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April 1, 2014

-VIA THE WEB-BASED ELECTRONIC FILING PORTAL-

Carlotta Stauffer, Director
Division of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Re: Docket No. 140000-EI

RE: Florida Power & Light Company's 2014 Ten Year Power Plant Site Plan

Dear Ms. Stauffer:

Please find enclosed for electronic filing Florida Power & Light Company's 2014-2023 Ten Year Power Plant Site Plan. Per Commission Staff's request, five (5) hard copies also will be provided to your office.

Sincerely,

s/ Jessica A. Cano
Jessica A. Cano
Fla. Bar No. 37372

Enclosure

Ten Year Power Plant Site Plan
2014 – 2023

FPL

FPL

Ten Year Power Plant Site Plan

2014-2023

Submitted To:

Florida Public
Service Commission

Miami, Florida
April 2014

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Overview of the Document

Chapter 186, Florida Statutes, requires that each electric utility in the State of Florida with a minimum existing generating capacity of 250 megawatts (MW) must annually submit a Ten Year Power Plant Site Plan (Site Plan). This Site Plan should include an estimate of the utility's future electric power generating needs, a projection of how these estimated generating needs could be met, and disclosure of information pertaining to the utility's preferred and potential power plant sites. The information contained in this Site Plan is compiled and presented in accordance with rules 25-22.070, 25-22.071, and 25-22.072, Florida Administrative Code (F.A.C.).

Site Plans are long-term planning documents and should be viewed in this context. A Site Plan contains uncertain forecasts and tentative planning information. Forecasts evolve, and all planning information is subject to change at the discretion of the utility. Much of the data submitted is preliminary in nature and is presented in a general manner. Specific and detailed data will be submitted as part of the Florida site certification process, or through other proceedings and filings, at the appropriate time.

This Site Plan document is based on Florida Power & Light Company's (FPL) integrated resource planning (IRP) analyses that were carried out in 2013 and that were on-going in the first Quarter of 2014. The forecasted information presented in this plan addresses the years 2014 through 2023.
This document is organized in the following manner:

Chapter I – Description of Existing Resources

This chapter provides an overview of FPL's current generating facilities. Also included is information on other FPL resources including purchased power, demand side management, and FPL's transmission system.

Chapter II – Forecast of Electric Power Demand

FPL's load forecasting methodology, and its forecast of seasonal peaks and annual energy usage, is presented in Chapter II.

Chapter III – Projection of Incremental Resource Additions

This chapter discusses FPL's integrated resource planning (IRP) process and outlines FPL's projected resource additions, especially new power plants, based on FPL's IRP work in 2013 and early 2014. This chapter also discusses a number of issues that may change the resource plan presented in this Site Plan. Furthermore, this chapter briefly discusses the status of FPL's DSM planning efforts, as well as FPL's, renewable energy efforts, transmission planning additions, and fuel cost forecasts.

Chapter IV – Environmental and Land Use Information

This chapter discusses environmental information as well as Preferred and Potential site locations for additional electric generation facilities.

Chapter V – Other Planning Assumptions and Information

This chapter addresses twelve "discussion items" which pertain to additional information that is included in a Site Plan filing.

FPL List of Abbreviations Used in FPL Forms		
Reference	***Abbreviation***	***Definition***
Unit Type	CC	Combined Cycle
	CT	Combustion Turbine
	GT	Gas Turbine
	ST	Stean Unit (Fossil or Nuclear)
	PV	Photovoltaic
Fuel Type	NUC	Uranium
	BIT	Bituminous Coal
	FO2	#1, #2 or Kerosene Oil (Distillate)
	FO6	#4,#5,#6 Oil (Heavy)
	NG	Natural Gas
	No	None
	Solar	Solar Energy
	SUB	Sub Bituminous Coal
	Pet	Petroleum Coke
Fuel Transportation	No	None
	PL	Pipeline
	RR	Railroad
	TK	Truck
	WA	Water
Unit/Site Status	OT	Other
	L	Regulatory approval pending. Not under construction
	P	Planned Unit
	T	Regulatory approval received but not under construction
	U	Under construction, less than or equal to 50% Complete
	V	Under construction, more than 50% Complete
Other	ESP	Electrostatic Precipitators

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Executive Summary

Florida Power & Light Company's (FPL) 2014 Ten Year Power Plant Site Plan (Site Plan) presents FPL's current plans to augment and enhance its electric generation capability (owned or purchased) as part of its efforts to meet its projected incremental resource needs for the 2014 - 2023 time period. By design, the primary focus of this document is on supply side additions; i.e., electric generation capability and the sites for these additions. The supply side additions discussed in this document are resources projected to be needed, based on FPL's load forecast, after accounting for FPL's demand side management (DSM) resource additions. In 2014, new DSM Goals for FPL for the time period 2015 through 2024 will be set by the Florida Public Service Commission (FPSC). At almost the same time FPL is filing this 2014 Site Plan, FPL will also be filing its proposed DSM Goals with the FPSC. Consequently, the level of DSM additions reflected in the 2014 Site Plan is consistent with FPL's proposed DSM Goals. The proposed level of DSM is discussed further below and in Chapter III.

FPL's load forecast accounts for a significant amount of efficiency that results from federal and state energy efficiency codes and standards. The projected impacts of these codes and standards are directly accounted for in FPL's load forecast as discussed below and in Chapter II.

The resource plan that is presented in FPL's 2014 Site Plan contains four key similarities to the resource plan presented in FPL's 2013 Site Plan. However, there are several factors that have contributed to differences between the resource plan presented in the 2014 Site Plan and the resource plan that was previously presented in FPL's 2013 Site Plan. Additional factors will continue to influence FPL's on-going resource planning work and could result in changes in the resource plan presented in this document. A brief discussion of these similarities and factors is provided below. Additional information regarding these topics is presented in Chapter III.

I. Similarities Between the Current Resource Plan and the Resource Plan Previously Presented in FPL's 2013 Site Plan:

There are four key similarities between the current resource plan presented in this document and the resource plan presented in the 2013 Site Plan.

Similarity # 1: Modernizations of Existing Power Plant Sites.

The modernization of FPL's Cape Canaveral plant site was completed on time in 2013 and the modernization of FPL's existing Riviera Beach plant site is scheduled to be completed on/near the April 1,

2014 date this 2014 Site Plan is to be filed. In addition, the modernization of FPL's existing Port Everglades plant site is underway and is projected to be completed in 2016.

Similarity # 2: FPL continues to pursue additional nuclear energy generation to significantly (i) reduce its use of fossil fuels, (ii) lower system fuel costs, (iii) lower system air emissions, and (iv) provide a valuable hedge against future increases in fuel costs and environmental compliance costs.

In 2013 FPL successfully completed its capacity uprate projects at its four existing nuclear units ; Turkey Point Units 3 & 4 and St. Lucie Units 1 & 2. The nuclear uprate project added about 520 MW of additional nuclear capacity to FPL's system which was about 30% more additional nuclear capacity than was originally projected when the project began. FPL's customers are already benefiting from lower fuel costs and reduced system air emissions provided by this additional nuclear capacity.

FPL is also continuing its work to obtain all of the licenses, permits, and approvals that will be necessary to construct and operate two new nuclear units at its Turkey Point site in the future. The earliest deployment dates for these two new units remain 2022 and 2023, respectively, and this Site Plan projects the two new nuclear units going in-service in those years.

Similarity #3: FPL is projected to serve Vero Beach's electrical load.

An agreement to this effect was reached between Vero Beach and FPL on February 19, 2013, and a referendum was held on March 12, 2013 that resulted in a majority of Vero Beach voters approving the agreement. FPL's current load forecast projects that FPL will begin serving Vero Beach's load in January 2015.

Similarity #4: Specific generating units are projected to be retired and/or converted to synchronous condenser operation.

In the last two years, FPL has retired a number of older, less efficient generating units including: Sanford Unit 3, Cutler Units 5 & 6, Cape Canaveral Units 1 & 2, Riviera Beach Units 3 & 4, and Port Everglades Units 1 – 4. In addition, Turkey Point Unit 2 has been converted to operate in synchronous condenser mode to provide voltage support for the transmission system in Southeastern Florida.

This trend is projected to continue. Putnam Units 1 & 2 are now projected to be retired by the end of 2014. And, similar to the earlier conversion of Turkey Point Unit 2, FPL projects that Turkey Point Unit 1 will be converted to run in synchronous condenser mode starting in 2016. In addition, for planning purposes, FPL is projecting that all of its existing gas turbines (GTs) at its two Broward County sites will be retired by the

end of 2018 and that 5 new combustion turbines (CTs) will be installed at FPL's Lauderdale plant site also by the end of 2018. This projection is further discussed later in this executive summary and in Chapter III.

II. Factors Influencing FPL's Resource Planning Work Which Have Impacted, or Which Could Impact, FPL's Resource Plan:

There are a number of factors that influence FPL's resource planning work. Eight (8) of these are briefly discussed below and are discussed again in Chapters II and/or III.

Two of these factors are on-going system concerns that FPL has considered in its resource planning work for a number of years. These two on-going system concerns are: (1) maintaining/enhancing fuel diversity in the FPL system, and (2) maintaining a balance between load and generating capacity in Southeastern Florida, particularly in Miami-Dade and Broward Counties.

The third and fourth factors that will be discussed are factors that directly impacted the resource plan presented in this document because they affect FPL's forecast of its future load and its future firm load. The third factor is the impact of federal and state energy efficiency codes and standards on FPL's future loads. The impact of these codes and standards has been incorporated into FPL's current load forecast. The magnitude of efficiency that is being delivered to FPL's customers through these codes and standards is significant. For example, by the year 2023 (the last year addressed in this Site Plan), FPL's Summer peak is projected to be lower by approximately 3,477 MW compared to what the projected load would have been without the codes and standards based on cumulative savings beginning in 2005. This represents a decrease of approximately 12% in what the forecasted Summer peak load for 2023 would have been without the codes and standards. Likewise, FPL's forecasted net energy for load (NEL) in the year 2023 is projected to be approximately 9,991 GWh lower compared to what the projected NEL would have been without the efficiency codes and standards based on cumulative savings beginning in 2005. This represents a decrease of approximately 7% from what the forecasted NEL for 2023 would have been without the codes and standards.

There are two significant impacts from these codes and standards. The first impact is to substantially lower FPL's forecasted peak load and NEL. The second impact is that the codes and standards lower the potential for future MW and GWh reductions from FPL's DSM programs that address the specific appliances and equipment impacted by the codes and standards. Thus, significant energy efficiency regarding this equipment will be delivered to FPL's customers through codes and standards, thus precluding the potential for FPL to pursue these same efficiency gains through utility DSM programs.

The fourth factor is a projected decline in the cost-effectiveness of a number of utility DSM measures due to reasons that are beneficial overall for FPL's customers. Compared to 2009 (when DSM Goals were last

set): (i) forecasted fuel costs have dropped by 50%, thus lowering the potential benefits from DSM kwh reductions; (ii) projected compliance costs for carbon dioxide (CO_2), have not only been significantly lowered, but their forecasted start date has been delayed by almost a decade, thus again lowering the potential benefits from DSM kwh reductions; and, (iii) FPL's generating system, due to the retirement of older, less efficient generators and replacement with highly efficient generators, plus additional nuclear capacity, has gotten more fuel-efficient, thus lowering fuel-related costs that would otherwise represent potential benefits for DSM kwh reductions. These factors are benefitting FPL's customers through lower electric rates, but they also lower the potential economic benefits that otherwise could be offered by DSM. When combined with the previously discussed fact that codes and standards have reduced the potential for efficiency gains in regard to appliance and equipment addressed by these codes and standards, the result is that FPL is logically projecting a lower contribution from utility DSM in the near-term. That lower contribution is accounted for in the 2014 Site Plan. These factors are discussed in detail in the filing FPL is making in its DSM Goals proceeding.

The fifth factor is the need to take measures to limit FPL's projected increasing dependence upon DSM resources to maintain system reliability. This factor has been previously discussed in FPL's 2011, 2012, and 2013 Site Plans. In these previous Site Plans, FPL has discussed this projection of increasing dependence upon DSM resources using a new type of reserve margin projection as an indicator: a "generation-only reserve margin" or "GRM".

The GRM projections from the 2011, 2012, and 2013 Site Plans consistently showed that these values were projected to significantly decrease over the 10-year reporting period of the Site Plans, declining to single-digit values in the latter years of the reporting periods. These projections indicated a steadily growing dependence on DSM resources to maintain system reliability. FPL's analyses show that system reliability risk increases, particularly from a system operations perspective, as dependence on DSM resources increases to a point where DSM resources account for more than half of FPL's 20% total reserve margin criterion value. Therefore, FPL is implementing a new reliability criterion of a 10% GRM in its resource planning work to complement its other two reliability criteria: a 20% total reserve margin criterion for Summer and Winter, and an annual 0.1 day/year loss-of-load-probability (LOLP) criterion. FPL is implementing the GRM criterion so that FPL's resource plans will begin to meet this criterion in the year 2019. A further discussion of the GRM criterion is presented in Chapter III.

There are additional factors that did not impact FPL's resource plan presented in this document, but which could result in future changes to this resource plan. For example, a sixth factor is the project schedule for the Turkey Point Units 6 & 7 nuclear units. At the time the 2014 Site Plan is being finalized, the Nuclear Regulatory Commission (NRC) has not provided a schedule for its review of FPL's Combined Operating License Application (COLA). Once the NRC's COLA review schedule is available, FPL will review the overall schedule for the Turkey Point Units 6 & 7 project. FPL's review will also consider the impacts of the

recently amended nuclear cost recovery clause (NCRC) statute and the ongoing feasibility analyses that are part of Florida Nuclear Cost Recovery process.

The seventh factor is environmental regulation. As developments occur in regard to either new environmental regulations, and/or in how environmental regulations are interpreted and applied, the potential exists for such developments to affect FPL's resource plan that is presented in this document. For example, FPL is aware of potential impacts to generating units of recent EPA changes to the National Ambient Air Quality Standards that include shorter duration 1-hour standards for nitrogen dioxide (NO_2) and sulfur dioxide (SO_2). As a consequence, FPL filed in mid-2013 for FPSC approval to recover costs through the environmental cost recovery clause for removing all of its existing gas turbines (GTs) and partially replacing that peaking unit capacity with new combustion turbines (CTs). Although FPL withdrew its filing in December 2013 pending further analyses including on-site monitoring, FPL believes that the results of the monitoring and analyses will require that the Broward GTs be replaced. Therefore, FPL is currently projecting the retirement of all GTs in Broward County; i.e., at its existing Lauderdale and Port Everglades plant sites (a decrease in generating capacity of 1,260 MW Summer), and the installation of 5 new 201 MW CTs at its existing Lauderdale plant site (an increase of 1,005 MW Summer).

The eighth factor that will be discussed is the possibility of the establishment of a Florida standard for renewable energy or clean energy. Although no such legislation has been enacted to-date, Renewable Portfolio Standards, or Clean Energy Portfolio Standards legislation, or other legislative initiatives regarding renewable or clean energy contributions, may occur in the future at either the state or national level. If such legislation is enacted, FPL would then determine what steps need to be taken to address the legislation.

Each of these factors will continue to be examined in FPL's on-going resource planning work during the rest of 2014 and in future years.

Table ES-1 presents a current projection of major changes to specific generating units and firm capacity purchases for 2014 – 2023. (Although this table does not specifically identify the impacts of projected DSM additions on FPL's resource needs and resource plan, FPL's projected DSM additions have been fully accounted for in the resource plan presented in this Site Plan.)

Table ES-1: Projected Capacity & Firm Purchase Power Changes

Year *	Projected Capacity & Firm Purchase Power Changes	Summer MW	Date	Summer Reserve Margin **
2014	Martin Unit 1 ESP - Return from ESP outage	823	March-14	
	Martin Unit 2 ESP - Temporary Outage to install ESPs	(826)	March-14	
	Turkey Point Unit 5 CT Upgrade	30	March-14	
	Sanford 5 CT Upgrade	9	September-13	
	Riviera Beach Next Generation Clean Energy Center	1,212	April-14	
	Total of MW changes to Summer firm capacity:	**1,247**		**28.0%**
2015	Manatee Unit 3 CT Upgrade	32	October-14	
	Martin Unit 2 ESP - Returned from ESP Outage	823	December-14	
	Putnam 1&2 Retirement	(498)	December-14	
	OUC - Stanton PPAs	37	January-15	
	Vero Beach Combined Cycle 1/	46	January-15	
	Palm Beach SWA - additional capacity	70	January-15	
	Fort Myers Unit 2 CT Upgrades	18	June-15	
	Fort Myers Unit 2 CT Upgrades	18	March-15	
	Fort Myers Unit 2 CT Upgrades	18	May-15	
	Total of MW changes to Summer firm capacity:	**563**		**27.5%**
2016	UPS Replacement	(928)	December-15	
	Port Everglades Next Generation Clean Energy Center	1,237	June-16	
	Total of MW changes to Summer firm capacity:	**309**		**26.6%**
2017	Turkey Point Unit 1 synchronous condenser	(396)	October-16	
	Total of MW changes to Summer firm capacity:	**(396)**		**22.6%**
2018	OUC - Stanton PPAs	(37)	December-17	
	Vero Beach Combined Cycle 1/	(46)	January-18	
	Total of MW changes to Summer firm capacity:	**(83)**		**20.5%**
2019	Port Everglades GT retirement	(420)	December-18	
	Lauderdale GT retirement	(840)	December-18	
	Lauderdale CT	1,005	January-19	
	SJRPP suspension of energy	(381)	April-19	
	Unsited CC	1,269	June-19	
	Total of MW changes to Summer firm capacity:	**633**		**21.6%**
2020	Unspecified Purchase	129	June-20	
	Total of MW changes to Summer firm capacity:	**129**		**20.5%**
2021	Eco-Gen PPA	180	January-21	
	Unspecified Purchase	168	June-21	
	Total of MW changes to Summer firm capacity:	**348**		**20.6%**
2022	Cape Next Generation Clean Energy Center	87	June-22	
	Turkey Point Nuclear Unit 6	1,100	June-22	
	Total of MW changes to Summer firm capacity:	**1,187**		**22.6%**
2023	Riviera Beach Next Generation Clean Energy Center	55	June-23	
	Turkey Point Nuclear Unit 7	1,100	June-23	
	Total of MW changes to Summer firm capacity:	**1,155**		**24.4%**

* Year shown reflects when the MW change begins to be accounted for in Summer reserve margin calculations. (Note that addition of MW values for each year will not yield a current cumulative value.)

** Winter Reserve Margins are typically high than Summer Reserve Margin. Winter Reserve Margin are shown on Schedule 7.2 in Chapter III.

1/ This unit will be added as part of the agreement that FPL will serve Vero Beach's electric load starting January, 2015. This unit is expected to be retired within 3 years.

CHAPTER I

Description of Existing Resources

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I. Description of Existing Resources

FPL's service area contains approximately 27,650 square miles and has a population of approximately 9.0 million people. FPL served an average of 4,626,934 customer accounts in thirty-five counties during 2013. These customers were served by a variety of resources including: FPL-owned fossil-fueled, renewable, and nuclear generating units, non-utility owned generation, demand side management (DSM), and interchange/purchased power.

I.A. FPL-Owned Resources

The existing FPL generating resources are located at fourteen generating sites distributed geographically around its service territory, plus one site in Georgia (partial FPL ownership of one unit) and one site in Jacksonville, Florida (partial FPL ownership of two units). The current electrical generating facilities consist of four nuclear units, three coal units, sixteen combined cycle (CC) units, five fossil steam units, forty-eight combustion gas turbines, two simple cycle combustion turbines, and two photovoltaic facilities[1]. The locations of these eighty generating units are shown on Figure I.A.1 and in Table I.A.1.

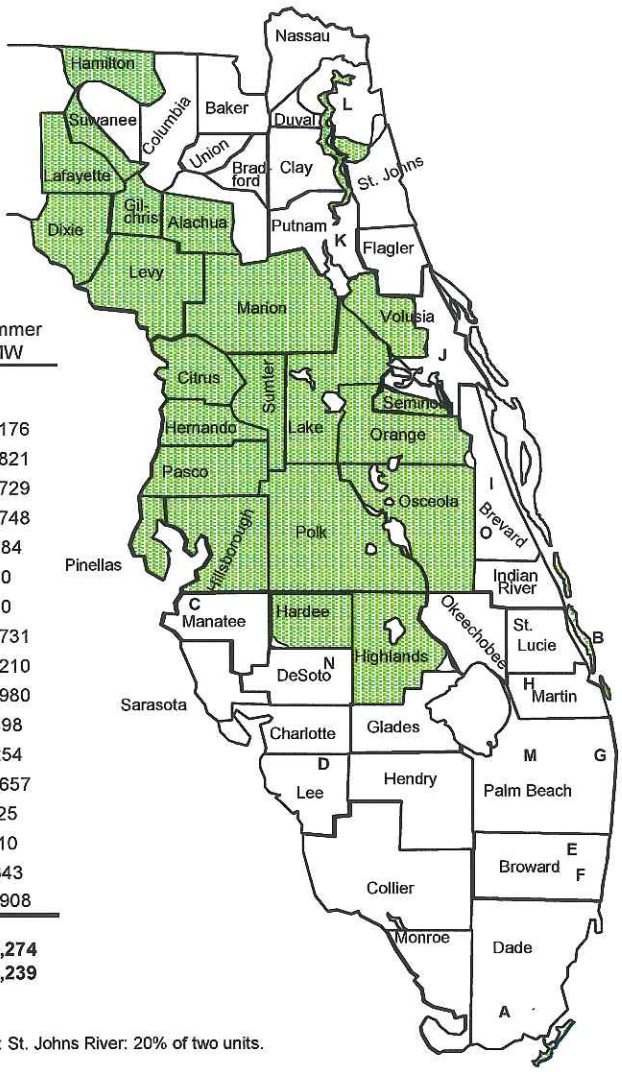
FPL's bulk transmission system is comprised of 6,734 circuit miles of transmission lines. Integration of the generation, transmission, and distribution system is achieved through FPL's 589 substations in Florida.

