal every second and applies the appropriate pump rate (from the pump curve) as the basis for calculating the water withdrawal (minutes operating times gallons per minute) for each pump and sends that value to a daily accumulator calculator. The daily totals are saved in an archive file. Realtime accumulated flow as well as the archived daily flow can be viewed via the DCS interface to the Sanford Plant's computer system. Water flows for each pump are reviewed and verified on a regular basis by

Plant personnel and maintained at greater than 90% accuracy as required by the permit.

PERMIT APPLICATION REVIEW:

Section 373.223, *Florida Statutes* (F.S.), and Section 40C-2.301, Florida Administrative Code (F.A.C.), require an applicant to establish that the proposed use of water:

(a) is a reasonable-beneficial use;
(b) will not interfere with any presently existing legal use of water; and,
(c) is consistent with the public interest.

In addition, the above requirements are detailed further in the District's Applicant's Handbook: Consumptive Uses of Water, August 29, 2018 ("A.H.") District staff has reviewed the consumptive use permit application pursuant to the above-described requirements and has determined that the application meets the conditions for issuance of this permit. A summary of the staff review is provided below.

REASONABLE BENEFICIAL USE CRITERIA:

Economic and Efficient Utilization:
The permittee operates on natural gas which minimizes the facility's overall water use. The permittee's water use has been well within allocation since the permit was issued. The permittee has significantly decreased surface water use since the previous permit was issued due to re-powering and more efficient steam turbine installation. Therefore, a 23% decrease in surface water pumping is proposed at this time. In addition, FPL is maximizing its use of a lower quality source (surface water from the St. Johns River) while eliminating use of groundwater.

Water Conservation:
The Plant has previously reduced total use by 33% and groundwater use by 43% upon re-powering in 2003. FPL continues to strive towards greater water conservation and implements an existing leak detection and repair program. Additional water conservation efforts include:

- Use of sub-metering to more accurately account for water use and detect / address leaks.
- Use of flow meters to monitor water use on existing groundwater wells.
- Decrease in water use due to installation of more efficient steam turbines.
- Low volume fixtures in office facilities.
- The facility does not irrigate any landscape areas within the property boundary because water-efficient landscaping has been used.
- Inspection Of Watch (IOW): Technicians are assigned an area of responsibility to inspect all of their assigned equipment / process areas and identify malfunctions (leaks). Leaks will be immediately corrected by the technician or the Plant’s maintenance group. IOW is performed every day and covers the entire Plant.

- Equipment monitoring: FPL utilizes continuous digital trend monitoring of equipment operations and processes from which deviations can be discerned. Significant deviations will create an alarm in the control room notifying a technician to inspect the equipment / process in question and determine appropriate follow up, correct minor issues, or create a work ticket for larger items.
- Steam traps and lines are regularly checked for leaks, steam condensate is returned to boilers, and an automatic blowdown control has been installed to better manage the treatment of makeup water.
- Water conservation has been incorporated into the Plant's environmental employee training and awareness program and has been incorporated into the Plant's environmental updates for employees.
- The facility completed an alternative flow measurement verification demonstrating 90% accuracy as required by the permit.

Suitability and Capability of the Source:
The St. Johns River has historically and continues to be capable of supplying water to meet the water requirements of this project. The Unit 3 open cooling water pumps OCW3A and OCW3B (station IDs 22455 and 22454, respectively) have been removed, resulting in a decrease in surface water use. These pumps are intended to be replaced with a new, single pumping structure, including pumps SW-1 and SW-2 (station IDs 497528 and 497537, respectively).

The District's 2012 Water Supply Impact Study (WSIS) evaluated the effects of water withdrawals from the St. Johns and Ocklawaha Rivers. The WSIS indicates an appreciable quantity of surface water can be safely withdrawn from the St. Johns River with minimal to negligible environmental effects. The St. Johns River continues to be suitable and capable of producing the proposed decreased surface water withdrawal.

Lowest Acceptable Quality Water Source:
The applicant currently utilizes a lower quality source of surface water and stormwater for the majority of cooling and Plant processes. Groundwater is currently used for process water and fire suppression at the site. There are three potential sources at the site to offset or eliminate the groundwater use: (1) reclaimed water from Volusia County, (2) surface water from the St. Johns River, and / or (3) cooling pond water. Due to dam safety requirements, FPL cannot increase the amount of cooling pond water used for process water, therefore, FPL provided feasibility analyses investigating the use of reclaimed and St. Johns River water.

The evaluation for use of reclaimed indicated that there are significant environmental constraints on brine discharge to the river. To avoid the environmental impacts of such discharges, FPL evaluated the costs associated with discharging to the Volusia County sewer system using published rates. Estimated capital costs associated with the use of reclaimed water total approximately $5.0 million, while estimated capital costs for using surface water instead of groundwater total approximately $3.2 million. Estimated increased Operations and Maintenance (O&M) costs associated with the use of

reclaimed water total approximately $240,160, while estimated O&M costs for using surface water instead of groundwater total approximately $142,360.

