ORIGINAL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY OF MYRON ROLLINS

ON BEHALF OF

FLORIDA MUNICIPAL POWER AGENCY

JEA

REEDY CREEK IMPROVEMENT DISTRICT

AND

CITY OF TALLAHASSEE

DOCKET NO. 060635-EU

NOVEMBER 21, 2006

Q. Please state your name and business address.

A. My name is Myron Rollins. My business address is 11401 Lamar Avenue, Overland Park KS 66211

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

A. I am employed by Black & Veatch Corporation. My current position is Project Manager.

Q. Have you previously filed testimony in this proceeding?

A. Yes.

Q. Have you reviewed the testimony of Dian Deevy that was filed in this docket on November 2, 2006?

A. Yes, I have.

Q. Have you reviewed the testimony of Daniel Lashof that was filed in this docket on November 2, 2006?

A. Yes, I have.

Q. Have you reviewed the testimony of Dale Bryk that was filed in this docket on November 2, 2006?

A. Yes, I have.

Q. Have you reviewed the testimony of Stephen A. Smith that was filed in this docket on November 2, 2006?

A. Yes, I have.

Q. Have you reviewed the testimony of Hale Powell that was filed in this docket on November 3, 2006?

A. Yes, I have.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to rebut various statements made in the testimonies of Dian Deevy, Daniel Lashof, Dale Bryk, Stephen Smith and Hale Powell. In particular, I will comment on statements made in reference to the assessment of supply-side options studied by the Participants in the Taylor Energy Center (TEC) project and the environmental risks considered, including potential carbon dioxide (CO_2) allowance

costs. I will also correct some statements made in these testimonies that are not factual.

Q. In the testimony of Dian Deevy (Pages 3 and 4) and the testimony of Dale Bryk (Page 3) it is suggested that investments in coal-based generating plants are too risky due to the uncertainty of future regulatory action. Do you agree with this statement?

A. No. Evaluating and planning for risk is a necessary part of operating a utility. While there is risk if TEC is installed and CO_2 regulation is implemented, there is also risk if a natural gas fired combined cycle is installed instead of TEC due to fuel price. It is yet to be known when, if, and what CO_2 regulation will look like in Florida, let alone what CO_2 allowance prices will be. We have, however, *actually* experienced extremely high natural gas prices. To reach the magnitude of the risk associated with high natural gas prices in the last two years, CO_2 allowances would have to exceed $190 per ton before the combined cycle becomes lower in cost than TEC under a CO_2 regulated environment. While it is not appropriate to plan for those continued high gas prices, it is likewise not appropriate to exclude consideration of TEC due to the risk of future unknown regulatory action.

Q. Page 8 of the testimony of Dian Deevy suggests that in the regulated-CO_2 fuel and corresponding emission allowance price scenario, the assumption that some utilities would experience reduced electricity demand growth while the Applicants and other utilities would experience very significant demand growth seems illogical. Do you agree with this suggestion?

A. It is not illogical to believe that certain areas of the country will have higher load growth than others if there were a regulated-CO_2 fuel and corresponding emission allowance price scenario, just like there are currently areas of the country that experience higher load growth than others. It is logical that if there were a regulated-CO_2 fuel and corresponding emission allowance price scenario, it would cause downward pressure on electricity demand growth. It is also logical that the areas with the highest growth would feel the most pressure on electricity demand growth. While it is possible that some high growth areas such as Florida might exceed the 1 percent annual growth rate used by Mr. Preston in his analysis, overall his assumptions are entirely reasonable and appropriate for modeling a regulated-CO_2 fuel and corresponding emission allowance price scenario. Even if the load growth of Applicants were limited to 1 percent annually, each would still have a capacity need for TEC.

Q. In the testimony of Dian Deevy (Pages 12 and 13) and the testimony of Daniel Lashof (page 11) it is suggested that it is necessary to include consideration of the future CO_2 regulation in certificate of need proceedings? Do you agree with this suggestion?