The existing FPL system, including generating plants, major transmission stations, and transmission lines, is shown on Figure I.A.2.

1 FPL also has one 75 MW solar thermal facility at its Martin plant site. This facility does not generate electricity as the other units mentioned above do. Instead, it produces steam that reduces the use of fossil fuel to produce steam for electricity generation.

FPL Generating Resources by Location

Location/ Map Key	Plant Name	Number of Units	Summer MW
A	Turkey Point	4	3,176
B	St. Lucie [1/]	2	1,821
C	Manatee	3	2,729
D	Fort Myers	3	1,748
E	Lauderdale	2	884
F	Everglades [2/]	0	0
G	Riviera [2/]	0	0
H	Martin	5	3,731
I	Cape Canaveral	1	1,210
J	Sanford	2	1,980
K	Putnam	2	498
L	St. John's River Power Park [1/]	2	254
M	West County	3	3,657
N	DeSoto [3/]	1	25
O	Space Coast [3/]	1	10
	Scherer [4/]	1	643
	Gas Turbines	48	1,908
	Total System Generation =	**80**	**24,274**
	System Firm Generation =	**78**	**24,239**



1/ Represents FPL's ownership share: St Lucie nuclear: 100% Unit 1, 85% Unit 2: St. Johns River: 20% of two units.
2/ Will be site of new Modernization Plants.
3/ The 25 MW of PV at DeSoto and the 10 MW of PV at Space Coast are considered as non-firm generating capacity and the capacity from these units has been removed from the "System Firm Generation" row at the end of the table.
4/ The Scherer unit is located in Georgia and is not shown on this map.

Figure I.A.1: Capacity Resources by Location (as of December 31, 2013)

Table I.A.1: Capacity Resource by Unit Type (as of December 31, 2013)

Unit Type/ Plant Name	Location	Number of Units	Fuel	Summer MW
Nuclear				
St. Lucie [1/]	Hutchinson Island, FL	2	Nuclear	1,821
Turkey Point	Florida City, FL	2	Nuclear	1,632
Total Nuclear:		**4**		**3,453**
Coal Steam				
Scherer	Monroe County, Ga	1	Coal	643
St. John's River Power Park [2/]	Jacksonville, FL	2	Coal	254
Total Coal Steam:		**3**		**897**
Combined-Cycle				
Fort Myers	Fort Myers, FL	1	Gas	1,432
Manatee	Parrish, FL	1	Gas	1,111
Martin	Indiantown, FL	3	Gas	2,079
Sanford	Lake Monroe, FL	2	Gas	1,980
Cape Canaveral	Cocoa, FL	1	Gas/Oil	1,210
Lauderdale	Dania, FL	2	Gas/Oil	884
Putnam	Palatka, FL	2	Gas/Oil	498
Turkey Point	Florida City, FL	1	Gas/Oil	1,148
West County	Palm Beach County, FL	3	Gas/Oil	3,657
Total Combined Cycle:		**16**		**13,999**
Oil/Gas Steam				
Manatee	Parrish, FL	2	Oil/Gas	1,618
Martin	Indiantown,FL	2	Oil/Gas	1,652
Turkey Point	Florida City, FL	1	Oil/Gas	396
Total Oil/Gas Steam:		**5**		**3,666**
Gas Turbines(GT)				
Fort Myers (GT)	Fort Myers, FL	12	Oil	648
Lauderdale (GT)	Dania, FL	24	Gas/Oil	840
Port Everglades (GT)	Port Everglades, FL	12	Gas/Oil	420
Total Gas Turbines/Diesels:		**48**		**1,908**
Combustion Turbines				
Fort Myers	Fort Myers, FL	2	Gas/Oil	316
Total Combustion Turbines:		**2**		**316**
PV				
DeSoto [3/]	DeSoto, FL	1	Solar Energy	25
Space Coast [3/]	Brevard County, FL	1	Solar Energy	10
Total PV:		**2**		**35**
Total System Generation as of December 31, 2013 =		**80**		**24,274**
System Firm Generation as of December 31, 2013 =		**78**		**24,239**

1/ Total capability of St. Lucie 1 is 981/1,003 MW. FPL's share of St. Lucie 2 is 840/860. FPL's ownership share of St. Lucie Units 1 and 2 is 100% and 85%, respectively.

2/ Capabilities shown represent FPL's output share from each of the units (approx. 92.5% and exclude the Orlando Utilities Commission (OUC) and Florida Municipal Power Agency (FMPA) combined portion of approximately 7.44776% per unit. Represents FPL's ownership share: SJRPP coal: 20% of two units).

3/ The 25 MW of PV at DeSoto and the 10 MW of PV at Space Coast are considered as non-firm generating capacity and the capacity from these units has been removed from the "System Firm Generation" row at the end of the table.

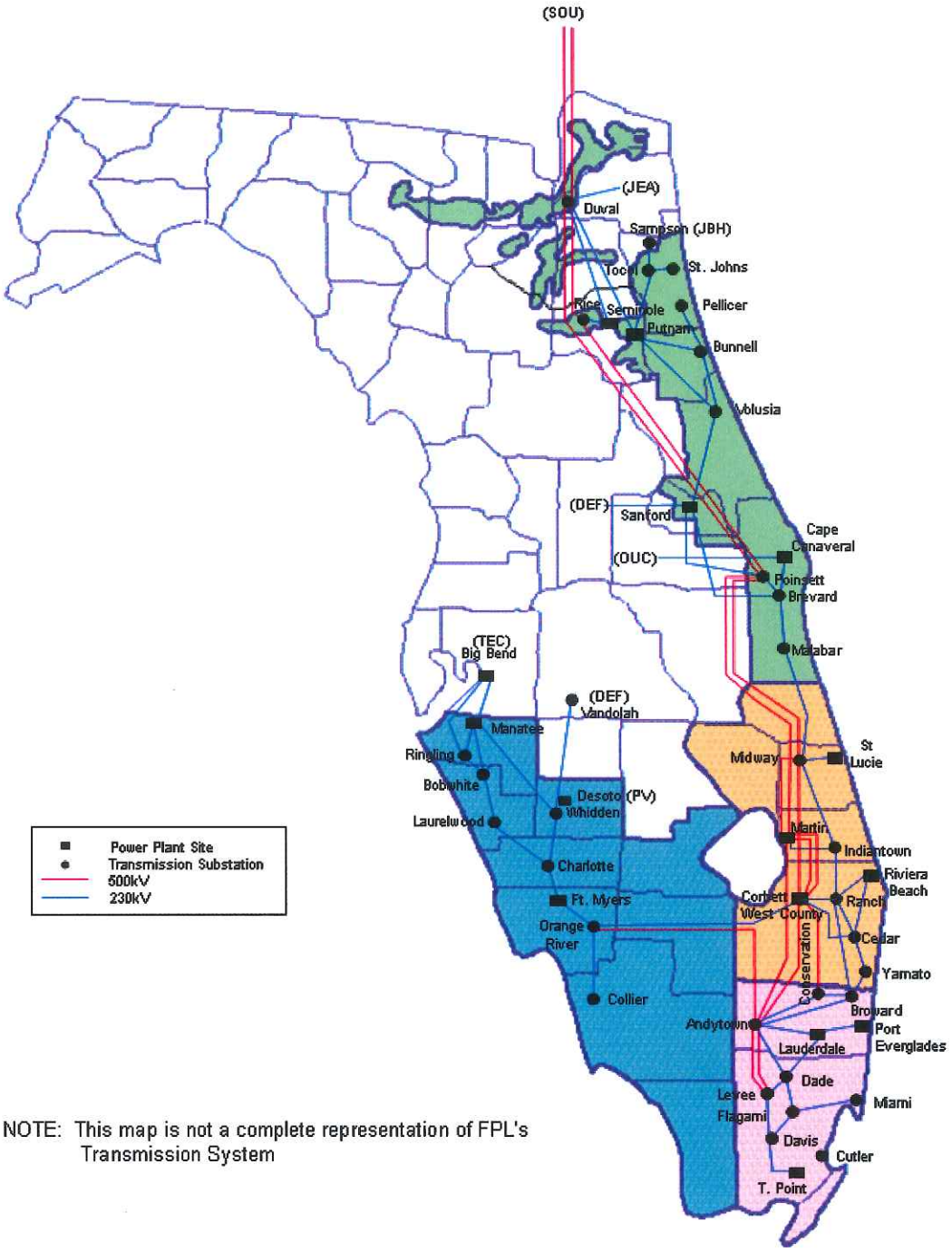


Figure I.A.2: FPL Substation and Transmission System Configuration

Description of Existing Resources

I.B Capacity and Energy Power Purchases

Firm Capacity Purchases from Qualifying Facilities (QF)

Firm capacity power purchases are an important part of FPL's resource mix. FPL currently has contracts with eight qualifying facilities; i.e., cogeneration/small power production facilities, to purchase firm capacity and energy during the 10-year reporting period of this Site Plan as shown in Table I.A.3, Table I.B.1, and Table I.B.2.

A cogeneration facility is one which simultaneously produces electrical and thermal energy, with the thermal energy (e.g., steam) being used for industrial, commercial, or cooling and heating purposes. A small power production facility is one which does not exceed 80 MW (unless it is exempted from this size limitation by the Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990) and uses as its primary energy source solar, wind, waste, geothermal, or other renewable resources.

Firm Capacity Purchases from Utilities

FPL has a Unit Power Sales (UPS) contract to purchase 928 MW from the Southern Company (Southern) through the end of December 2015. This capacity is being supplied by Southern from a mix of gas-fired and coal-fired units.

In addition, FPL has contracts with the Jacksonville Electric Authority (JEA) for the purchase of 375 MW (Summer) and 383 MW (Winter) of coal-fired generation from the St. John's River Power Park (SJRPP) Units No. 1 and No. 2. However, due to Internal Revenue Service (IRS) regulations, the total amount of energy that FPL may receive from this purchase is limited. FPL currently assumes, for planning purposes, that this limit will be reached in April 2019. Once this limit is reached, FPL will be unable to receive firm capacity and energy from these purchases. (However, FPL will continue to receive firm capacity and energy from its ownership portion of the SJRPP units.)

As part of the agreement that FPL will begin serving Vero Beach's electrical needs beginning in January 2015, FPL has acquired two existing power purchase agreements totaling approximately 37 MW of coal-fired capacity. These agreements will run through the end of 2017.

These purchases are shown in Table I.A.3, Table I.B.1, and Table I.B.2. FPL also has ownership interest in the SJRPP units. The ownership amount is reflected in FPL's installed capacity shown on Figure I.A.1, in Table I.A.1, and on Schedule 1.

Firm Capacity Other Purchases

FPL has two other firm capacity purchase contracts with non-QF, non-utility suppliers. These contracts with the Palm Beach Solid Waste Authority were previously listed as QFs. However, the addition of a second unit will cause both units to no longer meet the statutory definition of a QF. These contracts are therefore listed as "Other Purchases" after the current estimated in-service date of the new unit. Table I.B.1 and I.B.2 present the Summer and Winter MW, respectively, resulting from these contracts under the category heading of Other Purchases.

Non-Firm (As Available) Energy Purchases

FPL purchases non-firm (as-available) energy from several cogeneration and small power production facilities. Table I.A.3 shows the amount of energy purchased in 2013 from these facilities.

Table 1.A.3: Purchase Power Resources by Contract (as of December 31, 2013)

Firm Capacity Purchases (MW)	Location (City or County)	Fuel	Summer MW
I. Purchases from QF's: Cogeneration/Small Power Production Facilities			
Cedar Bay Generating Co.	Duval	Coal (Cogen)	250
Indiantown Cogen., LP	Martin	Coal (Cogen)	330
Broward South	Broward	Solid Waste	4
Broward North	Broward	Solid Waste	11
Palm Beach SWA - extension			40
		Total:	**635**
II. Purchases from Utilities:			
UPS from Southern Company	Various in Georgia	Coal	928
SJRPP	Jacksonville, FL	Coal	381
		Total:	**1,309**
		Total Net Firm Generating Capability:	**1,944**

Non-Firm Energy Purchases (MWH)				
Project	**County**	**Fuel**	**In-Service Date**	**Energy (MWH) Delivered to FPL in 2013**
Okeelanta (known as Florida Crystals and New Hope Power Partners) *	Palm Beach	Bagasse/Wood	11/95	87,723
Broward South *	Broward	Solid Waste	9/09	90,116
Broward North *	Broward	Solid Waste	1/12	81,316
Waste Management - Renewable Energy *	Broward	Landfill Gas	1/10	47,249
Waste Management - Collier County Landfill *	Broward	Landfill Gas	5/11	25,578
Tropicana	Manatee	Natural Gas	2/90	8,900
Georgia Pacific	Putnam	Paper by-product	2/94	5,294
Rothenbach Park (known as MMA Bee Ridge)	Sarasota	PV	10/07	289
First Solar	Miami	PV	4/11	210
Customer - Owned PV & Wind	Various	PV/Wind	9/12	1,018
INEOS Bio *	Indian River	Wood	Various	922
Miami Dade Resource Recovery*	Dade	Solid Waste	12/13	28,759

* These Non-Firm Energy Purchases are Renewable and are reflected on Schedule 11.1 row 9 column 6.

Table I.B.1: FPL's Firm Purchased Power Summer MW

Summary of FPL's Firm Capacity Purchases: Summer MW (for August of Year Shown)

I. Purchases from QF's:

Cogeneration Small Power Production Facilities	Contract Start Date	Contract End Date	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Broward South	01/01/93	12/31/26	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Broward South	01/01/95	12/31/26	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Broward South	01/01/97	12/31/26	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Broward North	01/01/93	12/31/26	7	7	7	7	7	7	7	7	7	7
Broward North	01/01/95	12/31/26	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Broward North	01/01/97	12/31/26	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Cedar Bay Generating Co.	01/25/94	12/31/24	250	250	250	250	250	250	250	250	250	250
Indiantown Cogen., LP	12/22/95	12/01/25	330	330	330	330	330	330	330	330	330	330
Palm Beach SWA -extension [1/]	01/01/12	04/01/32	40	0	0	0	0	0	0	0	0	0
U.S. EcoGen - Clay [2/]	01/01/21	12/31/49	0	0	0	0	0	0	0	60	60	60
U.S. EcoGen -Okeechobee [2/]	01/01/21	12/31/49	0	0	0	0	0	0	0	60	60	60
U.S. EcoGen - Martin [2/]	01/01/21	12/31/49	0	0	0	0	0	0	0	60	60	60
QF Purchases Sub Total:			**635**	**595**	**595**	**595**	**595**	**595**	**595**	**775**	**775**	**775**

II. Purchases from Utilities:

	Contract Start Date	Contract End Date	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
UPS Replacement	06/01/10	12/31/15	928	928	0	0	0	0	0	0	0	0
SJRPP [3/]	04/02/82	04/01/19	375	375	375	375	375	0	0	0	0	0
OUC - Stanton 1 [4/]	01/01/15	12/31/17	0	21	21	21	0	0	0	0	0	0
OUC - Stanton 2 [4/]	01/01/15	12/31/17	0	16	16	16	0	0	0	0	0	0
Utility Purchases Sub Total:			**1,303**	**1,340**	**412**	**412**	**375**	**0**	**0**	**0**	**0**	**0**

Total of QF and Utility Purchases =			**1,938**	**1,934**	**1,006**	**1,006**	**970**	**595**	**595**	**775**	**775**	**775**

III. Other Purchases:

	Contract Start Date	Contract End Date	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Palm Beach SWA -extension [1/]	01/01/12	04/01/32	0	40	40	40	40	40	40	40	40	40
Palm Beach SWA - additional	01/01/15	04/01/32	0	70	70	70	70	70	70	70	70	70
Unspecified Purchases [5/]	01/01/20	12/31/20	0	0	0	0	0	0	129	0	0	0
Unspecified Purchases [5/]	01/01/21	12/31/21	0	0	0	0	0	0	0	168	0	0
Other Purchases Sub Total:			**0**	**110**	**110**	**110**	**110**	**110**	**239**	**278**	**110**	**110**

Total "Non-QF" Purchase =			**1,303**	**1,450**	**522**	**522**	**485**	**110**	**239**	**278**	**110**	**110**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Summer Firm Capacity Purchases Total MW:	**1,938**	**2,044**	**1,116**	**1,116**	**1,080**	**705**	**834**	**1,053**	**885**	**885**

1/ When the second unit comes into service at the Palm Beach SWA, neither unit will meet the standards to be a small power producers, and both units then will be accounted for under "Other Purchases".

2/ The EcoGen units will enter service in 2019, and initially provide non-firm energy. Firm capacity delivery will commence in 2021.

3/ Contract End Date shown for the SJRPP purchase does not represent the actual contract end date. Instead, this date represents a projection of the earliest date at which FPL's ability to receive further capacity and energy from this purchase could be suspended due to IRS regulations.

4/ These units are part of the purchase of the Vero Beach Electric System.

5/ These unspecified purchases are short-term purchases that are included for resource planning purposes. No decision regarding such purchases is needed at this time.

Table I.B.2: FPL's Firm Purchased Power Winter MW

Summary of FPL's Firm Capacity Purchases: Winter MW (for January of Year Shown)

I. Purchases from QF's:

Cogeneration Small Power Production Facilities	Contract Start Date	Contract End Date	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Broward South	01/01/93	12/31/26	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Broward South	01/01/95	12/31/26	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Broward South	01/01/97	12/31/26	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Broward North	01/01/93	12/31/26	7	7	7	7	7	7	7	7	7	7
Broward North	01/01/95	12/31/26	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Broward North	01/01/97	12/31/26	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Cedar Bay Generating Co.	01/25/94	12/31/24	250	250	250	250	250	250	250	250	250	250
Indiantown Cogen., LP	12/22/95	12/01/25	330	330	330	330	330	330	330	330	330	330
Palm Beach SWA -extension 1/	01/01/12	04/01/32	40	0	0	0	0	0	0	0	0	0
U.S. EcoGen - Clay 2/	01/01/21	12/31/49	0	0	0	0	0	0	0	60	60	60
U.S. EcoGen -Okeechobee 2/	01/01/21	12/31/49	0	0	0	0	0	0	0	60	60	60
U.S. EcoGen - Martin 2/	01/01/21	12/31/49	0	0	0	0	0	0	0	60	60	60
QF Purchases Sub Total:			**635**	**595**	**595**	**595**	**595**	**595**	**595**	**775**	**775**	**775**

II. Purchases from Utilities:

	Contract Start Date	Contract End Date	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
UPS Replacement	06/01/10	12/31/15	928	928	0	0	0	0	0	0	0	0
SJRPP 3/	04/02/82	04/01/19	383	383	383	383	383	383	0	0	0	0
OUC - Stanton 1 4/	01/01/15	12/31/17	0	21	21	21	0	0	0	0	0	0
OUC - Stanton 2 4/	01/01/15	12/31/17	0	16	16	16	0	0	0	0	0	0
Utility Purchases Sub Total:			**1,311**	**1,348**	**420**	**420**	**383**	**383**	**0**	**0**	**0**	**0**
Total of QF and Utility Purchases =			**1,946**	**1,942**	**1,014**	**1,014**	**978**	**978**	**595**	**775**	**775**	**775**

III. Other Purchases:

	Contract Start Date	Contract End Date	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Palm Beach SWA -extension 1/	01/01/12	04/01/32	0	40	40	40	40	40	40	40	40	40
Palm Beach SWA - additional	01/01/15	04/01/32	0	70	70	70	70	70	70	70	70	70
Unspecified Purchases 5/	01/01/20	12/31/20	0	0	0	0	0	0	129	0	0	0
Unspecified Purchases 5/	01/01/21	12/31/21	0	0	0	0	0	0	0	168	0	0
Other Purchases Sub Total:			**0**	**110**	**110**	**110**	**110**	**110**	**239**	**278**	**110**	**110**
"Non-QF" Purchase =			**1,311**	**1,458**	**530**	**530**	**493**	**493**	**239**	**278**	**110**	**110**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Winter Firm Capacity Purchases Total MW:	**1,946**	**2,052**	**1,124**	**1,124**	**1,088**	**1,088**	**834**	**1,053**	**885**	**885**

1/ When the second unit comes into service at the Palm Beach SWA, neither unit will meet the standards to be a small power producers, and both units then will be accounted for under "Other Purchases".

