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BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 080007-EI

IN RE:

ENVIRONMENTAL COST RECOVERY FACTORS

PROJECTIONS

JANUARY 2009 THROUGH DECEMBER 2009

TESTIMONY AND EXHIBITS

OF

PAUL L. CARPINONE

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

PAUL L. CARPINONE

Q. Please state your name, address, occupation and employer.

A. My name is Paul L. Carpinone. My business address is 702 North Franklin Street, Tampa, Florida 33602. I am employed by Tampa Electric Company ("Tampa Electric" or "company") as Director, Environmental Health & Safety in the Environmental Health and Safety Department.

Q. Please provide a brief outline of your educational background and business experience.

A. I received a Bachelor of Science degree in Water Resources Engineering Technology from the Pennsylvania State University in 1978. I have been a Registered Professional Engineer in the State of Florida and Pennsylvania since 1984. Prior to joining Tampa Electric I worked for Seminole Electric Cooperative as a Civil Engineer in various positions and in environmental consulting. In February 1988, I joined Tampa Electric as a Principal Engineer, and I have primarily worked in the area of Environmental Health and Safety. In 2006, I became Director, Environmental Health and Safety. My responsibilities include the development and administration of the company's environmental, health and safety policies and goals. I am also responsible for ensuring resources, procedures and programs meet or exceed compliance with applicable environmental, health and safety requirements, and that rules and policies are in place and functioning appropriately and consistently throughout the company.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to demonstrate that the activities for which Tampa Electric seeks cost recovery through the Environmental Cost Recovery Clause ("ECRC") for the January 2009 through December 2009 projection period are activities necessary for the company to comply with various environmental requirements. Specifically, I will describe the ongoing activities that are associated with the Consent Final Judgment ("CFJ") entered into with the Florida Department of Environmental Protection ("FDEP") and the Consent Decree ("CD") lodged with the U.S. Environmental Protection Agency ("EPA") and the Department of Justice. I will also discuss other programs previously approved by the Commission for recovery through the ECRC as well as the suspension of the Clean Water Act Section 316(b) Phase II Study. Finally, I will discuss the sulfur dioxide ("SO_2") emission allowance sales for 2009 and the company's position for future allowance needs.

Q. Please provide an overview of the ongoing environmental compliance requirements that are the result of the CFJ and the CD ("the Orders").

A. The general ongoing requirements of the Orders provide for further reductions for SO_2, particulate matter ("PM") and nitrous oxides ("NO_x") emissions at Big Bend Station.

Q. What do the Orders require for SO_2 emission reductions?

A. The Orders require Tampa Electric to create a plan for optimizing the availability and removal efficiency of the flue gas desulfurization systems ("FGD" or "scrubbers"). The plan was submitted to the EPA in two phases, and both were approved.

Phase I required Tampa Electric to work scrubber outages around the clock and to utilize contract labor, when necessary, to speed the return of a malfunctioning scrubber to service. In addition, Phase I required Tampa Electric to review all critical scrubber spare parts and increase the number and availability of spare parts to ensure a speedy return to service of a malfunctioning scrubber.

Phase II outlined capital projects Tampa Electric was to perform to upgrade each scrubber at Big Bend Station. It also addressed the use of environmental dispatching in the event of a scrubber outage. All of the preliminary SO_2 emissions reduction projects have been completed. However, additional work will occur in 2009 associated with the Big Bend Units 1 and 2 FGD and Big Bend FGD System Reliability programs to comply with the elimination of the allowed scrubber outage days for 2010 and 2013.

