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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination of Cost Effective Generation Alternative to Meet Need Prior to 2018 for Duke Energy Florida, Inc.	)))))	DOCKET NO. ________________ Submitted for filing: May 27, 2014

DUKE ENERGY FLORIDA, INC.'S NOTICE OF FILING

Duke Energy Florida, Inc. ("DEF" or the "Company") hereby gives notice of filing the Direct Testimony of Mark E. Landseidel with Exhibits MEL-1 through MEL-8 in support of DEF's Petition for Determination of Cost Effective Generation Alternative to Meet Need Prior to 2018 for Duke Energy Florida, Inc.

Respectfully submitted this 27th day of May, 2014.

/s/ James Michael Walls

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition for Determination of Cost Effective Generation Alternative to Meet Need Prior to 2018 for Duke Energy Florida, Inc.

DOCKET NO. __________
Submitted for filing: May 27, 2014

DIRECT TESTIMONY
OF MARK E. LANDSEIDEL

ON BEHALF OF
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IN RE: PETITION FOR DETERMINATION OF COST EFFECTIVE GENERATION ALTERNATIVE TO MEET NEED PRIOR TO 2018 FOR DUKE ENERGY FLORIDA, INC.

BY DUKE ENERGY FLORIDA, INC.

FPSC DOCKET NO. _________

DIRECT TESTIMONY OF MARK E. LANDSEIDEL

I. INTRODUCTION AND QUALIFICATIONS.

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

A. My name is Mark E. Landseidel and I am employed by Duke Energy Corporation. My business address is 400 South Tryon Street, Charlotte, North Carolina.

Q. Please tell us your position with Duke Energy and describe your duties and responsibilities in that position.

A. I am the Director of Project Development and Initiation in the Duke Energy Corporation Project Management and Construction ("PMC") Department. In this role, I am responsible for the initiation and development of major non-nuclear generation projects for Duke Energy Florida, Inc. ("DEF" or the "Company"). As Director of Project Development, I have responsibility and management oversight for the Suwannee Simple Cycle combustion turbine project and the Hines Chillers Power Uprate project to existing DEF units for the Company.

Q. Please summarize your educational background and employment experience.

A. I graduated from Colorado State University in May 1982 with a Bachelor of Science in Engineering. I completed the General Manager Program at Harvard Business School in November 2001. I am a certified Project Management Professional. I joined Duke Energy Corporation in July 1982 and I have worked in a number of departments including plant operations, plant maintenance, business development, and project management and construction in my 32 year career with Duke Energy Corporation. I have been responsible for project development, project management and construction of a number of major projects since August 1996, including responsibility for the initiation, development, and construction for combustion turbine and combined cycle generation plants, including the W.S. Lee 2 unit Combustion Turbine project in 2006, Buck 2X1 Combined Cycle project in 2011, and the Dan River 2X1 Combined Cycle project in 2012. The Buck and Dan River projects also included combustion turbine generator air inlet chilling. I assumed my current position with Duke Energy Corporation in July 2012.

II. PURPOSE AND SUMMARY OF TESTIMONY.

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

A. I am testifying on behalf of the Company in support of its Petition for Determination of Cost Effective Alternative to Meet Need prior to 2018 for Duke Energy Florida, Inc. I will describe and explain the site and unit characteristics for both the Suwannee Simple Cycle combustion turbine project and Hines Chillers Power Uprate project to existing DEF units, including their size, equipment, equipment configuration, fuel type, supply modes, and other aspects of the projects. I will also explain the estimated costs and projected in-service dates for the Suwannee Simple Cycle project and Hines Chillers Power Uprate project.

