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April 4, 2012

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Re: Docket No. 120007-EI

Dear Ms. Cole:

On behalf of Progress Energy Florida, Inc. (PEF), I enclose for filing in the above docket the original and fifteen (15) copies of the a revised Exhibit No. ___ (PWQ-1) to the testimony of Patricia Q. West filed on April 2, 2012. The revised version of the exhibit corrects two scrivener's error in the Table of Contents on page 2 of the original exhibit. No other changes have been made.

By copy of this letter, the enclosed document has been furnished to the parties on the attached certificate of service.

Please acknowledge receipt and filing of the above by stamping the duplicate copy of this letter and returning it to me. If you have any questions regarding this filing, please give one of us a call at 222-7500.

Very truly yours,



Gary V. Perko

Attorneys for PROGRESS ENERGY FLORIDA, INC.

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished to all counsel of record and interested parties as listed below via regular U.S. Mail this 4th day of April, 2012.

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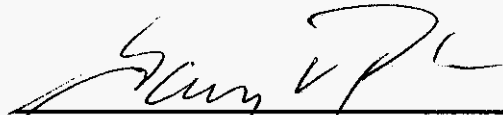
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Review of Integrated Clean Air Compliance Plan

**Submitted to the
Florida Public Service Commission**

April 2, 2012



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Executive Summary

In the 2007 Environmental Cost Recovery Clause (ECRC) Docket (No. 070007-EI) and as reaffirmed in all subsequent ECRC Dockets (Nos. 080007-EI, 090007-EI, 100007-EI and 110007-EI), the Public Service Commission approved Progress Energy Florida's (PEF's) updated Integrated Clean Air Compliance Plan (Plan D) as a reasonable and prudent means to comply with the requirements of the Clean Air Interstate Rule (CAIR), Clean Air Mercury Rule (CAMR), Clean Air Visibility Rule (CAVR), and related regulatory requirements. In its 2007 final order, the Commission also directed PEF to file as part of its ECRC true-up testimony "a yearly review of the efficacy of its Plan D and the cost-effectiveness of PEF's retrofit options for each generating unit in relation to expected changes in environmental regulations." This report provides the required review for 2012.

The primary original components of PEF's 2006 Compliance Plan D included:

Sulfur Dioxide (SO₂):

- Installation of wet scrubbers, flue gas desulfurization system (FGD) on Crystal River Units 4 and 5
- Fuel switching at Crystal River Units 1 and 2 to burn low sulfur coal
- Fuel switching at Anclote Units 1 and 2 to burn low sulfur oil
- Purchases of SO₂ allowances

Nitrogen Oxides (NO_x):

- Installation of low NO_x burners (LNBS) and selective catalytic reduction (SCR) on Crystal River Units 4 and 5
- Installation of LNBS and separated over-fire air (LNB/SOFA) or alternative NO_x controls at Anclote Units 1 and 2
- Purchase of annual and ozone season NO_x allowances

Mercury:

- Co-benefit of wet scrubbers and SCRs at Crystal River Units 4 and 5
- Installation of powdered activated carbon (PAC) injection on Crystal River Unit 2 in 2017

As detailed in PEF's 2007 ECRC filing, PEF decided on Plan D based on a quantitative and qualitative evaluation of the ability of alternative plans to meet environmental requirements, while managing risks and controlling costs. That evaluation demonstrated that Plan D is PEF's

most cost-effective alternative to meet the applicable regulatory requirements. The Plan was designed to meet applicable requirements by striking a balance between reducing emissions, primarily through the installation of controls on PEF's largest and newest coal units (Crystal River Units 4 and 5), and making strategic use of emission allowance markets.

In accordance with the Commission's final order in the 2007 ECRC docket, PEF has continued to review the efficacy of Plan D and the cost-effectiveness of retrofit options in relation to expected changes in environmental regulations. With regard to efficacy, Plan D remains the cornerstone of PEF's efforts to comply with applicable air quality regulations in cost-effective manner. Crystal River Units 4 and 5 FGD and SCR projects are now in-service and the targeted environmental benefits have been met or exceeded.