Q. What do the Orders require for PM emission reductions?

A. The Orders require Tampa Electric to develop and implement a best operational practices ("BOP") study to minimize PM emissions from each electrostatic precipitator ("ESP") and complete and implement a best available control technology ("BACT") analysis of the

ESPs at Big Bend Station. The Orders also require the company to demonstrate the operation of a PM continuous emissions monitoring system ("CEM") on Big Bend Units 3 and 4 and demonstrate the operation of a second PM CEM on another Big Bend unit. Pursuant to the Orders, the installation of the second PM CEM was required on or before May 1, 2007, if the first PM CEM has been shown to be feasible and remains in operation and if Tampa Electric advises the EPA that it has elected to continue to combust coal in Big Bend Units 1, 2 and 3. The first PM CEM was installed in February 2002. The installation of the second PM CEM will be completed within 18 months of approval of the pending second amendment to the CD. The amendment has not been opposed by any of the involved parties and is currently in the final administrative stages of approval.

Q. Please describe the Big Bend PM Minimization and Monitoring program activities and provide the estimated capital and O&M expenditures for the period of January 2009 through December 2009.

A. The Big Bend PM Minimization and Monitoring program was approved by the Commission in Docket No. 001186-EI, Order No. PSC-00-2104-PAA-EI, issued November 6, 2000. In the

Order, the Commission found that the program met the requirements for recovery through the ECRC. Tampa Electric had previously identified various projects to improve precipitator performance and reduce PM emissions as required by the Orders. In 2009, there will be capital expenditures associated with the installation of a second PM CEM, O&M expenses associated with existing and recently installed BOP and BACT equipment and continued implementation of the BOP procedures. Moving forward with the project will improve generation availability by providing real time PM emissions data. These activities are expected to result in approximately $492,900 of capital and $455,000 of O&M expenses.

Q. What do the Orders require for NO_x reductions?

A. The Orders require Tampa Electric to perform NO_x emissions reduction projects on Big Bend Units 1, 2 and 3 and pursuant to an amendment, for Big Bend Unit 4 projects to be substituted for Big Bend Unit 3 projects. The NO_x emissions reductions use the 1998 NO_x emissions as the baseline year for determining the level of reduction achieved. Tampa Electric was also required by the Orders to demonstrate innovative technologies or provide additional NO_x technologies beyond those required by the early NO_x emissions reduction activities.

Q. Please describe the Big Bend NO_x Emissions Reduction program activities and provide the estimated capital and O&M expenses for the period of January 2009 through December 2009.

A. The Big Bend NO_x Emissions Reduction program was approved by the Commission in Docket No. 001186-EI, Order No. PSC-00-2104-PAA-EI, issued November 6, 2000. In the Order, the Commission found that the program met the requirements for recovery through the ECRC. In 2009, Tampa Electric will perform maintenance on the previously approved and installed NO_x abatement equipment. This activity is expected to result in approximately $358,000 of O&M expenses.

Q. Please describe long-term NO_x requirements associated with the Orders and Tampa Electric's efforts to comply with the requirements.

A. The Orders require Big Bend Unit 4 to begin operating with a Selective Catalytic Reduction ("SCR") system or other NO_x control technology, be repowered, or be shut down and scheduled for dismantlement by June 1, 2007. Big Bend

Units 3, 2 and/or 1 must either begin operating with an SCR system or other NO_x control technology, be repowered, or be shut down and scheduled for dismantlement one unit per year by May 1, 2008, May 1, 2009 and May 1, 2010, respectively.

In order to meet the NO_x emission rates and timing requirements of the Orders, Tampa Electric engaged an experienced consulting firm, Sargent and Lundy, to assist with the performance of a comprehensive study designed to identify the long-range plans for the generating units at Big Bend Station. The results of the study clearly indicated that the option to remain coal-fired at Big Bend Station and install the necessary NO_x reduction technologies is the most cost-effective alternative to satisfy the NO_x emissions reductions required by the Orders. This decision was communicated to the EPA and FDEP in August 2004. Tampa Electric also apprised the Commission of this decision in its filing made in Docket No. 040750-EI in August 2004.

Q. Please describe the Big Bend Units 1 through 3 Pre-SCR and the Big Bend Units 1 through 4 SCR projects and provide estimated capital and O&M expenditures for the period of January 2009 through December 2009.