Q. Are you sponsoring any exhibits to your testimony?

A. Yes. I am sponsoring the following exhibits to my testimony:

- Exhibit No. ___ (MEL-1), a map showing the location of the Suwannee power plant site in Suwannee County, Florida;
- Exhibit No. ___ (MEL-2), the preliminary layout of the Suwannee Simple Cycle project at the Suwannee power plant site;
- Exhibit No. ___ (MEL-3), an itemization of the major cost items for the Suwannee Simple Cycle project;
- Exhibit No. ___ (MEL-4), the projected schedule for completion of the Suwannee Simple Cycle project;
- Exhibit No. ____ (MEL-5), a map showing the location of the Hines Chillers Power Uprate project in Polk County, Florida;
- Exhibit No. ___ (MEL-6), the preliminary layout of the Hines Chillers Power Uprate project equipment and facilities located at the Hines Energy Complex (“HEC”) in Polk County, Florida;
- Exhibit No. ___ (MEL-7), an itemization of the major cost items for the Hines Chillers Power Uprate project; and
- Exhibit No. ___ (MEL-8), the projected schedule for completion of the Hines Chillers Power Uprate project.

Each of these exhibits was prepared under my direction and control, and each is true and accurate.

Q. Please summarize your testimony.

A. The Suwannee Simple Cycle and the Hines Chiller Power Uprate projects are the most cost effective options to fulfill DEF's remaining capacity and energy needs prior to 2018. The Suwannee Simple Cycle project leverages use of existing land, gas, and transmission infrastructure at the Suwannee power plant site and will have low air emissions using proven technology. In addition, the F class combustion turbine technology is well suited to peaking capacity needs with both fast start capability and high reliability. The Hines Chillers Power Uprate project for existing DEF units meets the Company's need for reliable peaking capacity through an increase in the efficiency of the existing natural-gas fired, combined cycle power plants located at the HEC, providing customers the savings associated with achieving reliable summer peaking capacity at combined cycle generation efficiency without having to build additional peaking capacity at another site on DEF's system. The Company is positioned to build these projects on schedule and on budget.

III. THE SUWANNEE SIMPLE CYCLE PROJECT.

Q. What is the Suwannee Simple Cycle Project?

A. The Suwannee Simple Cycle project is a state-of-the-art combustion turbine generation project. Two dual fuel F class combustion turbine generators will be purchased and installed together with two generator step-up transformers to generate an estimated 320 MegaWatts ("MW") of electrical power for DEF's customers. The Suwannee Simple Cycle project will also include fuel oil and demineralized water storage tanks, and related balance of plant facilities.

Q. Where will the Suwannee Simple Cycle project be located?

A. The Suwannee Simple Cycle project will be located at the Company's existing Suwannee power plant site. The Suwannee site has existing combustion turbines fired by gas and oil and existing steam units with supporting pipeline and transmission infrastructure. The Suwannee power plant site is located near Live Oak in Suwannee County, Florida. The location of the Suwannee power plant site is shown in Exhibit No. ___ (MEL-1) to my direct testimony.

Q. Are there advantages to building this combustion turbine project at the Suwannee site?

A. Yes. The Suwannee Simple Cycle project will leverage use of existing land, gas, and transmission infrastructure at the site, minimizing the need to purchase or build this infrastructure for the project. Thus, the only land that must be purchased is an additional 24 acres located adjacent to the site for an additional buffer area. Additionally, the project will use existing transmission infrastructure at the site as much as possible. One of the F class combustion turbines will be connected to the existing 115kV transmission switchyard and the other F class combustion turbine will be connected to the existing 230kV transmission switchyard. The only anticipated transmission costs are for these connections, bus lines, and associated interconnection support equipment and installation. Natural gas will be supplied to the two F class combustion turbines by the Florida Gas Transmission ("FGT") pipeline and a local gas lateral to the existing site metering and regulating station on site. The existing steam plant will be retired, thus modernizing the fleet and reducing the site environmental impacts. The preliminary layout for the Suwannee Simple Cycle project at the Suwannee power plant site is shown in Exhibit No. ___ (MEL-2) to my direct testimony.

