BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination of Need of Hines Unit 3 Power Plant	)	DOCKET NO. 020953-EI
	)	Submitted for filing: September 4, 2002

DIRECT TESTIMONY OF W. BART WHITE

ON BEHALF OF FLORIDA POWER CORPORATION

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IN RE: PETITION FOR DETERMINATION OF NEED

BY FLORIDA POWER CORPORATION

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DIRECT TESTIMONY OF W. BART WHITE

I. INTRODUCTION AND QUALIFICATIONS.

Q: Please state your name, employer, and business address.

A. My name is Bart White and I am employed by Florida Power Corporation (Florida Power or Company). My business address is 2166 Palmetto Street, Clearwater, Florida, 33765.

Q. Please state your position with the Company and describe your duties and responsibilities in that position.

A. I am a Lead Engineer in the Suncoast Transmission Maintenance Area of the Company's Transmission Department. Prior to my taking this position on May 20, 2002, I was a Senior Engineer in the Company's Transmission Planning Unit. My involvement in the Need Determination for Hines Unit 3 therefore originated in Transmission Planning, and I have continued to support Transmission Planning in this endeavor while performing my new duties in Suncoast Transmission Maintenance.

Q. Please summarize your educational background and work experience.

A. I received a Bachelors Degree in Electrical Engineering from Florida State University in 1991. I have been employed by Florida Power since January 1992. I was originally employed in the Company's Relay Design Department. From July 1992 until May 20, 2002 I was employed in Transmission Planning. In Transmission Planning I was responsible for performing various power flow and stability studies to determine the future needs of the Company's Transmission System with regard to additional generation facilities and the constantly growing customer load. Currently, I am responsible for initiating and managing projects for maintaining Florida Power's Transmission System in the Suncoast Area.

Q. Are you a member of any professional organizations?

A. Yes. Since 1995 I have been Florida Power's representative on the Florida Reliability Coordinating Council's (FRCC) Stability Working Group, which is responsible for studying simulations of severe events on the Florida Transmission System and making recommendations to avoid or mitigate such events. As I have taken a new position in Suncoast Transmission Maintenance, my duties in the Stability Working Group will be transferred to other personnel in Transmission Planning in the near future. I am also a Registered Professional Engineer in the State of Florida, and have been since 2000.

II. PURPOSE AND SUMMARY OF TESTIMONY.

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

A. I am testifying on behalf of Florida Power in support of its Petition for Determination of Need by explaining the need for transmission facility modifications required by the addition of Hines 3 at the Hines Energy Complex (HEC) in December 2005.

Q. Are you sponsoring any sections of Florida Power's Need Study (JBC-1)?

A. Yes. I am sponsoring "Transmission and Distribution Facilities" in Section I and "Transmission Requirements" in Section II, which describe the transmission system, facility modifications, and costs associated with the addition of Hines 3 at the HEC.

Q. Please summarize your testimony.

A. No additional facilities modifications other than the expansion of the Hines Energy Substation will be necessary to accommodate the connection of Hines 3 at the HEC. I will describe those expansions and explain the need for them.

III. HINES 3 TRANSMISSION FACILITIES.

Q. Are any transmission facility upgrades or modifications required in connection with the addition of the Hines 3 unit to Florida Power's system?

A. Yes. Based on my evaluation of the addition of Hines 3 to Florida Power's system for compliance with the Company's transmission planning criteria and sound transmission engineering practice in the utility industry, I have determined that the existing Hines Energy substation must be expanded by adding one more 230 kilovolt (kV) substation bay to accommodate the interconnection of Hines 3 and a new auxiliary transformer. No other transmission facility modifications will be required. This cost is included in the total cost estimate for Hines 3 as noted in the testimony of Mr. Murphy.

It should be noted that previous studies performed by the Company's Transmission Planning Department identified an electrical need for an accelerated 230 kV line from Hines to Florida Power's West Lake Wales Substation to accommodate the installation of Hines 3. Our most recent load flow studies show that this is no longer the case due to the emergence of a new 27-mile 230 kV line from the Florida Power Vandolah Substation to Florida Power & Light's Whidden Substation (in-service Fall 2004). The Vandolah-Whidden line, which has only been identified since the Fall of 2001 and committed to since the Spring of 2002, is associated with independent power producer transmission service contracts. Specifically, our studies indicate that the installation of the Vandolah-Whidden 230 kV line pushes out the need for the Hines-West Lake Wales 230 kV line to a future time period beyond the installation of Hines 3. As such, the need for the Hines-West Lake Wales 230 kV line is no longer attributable to Hines 3, but could possibly be driven by subsequent generation in the vicinity or simply the regular growth of the Transmission System.