Based on the evaluation of technical, environmental, and economic considerations, surface water is deemed an appropriate lower quality source for the site. FPL has committed to switching from groundwater to surface water and potable water within three years and, at that time, abandoning the two groundwater wells remaining for the Plant.

Water Resources Impact Evaluation:
A consumptive use must not cause harm to either onsite or offsite water resources, including lakes, wetlands or other existing offsite land uses. Staff evaluated if the proposed consumptive use would cause harmful hydrologic alterations to natural systems, including wetlands and other surface waters located on and off-site. Previous evaluations conducted by District staff to observe the condition of wetlands and surface waters in the vicinity of the project site did not reveal any impact to the wetlands resulting from the permittee's withdrawals of water from the St. Johns River. This application proposes a 23% decrease in surface water use, a 92% decrease in surface water allocation, and a 100% decrease in groundwater use after three years through the abandonment of the two remaining groundwater wells. Staff determined that the proposed use would not alter the existing hydrology and cause an unmitigated adverse impact to natural systems, including wetlands or other surface waters.

Minimum Flows and Levels:
There are numerous water bodies with adopted minimum flows and levels (MFLs) in Volusia County. Staff evaluated whether the Plant's surface water source would be capable of producing the continued use of water without impacting the MFL established for Lake Monroe. Lake Monroe is part of the Middle St. Johns River basin and is approximately 9,400 acres in size. The Plant proposes continued use of approximately 15 mgd from the St. Johns River just downstream of Lake Monroe. As discussed previously, the WSIS study supports the availability of surface water at the site.

The closest MFL waterbodies to the FPL-Sanford wells include Lake Butler, Gemini Springs and Blue Spring. An evaluation was made of the cumulative drawdown effects on these waterbodies resulting from the proposed abandonment of the groundwater wells associated with the FPL-Sanford site. The analysis indicates minor benefits to Lake Butler and Gemini Springs and an increase in flow to Blue Spring. Staff conclude that reasonable assurance has been provided that the proposed use will not result in a violation of MFLs, if the permittee complies with all conditions of the permit.

Water Reserved from Use:
This criterion is met. There are no water reservations in Volusia County pursuant to subsection 373.223(4), Florida Statues, that could be impacted by this withdrawal.

Saline Water Intrusion:

Staff completed a water quality trend analysis for Well 3 (Station ID 17680) using data from 2011-2020. The analysis shows that chlorides from the well have remained consistently less than 60 mg/L. Due to the low levels of chlorides and the proposed elimination of groundwater use within four years, staff is recommending discontinuing water quality sampling.

INTERFERENCE WITH EXISTING LEGAL USES:
There have been no reports of interference with existing legal uses as a result of the permittee's surface or groundwater withdrawals. District staff concluded that reasonable assurances have been provided that the use will not cause or contribute to interference with existing legal uses for the duration of the permit, provided the permittee complies with the conditions recommended for this permit.

PUBLIC INTEREST:
The proposed use will not adversely affect water resources, qualifies as a reasonable-beneficial use, and none of the reasons for denial relating to salt-water intrusion, water use reservations, minimum flows and levels, and water table/surface water levels apply to the proposed use. Therefore, staff concluded that reasonable assurances have been provided that the proposed use is consistent with the public interest.

Station Information
Site Name: Florida Power & Light Company

Well Details								
District ID	**Station Name**	**Casing Diameter (inches)**	**Casing Depth (feet)**	**Total Depth (feet)**	**Capacity (GPM)**	**Source Name**	**Status**	**Use Type**
17680	3	10	84	280	200	FAS - Upper Floridan Aquifer	Active	Commercial/Industrial/ Institutional
17681	4	10	84	350	200	FAS - Upper Floridan Aquifer	Active	Commercial/Industrial/ Institutional

Pump Details						
District ID	**Station Name**	**Pump Intake Diameter (inches)**	**Capacity (GPM)**	**Source Name**	**Status**	**Use Type**
2956	CW3A	54	58000	Saint Johns River	Active	Commercial/Industrial/ Institutional
2957	CW3B	54	58000	Saint	Active	Commercial/Industrial/

