

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:)

Florida Power & Light Co.)

St. Lucie Plant, Unit 2)

Docket No. 50-389

March 10, 2014

**SOUTHERN ALLIANCE FOR CLEAN ENERGY’S
MOTION TO STAY RESTART OF ST. LUCIE UNIT 2
PENDING CONCLUSION OF HEARING REGARDING
DE FACTO AMENDMENT OF OPERATING LICENSE
AND REQUEST FOR EXPEDITED CONSIDERATION**

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.342, the Southern Alliance for Clean Energy (“SACE”) hereby requests the U.S. Nuclear Regulatory Commission (“NRC” or “Commission”) to suspend the restart by Florida Power & Light Co. (“FPL”) of the St. Lucie Unit 2 nuclear reactor (which is now shut down in a refueling outage), pending resolution of SACE’s Hearing Request Regarding *De Facto* Amendment of St. Lucie Unit 2 Operating License (March 10, 2014) (“Hearing Request”). This stay motion is supported by the Declaration of Arnold Gundersen (March 9, 2014) (“Gundersen Declaration”), which is attached to SACE’s Hearing Request. Because Unit 2 is scheduled to resume operation on April 2, SACE requests expedited consideration of this request.

II. SUMMARY OF THE ACTION TO BE STAYED

St. Lucie was shut down for refueling on March 2, 2014. The reactor is scheduled to resume operation on April 2. SACE requests the Commission to suspend the restart of St. Lucie Unit 2 until the following actions are taken:

- A 100% inspection of the steam generator tubes by FPL and publication of the results;

- Publication of the results of the inservice inspection planned by the NRC Staff during the refueling outage (*see* Gundersen Declaration, ¶ 57); and
- Completion of the adjudicatory proceeding requested by SACE in the attached Hearing Request.

III. FACTUAL BACKGROUND

St. Lucie Unit 2 is now in its fourth outage since FPL installed replacement steam generators (“RSGs”) in 2007. These RSGs, manufactured by AREVA, replaced original steam generators (“OSGs”) that had been manufactured by Combustion Engineering (“CE”). In each of three outages that have occurred since installation of the RSGs, inspections of the steam generator tubes revealed an unusually high incidence of wear. In the most recent inspection, an astonishing 2,211 steam generator tubes in SG A showed 7,646 wear indications and 1,503 steam generator tubes in SG B showed 3,998 wear indications. Gundersen Declaration, ¶ 37.

The NRC Staff has conducted its own review of the inspection results. In each instance, the NRC Staff has noted the unusual amount of wear in the St. Lucie steam generator tubes. In addition, the NRC Staff has noted some of the design changes made to the OSGs when they were replaced in 2007. Nevertheless, in each instance, the Staff has made an affirmative finding that no regulatory action regarding the steam generators is warranted. Gundersen Declaration, ¶¶ 53, 56.

Correspondence between FPL and the NRC Staff since 2007, as well as documents issued in connection with the recent *San Onofre* steam generator replacement proceeding, indicate that the unusual degree of degradation of the St. Lucie Unit 2 steam generators may be related to significant design changes made by FPL in 2007 that exceed the design basis for the reactor.

Gundersen Declaration, ¶ 62. FPL made these changes under 10 C.F.R. § 50.59, without requesting a formal license amendment, on the asserted ground that none was necessary.

Subsequent documents, issued in this proceeding and the recent San Onofre steam generator proceeding, demonstrate that FPL's claim to be excused from the license amendment process was baseless. In fact, FPL had made major changes to safety components that were explicitly included in the design basis for the original licensing of the reactor and for license renewal.

In claiming to be excused from the NRC's license amendment process, FPL stated that:

The RSGs are approximately the same physical size as the original steam generators (OSGs). There are no changes to interfaces with the reactor coolant (RC), main feedwater (MFW), or main steam systems (MSS), and no significant changes to major component supports or piping supports. RSG design differences compared to the OSG design include (1) a small operating weight decrease and a small change in the center of gravity (CG) location, (2) an addition of an integral flow restrictor in the main steam nozzle (3) increased heat transfer area, (4) use of $\frac{3}{4}$ inch thermally treated Alloy 690 tube material, (5) reduced tube wall thickness, (6) a 3.8% increase in secondary side liquid inventory at hot full power (HFP) conditions and a 3.9% decrease in secondary inventory at hot zero power (HZA) conditions, (7) a higher circulation ratio, and (8) reduced moisture carryover. Evaluations of the differences between the RSGs and OSGs are presented in this report. These evaluations confirm that the use of the RSGs meets the existing UFSAR design basis acceptance criteria.