Q. How does the Company plan to construct the Suwannee Simple Cycle project?

A. DEF plans to purchase the major equipment, including the F class combustion turbines and generator step-up transformers, directly from the equipment manufacturers pursuant to requests for proposals ("RFPs") to experienced manufacturers. DEF also will award an engineering, procurement, and construction ("EPC") contract to experienced EPC contractors pursuant to a RFP. Duke Energy has experience with this contracting approach, having successfully executed several simple and combined cycle gas turbine projects with it including the W.S. Lee Combustion Turbines (2006), Hines Combined Cycle Power Blocks 3&4 (2005, 2007), Bartow Combined Cycle (2009), H.F. Lee Combustion Turbine 5 (2009), Buck Combined Cycle (2011), H.F. Lee Combined Cycle (2012), Dan River Combined Cycle (2012), and the Sutton Combined Cycle (2013). DEF plans to employ lessons learned and best practices from these prior Duke Energy successful gas turbine projects on the Suwannee Simple Cycle project.

Q. What will it cost to build the Suwannee Simple Cycle project?

A. DEF estimates that it will cost approximately $197 million, including the Allowance for Funds Used During Construction ("AFUDC"), to build the Suwannee Simple Cycle project. This estimate includes the cost to purchase the combustion turbine generators and step-up transformers, along with other equipment for the project; the engineering, procurement, and construction contract costs to build the project; owner costs; and the transmission switchyard and bus line work to connect the project to the grid. A breakdown of the major cost items for the Suwannee Simple Cycle project is included in Exhibit No. ___ (MEL-3) to my direct testimony.

Q. What will it cost to operate the Suwannee Simple Cycle project?

A. The estimated incremental annual fixed operation and maintenance ("O&M") cost for the Suwannee Simple Cycle project is $1.4 million. The predominate costs in the fixed O&M for the project are labor and labor-related operating costs for the employees required for plant operation. Other costs included in the fixed O&M estimate are O&M support and indirect costs.

There are also variable O&M costs to operate the Suwannee Simple Cycle plant. The estimated variable O&M cost for the Suwannee Simple Cycle project is $700,000. These variable O&M costs include maintenance costs, such as planned equipment inspections and overhauls, water, chemicals, lubricants, and consumables.

Q. When the Suwannee Simple Cycle project is built, what will be its operational characteristics?

A. The Suwannee Simple Cycle project will provide DEF with approximately 320MW peaking generation capacity from utility industry proven F class combustion turbines. It will have an average summer full load heat rate of approximately 10,395 British Thermal Units ("BTUs") per kilowatt-hour ("kWh") Higher Heating Value ("HHV"). The Suwannee Simple Cycle is expected to operate at a capacity factor range consistent with its peaking generation capacity role on DEF's system. The plant will have low air emissions using proven dry, low NOx combustors with water injection when operating on oil. In addition, the F class combustion turbine technology is well suited to peaking capacity needs with both fast start capability and high reliability. Peaking capacity units are cost effective and necessary for customer reliability in times of peak demand or system upsets.

Q. What is the schedule for construction of the Suwannee Simple Cycle project?

A. The Suwannee Simple Cycle project is scheduled for commercial operation in June 2016. A copy of the current major milestone schedule for permitting and construction of the Suwannee Simple Cycle project is included in Exhibit No. ___ (MEL-4) to my direct testimony.

Q. Will the Company place the Suwannee Simple Cycle project in service by that date?

A. Yes. In my opinion, the schedule for completion of the Suwannee Simple Cycle project is reasonable and it can be met by the Company.

IV. THE HINES CHILLERS POWER UPRATE PROJECT.

Q. What is the Hines Chillers Power Uprate project?

A. The Hines Chillers Power Uprate project involves the installation of a chiller system on all four existing natural-gas fired, combined-cycle power blocks, Hines Units 1-4, located at the Hines Energy Complex ("HEC") in Polk County, Florida. See Exhibit No. ___ (MEL-5). Hines Units 1-4 are four 2x1 F class combined cycle power blocks with a total installed capacity of approximately 1,900MW. When complete the Hines Chillers Power Uprate project will increase the summer capacity of those units by approximately 220 MW.