A. In Docket No. 040750-EI, Order No. PSC-04-0986-PAA-EI, issued October 11, 2004, the Commission approved cost recovery of the Big Bend Units 1 through 3 Pre-SCR and the Big Bend Unit 4 SCR projects. The Big Bend Units 1 through 3 SCR projects were approved by the Commission in Docket No. 041376-EI, Order No. PSC-05-0502-PAA-EI, issued May 9, 2005. The purpose of the Pre-SCR technologies is to reduce inlet NO_x concentrations to the SCR systems, thereby mitigating overall SCR capital and O&M costs. These Pre-SCR technologies include neural networks, windbox modifications, secondary air controls and coal/air flow controls. The SCR projects at Big Bend Units 1 through 4 encompass the design, procurement, installation and annual O&M expenses associated with an SCR system for each unit.

The projected costs for the period of January 2009 through December 2009 for which Tampa Electric is seeking ECRC recovery are for the Big Bend Units 1 through 3 Pre-SCR and Big Bend Units 2, 3 and 4 SCR capital and O&M expenditures associated with the engineering, procurement, construction, start-up, tuning, operation and ongoing maintenance for the projects. No capital expenditures are anticipated for Big Bend Units 2 or 3 Pre-SCR for 2009 however, $77,000 is projected for O&M expenses for Unit 2

Pre-SCR but there are no O&M expenses for Unit 3 Pre-SCR. The projected capital expenditure for Big Bend Unit 1 Pre-SCR is $255,800 with $77,000 O&M expenses expected for the year. Big Bend Unit 3 SCR was placed in-service July 2008. Therefore, there are no anticipated capital expenditures for 2009, however the O&M expenditures for the project are anticipated to be $2,204,900. Big Bend Unit 4 SCR was placed in-service May 2007, therefore there are no anticipated capital expenditures for 2009. The O&M expenses for this project are anticipated to be $1,252,800. Big Bend Unit 2 SCR is expected to be in-service April 2009 and will have anticipated capital and O&M costs of $19,750,200 and $1,807,700, respectively.

The projected capital expenditures for Big Bend Unit 1 is $34,218,913. However, as stated in Tampa Electric Witness Howard T. Bryant's Prepared Direct Testimony in this docket, the company will not seek recovery of capital expenditures until the in-service date for the project has occurred.

Q. Please identify and describe the other Commission approved programs you will discuss.

A. The programs previously approved by the Commission that I will discuss include:

1) Big Bend Unit 3 FGD Integration
2) Big Bend Units 1 and 2 FGD
3) Gannon Thermal Discharge Study
4) Bayside SCR Consumables
5) Big Bend Unit 4 Separated Over-fired Air ("SOFA")
6) Clean Water Act Section 316(b) Phase II Study
7) Big Bend FGD Reliability
8) Arsenic Groundwater Standard
9) Clean Air Mercury Rule ("CAMR")

Q. Please describe the Big Bend Unit 3 FGD Integration and the Big Bend Units 1 and 2 FGD activities and provide the estimated capital and O&M expenditures for the period of January 2009 through December 2009.

A. The Big Bend Unit 3 FGD Integration program was approved by the Commission in Docket No. 960688-EI, Order No. PSC-96-1048-FOF-EI, issued August 14, 1996. The Big Bend Units 1 and 2 FGD program was approved by the Commission in Docket No. 980693-EI, Order No. PSC-99-0075-FOF-EI, issued January 11, 1999. In those Orders, the Commission found that the programs met the requirements for recovery through the ECRC. The programs were implemented to meet the SO_2 emissions requirements of the Phase I and II Clean

Air Act Amendments ("CAAA") of 1990.

The projected January 2009 through December 2009, O&M expenses for the Big Bend Unit 3 FGD Integration project are $3,658,000. No capital expenditures are anticipated for this project. The projected January 2009 through December 2009, capital and O&M expenditures for the Big Bend Units 1 and 2 FGD project are $2,111,200 and $7,482,800, respectively. The major components of the capital expenditures are projected to be for the electric isolation, mist eliminator upgrades, redundant gypsum bleed line and controls redundancy.