Pump Details						
District ID	**Station Name**	**Pump Intake Diameter (inches)**	**Capacity (GPM)**	**Source Name**	**Status**	**Use Type**
				Johns River		Institutional
22454	OCW3B	unknown	4514	Saint Johns River	Removed	Commercial/Industrial/ Institutional
22455	OCW3A	unknown	4514	Saint Johns River	Removed	Commercial/Industrial/ Institutional
22456	LF3B	27	10000	Saint Johns River	Active	Commercial/Industrial/ Institutional
22457	LF3A	27	10000	Saint Johns River	Active	Commercial/Industrial/ Institutional
497528	SW-1	unknown	400	Saint Johns River	Proposed	Commercial/Industrial/ Institutional
497537	SW-2	unknown	400	Saint Johns River	Proposed	Commercial/Industrial/ Institutional

Conditions

1. With advance notice to the permittee, District staff with proper identification shall have permission to enter, inspect, observe, collect samples, and take measurements of permitted facilities to determine compliance with the permit conditions and permitted plans and specifications. The permittee shall either accompany District staff onto the property or make provision for access onto the property.

2. Nothing in this permit should be construed to limit the authority of the St. Johns River Water Management District to declare a water shortage and issue orders pursuant to Chapter 373, F.S. In the event of a declared water shortage, the permittee must adhere to the water shortage restrictions, as specified by the District. The permittee is advised that during a water shortage, reports shall be submitted as required by District rule or order.

3. Prior to the construction, modification or abandonment of a well, the permittee must obtain a water well permit from the St. Johns River Water Management District or the appropriate local government pursuant to Chapter 40C-3, F.A.C. Construction, modification, or abandonment of a well will require modification of the consumptive use permit when such construction, modification, or abandonment is other than that specified and described on the consumptive use permit application form.

4. Leaking or inoperative well casings, valves, or controls must be repaired or replaced as required to eliminate the leak or make the system fully operational.

5. The permittee's consumptive use of water as authorized by this permit shall not interfere with legal uses of water existing at the time of permit application. If interference occurs, the District shall revoke the permit, in whole or in part, to curtail or abate the interference, unless the interference associated with the permittee's consumptive use of water is mitigated by the permittee pursuant to a District-approved plan.

6. The permittee's consumptive use of water as authorized by this permit shall not have significant adverse hydrologic impacts to off-site land uses existing at the time of permit application. If significant adverse hydrologic impacts occur, the District shall revoke the permit, in whole or in part, to curtail or abate the adverse impacts, unless the impacts associated with the permittee's consumptive use of water are mitigated by the permittee pursuant to a District-approved plan.

7. The permittee shall notify the District in writing within 30 days of any sale, transfer, or conveyance of ownership or any other loss of permitted legal control of the Project and/or related facilities from which the permitted consumptive use is made. Where permittee's control of the land subject to the permit was demonstrated through a lease, the permittee must either submit documentation showing that it continues to have legal control or transfer control of the permitted system/project to the new landowner or new lessee. All transfers of ownership are subject to the requirements of Rule 40C-1.612, F.A.C. Alternatively, the permittee may surrender the consumptive use permit to the District, thereby relinquishing the right to conduct any activities under the permit.

8. A District-issued identification tag shall be prominently displayed at each withdrawal site by permanently affixing such tag to the pump, headgate, valve, or other withdrawal facility as provided by Rule 40C-2.401, F.A.C. The permittee shall notify the District in the event that a replacement tag is needed.

9. The permittee's consumptive use of water as authorized by this permit shall not adversely impact wetlands, lakes, rivers, or springs. If adverse impacts occur, the District shall revoke the permit, in whole or in part, to curtail or abate the adverse impacts, unless the impacts associated with the permittee's consumptive use of water are mitigated by the permittee pursuant to a District-approved plan.

10. The permittee's consumptive use of water as authorized by this permit shall not reduce a flow or level below any minimum flow or level established by the District or the Department of Environmental Protection pursuant to Section 373.042 and 373.0421, F.S. If the permittee's use of water causes or contributes to such a reduction, then the District shall revoke the permit, in whole or in part, unless the permittee implements all provisions applicable to the permittee's use in a District-approved recovery or prevention strategy.

11. The permittee's consumptive use of water as authorized by the permit shall not cause or contribute to significant saline water intrusion. If significant saline water intrusion occurs, the District shall revoke the permit, in whole or in part, to curtail or abate the saline water intrusion, unless the saline water intrusion associated with the permittee's consumptive use of water is mitigated by the permittee pursuant to a District-approved plan.

12. The permittee's consumptive use of water as authorized by the permit shall not cause or contribute to flood damage. If the permittee's consumptive use causes or contributes to flood damage, the District shall revoke the permit, in whole or in part, to curtail or abate the flood damage, unless the flood damage associated with the permittee's consumptive use of water is mitigated by the permittee pursuant to a District-approved plan.