Since last year's ECRC proceeding, the U.S. Court of Appeals for the District of Columbia stayed the effect of the Cross-State Air Pollution Rule (CSAPR) that EPA had recently proposed to replace CAIR, leaving CAIR in effect until the court completes its review of CSAPR. Additionally, EPA announced new Mercury and Air Toxics Standards (MATS) for emissions from coal and oil-fired electric generating units (EGUs), including, potentially, PEF's Anclote Units 1 and 2, Crystal River Units 1, 2, 4, and 5, and Suwannee Units, 1, 2, and 3. PEF has determined that the most cost-effective option for its Anclote Units 1 and 2 is to convert the units to fire 100% natural gas rather than install emission controls in order to comply with the new MATS. PEF will continue to utilize the Crystal River Unit 4 and 5 FGDs and SCRs to comply with the new MATS, but the Company is still in the process of analyzing additional control options for all of the Crystal River coal units, as well as the impact of the new MATS on Suwannee Units 1, 2 and 3.

Although EPA has begun implementation of a regulatory approach to reducing greenhouse gas (GHG) emissions through the Clean Air Act, there currently are no GHG emission standards applicable to PEF's units. Moreover, there are still no retrofit options commercially available to reduce carbon dioxide (CO₂) emissions from fossil fuel-fired EGUs.

PEF is confident that the emission controls installed pursuant to Plan D, along with compliance strategies under development, will enable the Company to achieve and maintain compliance with all applicable regulations in a cost-effective manner. PEF is in the process of evaluating additional compliance options in light of the recent adoption of MATS, the ongoing review of CSAPR, and other regulatory developments affecting fossil fuel-fired generating units.

I. Introduction

In its final Order in the 2007 ECRC Docket (No. 070007-EI) and as reaffirmed in all subsequent ECRC Dockets (Nos. 080007-EI, 090007-EI, 100007-EI and 110007-EI), the Public Service Commission approved PEF's updated Integrated Clean Air Compliance Plan (Plan D) as a reasonable and prudent means to comply with the requirements of CAIR, CAMR, CAVR and related regulatory requirements. *In re Environmental Cost Recovery Clause*, Order No. PSC-07-0922-FOF-EI, p. 8 (Nov. 16, 2007), the Commission specifically found that "PEF's updated Integrated Clean Air Compliance Plan represents the most cost-effective alternative for achieving and maintaining compliance with CAIR, CAMR, and CAVR, and related regulatory requirements, and it is reasonable and prudent for PEF to recover prudently incurred costs to implement the plan." *Id.* In its final order, the Commission also directed PEF to file as part of its ECRC true-up testimony "a yearly review of the efficacy of its Plan D and the cost-effectiveness of PEF's retrofit options for each generating unit in relation to expected changes in environmental regulations." *Id.* The purpose of this report is to provide the required review for 2012.

II. Regulatory Background

The CAIR and CAVR programs required PEF and other utilities to significantly reduce emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x). CAIR contemplated emission reductions in incremental phases. Phase I began in 2009 for NO_x and in 2010 for SO₂. Phase II was to begin in 2015 for both NO_x and SO₂. The CAMR originally required reduction of mercury emissions and installation of mercury monitors. As will be discussed later in this report, CAMR was vacated in early 2008 and on February 16, 2012, EPA published a final Mercury and Air Toxics Standards (MATS) rule.

In March 2006, PEF submitted a report and supporting testimony presenting its integrated plan for complying with the new rules, as well as the process PEF utilized in evaluating alternative plans, to the Commission. The analysis included an examination of the projected emissions associated with several alternative plans and a comparison of economic impacts, in terms of cumulative present value of revenue requirements. PEF's Integrated Clean Air Compliance Plan, designated in the report as Plan D, was found to be the most cost-effective compliance plan for CAIR, CAMR, and CAVR from among five alternative plans.

In June 2007, PEF submitted an updated report and supporting testimony summarizing the status of the Plan and an updated economic analysis incorporating certain plan revisions necessitated by changed circumstances. Consistent with the approach utilized in 2006, PEF performed a quantitative evaluation to compare the ability of the modified alternative plans to meet environmental requirements, while managing risks and controlling costs. That evaluation demonstrated that Plan D, as revised, is PEF's most cost-effective alternative to meet the applicable regulatory requirements. Based on that analysis, the Commission approved PEF's Plan D as reasonable and prudent, and held that PEF should recover the prudently incurred costs of implementing the Plan. Since 2007, the Commission has approved PEF's annual Review of Integrated Clean Air Compliance Plan in the final orders rendered in each annual ECRC docket. See Order No. PSC-11-0553-FOF-EI, at 13-14 (Dec. 7, 2011); Order No. PSC-10-0683-FOF-EI, at 6-7 (Nov. 15, 2010); Order No. PSC-09-0759-FOF-EI, at 18 (Nov. 18, 2009); Order No. 08-0775-FOF-EI, at 11 (Nov. 24, 2008).