Q. Can you explain what the Hines Chillers Power Uprate project involves?

A. Yes. The Hines Chillers Power Uprate project consists of installation of chiller modules for the existing HEC power block units, a large chilled water storage tank, an auxiliary power system, pumps and chilled water supply and return piping, and gas turbine air inlet chiller coils. The power uprate project will also involve modifications of the existing air inlet ducts on the HEC power block units. The installation of the chiller system on the existing HEC power block units is designed to cool the gas turbine inlet air. Cooling the gas turbine inlet air significantly increases the combined cycle plant summer capacity of each HEC power block while maintaining combined cycle fuel efficiency. The result of this uprate is an increase of approximately 220 MW in the output of the HEC power plant summer capacity.

The Company will further need to obtain modifications to its existing air permit for the HEC. The HEC air permit will need to be modified to permit estimated higher annual emissions. The air permit modification application will be filed with the Florida Department of Environmental Protection ("FDEP") and is expected to be issued by December 2014, to support construction and the expected commercial operation of the project.

Q. Where will the Hines Chillers Power Uprate project equipment and facilities be located at the HEC?

A. The preliminary layout of the Hines Chillers Power Uprate project equipment and facilities is included in Exhibit No. ___ (MEL-6) to my direct testimony.

Q. What are the advantages of the Hines Chillers Power Uprate project for DEF's customers?

A. The Hines Chillers Power Uprate project meets the Company's need for reliable capacity by the summer of 2017 through an increase in the efficiency of the existing natural-gas fired, combined cycle power plants located at the HEC. Existing generation and site infrastructure will support this power uprate. As a result, DEF is able to achieve an increase of approximately 220 MW in its summer capacity by uprating an existing site and power blocks, saving customers the increased costs and time of building new generation at another existing site or a Greenfield site to achieve the same reliable summer capacity. The project will further provide additional summer peaking capacity with combined cycle capacity and thus enhanced fuel efficiency, saving customers fuel costs. The Hines Chillers Power Uprate project further achieves this significant increase in the Company's summer capacity with a minimal increase in the fixed and variable O&M costs at HEC and a much lower fixed and variable O&M cost for the same amount of capacity for a new power plant at an existing or Greenfield site.

Q. How does the Company plan to construct the Hines Chillers Power Uprate project?

A. DEF plans to purchase the major equipment and issue an EPC contract for the project. The equipment and EPC contracts for the project will be competitively bid to experienced and qualified bidders who have performed similar work. In addition, DEF has engaged an owner's engineer to assist with scope and specification development for the uprate project who was the "engineer of record" on the Hines Power Block 3 and 4 projects. Air inlet chilling is common in the industry, and there have been a number of air inlet chilling uprates to F class combustion turbines similar to the F class turbines in the Hines Power Block units. Lessons learned from this industry experience with similar air inlet chilling projects will be incorporated into the Hines Chillers Power Uprate project.

Q. What will it cost to build the Hines Chillers Power Uprate project?

A. The estimated cost of the project, based on the preliminary engineering work of Kiewit Power and budgetary pricing and performance data from qualified chiller package suppliers, is $160 million. A breakdown of the major cost items for the project is included in Exhibit No. ___ (MEL-7) to my direct testimony. This is a reasonable estimate for the scope of work and schedule for the Hines Chillers Power Uprate project.

Q. What will it cost to operate the Hines Chillers Power Uprate once completed?

A. As I explained above, there will be only a minimal increase in the fixed and variable O&M costs at the HEC associated with the Hines Chillers Power Uprate.

Q. When will the Hines Chillers Power Uprate project be placed in service?

A. The Hines Chillers Power Uprate project is expected to be placed in service by June 2017. Construction and tie-in of the 4 power blocks will be done sequentially with common equipment and power block 3 and 4 in the first half of 2016 and power block 2 and 1 in late 2016 and early 2017 respectively. At that time, the estimated 220 MW increase in summer capacity due to the installation of the inlet chiller system on all four Hines Power Block units will be available to provide customers reliable energy production. Construction is expected to begin in July 2015, with commercial operation by June of 2017. A copy of the current major milestone schedule for permitting and construction of the project is included in Exhibit No. ___ (MEL-8) to my direct testimony.