2/ The EcoGen units will enter service in 2019, and initially provide non-firm energy. Firm capacity delivery will commence in 2021.

3/ Contract End Date shown for the SJRPP purchase does not represent the actual contract end date. Instead, this date represents a projection of the earliest date at which FPL's ability to receive further capacity and energy from this purchase could be suspended due to IRS regulations.

4/ These units are part of the purchase of the Vero Beach Electric System.

5/ These unspecified purchases are short-term purchases that are included for resource planning purposes. No decision regarding such purchases is needed at this time.

I.C Demand Side Management (DSM)

FPL has sought out and implemented cost-effective DSM programs since 1978. These programs include a number of conservation/energy efficiency and load management initiatives. FPL's DSM efforts through 2013 have resulted in a cumulative Summer peak reduction of approximately 4,753 MW at the generator and an estimated cumulative energy saving of approximately 66,782 Gigawatt-hour (GWh) at the generator. After accounting for reserve margin requirements, FPL's DSM efforts through 2013 have eliminated the need to construct the equivalent of approximately 14 new 400 MW generating units. New DSM Goals for FPL for the 2015 through 2024 time period will be set by the FPSC in the second half of 2014. DSM is discussed further in Chapter III.

Schedule 1

Existing Generating Facilities
As of December 31, 2013

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						Fuel		Alt. Fuel	Commercial	Actual/ Expected	Gen.Max.	Net Capability [1/]	
Plant Name	Unit No.	Location	Unit Type	Fuel Pri.	Fuel Alt.	Transport. Pri.	Transport. Alt.	Days Use	In-Service Month/Year	Retirement Month/Year	Nameplate KW	Winter MW	Summer MW
Cape Modernization		Brevard County 19/24S/36F									1,295,400	1,355	1,210
	1		CC	NG	FO2	PL	TK	Unknown	Apr-13	Unknown	1,295,400	1,355	1,210
DeSoto [2/]		DeSoto County 27/36S/25E									27,000	25	25
	1		PV	Solar	Solar	N/A	N/A	Unknown	Oct-09	Unknown	27,000	25	25
Fort Myers		Lee County 35/43S/25E									2,841,990	2,552	2,396
	2		CC	NG	No	PL	No	Unknown	Jun-02	Unknown	1,721,490	1,490	1,432
	3A		CT	NG	FO2	PL	TK	Unknown	Jun-03	Unknown	188,190	176	158
	3B		CT	NG	FO2	PL	TK	Unknown	Jun-03	Unknown	188,190	176	158
	1-12		GT	FO2	No	TK	No	Unknown	May-74	Unknown	744,120	710	648
Lauderdale		Broward County 30/50S/42E									1,873,968	1,884	1,724
	4		CC	NG	FO2	PL	PL	Unknown	May-93	Unknown	526,250	483	442
	5		CC	NG	FO2	PL	PL	Unknown	Jun-93	Unknown	526,250	483	442
	1-12		GT	NG	FO2	PL	PL	Unknown	Aug-70	Unknown	410,734	459	420
	13-24		GT	NG	FO2	PL	PL	Unknown	Aug-70	Unknown	410,734	459	420
Manatee		Manatee County 18/33S/20E									2,951,110	2,806	2,729
	1		ST	FO6	NG	WA	PL	Unknown	Oct-76	Unknown	863,300	819	809
	2		ST	FO6	NG	WA	PL	Unknown	Dec-77	Unknown	863,300	819	809
	3		CC	NG	No	PL	No	Unknown	Jun-05	Unknown	1,224,510	1,168	1,111
Martin		Martin County 29/29S/38E									4,317,510	3,870	3,731
	1		ST	FO6	NG	PL	PL	Unknown	Dec-80	Unknown	934,500	832	826
	2		ST	FO6	NG	PL	PL	Unknown	Jun-81	Unknown	934,500	832	826
	3		CC	NG	No	PL	No	Unknown	Feb-94	Unknown	612,000	489	469
	4		CC	NG	No	PL	No	Unknown	Apr-94	Unknown	612,000	489	469
	8 [3/]		CC	NG	FO2	PL	TK	Unknown	Jun-05	Unknown	1,224,510	1,228	1,141
Port Everglades		City of Hollywood 23/50S/42E									410,734	459	420
	1-12		GT	NG	FO2	PL	PL	Unknown	Aug-71	Unknown	410,734	459	420
Putnam		Putnam County 16/10S/27E									580,008	530	498
	1		CC	NG	FO2	PL	TK	Unknown	Apr-78	Unknown	290,004	265	249
	2		CC	NG	FO2	PL	TK	Unknown	Aug-77	Unknown	290,004	265	249

1/ These ratings are peak capability.

2/ The capacity shown for the PV facility at DeSoto is considered as non-firm generating capacity and the capacity from these units has been removed from the "System Firm Generating Capacity as of December 31, 2013" row at the end of the table.

3/ Martin Unit 8 is also partially fueled by a 75 MW solar thermal facility that supplies steam when adequate sunlight is available, thus reducing fossil fuel use.

Schedule 1

Existing Generating Facilities
As of December 31, 2013

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
				Fuel		Fuel Transport		Alt. Fuel Days	Commercial In-Service	Actual/ Expected Retirement	Gen.Max. Nameplate	Net Capability [1/]	
Plant Name	Unit No.	Location	Unit Type	Pri.	Alt.	Pri.	Alt.	Use	Month/Year	Month/Year	KW	Winter MW	Summer MW
Sanford		Volusia County 16/19S/30E									2,377,720	2,158	1,980
	4		CC	NG	No	PL	No	Unknown	Oct-03	Unknown	1,188,860	1,078	989
	5		CC	NG	No	PL	No	Unknown	Jun-02	Unknown	1,188,860	1,080	991
Scherer [2/]		Monroe, GA									680,368	651	643
	4		ST	SUB	No	RR	No	Unknown	Jul-89	Unknown	680,368	651	643
Space Coast [3/]		Brevard County 13/23S/36E									10,000	10	10
	1		PV	Solar	Solar	N/A	N/A	Unknown	Apr-10	Unknown	10,000	10	10
St. Johns River Power Park [4/]		Duval County 12/15/28E (RPC4)									271,836	260	254
	1		ST	BIT	Pet	RR	WA	Unknown	Mar-87	Unknown	135,918	130	127
	2		ST	BIT	Pet	RR	WA	Unknown	May-88	Unknown	135,918	130	127
St. Lucie [5/]		St. Lucie County 16/36S/41E									1,743,775	1,863	1,821
	1		ST	Nuc	No	TK	No	Unknown	May-76	Unknown	1,020,000	1,003	981
	2		ST	Nuc	No	TK	No	Unknown	Jun-83	Unknown	723,775	860	840
Turkey Point		Miami Dade County 27/57S/40E									3,380,960	3,263	3,176
	1		ST	FO6	NG	WA	PL	Unknown	Apr-67	Unknown	402,050	398	396
	3		ST	Nuc	No	TK	No	Unknown	Nov-72	Unknown	877,200	839	811
	4		ST	Nuc	No	TK	No	Unknown	Jun-73	Unknown	877,200	848	821
	5		CC	NG	FO2	PL	TK	Unknown	May-07	Unknown	1,224,510	1,178	1,148
West County		Palm Beach County 29&32/43S/40E									2,733,600	4,005	3,657
	1		CC	NG	FO2	PL	TK	Unknown	Aug-09	Unknown	1,366,800	1,335	1,219
	2		CC	NG	FO2	PL	TK	Unknown	Nov-09	Unknown	1,366,800	1,335	1,219
	3		CC	NG	FO2	PL	TK	Unknown	May-11	Unknown	1,366,800	1,335	1,219
										Total System Generating Capacity as of December 31, 2013 [6/] =		**25,691**	**24,274**
										System Firm Generating Capacity as of December 31, 2013 [7/] =		**25,656**	**24,239**

1/ These ratings are peak capability.

2/ These ratings represent Florida Power & Light Company's share of Scherer Unit 4, adjusted for transmission losses.

3/ The capacity shown for the PV facility at Space Coast is considered as non-firm generating capacity due to the intermittent nature of the solar resource.

4/ The net capability ratings represent Florida Power & Light Company's share of St. Johns River Park Units 1 and 2, excluding the Jacksonville Electric Authority (JEA) share of 80%.

5/ Total capability of St. Lucie 1 is 981/1,003 MW. FPL's share of St. Lucie 2 is 840/860.FPL's ownership share of St. Lucie Units 1 and 2 is 100% and 85%, respectively, as shown above. FPL's share of the deliverable capacity from each unit is approx. 92.5% and exclude the Orlando Utilities Commission (OUC) and Florida Municipal Power Agency (FMPA) combined portion of approximately 7.44776% per unit.

6/ The Total System Generating Capacity value shown includes FPL-owned firm and non-firm generating capacity.

7/ The System Firm Generating Capacity value shown includes only firm generating capacity.

CHAPTER II

Forecast of Electric Power Demand

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II. Forecast of Electric Power Demand

II. A. Overview of the Load Forecasting Process

Long-term forecasts of sales, net energy for load (NEL), and peak loads are typically developed on an annual basis for resource planning work at FPL. New long-term forecasts were developed by FPL in late 2013 that replaced the previous long-term load forecasts that were used by FPL during 2013 in much of its resource planning work and which were presented in FPL's 2013 Site Plan. These new load forecasts are utilized throughout FPL's 2014 Site Plan. These forecasts are a key input to the models used to develop FPL's integrated resource plan.

The following pages describe how forecasts are developed for each component of the long-term forecast: sales, NEL, and peak loads. Consistent with past forecasts, the primary drivers to develop these forecasts include economic conditions and weather.

The projections for the national and Florida economies are obtained from the consulting firm IHS Global Insight. Population projections are obtained from the Florida Legislature's Office of Economic and Demographic Research (EDR). These projections are developed in conjunction with the Bureau of Economic and Business Research (BEBR) of the University of Florida. These inputs are quantified and qualified using statistical models in terms of their impact on the future demand for electricity.

Weather is always a key factor that affects FPL's energy sales and peak demand. Three sets of weather variables are developed and used in FPL's forecasting models:

1. Cooling degree-hours based on 72° F, winter heating degree-days based on 66° F, and heating degree-days based on 45° F are used to forecast energy sales.
2. The maximum temperature on the peak day, along with the build-up of cooling degree-hours prior to the peak, is used to forecast Summer peaks.
3. The minimum and average temperatures on the peak day, along with the build-up of heating degree-hours based on 66° F, one and two days prior to the peak, are used to forecast Winter peaks.

The cooling degree-hours and winter heating degree-days are used to capture the changes in the electric usage of weather-sensitive appliances such as air conditioners and electric space heaters. Heating degree-days based on 45° F are used to capture heating load resulting from sustained periods of unusually cold weather not fully captured by heating degree-days based on 66° F. A composite hourly temperature profile is derived using hourly temperatures across FPL's service territory. Miami, Ft. Myers, Daytona Beach, and West Palm Beach are the locations from which

temperatures are obtained. In developing the composite hourly profile, these regional temperatures are weighted by regional energy sales. The resulting composite temperature is used to derive projected cooling and heating degree-hours and heating degree-days. Similarly, composite temperature and hourly profiles of temperatures are used to calculate the weather variables used in the Summer and Winter peak models.

II. B. Comparison of FPL's Current and Previous Load Forecasts

While reflecting some fluctuations by year, FPL's current load forecast is generally in line with the load forecast presented in its 2013 Site Plan. There are four primary factors that are driving the current load forecast: projected population growth, the continued recovery of the Florida economy, energy efficiency codes and standards, and the additional load expected as a result of the acquisition of the City of Vero Beach electric utility.

In early 2013, FPL came to an agreement with the City of Vero Beach to purchase the City's electric system. This agreement was approved by the City voters on March 12, 2013. Beginning in January 2015, NEL, customers, and peaks for Vero Beach are included in FPL's forecasts and are reflected in FPL's 2014 Site Plan.

The customer forecast is based on recent population projections as well as the actual levels of customer growth experienced historically and the additional customers expected as a result of the acquisition of Vero Beach. Population projections are derived from the EDR's July 2013 Demographic Estimating Conference. This forecast is generally consistent with previous forecasts indicating a gradual rebound in Florida's population growth. Net migration into Florida fell to a record low in 2009 during the height of the recession. Florida has since experienced an improvement in net migration which now accounts for a majority of the population growth. However, population growth rates have remained modest by historical standards. Moderately higher rates of population growth are projected from 2014 until 2018 when the projected rate of population growth gradually begins to decelerate. Consistent with past population projections, the rates of population growth in the later years of the forecast are below the rates historically experienced in Florida.

Effective January 2015, FPL is expected to begin providing electric service to more than 34,000 customers formerly served by the City of Vero Beach. Reflecting this increase, the current forecast shows an increase in customer growth in 2015. Thereafter, customer growth is expected to mirror the overall level of population growth in the state. By 2019, the total number of customers served by FPL is expected to exceed five million. Between 2013 and 2023 the total

number of customers is projected to increase at an annual rate of 1.4%, the same increase projected in the 2013 Site Plan.

The economic projections incorporated into FPL's load forecast are provided by IHS Global Insight, a leading economic forecasting firm. IHS Global Insight projects a continued recovery in the Florida economy with relatively healthy increases in employment and income levels between 2014 and 2020. Particularly robust growth is projected for the tourism and healthcare industries. Consistent with past projections, economic growth in the later years of the forecast is expected to moderate slightly.

Estimates of savings from energy efficiency codes and standards are developed by ITRON, a leading expert in this area. Included in these estimates are savings from federal and state energy efficiency codes and standards, including the 2005 National Energy Policy Act, the 2007 Energy Independence and Security Act, and the savings occurring from the use of compact fluorescent bulbs[2]. The impact of these savings began in 2005 and their cumulative impact on the Summer peak is expected to reach 3,477 MW by 2023, the equivalent of approximately a 12% reduction in what the forecasted Summer peak load for 2023 would have been without these codes and standards. The cumulative impact from these savings on NEL is expected to reach 9,991 GWH over the same period while the cumulative impact on the Winter peak is expected to be 1,689 MW by 2023. This represents a decrease of approximately 7% in the forecasted NEL for 2023 and a 4% reduction in forecasted Winter peak load for 2023.

Consistent with the forecast presented in FPL's 2013 Site Plan, the total growth projected for the ten-year reporting period of this document is significant. The Summer peak is projected to increase to 26,528 MW by 2023, an increase of 4,952 MW over the 2013 actual Summer peak. Likewise, NEL is projected to reach 132,357 GWH in 2023, an increase of 20,702 GWH from the actual 2013 value.

II.C. Long-Term Sales Forecasts

Long-term forecasts of electricity sales were developed for the major revenue classes and are adjusted to match the NEL forecast. The results of these sales forecasts for the years 2014 - 2023 are presented in Schedules 2.1 - 2.3 which appear at the end of this chapter. Econometric models are developed for each revenue class using the statistical software package MetrixND. The methodologies used to develop energy sales forecasts for each jurisdictional revenue class and NEL forecast are outlined below.

[2] Note that in addition to the fact that these energy efficiency codes and standards lower the forecasted load (as described later in this chapter), these standards also lower the potential for efficiency gains that would otherwise be available through utility DSM programs.

1. **Residential Sales**

Residential electric usage per customer is estimated by using an econometric model. Residential sales are a function of the following variables: cooling degree-hours, winter heating degree-days, lagged cooling degree-hours, lagged winter heating degree-days, retail gasoline prices, and Florida real per capita income weighted by the percent of the population employed. The impact of weather is captured by the cooling degree-hours, heating degree-days, and the one month lag of these variables. The impact energy prices have on electricity consumption is captured through retail gasoline prices. As energy prices rise, less disposable income is available for all goods and services, electricity included. To capture economic conditions, the model includes a composite variable based on Florida real per capita income and the percent of the state's population that is employed. Residential energy sales are forecasted by multiplying the forecasted residential use per customer by the number of residential customers forecasted.

2. **Commercial Sales**

The commercial sales forecast is also developed using an econometric model. Commercial sales are a function of the following variables: Florida real per capita income weighted by the percent of the population employed, cooling degree-hours, heating degree-hours, lagged cooling degree-hours, a variable designed to reflect the impact of empty homes, dummy variables for the month of December and for the specific months of January 2007, November 2005, and March 2013, and an autoregressive term. Cooling degree-hours, heating degree-hours, and the one month lag of cooling degree-hours are used to capture weather-sensitive load in the commercial sector.

3. **Industrial Sales**

The industrial class is comprised of three distinct groups: very small accounts (those with less than 20 kW of demand), medium accounts (those with 21 kW to 499 kW of demand), and large accounts (those with demands of 500 kW or higher). As such, the forecast is developed using a separate econometric model for each group of industrial customers. The small industrial sales model utilizes the following variables: cooling degree-hours, heating degree-hours, dummy variables for the specific months of November 2005 and August 2004, and two autoregressive terms. The medium industrial sales model utilizes the following variables: cooling degree-hours, Florida real per capita income weighted by the percent of the population employed, dummy variables for the specific months of February 2005 and 2006 and November 2005, and three autoregressive terms,. The large industrial sales model utilizes the following variables: cooling degree-hours, Florida real per capita income weighted by the percent of the population employed, the Consumer Price Index, and dummy variables for the specific months of October 2004 and 2005, November 2004, and September 2005.

4. **Railroad and Railways Sales and Street and Highway Sales**

   This class consists solely of Miami-Dade County's Metrorail system. The projections for railroad and railways sales are based on a historical moving average.

   The forecast for street and highway sales is developed by first developing a trended use per customer value, then multiplying this value by the number of forecasted customers.

5. **Other Public Authority Sales**

   This class consists of a sports field rate schedule, which is closed to new customers, and one government account. The forecast for this class is based on its historical usage characteristics.

6. **Total Sales to Ultimate Customer**

   Sales forecasts by revenue class are summed to produce a total sales forecast.

7. **Sales for Resale**

   Sales for resale (wholesale) customers are composed of municipalities and/or electric co-operatives. These customers differ from jurisdictional customers in that they are not the ultimate users of the electricity they buy. Instead, they resell this electricity to their own customers. Currently there are five customers in this class: the Florida Keys Electric Cooperative; Lee County Electric Cooperative; Wauchula; Winter Park; and Blountstown. In addition, FPL will begin making sales to Seminole Electric Cooperative in June 2014 under a long term agreement[3].

   Beginning in May 2011, FPL began providing service to the Florida Keys Electric Cooperative under a long-term full requirements contract. Previously FPL was serving the Florida Keys under a partial requirements contract. The sales to Florida Keys Electric Cooperative are based on customer-supplied information and historical coincidence factors.

   Lee County has contracted with FPL for FPL to supply a portion of their load through 2013, then to begin serving their entire load beginning in 2014. This contract began in January 2010. Lee County provides a forecast of their sales by delivery point which is used to derive their sales forecast.

   FPL's sales to Wauchula began in October 2011 and will continue through December 2016.

[3] FPL continues to evaluate the possibility of serving the electrical loads of other entities at the time the 2014 Site Plan is being prepared. Because these possibilities are still being evaluated, the load forecast presented in this Site Plan does not include these potential loads.

Sales to Winter Park began in January 2014 and will continue through December 2016.

Blountstown became an FPL wholesale customer in May 2012. FPL's contract with Blountstown expires in April 2017.

A new contract with Seminole Electric Cooperative is included in the forecast which includes delivery of 200 MW beginning in June 2014 and continuing through May 2021.

II.D. Net Energy for Load (NEL)

An econometric model is developed to produce a NEL per customer forecast. The inputs to the model include Florida real per capita income weighted by the percent of the population employed, and a proxy for energy prices. The model also includes several weather variables including cooling degree-hours and heating degree-days by calendar month, and heating degree-days based on 45° F. In addition, the model also includes variables for energy efficiency codes and standards and a variable designed to capture the impact of empty homes. Dummy variables are included for the specific months of May 2004, and November 2005. There is also an autoregressive term in the model.

The energy efficiency variable is included to capture the impacts from major codes and standards, including those associated with the 2005 National Energy Policy Act, the 2007 Energy Independence and Security Act, and the savings occurring from the use of compact fluorescent bulbs. The estimated impact from these codes and standards is inclusive of engineering estimates and any resulting behavioral changes. The impact of these savings began in 2005 and their cumulative impact on NEL is expected to reach 9,991 GWH by 2023. This represents a 7.0% reduction in what the forecasted NEL for 2023 would have been absence these codes and standards. On an incremental basis, net of the reduction already experienced through 2013, the reduction in 2023 is expected to reach 6,075 GWH.