St. Lucie Unit 2, Docket No. 50-389, Changes, Tests, and Experiments Made as Allowed by 10 C.F.R. 50.59 for the Period of June 12, 2006 through April 4, 2008 at 8 (attached to letter from Gordon L. Johnston, FPL, to NRC re: St. Lucie Unit 2 Docket No. 50-389 Report of 10 CFR 50.59 Plant Changes (June 26, 2008)) (ML081840111). Not only does this statement omit crucial information, but some of FPL's claims are simply false. For example, it is now clear from correspondence related to the San Onofre steam generators that the Unit 2 RSGs no longer contained stay cylinders. These structures are safety-significant because they support the

tubesheet, a key part of the reactor coolant pressure boundary. In addition, documents related to subsequent inspections of the St. Lucie Unit 2 steam generators also show that AREVA added 588 new tubes to the original 8,411 tubes, now totaling 8,999 tubes. Third, inspection-related documents show that lattice or egg crate support structures, specifically mentioned in the FSAR for original licensing as necessary to reduce vibration, were removed. In their place, FPL had installed support plates – despite the fact that support plates were specifically *excluded* from the original design. Gundersen Declaration, ¶ 25, 445, 45, 46. Finally, in order to accommodate the 588 new tubes, it is reasonable to infer that the region of the tubesheet that had been directly above the stay cylinder was now perforated with 588 new holes. Gundersen Declaration, ¶ 31. All of these design changes create new, unanalyzed safety issues for the reactor coolant pressure boundary. Gundersen Declaration, ¶¶ 59-63.

Rather than demand a license amendment application from FPL, over the course of the next six years the NRC Staff took numerous actions that implicitly approved the design changes. Gundersen Declaration, ¶¶ 51-58. These actions included the granting of an extended power uprate that considered the RSG design differences between Unit 1 (which still retained a stay cylinder and lattice tube supports) and Unit 2 (from which they had been removed). Gundersen Declaration, ¶ 54. Following each discovery of significant tube wear in the RSGs during Unit 2 outages, despite knowing of Unit 2's RSG design changes, the Staff repeatedly made safety findings that no regulatory action was required. These regulatory actions constituted the *de facto* amendment of Unit 2's operating license. *Id.*

The license amendment process continues and is ongoing, because the Staff continues to make regulatory decisions that give its *imprimatur* to the design changes to Unit 2. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-13-07, 77

NRC 307, __ (2013) (vacated, CLI-13-09, __ NRC __ (Dec. 5, 2013)).¹ In the current refueling outage, for example, the NRC plans to conduct an inservice inspection of components that are subject to FPL's Aging Management Program ("AMP"), which is part of Unit 2's technical specifications. As such, the inspection will cover RSG components that are listed in the AMP (such as the stay cylinders and the egg crate or lattice tube supports) but that have been removed from Unit 2 without changing the technical specifications. The NRC Staff will then face a choice of whether to amend the technical specifications to conform to Unit 2's new design or to require a design change that will conform to the technical specifications. Gundersen Declaration, ¶ 11.

In its Hearing Request, SACE seeks an adjudicatory hearing regarding the NRC Staff's ongoing process for *de facto* approval of significant changes that FPL made to the safety design of the Unit 2 steam generators when it installed replacement steam generators ("RSGs") in 2007. SACE contends that under 10 C.F.R. § 50.59, FPL's drastic alterations to the original and renewed design of the Unit 2 steam generators required a license amendment before FPL could implement them. By permitting FPL to operate with such significant design changes, even after three successive outage inspections of the RSGs showed a high and increasing rate of damage to their steam generator tubes, the NRC has effectively amended FPL's license. *Citizens Awareness Network v. NRC*, 59 F.3d 284, 294(1st Cir. 1995).