V. CONCLUSION.

Q. Will the Company build the Suwannee Simple Cycle and the Hines Chillers Power Uprate projects on time and on budget?

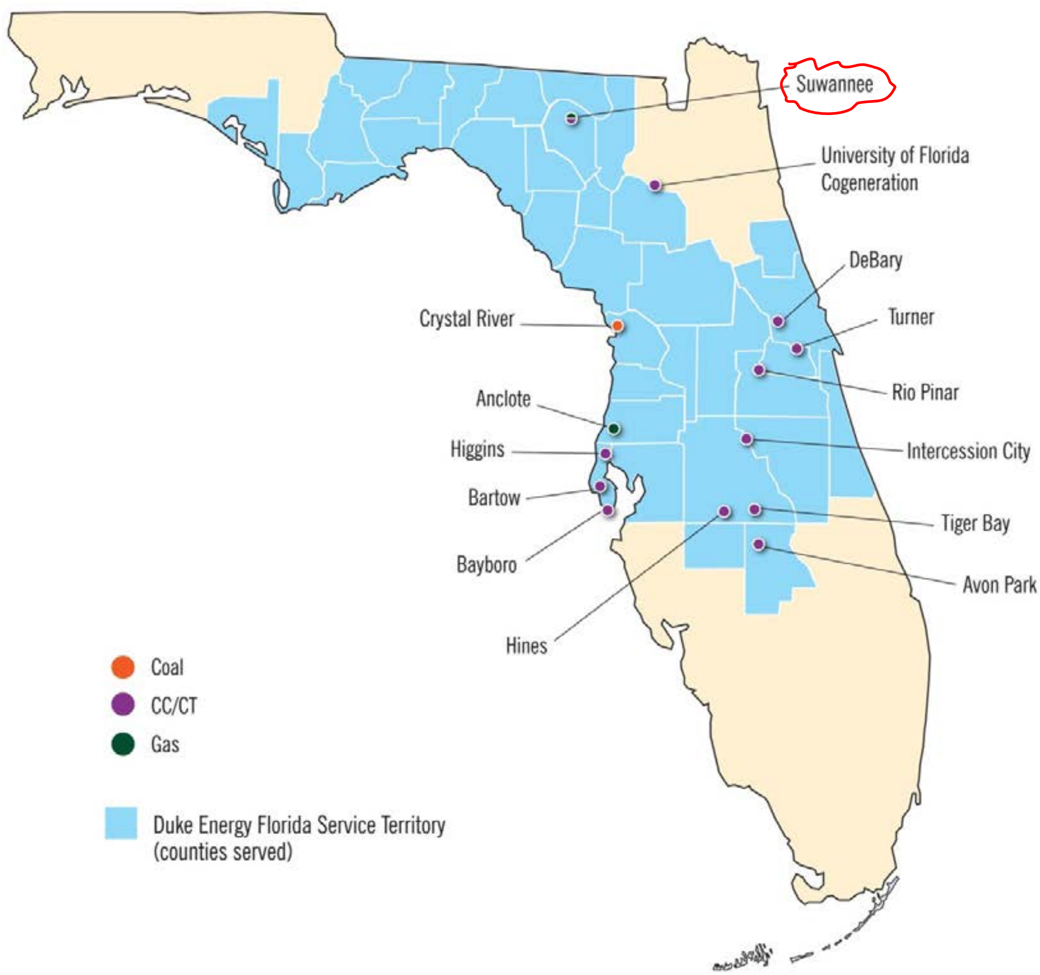
A. Yes, in my opinion, the Company will build these projects on time and on budget and they will provide reliable, cost-effective capacity prior to 2018 consistent with DEF's capacity and energy needs.