The decline in the number of empty homes resulting from the current housing recovery has affected use per customer and is captured in a separate variable. The forecast was also adjusted for additional load estimated from hybrid vehicles, beginning in 2013, which resulted in an increase of approximately 1,587 GWH by the end of the ten-year reporting period. The forecast was also adjusted for the incremental load resulting from FPL's economic development riders which began in 2013, and this incremental load is projected to grow to 537 GWH before leveling off in 2018. An additional adjustment to the NEL forecast was made to reflect the acquisition of the Vero Beach electric system. The Vero Beach acquisition is projected to add 793 GWH by 2023.

The NEL forecast is developed by first multiplying the NEL per customer forecast by the total number of customers forecasted (excluding the customers formerly served by Vero Beach) and then adjusting the forecasted results for the expected incremental load resulting from hybrid vehicles, new wholesale contracts, the Vero Beach acquisition, and FPL's economic development riders. Once the NEL forecast is obtained, total billed sales are computed using a historical ratio of sales to NEL. The sales by class forecasts previously discussed are then adjusted to match the total billed sales. The forecasted NEL values for 2014 - 2023 are presented in Schedule 3.3 that appears at the end of this chapter.

II.E. System Peak Forecasts

The rate of absolute growth in FPL system peak load has been a function of the size of the customer base, varying weather conditions, projected economic conditions, changing patterns of customer behavior, and more efficient appliances and lighting. FPL developed the peak forecast models to capture these behavioral relationships. In addition, FPL's peak forecast also reflects changes in load expected as a result of the acquisition of Vero Beach, changes in wholesale contracts, and the expected number of hybrid vehicles.

The savings from energy efficiency codes and standards incorporated into the peak forecast include the impacts from the 2005 National Energy Policy Act, the 2007 Energy Independence and Security Act, and the use of compact fluorescent light bulbs. The impact from these energy efficiency standards began in 2005 and their cumulative impact on the Summer peak is expected to reach 3,477 MW by 2023. This reduction is inclusive of engineering estimates and any resulting behavioral changes. The cumulative 2023 impact from these energy efficiency codes and standards effectively reduces FPL's Summer peak for that year by 11.6%. On an incremental basis, net of the reduction already experienced through 2013, the impact on the Summer peak from these energy efficiency codes and standards is expected to reach 1,997 MW in 2023. By 2023, the Winter peak is expected to be reduced by 1,689 MW as result of the cumulative impact from these energy efficiency standards since 2005. On an incremental basis, net of the reduction already experienced through 2013, the impact on the Winter peak from these energy efficiency standards is expected to reach 1,065 MW in 2023.

The forecast was also adjusted for additional load estimated from hybrid vehicles which results in an expected increase of approximately 443 MW in the Summer and 221 MW in the Winter by the end of the ten-year reporting period and for the acquisition of the Vero Beach electric system. The Vero Beach acquisition will add 169 MW to the Summer peak, and 179 MW to the Winter peak, forecast by the end of the ten-year reporting period.

The forecasting methodology of Summer, Winter, and monthly system peaks is discussed below. The forecasted values for Summer and Winter peak loads for the years 2014 – 2023 are presented at the end of this chapter in Schedules 3.1 and 3.2, and in Chapter III in Schedules 7.1 and 7.2.

1. **System Summer Peak**

   The Summer peak forecast is developed using an econometric model. The variables included in the model are the price of gasoline, lagged one month, Florida real household disposable income, cooling degree-hours two days prior to the peak day, the maximum temperature on the day of the peak, a variable for energy efficiency standards, and a moving average term. The model is based on the Summer peak contribution per customer which is multiplied by total customers (excluding the customers that have been served by Vero Beach), and adjusted to account for incremental loads resulting from hybrid vehicles, new wholesale contracts, the Vero Beach acquisition, and FPL's economic development riders to derive FPL's system Summer peak.

2. **System Winter Peak**

   Like the system Summer peak model, this model is also an econometric model. The model consists of three weather-related variables: the average temperature on the peak day, heating degree-hours for the prior day squared, and heating degree-hours two days prior to the peak day. The model also includes two dummy variables; one for Winter peaks occurring on weekends and one for winter peaks with minimum temperature below 40.5 degrees. Also included in the model are a variable for housing starts per capita, and an autoregressive term. The forecasted results are adjusted for the impact of energy efficiency standards. The model is based on the Winter peak contribution per customer which is multiplied by total customers (excluding the customers that have been served by Vero Beach), and then adjusted for the expected incremental loads resulting from hybrid vehicles, new wholesale contracts, the Vero Beach acquisition, and FPL's economic development riders.

3. **Monthly Peak Forecasts**

   The forecasting process for monthly peaks consists of the following steps:

   a. The forecasted annual summer peak is assumed to occur in the month of August. The month of August has historically accounted for more annual summer peaks than any other month.

b. The forecasted annual winter peak is assumed to occur in the month of January. The month of January has historically accounted for more annual winter peaks than any other month.

c. The remaining monthly peaks are forecasted based on the historical relationship between the monthly peaks and the annual summer peak.

II.F. The Hourly Load Forecast

Forecasted values for system hourly load for the period 2014 - 2023 are produced using a System Load Forecasting "shaper" program. This model uses years of historical FPL hourly system load data to develop load shapes for weekdays, weekend days, and holidays. The model generates a projection of hourly load values based on these load shapes and the forecast of monthly peaks and energy.

II.G. Uncertainty

In order to address uncertainty in the forecasts of aggregate peak demand and NEL, FPL first evaluates the assumptions underlying the forecasts. FPL takes a series of steps in evaluating the input variables, including comparing projections from different sources, identifying outliers in the series, and assessing the series' consistency with past forecasts. As needed, FPL reviews additional factors which may affect the input variables.

Uncertainty is also addressed in the modeling process. Generally, econometric models are used to forecast the aggregate peak demand and NEL. During the modeling process, the relevant statistics (goodness of fit, F-statistic, P-values, mean absolute deviation (MAD), mean absolute percentage error (MAPE), etc.) are scrutinized to ensure that the models adequately explain historical variation. Once a forecast is developed, it is compared with past forecasts. Deviations from past forecasts are examined in light of changes in input assumptions to ensure that the drivers underlying the forecast are well understood. Finally, forecasts of aggregate peak demand and NEL are compared with the actual values as these become available. An ongoing process of variance analyses is performed. To the extent that the variance analysis identifies large unexplained deviations between the forecast and actual values, revisions to the econometric model may be considered.

The inherent uncertainty in load forecasting is addressed in different ways in regard to FPL's overall resource planning and operational planning work. In regard to FPL's resource planning work, FPL's utilization of a 20% total reserve margin criterion, and a 10% generation-only reserve

margin criterion, are designed to maintain reliable electric service to FPL's customers in light of forecasting (and other) uncertainty. In addition, banded forecasts of the projected Summer peak and net energy for load are produced based on an analysis of past forecasting variances. In regard to operational planning, a banded forecast for the projected Summer and Winter peak days is developed based on the historical weather variations. These bands are then used to develop similar bands for the monthly peaks.

II.H. DSM

The effects of FPL's DSM energy efficiency programs implementation through August 2013 are assumed to be imbedded in the actual usage data for forecasting purposes. The impacts of incremental energy efficiency that FPL plans to implement in the future, plus the cumulative and projected incremental impacts of FPL's load management programs, are accounted for as "line item reductions" to the forecasts as part of the IRP process as shown in Chapter III in Schedules 7.1 and 7.2. After making these adjustments to the load forecasts, the resulting "firm" load forecast is then used in FPL's IRP work.

Schedule 2.1
History of Energy Consumption
And Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Rural & Residential			Commercial		
Year	Population	Members per Household	GWh	Average No. of Customers	Average kWh Consumption Per Customer	GWh	Average No. of Customers	Average kWh Consumption Per Customer
2004	8,247,442	2.20	52,502	3,744,915	14,020	42,064	458,053	91,832
2005	8,469,602	2.21	54,348	3,828,374	14,196	43,468	469,973	92,490
2006	8,620,855	2.21	54,570	3,906,267	13,970	44,487	478,867	92,901
2007	8,729,806	2.19	55,138	3,981,451	13,849	45,921	493,130	93,121
2008	8,771,694	2.20	53,229	3,992,257	13,333	45,561	500,748	90,987
2009	8,732,591	2.19	53,950	3,984,490	13,540	45,025	501,055	89,860
2010	8,762,399	2.19	56,343	4,004,366	14,070	44,544	503,529	88,464
2011	8,860,158	2.20	54,642	4,026,760	13,570	45,052	508,005	88,685
2012	8,948,850	2.21	53,434	4,052,174	13,187	45,220	511,887	88,340
2013	9,025,275	2.20	53,930	4,097,172	13,163	45,341	516,500	87,786

Historical Values (2004 - 2013):

Col. (2) represents population only in the area served by FPL.

Col. (4) and Col. (7) represent actual energy sales including the impacts of existing conservation. These values are at the meter.

Col. (5) and Col. (8) represent the annual average of the twelve monthly values.

Schedule 2.1
Forecast of Energy Consumption
And Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Rural & Residential			Commercial		
Year	Population	Members per Household	GWh	Average No. of Customers	Average kWh Consumption Per Customer	GWh	Average No. of Customers	Average kWh Consumption Per Customer
2014	9,111,384	2.20	55,739	4,141,538	13,458	47,155	524,494	89,905
2015	9,302,665	2.20	57,047	4,228,484	13,491	48,634	538,771	90,267
2016	9,437,042	2.20	58,097	4,289,564	13,544	49,793	547,360	90,969
2017	9,571,922	2.20	58,693	4,350,874	13,490	50,418	555,714	90,726
2018	9,705,104	2.20	59,404	4,411,411	13,466	51,110	563,753	90,661
2019	9,835,541	2.20	60,036	4,470,700	13,429	51,667	571,672	90,379
2020	9,961,263	2.20	60,791	4,527,847	13,426	52,337	579,453	90,322
2021	10,079,425	2.20	61,219	4,581,557	13,362	52,675	587,147	89,713
2022	10,198,087	2.20	61,929	4,635,494	13,360	53,264	594,908	89,534
2023	10,318,293	2.20	62,870	4,690,133	13,405	54,043	602,612	89,681

Projected Values (2014 - 2023):

Col. (2) represents population only in the area served by FPL.

Col. (4) and Col. (7) represent forecasted energy sales that do not include the impact of incremental conservation. These values are at the meter.

Col. (5) and Col. (8) represent the annual average of the twelve monthly values.

Schedule 2.2
History of Energy Consumption
And Number of Customers by Customer Class

(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		Industrial		Railroads	Street &	Sales to	Sales to
		Average	Average kWh	&	Highway	Public	Ultimate
		No. of	Consumption	Railways	Lighting	Authorities	Consumers
Year	GWh	Customers	Per Customer	GWh	GWh	GWh	GWh
2004	3,964	18,512	214,139	93	413	58	99,095
2005	3,913	20,392	191,873	95	424	49	102,296
2006	4,036	21,211	190,277	94	422	49	103,659
2007	3,774	18,732	201,499	91	437	53	105,415
2008	3,587	13,377	268,168	81	423	37	102,919
2009	3,245	10,084	321,796	80	422	34	102,755
2010	3,130	8,910	351,318	81	431	28	104,557
2011	3,086	8,691	355,104	82	437	27	103,327
2012	3,024	8,743	345,871	81	441	25	102,226
2013	2,956	9,541	309,772	88	442	28	102,784

Historical Values (2004 - 2013):

Col. (10) and Col.(15) represent actual energy sales including the impacts of existing conservation. These values are at the meter.

Col. (11) represents the annual average of the twelve monthly values.

Col. (16) = Col. (4) + Col. (7) + Col. (10) + Col. (13) + Col. (14) + Col. (15).

Schedule 2.2
Forecast of Energy Consumption
And Number of Customers by Customer Class

(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		Industrial		Railroads	Street &	Sales to	Sales to
		Average	Average kWh	&	Highway	Public	Ultimate
		No. of	Consumption	Railways	Lighting	Authorities	Consumers
Year	GWh	Customers	Per Customer	GWh	GWh	GWh	GWh
2014	2,990	10,242	291,973	82	442	24	106,432
2015	3,009	10,890	276,263	83	453	23	109,248
2016	3,008	11,520	261,101	82	460	23	111,463
2017	3,001	11,893	252,369	83	466	23	112,684
2018	2,970	12,003	247,426	83	473	23	114,063
2019	2,931	12,030	243,618	83	478	23	115,218
2020	2,875	12,017	239,256	83	484	23	116,593
2021	2,814	11,991	234,676	83	489	23	117,303
2022	2,754	11,971	230,057	83	494	23	118,548
2023	2,692	11,907	226,087	83	499	23	120,210

Projected Values (2014 - 2023):

Col. (10) and Col.(15) represent forecasted energy sales that do not include the impact of incremental conservation. These values are at the meter.

Col. (11) represents the annual average of the twelve monthly values.

Col. (16) = Col. (4) + Col. (7) + Col. (10) + Col. (13) + Col. (14) + Col. (15).

Schedule 2.3
History of Energy Consumption
And Number of Customers by Customer Class

(1)	(17)	(18)	(19)	(20)	(21)
	Sales for Resale	Utility Use & Losses	Net Energy For Load	Average No. of Other	Total Average Number of
Year	GWh	GWh	GWh	Customers	Customers
2004	1,531	7,467	108,093	3,029	4,224,509
2005	1,506	7,498	111,301	3,156	4,321,895
2006	1,569	7,909	113,137	3,218	4,409,563
2007	1,499	7,401	114,315	3,276	4,496,589
2008	993	7,092	111,004	3,348	4,509,730
2009	1,155	7,394	111,303	3,439	4,499,067
2010	2,049	7,870	114,475	3,523	4,520,328
2011	2,176	6,950	112,454	3,596	4,547,051
2012	2,237	6,403	110,866	3,645	4,576,449
2013	2,158	6,713	111,655	3,722	4,626,934

Historical Values (2004 - 2013):

Col. (19) represents actual energy sales including the impacts of existing conservation.

Col. (19) = Col. (16) + Col. (17) + Col. (18). Historical NEL includes the impacts of existing conservation and agrees to Col. (5) on schedule 3.3. Historical GWH, prior to 2011, are based on a fiscal year beginning 12/29 and ending 12/28. The 2011 value is based on 12/29/10 to 12/31/11. The 2012-2013 values are based on calendar year.

Col. (20) represents the annual average of the twelve monthly values.

Col. (21) = Col. (5) + Col. (8) + Col. (11) + Col. (20).

Schedule 2.3
Forecast of Energy Consumption
And Number of Customers by Customer Class

(1)	(17)	(18)	(19)	(20)	(21)
	Sales for Resale	Utility Use & Losses	Net Energy For Load	Average No. of Other	Total Average Number of
Year	GWh	GWh	GWh	Customers	Customers
2014	4,907	6,662	118,001	3,780	4,680,054
2015	5,654	6,703	121,606	4,323	4,782,469
2016	5,706	6,775	123,943	4,383	4,852,827
2017	5,419	6,811	124,914	4,437	4,922,918
2018	5,440	6,896	126,399	4,491	4,991,659
2019	5,496	6,959	127,673	4,543	5,058,945
2020	5,559	7,035	129,187	4,592	5,123,909
2021	5,133	7,018	129,454	4,638	5,185,333
2022	4,846	7,124	130,517	4,681	5,247,054
2023	4,908	7,239	132,357	4,724	5,309,376

Projected Values (2014 - 2023):

Col. (19) represents forecasted energy sales that do not include the impact of incremental conservation and agrees to Col. (2) on Schedule 3.3.

Col. (19) = Col. (16) + Col. (17) + Col. (18). These values are based on calendar year.

Col. (20) represents the annual average of the twelve monthly values.

Col. (21) = Col. (5) + Col. (8) + Col. (11) + Col. (20).

Schedule 3.1
History of Summer Peak Demand (MW)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	Total	Wholesale	Retail	Interruptible	Res. Load Management	Residential Conservation	C/I Load Management	C/I Conservation	Net Firm Demand
2004	20,545	258	20,287	0	894	846	588	577	19,063
2005	22,361	264	22,097	0	902	895	600	611	20,858
2006	21,819	256	21,563	0	928	948	635	640	20,256
2007	21,962	261	21,701	0	952	982	716	683	20,295
2008	21,060	181	20,879	0	966	1,042	760	706	19,334
2009	22,351	249	22,102	0	981	1,097	811	732	20,558
2010	22,256	419	21,837	0	990	1,181	815	758	20,451
2011	21,619	427	21,192	0	1,000	1,281	821	781	19,798
2012	21,440	431	21,009	0	1,013	1,351	833	810	19,594
2013	21,576	396	21,180	0	1,025	1,394	833	827	19,718

Historical Values (2004 - 2013):

Col. (2) - Col. (4) are actual values for historical Summer peaks. As such, they incorporate the effects of conservation (Col. 7 & Col. 9), and may incorporate the effects of load control if load control was operated on these peak days. Therefore, Col. (2) represents the actual Net Firm Demand.

Col. (5) - Col. (9) represent actual DSM capabilities starting from January 1988 and are annual (12-month) values except for 2013 values which are through August.

Col. (10) represents a HYPOTHETICAL "Net Firm Demand" as if the load control values had definitely been exercised on the peak. Col. (10) is derived by the formula: Col. (10) = Col.(2) - Col.(6) - Col.(8).

Schedule 3.1
Forecast of Summer Peak Demand (MW)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
August of Year	Total	Wholesale	Retail	Interruptible	Res. Load Management*	Residential Conservation	C/I Load Management*	C/I Conservation	Net Firm Demand
2014	22,768	1,173	21,595	0	1,077	65	816	33	20,777
2015	23,356	1,206	22,149	0	1,093	88	830	46	21,298
2016	23,778	1,212	22,565	0	1,103	89	841	49	21,695
2017	24,190	1,159	23,031	0	1,113	91	853	52	22,081
2018	24,544	1,166	23,378	0	1,124	92	865	56	22,407
2019	24,896	1,172	23,723	0	1,134	94	877	62	22,729
2020	25,239	1,179	24,061	0	1,144	97	889	67	23,042
2021	25,439	985	24,454	0	1,154	100	901	73	23,211
2022	25,908	992	24,916	0	1,165	104	912	79	23,648
2023	26,528	998	25,530	0	1,175	109	924	85	24,235

Projected Values (2014 - 2023):

Col. (2) - Col. (4) represent FPL's forecasted peak and does not include incremental conservation, cumulative load management, or incremental load management.

Col. (5) - Col. (9) represent cumulative load management, and incremental conservation and load management. All values are projected August values.

Col. (8) represents FPL's Business On Call, CDR, CILC, and Curtailable programs/rates.

Col. (10) represents a 'Net Firm Demand" which accounts for all of the incremental conservation and assumes all of the load control is implemented on the peak. Col. (10) is derived by using the formula: Col. (10) = Col. (2) - Col. (5) - Col. (6) - Col. (7) - Col. (8) - Col. (9).

* Res. Load Management and C/I Load Management include MW values of load management from Lee County and FKEC.

Schedule 3.2
History of Winter Peak Demand:Base Case

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	Total	Firm Wholesale	Retail	Interruptible	Res. Load Management	Residential Conservation	C/I Load Management	C/I Conservation	Net Firm Demand
2004	14,752	211	14,541	0	813	567	534	227	13,405
2005	18,108	225	17,883	0	816	583	542	233	16,751
2006	19,683	225	19,458	0	823	600	550	240	18,311
2007	16,815	223	16,592	0	846	620	577	249	15,392
2008	18,055	163	17,892	0	868	644	636	279	16,551
2009	20,081	207	19,874	0	881	666	676	285	18,524
2010	24,346	500	23,846	0	895	687	721	291	22,730
2011	21,126	383	20,743	0	903	717	723	303	19,501
2012	17,934	382	17,552	0	856	755	722	314	16,356
2013	15,931	348	15,583	0	843	781	567	326	14,521

Historical Values (2004 - 2013):

Col. (2) - Col. (4) are actual values for historical Winter peaks. As such, they incorporate the effects of conservation (Col. 7 & Col. 9), and may incorporate the effects of load control if load control was operated on these peak days. Therefore, Col. (2) represents the actual Net Firm Demand. For year 2011, the actual peaked occurred in December of 2010.

Col. (5) - Col. (9) for 2003 through 2012 represent actual DSM capabilities starting from January 1988 and are annual (12-month) values.

Col. (10) represents a HYPOTHETICAL "Net Firm Demand" as if the load control values had definitely been exercised on the peak. Col. (10) is derived by the formula: Col. (10) = Col.(2) - Col.(6) - Col.(8).

Schedule 3.2
Forecast of Winter Peak Demand:Base Case

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
January of Year	Total	Firm Wholesale	Retail	Interruptible	Res. Load Management*	Residential Conservation	C/I Load Management*	C/I Conservation	Net Firm Demand
2014	19,875	992	18,883	0	883	13	601	5	18,373
2015	20,971	1,235	19,736	0	905	52	557	16	19,442
2016	21,490	1,238	20,252	0	913	52	562	17	19,947
2017	21,731	1,164	20,567	0	921	53	568	17	20,173
2018	21,968	1,159	20,809	0	929	53	573	18	20,396
2019	22,180	1,162	21,018	0	937	53	579	19	20,592
2020	22,383	1,165	21,218	0	945	54	584	20	20,780
2021	22,584	1,168	21,416	0	953	54	590	22	20,965
2022	22,601	971	21,630	0	961	55	595	23	20,966
2023	22,891	974	21,918	0	970	56	601	24	21,240

Projected Values (2014 - 2023):

Col. (2) - Col. (4) represent FPL's forecasted peak and does not include incremental conservation, cumulative load management, or incremental load management.