A. CO_2 emissions are currently not regulated. The Commission understandably may want to hear evidence regarding the impact of potential future regulation of CO_2 emissions; however speculating what may or may not occur and including such speculation related to potential CO_2 emissions regulations in the determination of need for TEC would unfairly penalize the Participants and could lead to economically inefficient conclusions. Although there are some that may believe CO_2 regulation is

inevitable, there is a large amount of uncertainty around the timing of such regulation and the form that the regulation will take. Consideration of a potential regulated-CO_2 scenario was included in the TEC Need for Power Application (Exhibit No. __ (TEC-1)) as a sensitivity for informational purposes, and TEC was even found to be cost-effective for each Participant under such a scenario.

Q. Page 6 of the testimony of Dale Bryk states that the first step in evaluating the appropriateness of the TEC project must be to scrutinize the determination that demand will exist for new capacity in the relevant service areas, and analyze the costs, risks, and environmental impacts associated with the full range of potential resource options? Do you agree with this statement?

A. This is the process undertaken by each of the Participants and presented in the TEC Need for Power Application (Exhibit No. __ (TEC-1)). Each Participant based their analysis on individual need for additional capacity, and each Participant considered a wide range of alternative supply-side technologies to satisfy projected capacity requirements. Renewable technologies such as solid biomass, biogas, waste-to-energy, wind, solar, geothermal, hydroelectric and ocean energy were considered. Conventional and emerging technologies also were considered including simple cycle combustion turbines, combined cycle configurations, coal-fired units, integrated gasification combined cycle units, a new simple cycle combustion turbine and new nuclear generating unit designs. The analysis considered developmental status, resource availability, performance, emission profiles, capital costs, operating and maintenance costs, startup costs, construction schedules, scheduled maintenance requirements, and forced outage rates. Environmental impacts were considered for all

alternatives by including capital and operating costs necessary to meet existing environmental regulations. The different technologies were first analyzed and compared using a supply-side screening analysis. This process was performed on each of the alternatives and the respective feasibility, levelized cost and overall reliability to meet the service areas' capacity and energy needs were considered. Using the alternatives that passed the preliminary supply-side screening analysis, a more detailed system production costing analysis was performed for each participant on an individual basis. Costs for environmental impacts of meeting existing regulations for all existing and future generating units were included in the detailed production costing analysis by explicitly considering the projected cost of allowances due to the Clean Air Interstate Rule (CAIR) and Clean Air Mercury Rule (CAMR) in addition to the capital and operating costs of complying with existing regulations.

Q. Page 7 of the testimony of Dale Bryk states that energy efficiency is the most cost-effective, reliable and environmentally friendly resource available. In general, do you agree with this comment?

A. No. This statement is not universally true. Many energy efficiency measures have a limited lifetime and their effectiveness may degrade over time if similar measures are not introduced at the end of the limited lifetimes. Further, the reliability of energy efficiency measures is dependant upon the customers' willingness to continually implement the measures, ranging from initial participation to replacement upon expiration of the measure's lifetime to consistent use of the energy efficiency measure if it is a measure over which the customer has control. For example, a customer may initially set a programmable thermostat such that it saves energy by increasing

temperature during summer periods when the house is not occupied. As time goes on the customer may lower the temperature or decrease the period during which the temperature is raised. Another example is compact fluorescent light bulbs. Some customers may become dissatisfied with the delay in the time that it takes the bulb to turn on and replace it with an incandescent bulb when it burns out.

This is not to say that the Participants do not support energy efficiency. They strongly do. It is just a recognition of differences, limitations, and practicality when considering replacing a 765 MW coal unit with energy efficiency.

Q. Dale Bryk comments that assessing supply-side options requires a realistic and inclusive analysis for the costs, attributes, and risks associated with each resource and that every resource's fixed and variable costs should be assessed either over the lifetime of the resource or over some fixed period, often thirty years (Pages 7 and 8). Do you agree with this comment?