Q. Does this conclude your testimony?

A. Yes it does.

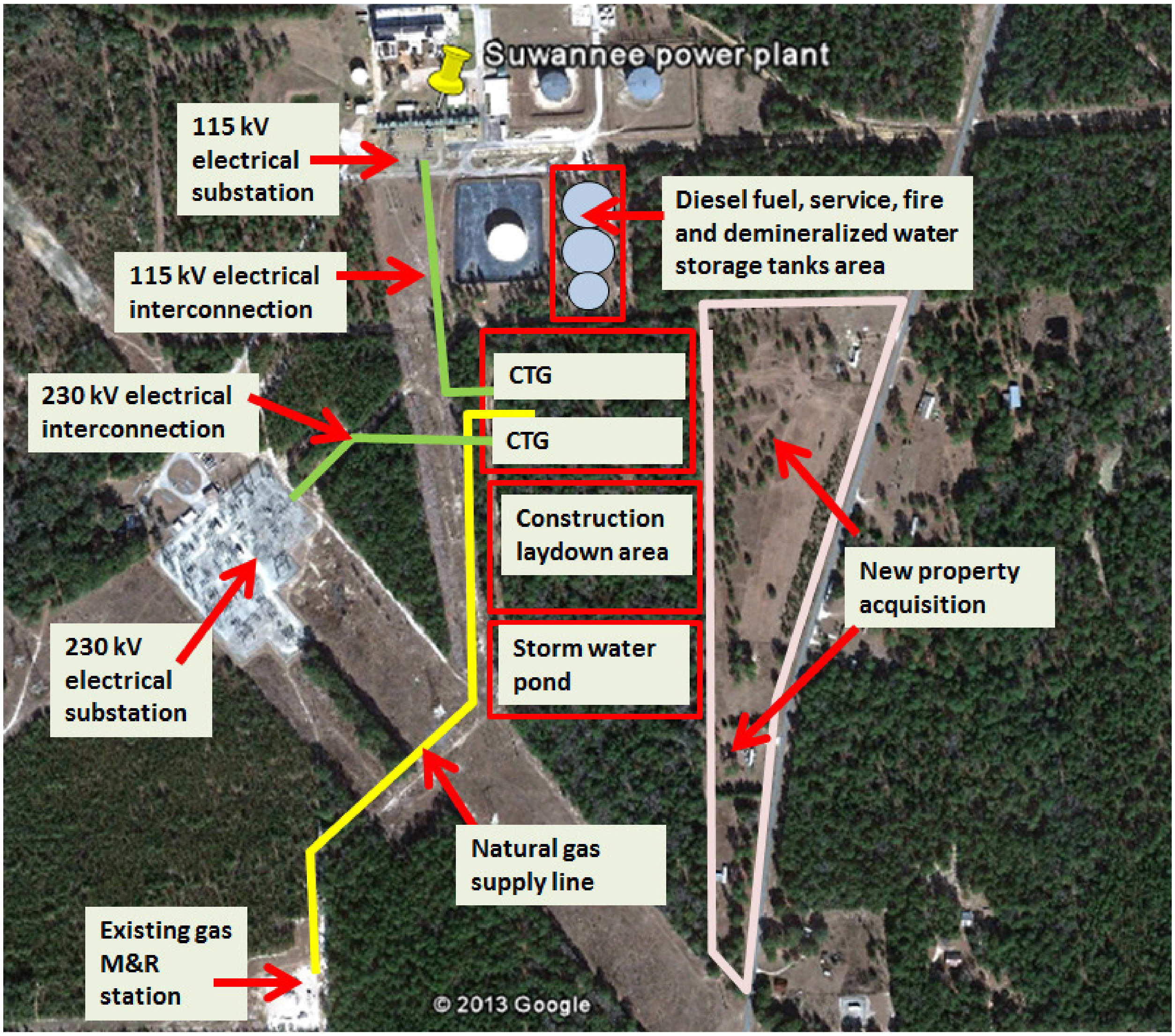
Docket No. ______________
Duke Energy Florida
Exhibit No. ____ (MEL-1)
Page 1 of 1