Col. (5) - Col. (9) represent cumulative load management, and incremental conservation and load management. All values are projected January values.

Col. (8) represents FPL's Business On Call, CDR, CILC, and Curtailable programs/rates.

Col. (10) represents a 'Net Firm Demand" which accounts for all of the incremental conservation and assumes all of the load control is implemented on the peak. Col. (10) is derived by using the formula: Col. (10) = Col. (2) - Col. (5) - Col. (6) - Col. (7) - Col. (8) - Col. (9).

* Res. Load Management and C/I Load Management include MW values of load management from Lee County and FKEC.

Schedule 3.3
History of Annual Net Energy for Load (GWh)
(All values are "at the generator" values except for Col (8))

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Net Energy For Load without DSM GWh	Residential Conservation GWh	C/I Conservation GWh	Actual Net Energy For Load GWh	Sales for Resale GWh	Utility Use & Losses GWh	Total Billed Retail Energy Sales (GWh)	Load Factor(%)
2004	111,659	1,872	1,693	108,093	1,531	7,467	99,095	59.9%
2005	115,065	1,970	1,793	111,301	1,506	7,498	102,296	56.8%
2006	117,116	2,078	1,901	113,137	1,569	7,909	103,659	59.2%
2007	118,518	2,138	2,066	114,315	1,499	7,401	105,415	59.4%
2008	115,379	2,249	2,126	111,004	993	7,092	102,919	60.0%
2009	115,844	2,345	2,196	111,303	1,155	7,394	102,755	56.8%
2010	119,220	2,487	2,259	114,475	2,049	7,870	104,557	58.7%
2011	117,460	2,683	2,324	112,454	2,176	6,950	103,327	59.4%
2012	116,083	2,823	2,394	110,866	2,237	6,403	102,226	58.9%
2013	117,087	2,962	2,469	111,655	2,158	6,713	102,784	59.1%

Historical Values (2004 - 2013):

Col. (2) represents derived "Total Net Energy For Load w/o DSM". The values are calculated using the formula: Col. (2) = Col. (3) + Col. (4) + Col. (5).

Col. (3) & Col. (4) are DSM values starting in January 1988 and are annual (12-month) values. Col. (3) and Col. (4) for 2013 are "estimated actuals" and are also annual (12-month) values. The values represent the total GWh reductions experienced each year .

Col. (5) is the actual Net Energy for Load (NEL) for years 2003 - 2013.

Col. (8) is the Total Retail Billed Sales. The values are calculated using the formula: Col. (8) = Col. (5) - Col. (6) - Col. (7). These values are at the meter.

Col. (9) is calculated using Col. (5) from this page and Col. (2), "Total", from Schedule 3.1 using the formula: Col. (9) = ((Col. (5)*1000) / ((Col. (2) * 8760) Adjustments are made for leap years.

Schedule 3.3
Forecast of Annual Net Energy for Load (GWh)
(All values are "at the generator"values except for Col (8))

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Forecasted Net Energy For Load without DSM GWh	Residential Conservation GWh	C/I Conservation GWh	Net Energy For Load Adjusted for DSM GWh	Sales for Resale GWh	Utility Use & Losses GWh	Forecasted Total Billed Retail Energy Sales w/o DSM GWh	Load Factor(%)
2014	118,001	91	53	117,858	4,907	6,662	106,432	59.2%
2015	121,606	142	80	121,383	5,654	6,703	109,248	59.4%
2016	123,943	144	81	123,718	5,706	6,775	111,463	59.3%
2017	124,914	147	81	124,686	5,419	6,811	112,684	58.9%
2018	126,399	150	81	126,168	5,440	6,896	114,063	58.8%
2019	127,673	155	80	127,438	5,496	6,959	115,218	58.5%
2020	129,187	159	81	128,948	5,559	7,035	116,593	58.3%
2021	129,454	164	82	129,208	5,133	7,018	117,303	58.1%
2022	130,517	170	82	130,264	4,846	7,124	118,548	57.5%
2023	132,357	179	83	132,095	4,908	7,239	120,210	57.0%

Projected Values (2014 - 2023):

Col. (2) represents Forecasted Net Energy for Load and does not include incremental DSM from 2013 - on. The Col. (2) values are extracted from Schedule 2.3, Col(19). The effects of conservation implemented prior to September 2012 are incorporated into the load forecast values in Col. (2).

Col. (3) & Col. (4) are forecasted values of the reduction on sales from incremental conservation from Jan 2014 - on and are mid-year (6-month) values reflecting DSM signups occurring evenly thoughout each year.

Col. (5) is the forecasted Net Energy for Load (NEL) after adjusting for impacts of incremental DSM for years 2014 - 2023 using the formula: Col. (5) = Col. (2) - Col. (3) - Col. (4)

Col. (8) is the Total Retail Billed Sales. The values are calculated using the formula: Col. (8) = Col. (2) - Col. (6) - Col. (7). These values are at the meter.

Col. (9) is calculated using Col. (2) from this page and Col. (2), "Total", from Schedule 3.1. Col. (9) = ((Col. (2)*1000) / ((Col. (2) * 8760) Adjustments are made for leap years.

Schedule 4
Previous Year Actual and Two-Year Forecast of
Retail Peak Demand and Net Energy for Load (NEL) by Month

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	2013 Actual		2014 FORECAST		2015 FORECAST	
Month	Total Peak Demand MW	NEL GWh	Total Peak Demand MW	NEL GWh	Total Peak Demand MW	NEL GWh
JAN	15,135	8,089	19,875	8,719	20,971	9,093
FEB	15,627	7,468	17,441	7,781	18,050	8,126
MAR	15,931	7,936	17,273	8,753	17,875	9,103
APR	18,419	8,967	18,149	9,047	18,782	9,386
MAY	19,579	9,494	20,331	10,369	21,040	10,701
JUN	21,147	10,460	21,852	10,865	22,416	11,127
JUL	20,261	10,649	22,413	11,625	22,991	11,884
AUG	21,576	11,392	22,768	11,840	23,356	12,096
SEP	20,297	10,229	21,959	10,997	22,525	11,256
OCT	19,313	9,969	20,458	10,354	20,986	10,617
NOV	18,028	8,506	17,994	8,686	18,458	8,960
DEC	16,161	8,497	17,563	8,965	18,016	9,257
Annual Values:		**111,655**		**118,001**		**121,606**

Col. (3) annual value shown is consistent with value shown in Col.(5) of Schedule 3.3.

Cols. (4) - (7) do not include the impacts of cumulative load management, incremental conservation, and incremental load management.

Cols. (5) and Col. (7) annual values shown are consistent with values shown in Col.(2) of Schedule 3.3.

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CHAPTER III

Projection of Incremental Resource Additions

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III. Projection of Incremental Resource Additions

III.A FPL's Resource Planning:

FPL utilizes its well established integrated resource planning (IRP) process in whole or in part as analysis needs are warranted, to determine when new resources are needed, what the magnitude of the needed resources are, and what type of resources should be added. The timing and type of new power plants, the primary subjects of this document, are determined as part of the IRP process work.

This section describes FPL's basic IRP process. Some of the key assumptions, in addition to a new load forecast, that were used in developing the resource plan presented in this Site Plan are also discussed.

Four Fundamental Steps of FPL's Resource Planning:

There are 4 fundamental steps to FPL's resource planning. These steps can be generally described as follows:

Step 1: Determine the magnitude and timing of FPL's new resource needs;

Step 2: Identify which resource options and resource plans can meet the determined magnitude and timing of FPL's resource needs (i.e., identify competing options and resource plans);

Step 3: Evaluate the competing options and resource plans in regard to system economics and non-economic factors; and,

Step 4: Select a resource plan and commit, as needed, to near-term options.

Figure III.A.1 graphically outlines the 4 steps.

Overview of FPL's IRP Process

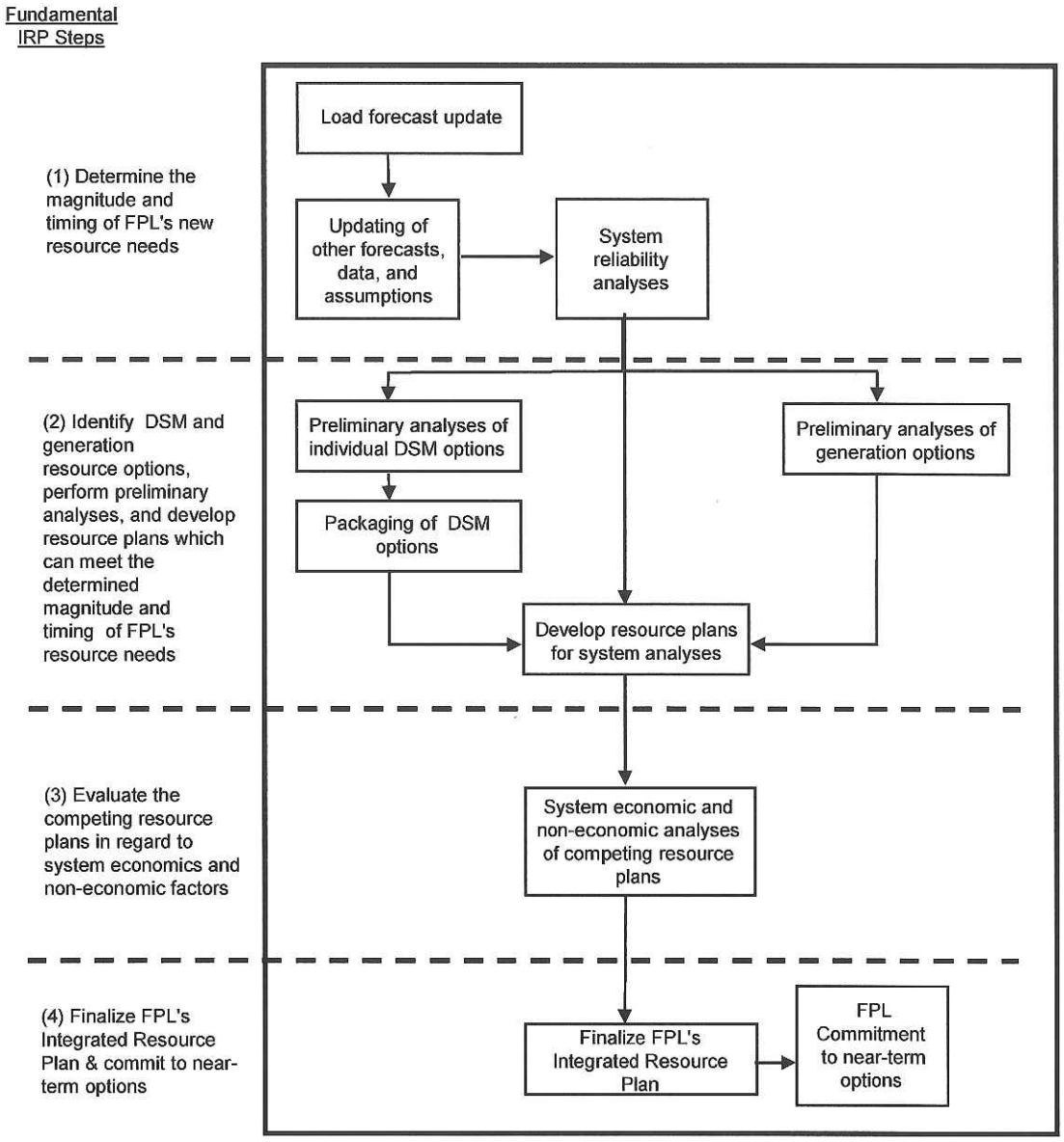

Figure III.A.1: Overview of FPL's IRP Process

Step 1: Determine the Magnitude and Timing of FPL's New Resource Needs:

The first of the four resource planning steps, determining the magnitude and timing of FPL's resource needs, is essentially a determination of the amount of capacity or megawatts (MW) of load reduction, new capacity additions, or a combination of both load reduction and new capacity additions that are needed to maintain system reliability. Also determined in this step is when the MW additions are needed to meet FPL's reliability criteria. This step is often referred to as a reliability assessment, or resource adequacy, analysis for the utility system.

Step 1 typically starts with an updated load forecast. Several databases are also updated in this first fundamental step, not only with the new information regarding forecasted loads, but also with other information that is used in many of the fundamental steps in resource planning. Examples of this new information include, but are not limited to: delivered fuel price projections, current financial and economic assumptions, and power plant capability and operating assumptions. FPL also includes key sets of assumptions regarding three specific types of resources: (1) FPL unit capacity changes, (2) firm capacity power purchases, and (3) demand side management (DSM) implementation.

Key Assumptions Regarding the Three Types of Resources:

The first set of assumptions, FPL unit capacity changes, is based on the current projection of new generating capacity additions and planned retirements of existing generating units. In FPL's 2014 Site Plan, there are five such projected capacity changes. These are listed below in chronological order:

1) Planned retirement of existing Putnam Units 1 & 2:
   Analyses conducted during 2013 and early 2014 showed that it would be cost-effective to retire the two existing units, Putnam Units 1 & 2, and replace the capacity with new combined cycle (CC) capacity at a later date and at a site to be determined. The new CC capacity would have a significantly better heat rate, thus reducing FPL's system fuel usage and system emissions. Consequently, FPL currently projects that the two existing units will be retired by the end of 2014.

2) CT upgrades at existing CC plant sites:
   In the fourth quarter of 2011, FPL started upgrading the 7FA combustion turbines (CT) that are components at a number of its existing CC units. These upgrades will economically benefit FPL's customers by increasing the MW output of these CC units by approximately 209 MW (Summer peak value) in total. As reflected in Schedule 1 in Chapter I, 133 MW of the increased capacity from these CT upgrades is already in

service. The work for the remaining upgrades is continuing and the project is projected to be completed in 2015.

3) Modernization of the Port Everglades plant site:

The work to modernize the existing Port Everglades site by adding new combined cycle (CC) capacity continues. The new generating unit, called the Port Everglades Next Generation Clean Energy Center (PEEC), is projected to be in-service in mid-2016 and is projected to have a peak Summer output of 1,237 MW. The FPSC issued the final need order for this modernization project in April 2012 in Order No. PSC-12-0187-FOF-EI. The site certification order for the project, DOAH Case No. 12-0422EPP, was received for the Port Everglades project in October 2012. (Note that a similar modernization of the FPL's existing Riviera Beach plant site is scheduled to be completed on/near the April 1, 2014 filing date of this 2014 Site Plan.)

4) Retirement of existing gas turbines (GTs) in Broward County and partial capacity replacement with new combustion turbines (CTs) at FPL's Lauderdale plant site:

Due to new nitrogen dioxide (NO_2) environmental regulations, FPL filed in June 2013 for FPSC approval to recover costs for removing all of its existing GTs and replacing a portion of the GT capacity with new CTs. In December 2013, FPL withdrew this request pending additional environmental monitoring and analyses. Computer modeling of the emissions from the GTs projected that the GTs would exceed the new NO_2 limit. FPL believes this monitoring and analyses will confirm that the operation of its existing GTs in Broward County will not comply with the new NO_2 regulations. Therefore, for planning purposes, FPL has assumed that all of its existing Broward County GTs will be removed (a loss of 1,260 MW Summer) and that this capacity will be partially replaced by 5 new CTs that would be sited in Broward County (an increase of 1,005 MW Summer). This GT removal and CT partial replacement is assumed to occur by the end of 2018.

5) Turkey Point Nuclear Units 6 & 7:

FPL is continuing its work to obtain all of the licenses, permits, and approvals that will be necessary to construct and operate two new nuclear units at its Turkey Point site. These licenses, permits, and approvals will provide FPL with the opportunity to construct these nuclear units at Turkey Point for a time expected to be up to 20 years from the time the licenses and permits are granted, and then to operate the units for at least 40 years thereafter. FPL received need determination approval from the FPSC for the two nuclear units in April 2008 in Order No. PSC-08-0237-FOF-EI. The earliest deployment dates for these two new units, Turkey Point Units 6 & 7, remain 2022 and 2023, respectively. Each new nuclear unit is projected to have a peak Summer output of 1,100 MW.

Also in regard to FPL unit capacity changes, as part of FPL's planned acquisition of Vero Beach's electric utility system, FPL is projected to take ownership of Vero Beach's five existing generating units starting January 2015. The current plan, based on the units' poor economics, is to immediately retire three of these older generating units and operate the remaining two, which supply approximately 46 MW (Summer) of combined cycle capacity, for a maximum of three years.

The second set of assumptions involves firm capacity power purchases. FPL's current projection of firm capacity purchases has changed from the projection in the 2013 Site Plan in regard to only two purchases. As part of the projected agreement that FPL will begin serving Vero Beach's electrical needs beginning in January 2015, FPL has acquired two existing power purchase agreements totaling approximately 37 MW of coal-fired capacity. These agreements are now projected to run through the end of 2017 instead of 2016 as projected in FPL's 2013 Site Plan. In addition, FPL now projects that Internal Revenue Service (IRS) regulations regarding the amount of energy that FPL can receive under its purchase agreement with Jacksonville Electric Authority (JEA) for St. Johns Regional Power Park (SJRPP)-based capacity and energy will not result in the suspension of the delivery of capacity and energy receipts to FPL until April 2019. [4]

None of the other purchase projections has changed from those in the 2013 Site Plan. FPL's current projection includes an additional 70 MW from the Palm Beach Solid Waste Authority (SWA) starting in year 2015. In addition, FPL projects that it will begin receiving a total of 180 MW of firm capacity in 2021 from biomass-based power purchase agreements with EcoGen.

In total, the projected firm capacity purchases are from a combination of utility and independent power producers. Details, including the annual total capacity values for these purchases, are presented in Chapter I in Tables I.B.1 and I.B.2. These purchased capacity amounts were incorporated in FPL's resource planning work.

The third set of assumptions involves a projection of the amount of additional DSM that is anticipated to be implemented annually over the ten-year period. A key aspect of FPL's IRP process is the evaluation of DSM resources. Since 1994, FPL's resource planning work has assumed that, at a minimum, the DSM MW called for in FPL's FPSC-approved DSM Plan will be achieved. In 2014, FPL is required to propose new DSM Goals for the 2015 through 2024 time period. Those proposed goals will be filed with the FPSC on April 2, 2014; i.e., one day after this 2014 Site Plan is filed with the FPSC. FPL's filing to support its proposed DSM goals provides extensive detail regarding how DSM resources were evaluated in FPL's most current IRP planning

[4] FPL's projected suspension date for the SJRPP purchase is based on a system reliability perspective and represents the earliest projected date at which the suspension of capacity and energy could occur.

analyses. The DSM assumptions presented in this 2014 Site Plan, and which are assumed in the analyses whose results are reflected in the Site Plan, are consistent with FPL's proposed goals. The FPSC is expected to make a decision regarding FPL's 2015 – 2024 DSM Goals later in 2014.

The Three Reliability Criteria Used to Determine FPL's Projected Resource Needs:

These key assumptions, plus the other updated information described above, are then applied in the first fundamental step: the determination of the magnitude and the timing of FPL's future resource needs. This determination is accomplished by system reliability analyses which for FPL have traditionally been based on dual planning criteria of a minimum peak period reserve margin of 20% (FPL applies this to both Summer and Winter peaks) and a maximum loss-of-load probability (LOLP) of 0.1 day per year. Both of these criteria are commonly used throughout the utility industry. Beginning this year, FPL is also using a third reliability criterion: a 10% generation-only reserve margin (GRM) criterion.

Historically, two types of methodologies, deterministic and probabilistic, have been utilized in system reliability analysis. The calculation of excess firm capacity at the annual system peaks (reserve margin) is the most common method, and this relatively simple deterministic calculation can be performed on a spreadsheet. It provides an indication of the adequacy of a generating system's capacity resources compared to its load during peak periods. However, deterministic methods do not take into account probabilistic-related elements such as the impact of individual unit failures. For example: two 50 MW units which can be counted on to run 90% of the time are more valuable in regard to utility system reliability than is one 100 MW unit which can also be counted on to run 90% of the time. Probabilistic methods also recognize the value of being part of an interconnected system with access to multiple capacity sources.

For this reason, probabilistic methodologies have been used to provide an additional perspective on the reliability of a generating system. There are a number of probabilistic methods that are being used to perform system reliability analyses. Among the most widely used is loss-of-load probability (LOLP) which FPL utilizes. Simply stated, LOLP is an index of how well a generating system may be able to meet its firm demand (i.e., a measure of how often load may exceed available resources). In contrast to reserve margin, the calculation of LOLP looks at the daily peak demands for each year, while taking into consideration such probabilistic events as the unavailability of individual generators due to scheduled maintenance or forced outages.