SACE's hearing request includes two contentions. SACE's Contention 1 asserts that the NRC Staff has conducted and is conducting a *de facto* license amendment proceeding regarding

¹ While the Commission vacated LBP-13-07, it did not preclude litigants from citing the decision, noting that "[f]uture litigants can cite the decision as support for an argument; we or a licensing board then may consider whether such an argument is persuasive."

FPL's changes to the Unit 2 RSGs, on which SACE is entitled to a hearing. *Citizens Awareness Network*, 59 F.3d at 295; *San Onofre*, LBP-13-07, 77 NRC at 334-35. SACE's Contention 2 asserts that the changes made by FPL to the steam generator design for Unit 2 fail to comply with NRC safety regulations or the NRC's reasonable assurance standard for protecting public health and safety, and therefore the NRC Staff's *de facto* amendment of the Unit 2 license should be revoked and FPL should be prevented from restarting the reactor until it has made any design changes necessary to demonstrate that the reactor is safe to operate.

IV. SACE SATISFIES THE STANDARD FOR GRANTING A STAY.

NRC regulation 10 C.F.R. § 2.342 provides that the Commission must consider the following four criteria in deciding whether to issue a stay: (1) whether the moving party has made a strong showing that it is likely to prevail on the merits, (2) whether the party will be irreparably injured unless a stay is granted, (3) whether the granting of a stay would harm other parties, and (4) where the public interest lies.

A. Likelihood of Prevailing on the Merits

SACE is likely to prevail on the merits of its hearing request. As set forth in detail in the Hearing Request and supporting Gundersen Declaration, SACE has demonstrated that the NRC Staff has repeatedly amended FPL's operating license to allow significant alterations to the original and renewed design basis of the reactor. The stay cylinder, for example, was explicitly referred to in the original FSAR for Unit 2, and a subsequent license amendment discussed its safety role. Gundersen Declaration, ¶ 24. Yet, FPL removed it, without even mentioning it in its 10 C.F.R. §50.59 letter. The original FSAR also explicitly referred to the safety purpose of using lattice or egg crate tube supports, *i.e.*, to prevent undue vibration. Gundersen Declaration, ¶ 25. In addition, the original FSAR asserted that support "plates" had been "eliminated." *Id.* Yet,

FPL swapped out the egg crate supports for broached plate supports, in direct contradiction of the FSAR. The NRC Staff went along with these changes, agreeing without objection to FPL's removal of major safety components from the RSGs, and not even taking action when they showed problems. The Staff's implicit approval of the "major-component dismantling" of these steam generators, without affording the public an opportunity for a hearing, directly "undermined[d] the integrity of the licensing process." *Citizens Awareness Network*, 59 F.3d at 294. Thus, SACE is likely to prevail on its hearing request.

B. SACE and its Members Will be Irreparably Injured if a Stay is Not Granted.

Under the Atomic Energy Act, SACE is entitled to a prior hearing on the amendment of FPL's operating license, before Unit 2 can be permitted to operate again. *Citizens Awareness Network*, 59 F.3d at 294. SACE will suffer injury that is certain and great if the NRC allows a dangerous nuclear reactor to operate, without having conducted the basic safety analysis that is necessary to ensure it will not pose an undue risk to public health and safety. This is a minimum guarantee of the Atomic Energy Act.

In addition, Mr. Gundersen's declaration demonstrates that the operation of St. Lucie Unit 2 in the presence of (a) at least four major unreviewed steam generator design changes and (b) degrading tubes poses an unacceptable level of risk to public health and safety. Gundersen Declaration, ¶¶ 59-63.

C. Granting a Stay Would Not, on Balance, Harm Other Parties.

A stay of the restart of the St. Lucie 2 nuclear unit, until the NRC has finished the requested hearing, will not negatively impact FPL's ability to continue to reliably provide power to its customers. The company currently owns approximately 24,000 MW of generation capacity.