Map Showing Location of Suwannee Power Plant Site



Docket No.____________
Duke Energy Florida
Exhibit No. ____ (MEL-2)
Page 1 of 1

Layout of Suwannee Simple Cycle Project at Suwannee Power Plant Site



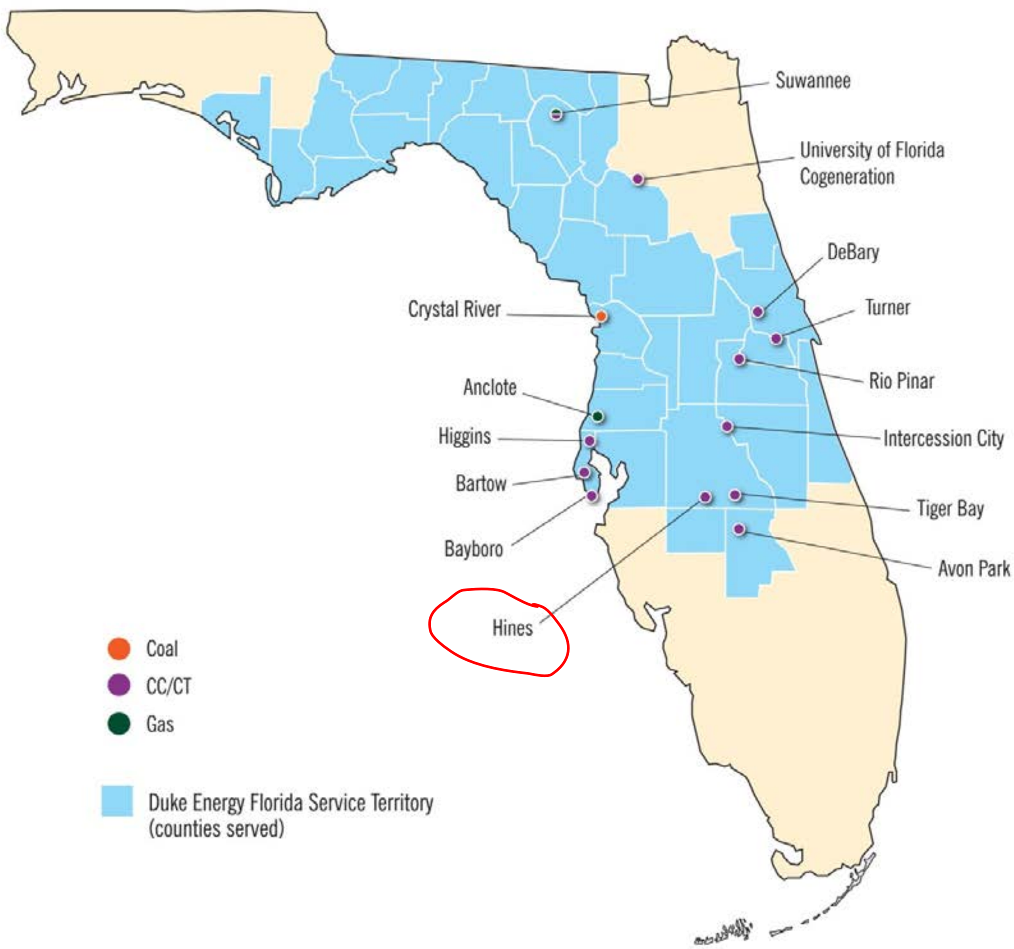
Suwannee Simple Cycle
Major Cost Items

Estimate Category	**$ Million**
Major Equipment and Engineering, procurement and Construction (EpC)	$136
Owners Costs including Transmission and Contingency	$44
Subtotal Project Estimate	**$180**
AFUDC	$17
Total Project Cost	**$197**