LOLP is expressed in terms of the projected probability that a utility will be unable to meet its entire firm load at some point during a year. The probability of not being able to meet the entire firm load is calculated for each day of the year using the daily peak hourly load. These daily probabilities are then summed to develop an annual probability value. This annual probability

value is commonly expressed as "the number of days per year" that the entire system firm load could not be met. FPL's standard for LOLP, commonly accepted throughout the industry, is a maximum of 0.1 day per year. This analysis requires a more complicated calculation methodology than does the reserve margin analysis. LOLP analyses are typically carried out using computer software models such as the Tie Line Assistance and Generation Reliability (TIGER) program used by FPL.

FPL's recent integrated resource planning work has resulted in FPL's resource plans showing a significant shift in the mix of generation and DSM resources over the next 10 years in regard to the relative contribution of these resources to system reliability. In order to gauge the extent of this shift and its potential implications for FPL's system reliability, FPL developed a new metric: a generation-only reserve margin (GRM). This GRM metric reflects reserves that would be provided only by actual generating resources. The GRM value is calculated by setting to zero all incremental energy efficiency (EE) and load management (LM), plus all existing LM, in a reserve margin calculation. The resulting GRM value provides an indication of how large a role generation is projected to play in each year as FPL maintains its 20% Summer and Winter "total" reserve margins (which account for both generation and DSM resources).

FPL has been reporting the GRM metric in its Site Plans since 2011 when it presented projections of its Summer GRM for the years 2011-2020. The 2011 projection showed a steady decrease in GRM values from a "balanced" 11.5% in 2011 to much reduced 7.2% by 2020. In its 2012 Site Plan, FPL's projected GRM values steadily decreased over the 10-year period from 16.2% in 2012 to 5.5% in 2021. The projected pattern in the 2013 Site Plan was similar: a steady decrease from 16.3% in 2013 to 6.9% in 2021. (The projected GRM value for 2022 presented in the 2013 Site Plan increased to 8.9% due to the planned addition of the new Turkey Point 6 nuclear unit in 2022.) Thus FPL's resource planning projections over the last 3 years have each shown a general downwards trend in projected GRM in the latter portion of this decade. This indicates increasing reliance on DSM resources, particularly EE resource additions, and decreasing reliance on generation resources, to maintain system reliability. As a result, FPL has analyzed what impact(s) this trend could have on system reliability. Two types of evaluations were conducted. One of these evaluations is from the perspective of FPL's system operators who are responsible for operating the bulk electric system. The other evaluation is from a resource planning perspective.

The first evaluation examined what impact an increasing reliance on EE resource additions was projected to have on the amount and type of reserves that operators would have at their disposal to meet load on a system peak hour. FPL first used a "looking back" perspective at a recent actual peak load day of January 11, 2010 to see how the system actually operated. Then, assuming a "what if" situation in which the system was assumed to have been designed to have an identical

total reserve margin, but higher and lower GRM respectively, FPL analyzed what the impact would have been on FPL's ability to serve its customers on that peak day with these alternative assumed systems.

FPL also performed analyses taking a "looking forward" perspective at the projected year of 2021. Three scenarios were analyzed: (i) the system with its projected GRM and total reserve margin values consistent with the 2013 Site Plan; (ii) a system with an identical total reserve margin, but a higher GRM; and (iii) a system with an identical total reserve margin, but a lower GRM. Recognizing that the impacts from EE resource additions will already have been accounted for in the peak load that system operators must react to on an actual peak day, the analyses assumed an adverse peak day situation which consisted of significantly higher load and significantly less available generation than projected. The results from both the "looking back" and "looking forward" analyses were similar. For resource plans with identical total reserve margins, but different GRM levels, system operators were projected to have significantly higher levels (MW) of reserves, either generation and/or load management reserves, available on the peak days with a resource plan that had a higher GRM level than with a resource plan that had a lower GRM level. Thus a resource plan with a higher GRM, compared with a lower GRM, results in better system reliability for customers due to a greater likelihood of meeting customers' firm demand on peak load days, despite unexpected conditions or events. Better system reliability to customers translates to a reduced risk of shedding firm load.

The second evaluation was from the resource planning perspective of loss-of-load-probability (LOLP). For this evaluation, FPL also analyzed resource plans with identical total reserve margins, but higher and lower GRM levels. The results of these analyses for the FPL system showed that a resource plan with a higher GRM resulted in a projection of lower LOLP values than a resource plan with a lower GRM.

Based on these operational and resource planning evaluations, FPL has concluded that resource plans for its system with identical total reserve margins, but different GRM values, are not equal in regard to system reliability. A resource plan with a higher GRM value is projected to result in more MW being available to system operators on adverse peak load days, and in lower LOLP values, than a resource plan with a lower GRM value, even though both resource plans have an identical total reserve margin. Therefore, FPL has applied a minimum GRM criterion as a third reliability criterion in its resource planning process.

Based on the expertise and experience of FPL's system operators regarding the amount of generation MW needed for reliable operations, the GRM criterion is set at a minimum of 10% for Summer and Winter. From an operational perspective, FPL believes it is necessary to have

approximately 2,650 MW of generation reserves. These reserves will allow FPL to address a variety of operational considerations including: (i) unplanned generation unavailability; (ii) the deployment of real-time operating reserves to meet its 15-minute obligations as part of the Florida Reserve Sharing Group; (iii) the requirement pursuant to NERC Reliability Standards to replace with other resources within 30 minutes following the unplanned loss of a large generation unit; and (iv) higher-than-forecasted loads. The sum of the operational reserves to cover for these requirements and considerations is approximately 2,650 MW. This MW value is consistent with a 10% GRM for the foreseeable future. FPL is planning its system so that the minimum 10% GRM criterion is met beginning in the Summer of 2019.

The 10% minimum Summer and Winter GRM criterion augments the two existing reliability criteria used by FPL: a 20% total reserve margin criterion for Summer and Winter, and a 0.1 day/year LOLP criterion. The total reserve margin and LOLP criteria continue to identify the timing and magnitude of FPL's future resource needs. The GRM criterion provides direction regarding the mix of generation and DSM resources that should be added to maintain and enhance FPL's system reliability.

Step 2: Identify Resource Options and Plans That Can Meet the Determined Magnitude and Timing of FPL's Resource Needs:

The initial activities associated with this second fundamental step of resource planning generally proceed concurrently with the activities associated with Step 1. During Step 2, preliminary economic screening analyses of new capacity options that are identical, or virtually identical, in regard to certain key characteristics may be conducted to determine which new capacity options appear to be the most competitive on FPL's system. This preliminary analysis work can also help identify capacity size (MW) values, projected construction/permitting schedules, and operating parameters and costs. Similarly, preliminary economic screening analyses of new DSM options and/or evaluation of existing DSM options are often conducted in this second fundamental IRP step.

FPL typically utilizes the P-MArea production cost model and a Fixed Cost Spreadsheet, and/or an optimization models and spreadsheet analyses, to perform the preliminary economic screening of generation resource options. For the preliminary economic screening analyses of DSM resource options, FPL typically uses its DSM CPF model which is an FPL spreadsheet model utilizing the FPSC's approved methodology for performing preliminary economic screening of individual DSM measures and programs. In addition, a years-to-payback screening test based on a two-year criterion is also used in the preliminary economic screening of individual DSM measures and programs. Then, as the focus of DSM analyses progresses from analysis of individual DSM

measures to the development of DSM portfolios, FPL uses two additional models. One of these models is FPL's non-linear programming model that is used for analyzing the potential for lowering system peak loads through additional load management/demand response capability. The other model that FPL typically utilizes is its linear programming model with which FPL develops DSM portfolios.

The individual new resource options, both Supply options and DSM portfolios, emerging from these preliminary economic screening analyses are then typically "packaged" into different resource plans which are designed to meet the system reliability criteria. In other words, resource plans are created by combining individual resource options so that the timing and magnitude of FPL's projected new resource needs are met. The creation of these competing resource plans is typically carried out using spreadsheet and/or dynamic programming techniques.

At the conclusion of the second fundamental resource planning step, a number of different combinations of new resource options (i.e., resource plans) of a magnitude and timing necessary to meet FPL's resource needs are identified.

Step 3: Evaluate the Competing Options and Resource Plans in Regard to System Economics and Non-Economic Factors:

At the completion of fundamental steps 1 & 2, the most viable new resource options have been identified, and these resource options have been combined into a number of resource plans which meet the magnitude and timing of FPL's resource needs. The stage is set for evaluating these resource options and resource plans in system economic analyses that aim to account for all of the impacts to the FPL system from the competing resource options/resource plans. In FPL's 2013 and early 2014 resource planning work, once the resource plans were developed, FPL utilized the P-MArea production cost model and a Fixed Cost Spreadsheet, and/or the Strategist model, to perform the system economic analyses. Other spreadsheet models may also be used to further analyze the resource plans.

The basic economic analyses of the competing resource plans focus on total system economics. The standard basis for comparing the economics of competing resource plans is their relative impact on FPL's electricity rate levels, with the objective generally being to minimize FPL's projected levelized system average electric rate (i.e., a Rate Impact Measure or RIM methodology). In analyses in which the DSM contribution has already been determined through the same IRP process and FPSC approval, and therefore the only competing options were new generating units and/or purchase options, comparisons of competing resource plans' impacts on electricity rates and on system revenue requirements will yield identical outcomes in regard to the

relative rankings of the resource options being evaluated. Consequently, the competing options and resource plans in such cases can be evaluated on a system cumulative present value revenue requirement (CPVRR) basis.

Other factors are also included in FPL's evaluation of resource options and resource plans. While these factors may have an economic component or impact, they are often discussed in quantitative, but non-economic, terms such as percentages, tons, etc. rather than in terms of dollars. These factors are often referred to by FPL as "system concerns" that include (but are not limited to) maintaining/enhancing fuel diversity in the FPL system, system emission levels, and maintaining a regional balance between load and generating capacity, particularly in the Southeastern Florida counties of Miami-Dade and Broward. In conducting the evaluations needed to determine which resource options and resource plans are best for FPL's system, the non-economic evaluations are conducted with an eye to whether the system concern is positively or negatively impacted by a given resource option or resource plan. These, and other, factors are discussed later in this chapter in section III.C.

Step 4: Finalizing FPL's Current Resource Plan

The results of the previous three fundamental steps are typically used to develop FPL's current resource plan. The current resource plan is presented in the following section.

III.B Projected Incremental Resource Additions/Changes in the Resource Plan

FPL's projected incremental generation capacity additions/changes for 2014 through 2023 are depicted in Table III.B.1. These capacity additions/changes include the 5 generation additions/changes previously discussed. The table shows three more generation changes: a CC unit being added in 2019, a short-term PPA of 129 MW being added in 2020, and a short-term PPA of 168 MW being added in 2021. The CC unit is added in 2019 to meet the Summer total reserve margin criterion and the two PPAs are added in 2020 and 2021 to meet the GRM criterion.

Although FPL's projected DSM additions that are developed in the IRP process are not explicitly presented in this table, these DSM additions have been fully accounted for in all of FPL's resource planning work reflected in this document. The projected MW reductions from these DSM additions are also reflected in the projected total reserve margin values shown in the table below and in Schedules 7.1 and 7.2 presented later in this chapter. DSM is further addressed later in this chapter in section III.D.

III.C Discussion of the Projected Resource Plan and Issues Impacting FPL's Resource Planning Work

As indicated in the Executive Summary, FPL's resource planning efforts in 2013 and early 2014 were influenced by a number of factors. These factors are expected to continue to influence FPL's resource planning work for the foreseeable future. In addition, other factors may also influence FPL's on-going resource planning work in the future and may result in changes to the resource plan discussed in this document. Eight (8) of these factors are discussed below (in no particular order of importance).

1) Maintaining/enhancing fuel diversity in the FPL system;
2) Maintaining a balance between load and generating capacity in Southeastern Florida, particularly in Miami-Dade and Broward Counties;
3) Updated projections of Federal and state energy efficiency codes and standards;
4) Decline in the projected cost-effectiveness of utility DSM measures and programs;
5) FPL's growing dependence upon DSM resources to maintain system reliability;
6) The schedule for the new Turkey Point Nuclear Units 6 & 7;
7) Environmental regulation and/or legislation; and,
8) Possible establishment of a Florida standard for renewable energy or clean energy.

These 8 factors, and their various impacts on FPL's resource planning efforts including the current resource plan that is presented in this Site Plan, are briefly discussed below.

1. **Maintaining/Enhancing System Fuel Diversity:**

   FPL currently uses natural gas to generate approximately 2/3 of the total electricity it delivers to its customers. In the future, the percentage of FPL's electricity that is generated by natural gas is projected to remain at a high level. For this reason, and due to evolving environmental regulations, FPL is continually seeking opportunities to economically maintain and enhance the fuel diversity of its system.

   In 2007, following express direction by the FPSC to do so, FPL sought approval from the FPSC to add two new advanced technology coal units to its system. These two new units would have been placed in-service in 2013 and 2014. However, in part due to concerns over potential greenhouse gas emission legislation/regulation, FPL was unable to obtain approval for these units. Several other factors are currently unfavorable to new coal units compared to new CC units. The first of these factors is a significant reduction in the fuel cost difference between coal and natural gas compared to the fuel cost difference projected in 2007 that

favored coal; i.e., the projected fuel cost advantage of coal versus natural gas has been significantly reduced. Second is the continuation of significantly higher capital costs for coal units compared to capital costs for CC units. Third is the increased fuel efficiency of new CC units compared to projected CC unit efficiencies in 2007. Fourth are existing and proposed environmental regulations, including those that address greenhouse gas emissions, that are unfavorable to new coal units when compared to new CC units. Consequently, FPL does not believe that new advanced technology coal units are currently economically, politically, or environmentally viable fuel diversity enhancement options in Florida.

Therefore, FPL has turned its attention to nuclear energy and renewable energy to enhance its fuel diversity, to diversifying the sources of natural gas, to diversifying the gas transportation paths used to deliver natural gas to FPL's generating units, and to using natural gas more efficiently. In regard to nuclear energy, in 2008 the FPSC approved the need to increase capacity at FPL's four existing nuclear units and authorized FPL to recover project-related expenditures that are approved as a result of annual nuclear cost recovery filings. FPL has now successfully completed the nuclear capacity uprate project. Approximately 520 MW of additional nuclear capacity were delivered by the project which represents an increase of approximately 30% more capacity than was originally forecasted when the project began. FPL's customers are already benefitting from lower fuel costs and reduced system emissions provided by this additional nuclear capacity.

FPL is continuing its work to obtain all of the licenses, permits, and approvals that would be necessary to construct and operate two new nuclear units at its Turkey Point site in the future. These licenses, permits, and approvals will provide FPL with the opportunity to construct these nuclear units at Turkey Point for a time expected to be up to 20 years from the time the licenses and permits are granted, and then to operate the units for at least 40 years thereafter. The earliest deployment dates for the two new nuclear units, Turkey Point Units 6 & 7, remain 2022 and 2023, respectively.

FPL also has been involved in activities to investigate adding or maintaining renewable resources as a part of its generation supply. One of these activities is a variety of discussions with the owners of existing facilities aimed at maintaining or extending current agreements. In addition, FPL considers new cost-effective renewable energy projects such as the power purchase agreements with EcoGen that will result in FPL receiving 180 MW of firm capacity from biomass facilities beginning in 2021.

FPL also sought and received approval from the FPSC in 2008 to add 110 MW through three new FPL-owned solar facilities: one solar thermal facility and two photovoltaic (PV) facilities.

One 25 MW PV facility began commercial operation in 2009. The remaining two solar facilities, a 10 MW PV facility and a 75 MW solar thermal steam generating facility, began commercial operation in 2010. The addition of these renewable energy facilities was made possible due to enabling legislation from the Florida Legislature in 2008. FPL remains strongly supportive of federal and/or state legislation that enables electric utilities to add renewable energy resources and authorize the utilities to recover appropriate costs for these resources. FPL is planning to introduce two new PV-based solar programs in 2014. These are discussed further in section III.F.4 of this chapter.

In regard to using natural gas more efficiently, FPL received approvals in 2008 from the FPSC to modernize the existing Cape Canaveral and Riviera Beach plant sites with new, highly efficient CC units that replace the former steam generating units on each of those sites. The Cape Canaveral modernization was commissioned on April 24, 2013 and the Riviera Beach modernization is projected to go in-service on/near the April 1, 2014 date this 2014 Site Plan is filed with the FPSC. On April 9th, 2012, FPL received FPSC approval to proceed with a similar modernization project at the Port Everglades site which is scheduled for completion in mid-2016. The modernization of the Port Everglades site will retain the capability of receiving water-borne delivery of oil as a backup fuel.

In regard to diversity in natural gas sourcing and delivery, in 2013 FPL was granted approval from the FPSC to build a new 3rd natural gas pipeline into Florida and FPL's service territory. The process to obtain approval for the new pipeline from the Federal Energy Regulatory Commission (FERC) is underway. The new pipeline will utilize a new route that will result in a more reliable, more economic, and more diverse natural gas supply for FPL's customers and the state of Florida.

In the future, FPL will continue to identify and evaluate alternatives that may maintain or enhance system fuel diversity. In this regard, FPL is maintaining the ability to utilize fuel oil at existing units that have that capability. For this purpose, FPL has installed electrostatic precipitators (ESPs) at its two 800 MW steam generating units at the Manatee site and at one of its two 800 MW steam generating units at the Martin site. FPL is in the process of installing ESPs on its remaining 800 MW steam generating unit at the Martin site. These installations will enable FPL to retain the ability to burn oil, as needed, at these sites while retaining the flexibility to use natural gas when economically attractive.

2. **Maintaining a Balance Between Load and Generation in Southeastern Florida:**
An imbalance has existed between regionally installed generation and regional peak load in Southeastern Florida. As a result of that imbalance, a significant amount of energy required in

the Southeastern Florida region during peak periods is provided by operating less efficient generating units located in Southeastern Florida out of economic dispatch, by importing the energy through the transmission system from plants located outside the region, or by a combination of the two. FPL's prior planning work concluded that, as load inside the region grows, either additional installed generating capacity in this region, or additional installed transmission capacity capable of delivering more electricity from outside the region, would be required to address this imbalance.

Partly because of the lower transmission-related costs resulting from their location, four recent capacity addition decisions (Turkey Point Unit 5 and WCEC Units 1, 2, & 3) were determined to be the most cost-effective options to meet FPL's capacity needs in the near-term. In addition, FPL has added increased capacity at FPL's existing two nuclear units at Turkey Point as part of the previously mentioned nuclear capacity uprates project. The Port Everglades modernization project scheduled for completion in 2016 will also assist in addressing this imbalance. Adding the additional generation capacity through the projects mentioned above contributes to addressing the imbalance between generation, transmission capacity, and load in Southeastern Florida for approximately the remainder of this decade.

The planned addition of two new nuclear units at FPL's Turkey Point site, Turkey Point Unit 6 in 2022 and Turkey Point Unit 7 in 2023, will also address the imbalance issue for an additional period of time beginning in the next decade. Due to forecasted steadily increasing load in the Southeastern region, the Southeastern Florida imbalance issue will remain an important consideration in FPL's on-going resource planning work in future years.

3. **Projections of Federal and State Energy Efficiency Codes and Standards:**
As discussed in Chapter II, FPL's load forecast includes projected impacts from federal and state energy efficiency codes and standards. The magnitude of energy efficiency that is now projected to be delivered to FPL's customers through these codes and standards is significant.

In FPL's 2013 Site Plan, the projected cumulative Summer peak impact for the year 2022 from the codes and standards since 2005 was 2,898 MW compared to what the projected load would have been without the codes and standards. The current projection of cumulative Summer peak impact for the year 2023 from the codes and standards since 2005 is 3,477 MW.

In addition to lowering FPL's load forecast from what it otherwise would have been, and thus serving to lower FPL's projected resource needs, this projection of efficiency from the codes and standards also affects FPL's resource planning in another way. The projected impacts

from the efficiency codes and standards lower the potential for utility DSM programs to deliver energy efficiency for the appliances and equipment that are directly addressed by the codes and standards. This effect is taken into account in FPL's proposed DSM Goals for the 2015 – 2024 time period and it is one reason why FPL's resource plan shows a diminished role for utility DSM for the years addressed by this 2014 Site Plan.

4. **Decline in the Projected Cost-Effectiveness of Utility DSM Measures and Programs:** There is another important reason why FPL's resource plan currently shows a diminished role for utility DSM: a decline in the projected cost-effectiveness of utility DSM measures and programs. The supporting testimony that FPL is filing in the DSM Goals proceeding discusses in detail the reasons for the declining cost-effectiveness of DSM. One portion of that discussion is summarized here for illustrative purposes.

The cost-effectiveness of DSM is driven in large part by the potential benefits that the kw (demand) reduction and kwh (energy) reduction characteristics of DSM programs are projected to provide. This discussion focuses solely on the current projection of potential benefits that DSM's kwh reductions can provide. At least three factors are each resulting in projections of lower kwh reduction-based benefits and thus projections of lower DSM cost-effectiveness.