A. Yes. This is in fact the methodology presented in the TEC Need for Power Application. Before any supply-side option can be analyzed on a cost basis, the resource must be analyzed in terms of the technology's reliability and feasibility to meet the Applicants' capacity needs. Any technology that was unable to meet these initial criteria was eliminated from further analysis. All supply-side options that were both commercially proven and feasible were evaluated on a levelized cost basis. The levelized cost takes into consideration the initial project construction costs, fuel costs, and variable and fixed operating and maintenance costs. Optimal generation expansion modeling and system production costing were used to evaluate the

economics of various capacity expansion plans over a 30-year evaluation period. Furthermore, sensitivity analyses were conducted on the key forecasts and projections to evaluate the risks associated with the changes in these projections. This detailed economic analysis was performed for each Participant on an individual basis and it was determined that participation in TEC represented the most cost-effective alternative for each of the Participants.

Q. Dale Bryk comments that risks come in different types and may occur on different time scales, but it is essential that the utilities assess and mitigate all risks that could have a significant impact on customers (Page 8). Do you agree with this statement?

A. It is impossible to mitigate "all risks." However, it is important to identify and evaluate risks that have significant impacts on customers. This is what was done in the TEC Need for Power Application, which included numerous sensitivity scenario evaluations encompassing variations on both internal and external parameters. The sensitivity analyses included high and low price fuel sensitivities, high and low load forecast sensitivities, high and low emission allowance price sensitivities, a high capital cost sensitivity, consideration of a potential regulated-CO_2 scenario, and variations on the supply-side resources considered. Participation in TEC was shown to be cost-effective for each Participant under all sensitivity scenarios considered.

Q. Dale Bryk suggests that the TEC project did not include a comprehensive assessment of comparative environmental impacts, and clearly does not incorporate a meaningful assessment of the cost implications of potential

environmental liability (Page 10). Is this an accurate characterization of the Participants' analyses?

A. No. The cost implications of comparative environmental liabilities were considered throughout the evaluation of TEC in the Need for Power Application. Costs for all alternatives evaluated included the capital and operating costs to meet existing regulations. The analysis explicitly considered new regulatory programs such as the US Environmental Protection Agency's Clean Air Interstate Rule and Clean Air Mercury Rule. Hill & Associates provided a forecast of sulfur dioxide (SO_2), nitrogen oxide (NO_x) and mercury (Hg) allowance prices that correspond to its base case fuel forecast, as well as individual SO_2, NO_x and Hg allowance price forecasts specific to the high and low fuel price forecast sensitivity cases. All production costing evaluation was conducted using environmental dispatch based on these allowance price forecasts. In addition, sensitivity analysis was conducted which included the impact of potential future CO_2 regulation on the costs and feasibility of TEC. With all of these considerations taken into account, TEC was demonstrated to be the most cost-effective available to each Participant.

Q. Daniel Lashof comments that to minimize costs of meeting Florida's power needs, the PSC should require exploration of other options including conservation, efficiency and other demand-side strategies, renewable energy sources and alternative technologies such as IGCC (Page 9). Do you agree with this statement.

A. Yes. This is in fact the approach taken in evaluating participation in TEC for each Participant in the TEC Need for Power Application. Each Participant individually

considered potential demand side management measures. Renewable technologies, advanced technologies, energy storage technologies, and distributed generation technologies, as well as conventional and emerging technologies such as simple cycle combustion turbines, combined cycle units, and IGCC were evaluated as alternatives to participation in TEC, as I have previously discussed in this testimony. The Participants' analysis was extremely comprehensive.

Q. Daniel Lashof comments that assuming a relatively low carbon cost of $12 per ton would cost TEC almost 70 million dollars per year (Pages 10 and 11). How would this affect the economics of TEC?