Q. Can you generally explain the process by which you determined that transmission facility upgrades or modifications might be required with the addition of Hines 3 to Florida Power's system at the HEC?

A. Yes. On a yearly basis, the Florida Power Transmission Planning Department reviews the transmission facility additions or upgrades required on the Company's transmission system based on the latest FRCC load flow cases. Load flow studies analyze the effects of common single contingency events on the transmission system. The typical events that are simulated include loss of a single line or transformer. These load flow cases reflect the planned generation additions as proposed in each utility's Ten-Year Site Plan (TYSP) as filed in April of each year, including Florida Power's TYSP showing its proposed generation additions. Since 1997, the Company has included Hines 3 in its TYSP, and the FRCC load flow cases have included a Hines 3 unit as a result.

Based on the FRCC load flow cases, Florida Power's Transmission Planning Department performs load flow, stability, and short-circuit analyses and determines the need for transmission facility additions or upgrades based on meeting Florida Power's "Transmission Planning Reliability Criteria," Section 4 as filed on FERC Form No. 715 "Annual Transmission Planning and Evaluation Report."

For the load flow portion of my analysis, I used 2006 Summer and 2010 Summer cases. Summer cases were used because the Florida Power Transmission Department plans the Florida Power Transmission System based on Summer peak loading conditions more so than Winter peak conditions. This is considered prudent practice due to the significantly greater number of annual summer peak hours than

winter peak hours on average. The general criteria used when studying the effects of proposed generation on the Transmission System is to study the first Summer season after the proposed generation's in-service date, which would be 2006 Summer in the case of Hines 3. The second step of the criteria is to study four years out from the first Study period (2010 Summer in the case of Hines 3) in order to see the effects of the proposed generation on the Transmission System in a future scenario with the associated load growth and other system changes.

For the stability portion of my analysis, a 2005 Winter peak case was used. Stability studies analyze the effects of major events on the transmission system. The typical events that are simulated include tripping of a generator, loss of an entire generation site, or loss of one or more major transmission lines (e.g. 230 kV lines). This case was used since it most closely matched the proposed Hines 3 in-service date among the presently available stability cases.

For the short-circuit analysis portion of this study, I used 2006 and 2010 Summer cases. As with the criteria mentioned for the load flow portion of this analysis, the general criteria used when studying the effects of proposed generation on the Transmission System is to study the first Summer season after the proposed generation in-service date, which would be 2006 Summer in the case of Hines 3. The second step of the criteria is to study four years out from the first Study period (2010 Summer in the case of Hines 3) in order to see the effects of the proposed generation on the Transmission System in a future scenario with the associated load growth and other system changes. In these simulations, with and without Hines 3 dispatched, several 230 kV breakers were found to be overdutied. In all cases, however, these

breakers were already at or near their maximum fault current-interrupting rating without Hines 3 in service. Replacement of these breakers is required prior to the in-service operation of Hines 2, and they will have sufficient capacity for the operation of Hines 3.

Results for all evaluated criteria indicate that the expansion of the Hines Substation is the only required facility modifications to the Transmission System necessary to accommodate Hines 3.

Q. Why does the HEC 230 kV Substation need to be expanded for Hines 3?

A. To accommodate the Hines 3 power block connection to the transmission grid and to provide a substation termination for the new Hines 3 auxiliary transformer.

Q. How much will the 230kV Substation expansion for the Hines 3 unit cost?

A. The transmission facility expansion that I have described is currently estimated to cost $4.5 million. This is the amount presently estimated by Florida Power's Substation and Relay Engineering Departments.

IV. CONCLUSION.

Q. In your opinion, are the results of the analysis that you have performed for the addition of the Hines 3 unit to Florida Power's system reasonable and accurate?

A. Yes. In my professional judgment, and based on my experience and evaluation of the impact of adding the Hines 3 unit to Florida Power's system, these results are

accurate, and the proposed transmission facility modifications are what will be reasonably required to accommodate the addition of the Hines 3 unit to the Florida Power transmission system by December 2005.

Q. Does this conclude your direct testimony?

A. Yes.