The first factor is lower fuel costs. For example, comparing current fuel cost forecasts with those forecasted in 2009 – the year when FPL's DSM Goals were last set by the FPSC – shows that current forecasted fuel costs are now much lower than those forecasted in 2009, particularly in the near-term. This can be seen by comparing the 2009 and current forecasted costs ($/mmBTU) for natural gas for two specific years addressed in this Site Plan and which were addressed in the 2009 DSM goals-setting: 2015 and 2019:

Year	2009 Forecast	Current Forecast
2015	$9.64	$4.26
2019	$12.63	$6.15

As shown from these values, natural gas prices are currently forecast to be less than 50% of what they were forecast to be in 2009 when DSM goals were last set. Although lower forecasted natural gas costs are a very good thing for FPL's customers, lower fuel costs also result in lower potential fuel savings benefits from the kWh reductions of DSM measures. These lowered benefit values result in DSM being less cost-effective.

A second factor contributing to the decline in the cost-effectiveness of utility DSM is the steadily increasing efficiency with which FPL generates electricity. FPL's generating system has steadily gotten more efficient in regard to its ability to generate electricity using less fossil fuel. For example, FPL used 20% less fossil fuel to generate the same number of kwh in 2012 than it did in 2001. This is a very good thing for FPL's customers because it helps to significantly lower fuel costs.

The improvements in generating system efficiency affect DSM cost-effectiveness in much the same way that lower forecasted fuel costs do: both lower the fuel costs of energy delivered to FPL's customers. Therefore, the improvements in generating system efficiency further reduce the potential fuel savings benefits from the kWh reduction impacts of DSM, thus lowering potential DSM benefits and DSM cost-effectiveness.

A third factor for declining cost-effectiveness of utility DSM is due to significant changes in projected carbon dioxide (CO_2) compliance costs. For example, comparing CO_2 compliance forecasts with those forecasted in 2009 – the year when FPL's DSM Goals were last set by the FPSC – shows that current forecasted compliance costs are much lower than those forecasted in 2009, particularly in the near-term. This can be seen by comparing the 2009 and current forecasted costs ($/ton) for two specific years addressed in this Site Plan and which were addressed in the 2009 DSM goals-setting: 2015 and 2019:

Year	2009 Forecast	Current Forecast
2015	$17.00	$0.00
2019	$25.00	$0.00

(FPL's current forecast does not project non-zero CO_2 compliance costs until the year 2023.) While lower forecasted CO_2 compliance costs are again a good thing for FPL's customers, lower compliance costs also result in lower compliance cost savings benefits from the kWh reductions of DSM measures. These lower potential DSM benefits again result in lowering DSM cost-effectiveness.

Each of these three factors discussed above – lower forecasted fuel costs, greater efficiency in FPL's electricity generation, and lower forecasted CO_2 compliance costs – are good for FPL's customers because they will result in lower electric rates. Although good for FPL's customers, these factors also contribute to lowering the cost-effectiveness of utility DSM programs. Therefore, these factors (and other factors not discussed above), plus the growing impacts of energy efficiency codes and standards, lead to FPL's resource plan showing a diminished role for utility DSM.

5. **FPL's Increasing Dependence On DSM Resources to Maintain System Reliability:**
As discussed earlier in section III.A of this chapter, FPL's 2011, 2012, and 2013 Site Plans each projected that FPL's system was becoming increasingly dependent upon DSM resources to maintain system reliability. FPL's analyses of this projected trend showed that, from an operational perspective, there can be significant differences between resources plans on the peak day even though the resource plans have identical total reserve margins. For this reason, FPL has begun using a 10% minimum generation-only reserve margin (GRM) in its resource planning work to complement its existing 20% total reserve margin and 0.1 day/year LOLP reliability criteria. FPL will begin applying the GRM criterion in the year 2019.

6. **The Schedule for the New Turkey Point Nuclear Units 6 & 7:**
At the time the 2014 Site Plan is being finalized, the schedule for the project is under review. Several items will be considered that potentially influence the project schedule, including the Nuclear Regulatory Commission's (NRC's) schedule for reviewing the Combined Operating License Application (COLA), the impacts of the recently amended nuclear cost recovery clause (NCRC) statute, and the ongoing feasibility analyses that are part of the NCRC process.

7. **Environmental Regulation and/or Legislation:**
The seventh factor is environmental regulation. As developments occur in regard to either new environmental regulations, and/or in how environmental regulations are interpreted and applied, the potential exists for such developments to affect FPL's resource plan that is presented in this document. For example, FPL is aware of potential impacts to generating units of recent EPA changes to the National Ambient Air Quality Standards that include shorter duration 1-hour standards for nitrogen dioxide (NO_2) and sulfur dioxide (SO_2). As a consequence, FPL filed in mid-2013 for FPSC approval to recover costs through the environmental cost recovery clause for removing all of its existing gas turbines (GTs) and partially replacing that peaking unit capacity with new combustion turbines (CTs). Although FPL withdrew its filing in December 2014 pending further analyses including on-site monitoring, FPL believes that the results of the monitoring and analyses will require that the Broward GTs be replaced. Therefore, FPL is currently projecting the retirement of all GTs in Broward County; i.e., at its existing Lauderdale and Port Everglades plant sites (a decrease in generating capacity of 1,260 MW Summer), and the installation of 5 new 201 MW CTs at its existing Lauderdale plant site (an increase of 1,005 MW Summer), both by the end of 2018.

8. **Possible establishment of a Florida standard for renewable energy or clean energy:** Although no such legislation has been enacted to-date, Renewable Portfolio Standards (RPS) or Clean Energy Portfolio Standard (CPS) legislation, or other legislative initiatives regarding renewable or clean energy contributions, may occur in the future at either the state or national level. If such legislation is enacted, FPL would then determine what steps need to be taken to address the legislation.

Each of these 8 factors will continue to be examined in FPL's on-going resource planning work during the rest of 2014 and in future years.

III.D Demand Side Management (DSM)

FPL has sought out and implemented cost-effective DSM programs since 1978 and DSM has been a key focus of FPL's IRP process for decades. During that time FPL's DSM programs have included numerous energy efficiency and load management initiatives. FPL's DSM efforts through 2013 have resulted in a cumulative Summer peak reduction of approximately 4,753 MW (Summer) at the generator and an estimated cumulative energy saving of approximately 66,782 Gigawatt Hour (GWh) at the generator. After accounting for the 20% total reserve margin requirement, FPL's DSM efforts through 2013 have eliminated the need to construct the equivalent of approximately 14 new 400 MW power plants.

FPL has consistently been among the leading utilities nationally in DSM achievement. For example, according to the U.S. Department of Energy's 2012 data (the last year for which the DOE data was available at the time this Site Plan is being developed), FPL ranked # 2 nationally in cumulative DSM demand reduction. And, importantly, FPL has achieved these significant DSM accomplishments while minimizing the DSM-based impact on electric rates for all of its customers.

In 2014, new DSM Goals for the years 2015 through 2024 will be set for FPL by the FPSC. As part of this goals-setting process, FPL must propose new DSM Goals for this time period based on its most recent resource planning analyses. The results of those analyses are reflected in this 2014 Site Plan and FPL is filing its proposed new DSM Goals on April 2, 2014 (i.e., one day after the 2014 Site Plan is filed). As discussed in the previous section of this chapter, two factors have influenced the analyses that led to the amount of DSM that FPL is proposing as its new DSM Goals: (i) increased energy efficiency that will be delivered to FPL's customers through Federal and state energy efficiency codes and standards; and (ii) a decline in the projected cost-effectiveness of DSM measures.

Based on these factors and FPL's most recent resource planning analyses, FPL is proposing that its DSM Goals be set at 337 MW of Summer MW reduction. After accounting for the 20% total

reserve margin requirements, this represents the elimination of the need to construct the equivalent of another 400 MW power plant. The resource plan presented in this 2014 Site Plan accounts for the proposed amount of annual DSM implementation through the year 2023 and the DSM contribution is shown in Schedules 7.1 and 7.2 that appear later in this chapter. The FPSC is expected to make its decision regarding what FPL's DSM Goals will be for 2015 through 2024 later this year.

III.E Transmission Plan

The transmission plan will allow for the reliable delivery of the required capacity and energy to FPL's retail and wholesale customers. The following table presents FPL's proposed future additions of 230 kV bulk transmission lines that must be certified under the Transmission Line Siting Act.

Table III.E.1: List of Proposed Power Lines

(1) Line Ownership	(2) Terminals (To)	(3) Terminals (From)	(4) Line Length CKT. Miles	(5) Commercial In-Service Date (Mo/Yr)	(6) Nominal Voltage (KV)	(7) Capacity (MVA)
FPL	St. Johns [1/]	Pringle	25	Dec – 18	230	759
FPL	Manatee [2/]	Bob White	30	Dec – 14	230	1195

1/ Final order certifying the corridor was issued on April 21, 2006. This project is to be completed in two phases. Phase I consisted of 4 miles of new 230 kV line (Pringle to Pellicer) and was completed in May-2009. Phase II consists of 21 miles of new 230 kV line (St. Johns to Pellicer) and is scheduled to be completed by Dec-2018.
2/ Final order certifying the corridor was issued on November 6, 2008. This project consists of 30 miles of new 230 kV line (Manatee to Bob White) and is scheduled to be completed by Dec-2014

In addition, there will be transmission facilities needed to connect several of FPL's projected generating capacity additions to the system transmission grid. These transmission facilities (described on the following pages) are for the Port Everglades modernization, the planned Lauderdale gas turbine replacements, and the planned new nuclear capacity addition at the Turkey Point site from Turkey Point Units 6 & 7.[5] Please see discussion in the Turkey Point Preferred Site section, subsection r, of the possibility of a transmission corridor/land swap between FPL and the National Park Service. At the time the 2014 Site Plan is being prepared, no

[5] Please see discussion in the Turkey Point Preferred Site section, subsection r of the possibility of a transmission corridor/land sway between FPL and National Park Service.

site has been selected for the planned addition of a CC unit in 2019. Therefore, no transmission information for this new unit is presented.

II.E.1 Transmission Facilities for Port Everglades Next Generation Clean Energy Center (Modernization)

The work required to connect the Port Everglades Next Generation Clean Energy Center in 2016 to the FPL grid is projected to be:

I. Substation:

1. Construct two string busses to connect two combustion turbines (CT) to the Port Everglades 138 kV Substation.
2. Construct two string busses to connect one CT, and one steam turbine (ST) to the Port Everglades 230 kV Substation.
3. Add four main step-up transformers (3-450 MVA, 1- 580 MVA), one for each CT, and one for the ST.
4. Replace ten (10) 138 kV breakers.
5. Replace eight (8) 230 kV breakers.
6. At Port Everglades Switchyard replace twenty-two 138 kV disconnect switches. Also upgrade associated jumpers, bus work, and equipment connections.
7. Expand switchyard relay vault and add relays and other protective equipment.

II. Transmission:

1. Upgrade of existing transmission facilities:
   - An ampacity upgrade up to 1905 amps on the Port Everglades-Port Everglades Tap 138kV line section.
   - An ampacity upgrade up to 1905 amps on the Port Everglades Tap-Port Everglades Tap 2 138 kV line section.
   - An ampacity upgrade up to 1695 amps on the Port Everglades Tap 1-Dania 138 kV line section.
   - An ampacity upgrade up to 1695 amps on the Dania-Hollywood 138 kV line section.

III.E.2 Transmission Facilities for the Lauderdale GT Replacement Project

The work required to connect the five Lauderdale combustion turbines (CT) in 2018 to the FPL grid is projected to be:

I. Substation:

1. Construct a collector switchyard for the five (5) CTs at Lauderdale Plant.
2. Install five (5) main step-up transformers (5 - 320 MVA), one for each CT.
3. Construct one 230 kV collector buss to connect two (2) CT step-up transformers to collector switchyard.
4. Construct one 138 kV collector buss to connect two (2) CT step-up transformers to collector switchyard.
5. Construct Cable Termination Structures (CTS) in the collector switchyard and the Lauderdale 138 kV Substation to connect the 138 kV collector buss for the two CTs to the Lauderdale 138 kV Substation Outside Bus.
6. Construct CTS in the collector switchyard and the Lauderdale 138 kV Substation to connect the fifth CT to the Lauderdale 138 kV Substation Inside Bus.
7. Add relays and other protective equipment.

II. Transmission:

1. Construct overhead 230 kV string bus to connect the 230 kV collector buss to the Lauderdale 230 kV Substation Inside Bus.
2. Construct two (2) underground 138 kV cables connecting the collector switchyard to the Lauderdale Substation Inside and Outside Busses.

III.E.3 Transmission Facilities for Turkey Point Nuclear Unit 6

The work required to connect the Turkey Point Nuclear Unit 6 by Summer 2022 to the FPL grid is projected to be:

I. Substation:

1. Build new Clear Sky 500/230kV Switchyard with six (6) bays on the 230 kV section for generator main step-up transformer connection, reserve auxiliary transformer connections, four (4) 230 kV line terminals, two (2) autotransformers and two (2) 500 kV line terminals.
2. At Turkey Point Switchyard add a new bay to accommodate the Turkey Point-Clear Sky 230 kV line terminal.
3. At Pennsuco Substation install a fourth line terminal to accommodate the Pennsuco-Clear Sky 230 kV line by converting the ring bus to a breaker and a half scheme and adding four (4) 230 kV breakers.
4. At Davis Substation construct two (2) new 230kV line terminals for the Clear Sky-Davis 230 kV line and the Davis-Miami 230 kV line.
5. At Levee Substation expand 500 kV section to accommodate the two (2) Levee-Clear Sky 500 kV lines.
6. At Andytown Substation install two (2) 5-Ohm inductors combined with external shunt capacitors on the 230kV side of the 500/230 autotransformers (one per auto).
7. At Miami Substation expand the 230kV section to a double bus configuration and add a new 230kV line terminal for Davis line and replace one (1) autotransformer.
8. Breaker replacements:
   Flagami Substation – Replace five (5) 230 kV breakers and three (3) 138 kV breakers
   Miami Substation – Replace one (1) 230 kV breaker and four (4) 138 kV breakers
   Davis Substation - Replace two (2) 230 kV breakers

II. Transmission:

1. FPL will design and construct two (2) 500kV transmission lines from the new Clear Sky Substation to the existing FPL Levee 500kV Substation switchyard. The lines will be approximately 43 miles long.
2. Construct a new Clear Sky-Davis 230kV line (approximately 19 miles) with a rating of 2990 Amperes.
3. Construct a new Clear Sky-Pennsuco 230kV line (approximately 52 miles) with a rating of 2990 Amperes.
4. Construct a new Davis-Miami 230kV line (approximately 18 miles) with a rating of 2297 Amperes.
5. Construct a new Clear Sky-Turkey Point 230kV line (approximately 0.5 miles) with a rating of 2990 Amperes.

III.E.4 Transmission Facilities for Turkey Point Nuclear Unit 7

The work required to connect the Turkey Point Nuclear Unit 7 by Summer 2023 to the FPL grid is projected to be:

I. Substation:

1. At Gratigny Substation install a second 230/138 kV autotransformer with one (1) 230 kV breaker and one (1) 138 kV breaker.
2. At Davis Substation construct a switch-able inductor to be installed on the Davis-Miami 230 kV line.
3. At Flagami Substation install a small inductor on one end of the Flagami-Miami 230kV #2 circuit.
4. Breaker replacements:
   Dade Substation - Replace seven (7) 230 kV breakers
   Court Substation – Replace one (1) 138 kV breaker.

II. Transmission:

1. The transmission line facilities required for Turkey Point Unit 7 will be constructed with the transmission line facilities needed for Turkey Point Unit 6, as described above in section III. E.3.

III.F. Renewable Resources

FPL has been the leading Florida utility in examining ways to effectively utilize renewable energy technologies to serve its customers. FPL has been involved since 1976 in renewable energy research and development and in facilitating the implementation of various renewable energy technologies. For purposes of discussing FPL's renewable energy efforts in this document, those efforts will be placed into five categories.

Two of these categories are Supply-Side Efforts – Power Purchases, and Supply-Side Efforts – FPL Facilities. Since 2011, the energy (MWh) total output from these renewable energy sources has been greater than the energy produced from oil-fired generation. The renewable energy information is presented in Schedule 11.1, and the oil-based energy information is presented in Schedule 6.1 and in Schedule 11.1. Both of these schedules are presented at the end of this chapter.

1) **Early Research & Development Efforts:**

FPL assisted the Florida Solar Energy Center (FSEC) in the late 1970s in demonstrating the first residential photovoltaic (PV) system east of the Mississippi. This PV installation at FSEC's Brevard County location was in operation for over 15 years and provided valuable information about PV performance capabilities in Florida on both a daily and annual basis. FPL later installed a second PV system at the FPL Flagami substation in Miami. This 10-kilowatt (kW) system was placed into operation in 1984. (The system was removed in 1990 at the conclusion of the PV testing to make room for substation expansion.)

For a number of years, FPL maintained a thin-film PV test facility located at the FPL Martin Plant Site. This FPL PV test facility was used to test new thin-film PV technologies and to identify design, equipment, or procedure changes necessary to accommodate direct current electricity from PV facilities into the FPL system. Although this testing has ended, the site became the home for PV capacity which was installed as a result of other FPL renewable energy initiatives.

2) **Demand Side & Customer Efforts:**

In terms of utilizing renewable energy sources to meet its customers' needs, FPL initiated the first utility-sponsored conservation program in Florida designed to facilitate the implementation of solar technologies by its customers. FPL's Conservation Water Heating Program, first implemented in 1982, offered incentive payments to customers who chose solar water heaters. Before the program ended (due to the fact that it was no longer projected to be cost-

effective), FPL paid incentives to approximately 48,000 customers who installed solar water heaters.

In the mid-1980s, FPL introduced another renewable energy program, FPL's Passive Home Program. This program was created in order to broadly disseminate information about passive solar building design techniques which are most applicable in Florida's climate. As part of this program, three Florida architectural firms created complete construction blueprints for six passive home designs with the assistance of the FSEC and FPL. These designs and blueprints were available to customers at a low cost. During its existence, this program was popular and received a U.S. Department of Energy award for innovation. The program was eventually phased out due to a revision of the Florida Model Energy Building Code (Code). This revision was brought about in part by FPL's Passive Home Program. The revision incorporated into the Code was one of the most significant passive design techniques highlighted in the program: radiant barrier insulation.

In early 1991, FPL received approval from the FPSC to conduct a research project to evaluate the feasibility of using small PV systems to directly power residential swimming pool pumps. This research project was completed with mixed results. Some of the performance problems identified in the test were deemed to be solvable, particularly when new pools are constructed. However, challenges included the significant percentage of sites with unacceptable shading and various customer satisfaction issues.

FPL has since continued to analyze and promote the utilization of PV. These efforts have included PV research, development, and education, as well as development and implementation of the FPL Next Generation Solar Station Program. This initiative also delivers teacher training and curriculum that is tied to the Sunshine Teacher Standards in Florida. The program provides teacher grants to promote and fund projects in the classrooms.

In addition, FPL assists customers who are interested in installing PV equipment at their facilities. Consistent with Florida Administrative Code Rule 25-6.065, Interconnection and Net Metering of Customer-Owned Renewable Generation, FPL works with customers to interconnect these customer-owned PV systems. Through December 2013, approximately 2,565 customer systems (predominantly residential) have been interconnected.

As part of its 2009 DSM Goals decision, the FPSC imposed a requirement for Florida's investor-owned utilities to spend up to a set, not-to-exceed amount of money annually to facilitate demand side solar water heater and PV applications. FPL's not-to-exceed amount of money for these applications is approximately $15.5 million per year through 2014. In regard

to this direction, FPL received approval from the FPSC in 2011 to initiate a solar pilot portfolio that consists of three PV-based programs and three solar water heating-based programs, plus Conservation Research and Development. These programs are currently projected to be offered through 2014. FPL's analyses of the results to-date from these programs shows that none of these programs are projected to be cost-effective using any of the three cost-effectiveness screening tests used by the State of Florida. The fate of these solar programs, including their potential replacement with new solar initiatives, will be determined later in 2014 as part of the FPSC's 2014 DSM Goals docket.

FPL has also been investigating fuel cell technologies through monitoring of industry trends, discussions with manufacturers, and direct field trials. From 2002 through the end of 2005, FPL conducted field trials and demonstration projects of Proton Exchange Membrane (PEM) fuel cells with the objectives of serving customer end-uses while evaluating the technical performance, reliability, economics, and relative readiness of the PEM technology. The demonstration projects were conducted in partnership with customers and included five locations. The research projects were useful to FPL in identifying specific issues that can occur in field applications and the current commercial viability of this technology. FPL will continue to monitor the progress of these technologies and conduct additional field evaluations as significant developments in fuel cell technologies occur.