FPL 2013 Ten Year Site Plan at 17 (<http://www.psc.state.fl.us/library/filings/13/01579-13/01579-13.pdf>), and has an additional 2,300 MW in purchase power agreements to meet electricity demand. FPL 2013 Ten Year Site Plan at 19 (<http://www.psc.state.fl.us/library/filings/13/01579-13/01579-13.pdf>). The Florida Reliability Coordinating Council (the industry reliability body for peninsular Florida) only requires that the company maintain a 15% reserve margin (Florida Reliability Coordinating Council, 2013 Ten Year Site Plan Workshop, Slide 14, at: http://www.psc.state.fl.us/utilities/electricgas/docs/FRCC_09_25_13.pdf).

In 2013, FPL had a summer peak demand reserve margin of 28% (excess generation and demand-side resources available to meet projected electricity demand). The reserve margin is expected grow to 28.5% in this year, and increase to 31.2% in 2015. FPL 2013 Ten Year Site Plan at 12 (<http://www.psc.state.fl.us/library/filings/13/01579-13/01579-13.pdf>). St. Lucie Unit 2 provides approximately 900 MW of capacity, and therefore FPL's idling of the St. Lucie 2 unit only reduces generation capacity by approximately 3% (900/26,500). Hence, extending an already-planned outage, of approximately 900 MW, until the NRC has finished a hearing on the steam generator replacement, will not negatively impact FPL's ability to continue to reliably provide power to its customers.

D. The Public Interest Would Be Served by Granting a Stay.

For several reasons, the public interest would be served by a stay in this case. First, the safety of the Unit 2 reactors should be of paramount concern to the Commission. Unit 2 has been operating for six years with steam generators that are significantly different than what was approved when the reactor was licensed. During that period, the condition of the steam generators has declined markedly. An extended power uprate, approved in 2012, may have

worsened the condition of the steam generators. The public deserves a full accounting of the safety condition of the RSGs, including the presentation of a safety analysis and an opportunity to contest it in a public hearing, before the reactor goes back into service.

Second, the public interest would be served by adherence to the rule of law. As the Court of Appeals recognized in *Citizens Awareness Network*:

[I]f section 189 is to serve its intended purpose, surely it contemplates that parties in interest be afforded a meaningful opportunity to request a hearing *before* the Commission *retroactively* reinvents the terms of an extant license by voiding its implicit limitations on the licensee's conduct.

59 F.3d at 294-95. Here, FPL has flouted the requirement of 10 C.F.R. §50.59 for licensing hearings, hiding and even misrepresenting the fundamental design changes it made with the installation of the RSGs in 2007. The public was never given enough information to challenge the legitimacy of the RSG replacement under the Atomic Energy Act. The NRC Staff repeatedly gave its approval and did nothing to analyze or even reveal information about the design changes. Before Unit 2 is allowed to restart, the credibility of the hearing process should be restored. The NRC Staff also should be restored as the true regulator of St. Lucie Unit 2, rather than a sycophant to FPL.

Finally, the public interest would be served by full disclosure and debate of the issues in a public hearing. In order to be credible, this debate should take place before Unit 2 is restarted. And it should be based on all relevant information. Currently, because FPL never filed a license amendment application, and because FPL's updates to the FSAR have not been publicly disclosed, the full extent of its changes to the Unit 2 reactors remains unknown. The effect of the recent power uprate on the condition of the steam generators is also unknown and its relation to the Unit 2 design changes is unanalyzed.

SACE has retained a highly skilled and experienced expert, Mr. Gundersen, for the purpose of analyzing the safety implications of the design changes to the Unit 2 RSGs and the safety significance of the significant wear they have experienced. In order to participate effectively in a hearing, Mr. Gundersen should have access to all relevant information, including the details of the steam generator replacements and the results of the steam generator inspections during the current outage. FPL should also provide a safety analysis of its design changes.

Gundersen Declaration, ¶60.

V. CONCLUSION

For the foregoing reasons, SACE's request for a stay of the restart of St. Lucie Unit 2 should be granted.

Respectfully submitted,

(Electronically signed by)

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CERTIFICATION PURSUANT TO 10 C.F.R. § 2.323(b)

I certify that on March 10, 2014, I contacted counsel for FPL and made a sincere effort to resolve the concerns raised by this motion. Counsel for FPL responded that FPL intends to oppose the motion.

(Electronically signed by)

Diane Curran