13. All consumptive uses authorized by this permit shall be implemented as conditioned by this permit, including any documents incorporated by reference in a permit condition. The District may revoke this permit, in whole or in part, or take enforcement action, pursuant to Section 373.136 or 373.243, F.S., unless a permit modification has been obtained to address the noncompliance. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

14. The permittee shall use the lowest quality water source, such as reclaimed water, surface/storm water, or alternative water supply, to supply the needs of the project when deemed feasible pursuant to District rules and applicable state law.

15. This permit does not convey to the permittee any property rights or privileges other than those specified herein, nor relieve the permittee from complying with any applicable local government, state, or federal law, rule, or ordinance.

16. A permittee may seek modification of any term of an unexpired permit. The permittee is advised that Section 373.239, F.S., and Rule 40C-2.331, F.A.C., are applicable to permit modifications.

17. This permit will expire on July 13, 2041.

18. Maximum annual groundwater withdrawals for commercial / industrial use must not exceed 103.7 million gallons (0.284 million gallons per day (mgd) average) in 2021 through 2023.

19. The maximum annual surface water use must not exceed 5,475.00 million gallons (15.00 million gallons per day (mgd) average) for commercial / industrial use in 2021 through 2041. Annual surface water withdrawals, including amounts for circulation through the existing intake structure, must not exceed 50,445 million gallons (138.21 mgd average).

20. The permittee must operate wells 3 (station ID 17680) and 4 (station ID 17681) for backup use only beginning no later than August 1, 2023. Both of these wells must be properly abandoned by August 1, 2024.

21. Pumps SW-1 (Station ID 497528) and SW-2 (Station ID 497537), CW3A (Station ID 2956), CW3B (Station ID 2957), LF3A (Station ID 22457), and LF3B (Station ID 22456), and wells 3 (Station ID17680) and 4 (Station ID 17681) must be equipped with totalizing flow meters or an alternative method for measuring flow must be implemented. Withdrawals from the ground water wells are measured utilizing a totalizing in-line flow meter. The totalizing flow meter must maintain a 95% accuracy, be verifiable and be installed according to manufacturer specifications.

    The permittee has elected to implement an alternative method for pumps SW-1 (Station ID 497528), SW-2 (Station ID 497537), CW3A (Station ID 2956), CW3B (Station ID 2957), LF3A (Station ID 22457), and LF3B (Station ID 22456) where the pump on/off times are electronically recorded. The flow is determined using the running times of the pumps and the appropriate pump log curves and pump rate as a basis for calculating the quantity of water withdrawn from the St Johns River. The permittee may not alter the approved alternative method without prior written approval from the District. The method must maintain 90% accuracy and be verifiable.

22. Total withdrawal, from pumps SW-1 (Station ID 497528) and SW-2 (Station ID 497537), CW3A (Station ID 2956), CW3B (Station ID 2957), LF3A (Station ID 22457), and LF3B (Station ID 22456) and well numbers 3 (Station ID 17680) and 4 (Station ID 17681), as listed on the application, must be recorded continuously, totaled monthly, and reported to the District every six months for the duration of the permit using District Form No. EN-50. The reporting dates each year will be as follows:

    | Reporting Period | Report Due Date |

January-June	July 31
July-December	January 31

23. The permittee must implement the Water Conservation Plan submitted to the District on June 8, 2020, in accordance with the schedule contained therein.

24. The permittee must maintain all flowmeters and alternative methods for measuring flow. In case of failure or breakdown of any meter, the District must be notified in writing within 5 days of its discovery. A defective meter must be repaired or replaced within 30 days of its discovery.

25. In order to ensure that the volume of water withdrawn and recorded by the permittee is accurate to within +/- 5% of actual flow (+/- 10% of flow when using an alternative method), the meter accuracy or flow rate from each withdrawal point must be validated once every 10 years and recorded on either the Flow Meter Accuracy Report Form (EN-51) or Alternative Method Flow Verification Report Form (whichever form is applicable). The validation documents must be provided to the District upon request.

26. The permittee shall submit, to the District, a compliance report pursuant to subsection 373.236(4), F.S., every 10 years during the term of the permit. The permittee shall submit the report by July 13, 2031. The report shall contain sufficient information to demonstrate that the permittee's use of water will continue, for the remaining duration of the permit, to meet the conditions for permit issuance set forth in the District rules that existed at the time the permit was issued for 20 years by the District. At a minimum, the compliance report must:
    - meet the submittal requirements of section 4.2 of the Applicant's Handbook: Consumptive Uses of Water, August 29, 2018;
    - include documentation verifying that the source is capable of supplying the needs authorized by this permit without causing harm to water resources;
    - include documentation verifying that the permittee is implementing all feasible water conservation measures;
    - document that the lowest acceptable quality water source, including reclaimed water or surface water (which includes storm water), must be utilized for each consumptive use;
    - ensure that all monitoring requirements are met;
    - and include information documenting that the projected allocation is needed.