Q. Please describe the Gannon Thermal Discharge Study program activities and provide the estimated capital and O&M expenditures for the period of January 2009 through December 2009.

A. The Gannon Thermal Discharge Study program was approved by the Commission in Docket No. 010593-EI, Order No. PSC-01-1847-PAA-EI, issued September 14, 2001. In that Order, the Commission found that the program met the requirements for recovery through the ECRC. For the period of January 2009 through December 2009, there will be no capital expenditures for this program. Tampa Electric anticipates O&M expenses will be approximately $50,000 for the period.

Q. Please describe the Bayside SCR Consumables program activities and provide the estimated capital and O&M expenditures for the period of January 2009 through December 2009.

A. The Bayside SCR Consumables program was approved by the Commission in Docket No. 021255-EI, Order No. PSC-03-0469-PAA-EI, issued April 4, 2003. For the period of January 2009 through December 2009, there will be no capital expenditures for this program. Tampa Electric anticipates O&M expenses associated with the consumable goods (primarily anhydrous ammonia) will be approximately $82,000 for the period.

Q. Please describe the Big Bend Unit 4 SOFA program activities and provide the capital and O&M expenditures for the period of January 2009 through December 2009.

A. The Big Bend Unit 4 SOFA program was approved by Commission for ECRC recovery in Docket No. 030226-EI, Order No. PSC-03-0684-PAA-EI, issued June 6, 2003. In that Order, the Commission found that the program met the requirements for recovery through the ECRC contingent upon Big Bend Unit 4 remaining coal fired. On August 19, 2004, Tampa Electric submitted a letter to the EPA declaring the intent for Big Bend Units 1 through 4 to remain coal fired and, as such, complied with the applicable provisions of the CD associated with the decision. The SOFA project was completed in 2004. For the period of January 2009 through December 2009, there will be no capital expenditures for this program. Tampa Electric anticipates O&M expenses will be approximately $50,000 for the period.

Q. Please describe the Clean Water Act Section 316(b) Phase II Study program activities and provide the estimated capital and O&M expenditures for the period of January 2009 through December 2009.

A. The Clean Water Act Section 316(b) Phase II Study program was approved by the Commission in Docket No. 041300-EI, Order No. PSC-05-0164-PAA-EI, issued February 10, 2005. For the period of January 2009 through December 2009, there will be no capital expenditures for this program. EPA announced on March 20, 2007, that the rule adopted pursuant to Section 316(b) be considered suspended. The suspension of the final rule was made on July 9, 2007. Tampa Electric believes that the work will continue to be useful for purposes related to the Phase II Rule and does not intend to suspend the work because it would not be cost-effective or appropriate to do so. Therefore, Tampa Electric anticipates O&M expenses associated with the sampling activities will be approximately $150,000 for the period.

Q. Please describe the Big Bend FGD System Reliability program activities and provide the estimated capital and O&M expenses for the period of January 2009 through December 2009.

A. Tampa Electric's Big Bend FGD System Reliability program was approved by the Commission in Docket No. 050598-EI, Order No. PSC-06-0602-PAA-EI, issued July 10, 2006. The Commission granted cost recovery approval for prudent costs associated with this project. The Big Bend FGD System Reliability project will run concurrently with the installation of SCR systems on the generating units.

For the period of January 2009 through December 2009, there are no capital or O&M expenditures anticipated for this project.

Q. Please describe the Arsenic Groundwater Standard program activities and provide the estimated capital and O&M expenditures for the period of January 2009 through

December 2009.

A. The Arsenic Groundwater Standard program was approved by the Commission in Docket No. 050683-EI, Order No. PSC-06-0138-PAA-EI, issued February 23, 2006. In that Order, the Commission found that the program met the requirements for recovery through the ECRC and granted Tampa Electric cost recovery approval for prudently incurred costs. The new groundwater standard applies to Tampa Electric's H.L. Culbreath Bayside, Big Bend and Polk Power Stations.