A. Status of CAIR and CSAPR

In July 2008, the U.S. Circuit Court of Appeals for the District of Columbia (D.C. Circuit) issued a decision vacating CAIR in its entirety. *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008). However, the Court subsequently decided to remand CAIR without vacatur, thereby leaving the rule and its compliance obligations in place until EPA revises or replaces CAIR. *North Carolina v. EPA*, 550 F.3d 1176 (D.C. Cir. 2008). EPA subsequently adopted CSAPR to replace CAIR by publication in the *Federal Register* in August 2011. 76 Fed. Reg. 48,208 (Aug. 8, 2011).

In Order No. PSC-11-0553-FOF-EI issued in Docket No. 110007-EI on December 7, 2011, the Commission addressed the impact of CSAPR on PEF's recovery of NOx emission allowance costs. Because CSAPR would no longer allow PEF to use NOx allowances previously obtained under CAIR for compliance effective January 1, 2012, the Commission established a regulatory asset to allow PEF to recover the costs of its remaining NOx allowance inventory over a three year amortization period. However, on December 30, 2011, the D.C. Circuit Court of Appeals stayed the CSAPR leaving CAIR in effect until the court completes its review of the new rule. Thus, PEF must continue to maintain its NOx allowance inventory in order to comply with CAIR. Pursuant to the stipulation approved in Order No. PSC-11-0553-

FOF-EI, PEF will continue to expense NOx allowance costs incurred to comply with CAIR based on actual usage consistent with current practice. Any over-recovery of NOx allowance costs resulting from the Commission's establishment of the regulatory asset will be refunded through the normal true-up process in the annual ECRC proceedings.

B. Vacatur of CAMR and Adoption of MATS

In February 2008, the D.C. Circuit vacated the CAMR regulation and rejected EPA's delisting of coal-fired EGUs from the list of emission sources that are subject to Section 112 of the Clean Air Act. *See, New Jersey v. EPA*, 517 F. 3d 574 (D.C. Cir. 2008). As a result, in lieu of CAMR, EPA was required to adopt new emissions standards for control of various hazardous air pollutant emissions from coal-fired EGUs. *Id.* EPA issued its proposed rule to replace CAMR on March 16, 2011, with publication following in the *Federal Register* on May 3, 2011. *See* 76 Fed. Reg. 24976 (May 3, 2011). On February 16, 2012, EPA published the final rule, which requires compliance by April 16, 2015. The rule establishes new MATS for emissions of various metals and acid gases from both coal and oil-fired EGUs. The new standards apply to all existing coal and oil-fired EGUs, including, potentially, PEF's Crystal River Units 1, 2, 4, and 5, Anclote Units 1 and 2, and Suwannee Units, 1, 2, and 3. Compliance generally must be achieved within three years of EPA's adoption of the standards (i.e., 2015), although the Clean Air Act authorizes permitting authorities to grant one-year compliance extensions in certain circumstances.

In the 2011 ECRC docket, the Commission recognized that EPA's adoption of the new EGU standards will require PEF to modify its Integrated Clean Air Compliance Plan. Order No. PSC-11-0553-FOF-EI, at 11 (Dec. 7, 2011). Accordingly, consistent with the Commission's expectation that utilities "take steps to control the level of costs that must be incurred for environmental compliance," Order No. PSC-08-0775-FOF-EI, at 7 (Nov. 24, 2008), the Commission approved PEF's request to recover costs incurred by the Company to assess EPA's proposed rule, to prepare comments to the EPA, and to develop compliance strategies within the aggressive regulatory timeframes proposed by EPA. *Id.* Specifically, the Commission approved recovery of PEF's projected costs of \$85,000 for performing emissions testing at Crystal River Units 4 and 5 in 2011, as well as \$300,000 of additional costs in 2012 for engineering and other analyses necessary to develop compliance strategies for inclusion in an updated Integrated Clean

Air Compliance Plan. *Id.* By petition filed on March 29, 2012, PEF requested ECRC recovery of costs associated with the conversion of Anclote Units 1 and 2 to 100% natural gas fired capability as part of PEF's MATS compliance strategy. PEF is still in the process of analyzing compliance strategies for its other coal and oil-fired units.