A. Using the 6.3 million MWh per year and the $12/ton cost of CO_2 contemplated by Mr. Lashof results in a cost of approximately $11.10 per MWh. In 2012 TEC is projected to have a cost of approximately $55/MWh (at a 90 percent capacity factor, based on the updated capital cost estimate discussed in the rebuttal testimony of Paul Hoornaert and including SO_2, NO_x, and Hg allowance costs). Including the costs of CO_2 allowances brings the cost for TEC to approximately $66/MWh. For comparison purposes, the cost of the FMPA brownfield 1x1 combined cycle alternative is projected to be about $72/MWh in 2012, including the costs of SO_2, NO_x, and CO_2 allowances at the $12/ton cost. Even considering the $12/ton cost of CO_2 suggested by Mr. Lashof, TEC remains lower cost than a combined cycle alternative.

Q. Stephen Smith comments that the Commission found only one year ago that a natural gas plant was more cost effective and reliable than a coal fired plant for

FMPA (Page 6). Why is FMPA now suggesting that participation in TEC is the most cost-effective alternative?

A. Mr. Smith's assertion that FMPA concluded that construction of the natural gas plant was more cost-effective than "...a pulverized coal plant like the one FMPA now proposes to build in this proceeding" is taken out of context and is therefore both inaccurate and misleading. Mr. Smith is likely referring to the 2005 need determination proceeding for FMPA's Treasure Coast Energy Center (TCEC) Unit 1 (Docket No. 050256). In that proceeding, in which I presented FMPA's cost effectiveness analysis, FMPA did demonstrate that construction of a 1x1 combined cycle unit was the most cost-effective alternative available to meet FMPA's need in 2008. That finding, however, was due at least in part to the fact that a coal-fired plant could not be constructed to meet FMPA's 2008 need. Indeed, Mr. Smith fails to recognize the critical component of the FMPA cost-effectiveness analysis that identified a 250 MW share of a large supercritical pulverized coal unit (representative of participation in TEC) as part of FMPA's least cost resource plan beginning in 2011. Further, the analysis presented by FMPA in Docket No. 050256 shows the selection of an additional 250 MW share of a large supercritical pulverized coal unit in 2018. Taking these facts into proper consideration, the conclusions reached in FMPA's analysis of participation in TEC presented in this proceeding are fully consistent with the findings presented to the Commission in Docket No. 050256.

Q. Stephen Smith comments that the Orlando Utilities Commission and Southern Company have a petition for a determination of need proceeding pending before the Commission (Page 6). Is this true?

A. No. The petition alluded to by Mr. Smith is no longer pending, nor was Southern Company an applicant. The Commission granted the Orlando Utilities Commission's (OUC) Petition for Determination of Need for Stanton Energy Center Unit B in May 2006 (Docket No. 060155).

Q. Stephen Smith comments that he has been told that "OUC and Southern Company have included carbon allowance costs in their comparable cost analysis in that proceeding." Is this true?

A. No. Mr. Smith's comments are not based on fact. As I stated previously, OUC was the only applicant in Docket No. 060155. Further, I was involved in the OUC proceeding and I have personal knowledge that the neither the Need for Power Application nor the supporting testimony presented any analysis related to consideration of carbon allowance costs.

Q. Hale Powell states that "a recent study by the Land and Water Resources Fund indicated that each kWh saved through energy efficiency can save 0.67 gallons of water in a coal-fired plant..." (Page 17). Do you agree with this statement?

A. I am not familiar with this study, so I cannot speak to the assumptions used nor validate its conclusions. As indicated in the water mass balance for TEC presented in Figure A.3-2 of the TEC Need for Power Application (Exhibit No. __ (TEC-1)), TEC is expected to require approximately 0.48 gallons per kWh. TEC will utilize wastewater and advanced water treatment and management practices, reducing its overall water consumption.

Q. Hale Powell states that DSM resources have no emissions (Page 18). Do you agree with this statement?

A. No. While DSM measures do not directly "emit" pollutants, DSM programs are not emission free. Many DSM programs include the use of products that in their manufacture result in emissions.

Q. Does this conclude your testimony?

A. Yes.