For the period of January 2009 through December 2009, there will be no capital expenditures for this program; however, Tampa Electric anticipates O&M expenses associated with the sampling activities will be approximately $114,000.

Q. Please describe the CAMR program activities and provide the estimated capital and O&M expenditures for the period of January 2009 through December 2009.

A. The CAMR program was approved by the Commission in Docket No. 060583-EI, Order No. PSC-06-0926-PAA-EI, issued November 6, 2006. In that Order, the Commission found that the program met the requirements for recovery through the ECRC and granted Tampa Electric cost recovery approval for prudently incurred costs.

On February 8, 2008, the Washington D.C. Circuit Court vacated EPA's rule removing power plants from the Clean Air Act list of sources of hazardous air pollutants. At the same time, the Court vacated the Clean Air Mercury Rule. EPA is reviewing the Court's decisions and evaluating its impacts. Currently, the FDEP has informally announced their intention to begin mercury rulemaking in fall 2008 that will likely have monitoring requirements comparable to CAMR.

Given the vacatur, capital spending for this program is anticipated to be complete in 2008 and monitoring to commence in 2009 using company resources. Therefore, for the period of January 2009 through December 2009, there will be no capital or O&M expenditures for this program.

Q. Please describe how Tampa Electric reached the decision to sell SO_2 emission allowances in 2009 and discuss the company's allowance needs for 2009 and beyond.

A. After the completion of the repowering project at Bayside Power Station, Tampa Electric performed a thorough evaluation of SO_2 emission allowance needs based on current system conditions and those projected to occur over the next 20 years. Current system conditions included the reduction in coal usage due to repowering and the impacts of the CD and CFJ on SO_2 emission allowances. Future conditions took into account generation expansion and the impact of new federal environmental regulations on SO_2 emission allowances. At the conclusion of the evaluation, it became evident that the company had a surplus of allowances that could be sold in the allowance marketplace. Furthermore, there will be an adequate remaining allowance inventory that will meet the company's needs for the next 20 years.

In balancing the appropriate quantity to sell with the company's expected future needs, Tampa Electric will continue to evaluate potential sales opportunities of future quantities of surplus allowances.

Q. What is the impact of the recent vacatur of the CAIR and CAMR rules on Tampa Electric's ECRC projects?

A. The vacatur of CAIR should have minimal impact on Tampa Electric's ECRC projects associated with NO_x and SO_2 abatement. These projects were initiated as a result of the CD signed between EPA and Tampa Electric therefore, the company anticipates continuing its efforts to complete and maintain the projects.

The vacatur of CAMR occurred after Tampa Electric had begun the procurement of equipment necessary to meet the intent of the original rule; however, the company was able to stop a significant portion of the total equipment purchase.

Tampa Electric anticipates a replacement to the CAMR rule to become effective in the near future therefore, during this time of review, the company plans to utilize the resources already secured to establish a baseline of mercury emissions.

Q. Please summarize your testimony.

A. Tampa Electric's settlement agreements with FDEP and EPA require significant reductions in emissions from Tampa Electric's Big Bend and Gannon Stations. The Orders established definite requirements and time frames in which air quality improvements must be made and result in reasonable and fair outcomes for Tampa Electric, its community and customers, and the environmental agencies.

My testimony identified projects which are legally required by these Orders. I described the progress Tampa Electric has made to achieve the more stringent environmental standards. I have identified estimated costs, by project, which the company expects to incur in 2009. Additionally, my testimony identified other projects that are required for Tampa Electric to meet the environmental requirements and I provided the associated 2009 activities and projected expenditures. Finally, I addressed the prudent sales of SO_2 emissions allowances that are anticipated to occur in 2009 and demonstrated that Tampa Electric's approach toward the allowance quantity contained in the sales will not jeopardize the company's long-term future allowance needs.

Q. Does this conclude your testimony?

A. Yes it does.