C. Greenhouse Gas Regulation

In 2007, then-Governor Crist issued Executive Order 07-127 directing FDEP to promulgate regulations requiring reductions in utility carbon dioxide (CO₂) emissions. In addition, the 2008 Florida Legislature enacted legislation authorizing FDEP to adopt rules establishing a cap-and-trade program and requiring FDEP to submit any such rules for legislative review and ratification. To date, however, FDEP has not adopted any cap-and-trade rules. Likewise, although a number of bills that would regulate greenhouse gas (GHG) emissions have been introduced to Congress over the past several years, none have passed both houses. In the meantime, EPA has begun implementation of a regulatory approach to reducing GHG emissions through the Clean Air Act. At this time, however, there are no GHG emission standards applicable to PEF's generating units. Moreover, there are still no retrofit options commercially available to reduce CO₂ emissions from fossil fuel-fired electric generating units such as Crystal River Units 4 and 5, which are the primary focus of PEF's compliance plan. To date, there have been no large-scale commercial carbon capture and storage technology demonstrations on electric utility units. Until numerous technological, regulatory and liability issues are resolved, it will be impossible to determine whether carbon capture and storage would be a technically feasible or cost-effective means of complying with a CO₂ regulatory regime. Moreover, replacing coal-fired generation from Crystal River Units 4 and 5 with lower CO₂-emitting natural gas-fired combined cycle generation is not a viable option at this late date, particularly given the fact that PEF has placed in service the Plan D components.

D. Status of Best Available Retrofit Technology (BART)

By October 1, 2013 Crystal River Units 1 and 2 must demonstrate compliance with the terms of the BART permit that was issued by the Florida Department of Environmental Protection in January 2009. PEF is continuing to evaluate potential compliance options for the

Units in light of EPA's recently adopted MATS and other ongoing rulemaking affecting fossil fuel-fired EGUs.

The permit discussed above specifically contains BART requirements for particulate matter. The stay of the CSAPR has left in place the determination that CAIR satisfies BART for SO₂ and NO_x, and EPA has proposed that the CSAPR also satisfies BART for SO₂ and NO_x. However, if the CSAPR is upheld by the court, BART for SO₂ may become an issue for Florida because Florida is not subject to the CSAPR SO₂ program. PEF will continue to monitor closely the status of CAIR and CSAPR and their relationship to BART.

III. PEF's Integrated Clean Air Compliance Plan

PEF's compliance plan (Plan D) meets all currently applicable environmental requirements by striking a balance between reducing emissions, primarily through installation of controls on PEF's largest and newest coal units (Crystal River Units 4 and 5), and making strategic use of the allowance markets to comply with CAIR requirements. The controls installed in accordance with Plan D will continue to be the cornerstone of PEF's compliance strategy with the adoption of MATS and other ongoing regulatory efforts. Specific components of the Plan are summarized below.

1. Flue Gas Desulfurization (FGD) Systems

The most significant component of PEF's Integrated Clean Air Compliance Plan is the installation of FGD systems, also known as wet scrubbers, on Crystal River Units 4 and 5 to comply with SO₂ requirements of CAIR, Title IV of the Clean Air Act, and SO₂ control requirements in PEF's air permits for Crystal River Units 4 and 5. Together with the Selective Catalytic Reduction (SCR) systems discussed below, the FGDs also reduce mercury and other air toxic emissions and, therefore, will be a key component of PEF's MATS compliance strategy. Preliminary analyses indicate that the co-benefits of the FGDs and SCRs reduce mercury emissions by approximately 80%.

2. Selective Catalytic Reduction (SCR) & Other NOx Controls

The primary component of PEF's NOx compliance plan is the installation of Low NOx Burners (LNBs) and SCR systems on Crystal River Units 4 and 5. These controls enable PEF to comply with CAIR and other NOx control requirements included in PEF's air permits for Crystal River Units 4 and 5. As discussed above, the SCRs also will help achieve MATS requirements for mercury. To achieve compliance with CAIR, PEF also has taken strategic advantage of CAIR's cap-and-trade feature by purchasing some annual and ozone season NOx allowances.

3. Additional MATS Compliance Strategies

PEF has determined that the most cost-effective option for PEF's Anclote Units 1 and 2 is to convert the units to fire 100% natural gas rather than install emission controls in order to comply with the new MATS for oil-fired EGUs. As explained in the petition filed March 29, 2012, PEF estimates that the cost of converting the Anclote units to fire 100% natural gas is approximately \$79 million.