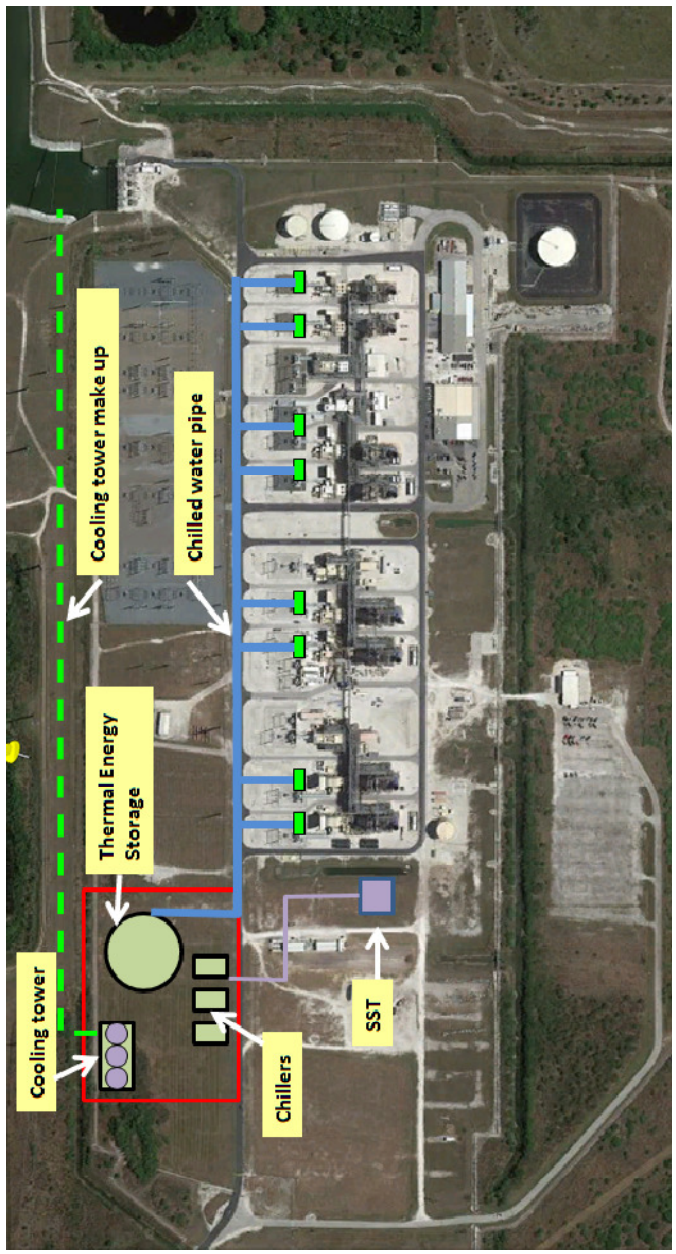
Projected Schedule for Completion of Suwannee Simply Cycle Project

Key Project Milestone	**Date**
Submit Air Permit Application	April 2014
Award/Release CTG Contract	May 2014
Award/Release EPC Contract	July 2014
FPSC Need Filing	May 2014
Receive Air Permit	October 2014
Expected Final FPSC Order	October 2014
EPC Begin Construction	November 2014
CTG Site Delivery	June 2015
Mechanical Completion	January 2016
First Fire	February 2016
Commercial Operation	June 2016

Hines Chillers Map Location of Hines Chiller Uprate Project



Layout Hines Chiller Power Uprate Project



Hines Chillers Power Uprate
Cost Items

Estimate Category	$ Million
Major Equipment and Engineering, procurement and Construction (EpC)	$120
Owners Costs including Contingency	$30
Subtotal Project Estimate	**$150**
AFUDC	$10
Total Project Cost	**$160**

Docket No. ____________
Duke Energy Florida
Exhibit No. ____ (MEL-8)
Page 1 of 1

Projected Schedule for Completion Hines Chillers Power Uprate Project

Key Project Milestone	Date
FPSC Need Filing	May 2014
Bid Chiller Equipment/EPC	July 2014
Expected Final FPSC Order	October 2014
Receive Air Permit	December 2014
Award Chiller Equipment/EPC	January 2015
EPC Begin Construction	June 2015
Commercial Operation (all 4 blocks)	By June 2017