PEF will utilize the co-benefits of the existing FGD and SCR systems as the primary MATS compliance measure for Crystal River Units 4 and 5, but additional analyses are ongoing to determine whether additional control measures will be necessary for those units. PEF also is in the process of evaluating the most cost-effective MATS compliance options for Crystal Units 1 and 2. PEF expects to complete such analyses in the second quarter of 2012 and will advise the Commission of the results in future filings in the ECRC docket. PEF is also still analyzing the impact of MATS on Suwannee Units 1, 2 and 3.

4. Visibility Requirements

PEF operates four units that are potentially subject to Best Available Retrofit Technology (BART) under CAVR, including Anclote Units 1 and 2 and Crystal River Units 1 and 2. Based on modeling of air emissions from Anclote Units 1 and 2, those units are exempted from BART for particulate matter. Because the modeling results for Crystal River Units 1 and 2 showed visibility impacts at or above regulatory threshold levels, PEF obtained a BART permit for particulate matter only for those units. This permit establishes a combined BART particulate matter emission standard for Crystal River Units 1 and 2 which must be achieved by October 1, 2013. As mentioned above, CAIR satisfied BART requirements for NO_x and SO₂ at this time.

However, if CSAPR is upheld by the court, the compliance strategies for SO₂ may need to be evaluated for these units. PEF is continuing to evaluate potential compliance options for Crystal River Units 1 and 2 in light of EPA's recently adopted MATS and other ongoing rulemakings affecting fossil fuel-fired EGUs.

IV. Efficacy of PEF's Plan

A. Project Milestones

PEF completed installation of Plan D's controls on Crystal River Units 4 and 5 as contemplated in prior ECRC filings. Crystal River Units 4 and 5 FGD and SCR projects are now in-service and the targeted environmental benefits have been met or exceeded. Units 4 and 5 SCRs reduce NO_x emissions by approximately 90% and Units 4 and 5 FGDs reduce SO₂ emissions by approximately 97%. The FGDs and SCRs have the combined effect of reducing emissions of mercury and other air toxics which will contribute to PEF's plans to comply with the new MATS.

As noted above, PEF has determined that converting Anclote Units 1 and 2 to fire 100% natural gas is more cost-effective than installing emission controls in order to comply with the new MATS for oil-fired units. PEF anticipates that the conversion of both Anclote Units will be completed by the end of calendar year 2013. PEF is continuing to evaluate MATS compliance options for all of the Crystal River coal-fired units.

B. Projects Costs

Crystal River Units 4 and 5 FGD and SCR projects are now in-service, and the targeted environmental benefits have been met or exceeded. Demobilization and site restoration have been completed, and only minor punch list items remain to be closed out by the end of the first quarter 2012.

As noted above, PEF projects the costs of converting the Anclote units to fire 100% natural gas to be approximately \$79 million. PEF will provide costs estimates to the Commission for any additional MATS compliance measures as future decisions are made.

C. Uncertainties

The stay of the CSAPR has left in place the determination that CAIR satisfies BART for SO₂ and NO_x, and EPA has proposed that CSAPR also satisfies BART for SO₂ and NO_x. However, if the CSAPR is upheld by the court, BART for SO₂ may become an issue in Florida because Florida is not subject to the CSAPR SO₂ program. PEF will continue to monitor closely the status of CAIR and CSAPR and their relationship to BART.

The outcome of now pending regulation on cooling water intake structures (316(b)) could influence decisions with regard to control technologies to meet new standards. The rule is expected to be issued July 27, 2012 and once its requirements are assessed in conjunction with new air regulation compliance strategies may be altered.

EPA is expected to issue updated Effluent Guidelines for electric power plants in July 2012. These guidelines are expected to affect decisions associated with the treatment of wastewater generated by wet FGDs.

V. Conclusion

PEF has completed installation of the emission controls contemplated in its approved Plan D on time and within budget. The new FGD and SCR systems have enabled PEF to comply with CAIR requirements and will continue to be the cornerstone of PEF's integrated air quality compliance strategy for years to come. PEF is confident that Plan D, along with compliance strategies under development, will enable the Company to achieve and maintain compliance with all applicable regulations, including MATS, in a cost-effective manner. PEF is in the process of evaluating additional compliance options in light of the recent adoption of MATS, the ongoing review of CSAPR, and other regulatory developments affecting fossil fuel-fired electric generating units.