3) **Supply Side Efforts – Power Purchases:**

FPL has also facilitated renewable energy projects (facilities which burn bagasse, waste wood, municipal waste, etc.). Firm capacity and energy, and as-available energy, have been purchased by FPL from these types of facilities. (Please refer to Tables I.B.1, I.B.2, and I.C.1 in Chapter I).

FPL issued Renewable Requests for Proposals (RFPs) in 2007 and 2008 soliciting proposals to provide firm capacity and energy, and energy only, at or below avoided costs, from renewable generators. FPL also promptly responds to inquiries for information from prospective renewable energy suppliers either by e-mail or phone.

On April 22, 2013 in Order No. PSC-13-1064-PAA-EQ, the FPSC approved three 60 MW power purchase agreements with affiliates of U.S. EcoGen for biomass-fired renewable energy facilities. These facilities are expected to begin service in 2019, and to begin providing firm renewable energy and capacity to FPL's customers in 2021.

With regard to existing contracts that have recently ended, FPL and the Solid Waste Authority of Palm Beach (SWA) agreed to extend their contract that expired March 31, 2010 for a 20-

year term beginning in April 1, 2012 through April 1, 2032. However, the SWA refurbished their generating unit ahead of schedule and, as of January 2012, this unit began delivering firm capacity to FPL. In 2011, the FPSC approved a contract for an additional 70 MW between FPL and SWA for a new unit to be constructed and to begin delivering firm capacity and energy beginning on January 1, 2015. At the end of December 2011, the contract between FPL and Okeelanta (New Hope) expired. However, Okeelanta continues to deliver energy to FPL as an as-available, non-firm supplier of renewable energy.

4) **Supply Side Efforts – FPL Facilities:**

With regard to solar generating facilities, FPL has three such facilities: (i) a 75 MW steam generation solar thermal facility in Martin County (the Martin Next Generation Solar Energy Center); (ii) a 25 MW PV electric generation facility in DeSoto County (the DeSoto Next Generation Solar Energy Center); and (iii) a 10 MW PV electric generation facility in Brevard County at NASA's Kennedy Space Center (the Space Coast Next Generation Solar Energy Center). The DeSoto County project was completed in 2009 and the other two projects were completed in 2010. These three solar facilities were constructed in response to the Florida Legislature's House Bill 7135 which was signed into law by the Governor in June 2008.

House Bill 7135 was enacted to enable the development of clean, zero greenhouse gas emitting renewable generation in the State of Florida. Specifically, the bill authorized cost recovery for the first 110 MW of eligible renewable projects that had the proper land, zoning, and transmission rights in place. FPL's three solar projects met the specified criteria, and were granted approval for cost recovery in 2008. Each of the three solar facilities is discussed below.

a. **The Martin Next Generation Solar Energy Center:**

This facility began commercial operation in 2010 and provides 75 MW of solar thermal capacity in an innovative way that directly displaces fossil fuel usage on the FPL system. This facility consists of solar thermal technology which generates steam that is integrated into the existing steam cycle for the Martin Unit 8 natural gas-fired CC plant. This project is the first "hybrid" solar plant in the world, and, at the time the facility came in-service, was the second largest solar facility in the world and the largest solar plant of any kind in the U.S. outside of California.

b. **The DeSoto Next Generation Solar Energy Center:**

This PV facility began commercial operation in 2009 and provides 25 MW of non-firm capacity and energy, making it one of the largest PV facilities in the U.S. The facility

utilizes a tracking PV array that is designed to follow the sun as it traverses across the sky.

c. **The Space Coast Next Generation Solar Energy Center:**
Located at the Kennedy Space Center, this facility is part of an innovative public/private partnership with NASA. This non-tracking PV facility began commercial operation in 2010 and provides 10 MW of non-firm capacity and energy.

At the time the 2014 Site Plan is being prepared, FPL considers the output from these renewable facilities to be "as available," non-firm energy only. This is due to several factors. First, the Martin solar thermal facility is a "fuel-substitute" facility, not a facility that provides additional capacity and energy. The solar thermal facility displaces the use of fossil fuel to produce steam on the FPL system when the solar thermal facility is operating. Second, in regard to the two PV facilities, the intermittent nature of the solar resource has made it difficult to-date to accurately determine what contribution the PV facilities at these specific locations can consistently make at FPL's late Summer afternoon and early Winter morning peak load hours. This is, in part, due to the fact that at least several years worth of Summer and Winter peak load periods are needed to accurately gauge the actual output of these PV facilities during system peak hours. FPL is now evaluating what portion, if any, of the PV facilities' output can be projected as firm capacity at the projected peak hours in FPL's resource planning work.

In addition to these three solar facilities, FPL is currently in the process of identifying other potential sites in the state for central station PV facilities. FPL is evaluating existing FPL generation sites along with potential Greenfield sites within FPL's service territory. These sites are discussed further in Chapter IV.

In regard to PV distributed generation (DG), FPL is planning to implement two PV DG solar programs in 2014. The first program is a voluntary customer participation program that will be pursued on a pilot basis. FPL will file for FPSC approval of this program near the April filing date of the 2014 Site Plan. The second program is designed to research the effects of increasing PV DG on the FPL system. This program will be introduced later in 2014. A brief description of the two programs follows.

d. **Voluntary, Community-based Solar Partnership Pilot Program**
FPL will be filing for FPSC approval of a tariff that provides customers an opportunity to make voluntary contributions toward the construction of PV facilities on a local level throughout FPL's service territory. The pilot program will provide all customers the

opportunity to support the use of solar energy at a community scale, and is designed to be especially attractive for customers who do not wish, or are not able, to place solar equipment on their roof.

d. **C&I Solar Partnership Program:**

This is also a PV-focused research program that will be conducted in partnership with interested commercial and industrial (C&I) customers. Limited investments will be made in rooftop PV facilities in selected geographic areas in order to examine the effect of PV DG on FPL's distribution system. FPL will attempt to site these PV facilities in areas where PV DG already exists to better study feeder loading impacts. The PV facilities will be located on C&I customer property near the targeted feeders. The objective of the program is to gather data that will result in a better understanding of the effects of high PV DG penetrations on FPL's system.

5) **Ongoing Research & Development Efforts:**

FPL has developed alliances with several Florida universities to promote development of emerging technologies. For example, FPL has an alliance has been established with the newly formed Southeast National Marine Renewable Energy Center (SNMREC) at Florida Atlantic University (FAU), which will focus on the commercialization of ocean current, ocean thermal (i.e., energy conversion as well as cold water air conditioning), and hydrogen technologies. FPL has been supporting FAU with the discussions being held with the U.S. Department of the Interior's Minerals Bureau of Ocean Energy Management Regulation and Enforcement (BOEMRE). BOEMRE is working to establish the permitting process for ocean energy development on the outer continental shelf.

FPL has also developed a "Living Lab" to demonstrate FPL's solar energy commitment to employees and visitors at its Juno Beach office facility. To-date, FPL has installed five different PV arrays (different technologies) of rooftop PV totaling 24 kW at the Living Lab. In addition, two PV-covered parking structures with a total of approximately 90 kW of PV are in use at the FPL Juno office parking lot. Through these Living Lab projects, FPL is able to evaluate multiple solar technologies and applications for the purpose of developing a renewable business model resulting in the most cost-effective and reliable uses of solar energy for FPL's customers. FPL plans to continue to expand the Living Lab as new solar products come to market.

FPL has also been in discussions with several private companies on multiple emerging technology initiatives including ocean current, ocean thermal, hydrogen, fuel cell technology, biomass, biofuels, and energy storage

III.G FPL's Fuel Mix and Fuel Price Forecasts

1. FPL's Fuel Mix

Until the mid-1980s, FPL relied primarily on a combination of fuel oil, natural gas, and nuclear energy to generate electricity with significant reliance on oil–fired generation. In the early 1980s, FPL began to purchase "coal-by-wire." In 1987, coal was first added to the fuel mix through FPL's partial ownership (20%) and additional purchases (30%) from the St. Johns River Power Park (SJRPP). This allowed FPL to meet its customers' energy needs with a more diversified mix of energy sources. Additional coal resources were added with the partial acquisition (76%) of Scherer Unit 4 which began serving FPL's customers in 1991.

The trend since the early 1990s has been a steady increase in the amount of natural gas that is used by FPL to provide electricity due, in part, to the introduction of highly efficient and cost-effective CC generating units and the ready availability of natural gas. Most recently, FPL placed into commercial operation two new gas-fired CC units at the West County Energy Center (WCEC) site in 2009. A third new CC unit was added to the WCEC site in 2011. In addition, FPL finished modernization of its Cape Canaveral and Riviera Beach plant sites and is currently modernizing its existing Port Everglades plant site by removing the steam generating units previously on the site and replacing them with one highly efficient new CC unit. The new CC units at each of these three sites will provide highly efficient generation that will dramatically improve the efficiency of FPL's generation system in general and, more specifically, the efficiency at which natural gas is utilized.

In addition, FPL increased its utilization of nuclear energy through capacity uprates of its four existing nuclear units. With these uprates, more than 520 MW of additional nuclear capacity have been added to the FPL system. FPL is also pursuing plans to obtain licenses, permits, and approvals to construct and operate two new nuclear units at its existing Turkey Point site that, in total, would add approximately 2,200 MW of new nuclear generating capacity. The earliest dates by which these two new nuclear units could practically be deployed remain 2022 and 2023, respectively.

In regard to utilizing renewable energy, FPL has a 110 MW of solar generating capacity through a 75 MW solar thermal steam generating facility at FPL's existing Martin site, a 25 MW PV facility in DeSoto County, and a 10 MW PV facility in Brevard County. The DeSoto facility was placed into commercial operation in 2009. The other two solar facilities were placed into commercial operation in 2010.

FPL's future resource planning work will continue to focus on identifying and evaluating alternatives that would most cost-effectively maintain and/or enhance FPL's long-term fuel diversity. These fuel diverse alternatives may include: the purchase of power from renewable energy facilities, additional FPL-owned renewable energy facilities, obtaining additional access to diversified sources of natural gas such as liquefied natural gas (LNG) and natural gas from the Mid-Continent unconventional reserves, preserving FPL's ability to utilize fuel oil at its existing units, and increased utilization of nuclear energy. (As previously discussed, new advanced technology coal generating units are not currently considered as viable options in Florida in the ten-year reporting period of this document due, in part, to current projections of relatively small differences in fuel costs between coal and natural gas, significantly higher capital costs for coal units compared to CC units, greater efficiencies of CC units, and concerns over environmental regulations that would impact coal units more negatively than CC units.) The evaluation of the feasibility and cost-effectiveness of these, and other possible fuel diversity alternatives, will be part of FPL's on-going resource planning efforts.

FPL's current use of various fuels to supply energy to customers, plus a projection of this "fuel mix" through 2023 based on the resource plan presented in this document, is presented in Schedules 5, 6.1, and 6.2 later in this chapter.

FPL's Fossil Fuel Cost Forecasts

Fossil fuel price forecasts, and the resulting projected price differentials between fuels, are major drivers used in evaluating alternatives for meeting future resource needs. FPL's forecasts are generally consistent with other published contemporary forecasts. An October 2013 fuel cost forecast was used in the analyses whose results led to the resource plan presented in this 2014 Site Plan.

Future oil and natural gas prices, and to a lesser extent, coal and petroleum coke prices, are inherently uncertain due to a significant number of unpredictable and uncontrollable drivers that influence the short- and long-term price of oil, natural gas, coal, and petroleum coke. These drivers include U.S. and worldwide demand, production capacity, economic growth, environmental legislation, and politics.

The inherent uncertainty and unpredictability in these factors today and tomorrow clearly underscores the need to develop a set of plausible oil, natural gas, and solid fuel (coal and petroleum coke) price scenarios that will bound a reasonable set of long-term price outcomes. In this light, FPL developed and utilized Low, Medium, and High price forecasts for fossil fuels in some of its 2013 and early 2014 resource planning work, particularly in regard to analyses conducted as part of the nuclear cost recovery filing work.

FPL's Medium price forecast methodology is consistent for oil and natural gas. For oil and natural gas commodity prices, FPL's Medium price forecast applies the following methodology:

a. For 2014 through 2015, the methodology used the October 7, 2013 forward curve for New York Harbor 1% sulfur heavy oil, U. S. Gulf Coast 1% sulfur heavy oil, ultra low sulfur diesel fuel oil, and Henry Hub natural gas commodity prices;

b. For the next two years (2016 and 2017), FPL used a 50/50 blend of the October 7, 2013 forward curve and the most current projections at the time from The PIRA Energy Group;

c. For the 2018 through 2030 period, FPL used the annual projections from The PIRA Energy Group; and,

d. For the period beyond 2030, FPL used the real rate of escalation from the Energy Information Administration (EIA). In addition to the development of oil and natural gas commodity prices, nominal price forecasts also were prepared for oil and natural gas transportation costs. The addition of commodity and transportation forecasts resulted in delivered price forecasts.

FPL's Medium price forecast methodology is also consistent for coal and petroleum coke prices. Coal and petroleum coke prices were based upon the following approach:

a. Delivered price forecasts for Central Appalachian (CAPP), Illinois Basin (IB), Powder River Basin (PRB), and South American coal and petroleum coke were provided by JD Energy; and,

b. The coal price forecast for SJRPP and Plant Scherer assume the continuation of the existing mine-mouth and transportation contracts until expiration, along with the purchase of spot coal, to meet generation requirements.

The development of FPL's Low and High price forecasts for oil, natural gas, coal, and petroleum coke prices were based on the historical volatility of the 12-month forward price, one year ahead. FPL developed these forecasts to account for the uncertainty which exists within each commodity as well as across commodities. These forecasts reflect a range of reasonable forecast outcomes.

3. Natural Gas Storage

FPL was under contract through March 2013 for 2 billion cubic feet (Bcf) of firm natural gas storage capacity in the Bay Gas storage facility located in Alabama. The Bay Gas storage

facility is interconnected with the Florida Gas Transmission (FGT) pipeline. Starting on April 1, 2013, FPL entered into a new deal with Bay Gas Storage for one year for 2.5 billion cubic feet (Bcf) of firm natural gas storage capacity. In December 2013, FPL elected to extend this transaction for an additional three years which resulted in a lower annual cost for Bay Gas. FPL has predominately utilized natural gas storage to help mitigate gas supply problems caused by severe weather and/or infrastructure problems. Over the past several years, FPL has acquired upstream transportation capacity on several pipelines to help mitigate the risk of off-shore supply problems caused by severe weather in the Gulf of Mexico. While this transportation capacity has reduced FPL's off-shore exposure, a portion of FPL's supply portfolio remains tied to off-shore natural gas sources. Therefore, natural gas storage remains an important tool to help mitigate the risk of supply disruptions. For these reasons, FPL has typically maintained nearly full natural gas inventory during normal operations from June through November (hurricane season). From December through March, FPL typically maintains lower levels of natural gas inventory compared to Summer peak months.

As FPL's reliance on natural gas has increased, its ability to manage the daily "swings" that can occur on its system due to weather and unit availability changes has become more challenging, particularly from oversupply situations. Natural gas storage is a valuable tool to help manage the daily balancing of supply and demand. From a balancing perspective, injection and withdrawal rights associated with gas storage have become an increasingly important part of the evaluation of overall gas storage requirements.

As FPL's system grows to meet customer needs, it must maintain adequate gas storage capacity to continue to help mitigate supply and/or infrastructure problems and to provide FPL the ability to manage its supply and demand on a daily basis. FPL continues to evaluate its gas storage portfolio and is likely to subscribe for additional gas storage capacity to help increase reliability, provide the necessary flexibility to respond to demand changes, and diversify the overall portfolio.

4. **Securing Additional Natural Gas:**

The recent trend of increasing reliance upon natural gas to produce electricity for FPL's customers is projected to continue due to FPL's growing load. The addition of highly fuel-efficient CC units at Cape Canaveral and Riviera Beach due to completed modernization projects, and the on-going Port Everglades modernization project, will serve to reduce the growth in natural gas use from what it otherwise might have been due to the high fuel-efficiency levels of these new CC units. However, these efficiency gains do not fully offset the effects of FPL's growing load. Therefore, FPL will need to secure more natural gas supply and more firm gas transportation capacity in the future as fuel requirements dictate. The issue is

how to secure these additional natural gas resources in a manner that is economical for FPL's customers and which maintains and/or enhances the reliability of natural gas supply and deliverability to FPL's generating units.

FPL has historically purchased the gas transportation capacity required for new natural gas supply from two existing natural gas pipeline companies. As more natural gas is delivered through these two pipelines, the impact of a supply disruption on either pipeline becomes more problematic. Therefore, FPL issued a Request for Proposals (RFP) in December 2012 for gas transportation capacity to meet FPL's system natural gas requirements beginning in 2017. The RFP encouraged bidders to propose new gas transportation infrastructure to meet Florida's growing need for natural gas. A third pipeline would have benefits for FPL and its customers by increasing the diversity of FPL's fuel supply sources, increasing the physical reliability of the pipeline delivery system, and enhancing competition among pipelines. The RFP process was completed in June 2013 and the winning bidders, Sabal Trail Transmission, LLC (Sabal Trail) and Florida Southeast Connection, LLC (FSC), have begun the Federal Energy Regulatory Commission approval process with a planned in-service date of May 2017. The contracts with Sabal Trail and FSC were reviewed by the FPSC and were approved for cost recovery in late 2013. The order approving this cost recovery became final in January 2014.

5. Nuclear Fuel Cost Forecast

This section reviews the various steps needed to fabricate nuclear fuel for delivery to the nuclear power plants, the method used to forecast the price for each step, and other comments regarding FPL's nuclear fuel cost forecast.

a) Steps Required for Nuclear Fuel to be delivered to FPL's Plants

Four separate steps are required before nuclear fuel can be used in a commercial nuclear power reactor. These steps are summarized below.

(1) Mining: Uranium is produced in many countries such as Canada, Australia, Kazakhstan, and the United States. During the first step, uranium is mined from the ground using techniques such as open pit mining, underground mining, in-situ leaching operations, or production as a by-product from other mining operations, such as gold, copper, or phosphate rocks. The product from this first step is the raw uranium delivered as an oxide, U3O8 (sometimes referred to as yellowcake).

(2) Conversion: During the second step, the U3O8 is chemically converted into UF6 which, when heated, changes into a gaseous state. This second step further removes any

chemical impurities and serves as preparation for the third step, which requires uranium to be in a gaseous state.

(3) Enrichment: The third step is called enrichment. Natural uranium contains 0.711% of uranium at an atomic mass of 235 (U-235) and 99.289% of uranium at an atomic mass of 238 (U-238). FPL's nuclear reactors use uranium with a higher percentage of up to almost five percent (5%) of U-235 atoms. Because natural uranium does not contain a sufficient amount of U-235, the third step increases the percentage amount of U-235 from 0.711% to a level specified when designing the reactor core (typically in a range from approximately 2.2% to as high as 4.95%). The output of this enrichment process is enriched uranium in the form of UF6.

(4) Fabrication: During the last step, fuel fabrication, the enriched UF6 is changed to a UO2 powder, pressed into pellets, and fed into tubes, which are sealed and bundled together into fuel assemblies. These fuel assemblies are then delivered to the plant site for insertion in a reactor.

Like other utilities, FPL has purchased raw uranium and the other components of the nuclear fuel cycle separately from numerous suppliers from different countries.

b) Price Forecasts for Each Step

(1) Mining: The impact of the earthquake and tsunami that struck the Fukushima nuclear complex in Japan in March 2011 is still being felt in the uranium market. Current demand has declined and several of the production facilities have announced delays. Factors of importance are:

- Hedge funds are still very active in the market. This causes more speculative demand that is not tied to market fundamentals and causes the market price to move up or down just based on news that might affect future demand.
- Some of the uranium inventory from the U.S. Department of Energy (DOE) is finding its way into the market periodically to fund cleanup of certain Department of Energy facilities.
- Although a limited number of new nuclear units are scheduled to start production in the U.S. during the next 5 to 10 years, other countries, more specifically China, have announced an increase in construction of new units which may cause uranium prices to trend up in the near future.

Over a 10-year horizon, FPL expects the market to be more consistent with market fundamentals. The supply picture is more stable, with laws enacted to resolve the import of Russian-enriched uranium, by allowing some imports of Russian-enriched uranium to meet about 20-25% of needs for currently operating units, but with no restriction on the first core for new units and no restrictions after 2020. New and current uranium production facilities continue to add capacity to meet demands. Actual demand tends to grow over time because of the long lead time to build nuclear units. However, FPL cannot discount the possibility of future periodic sharp increase in prices, but believes such occurrences will likely be temporary in nature.

(2) Conversion: The conversion market is also in a state of flux due to the Fukushima events. Planned production after 2016 is currently forecasted to be insufficient to meet the higher demand scenario, but it is projected to be sufficient to meet most reference case scenarios. As with additional raw uranium production, supply will expand beyond current level once more firm commitments are made including commitments to build new nuclear units. FPL expects long term price stability for conversion services to support world demand.

(3) Enrichment: As a result of the Fukushima events in March 2011, the near-term price of enrichment services has been declining for the last three years. However, plans for construction of several new facilities that were expected to come on-line in the next few years have been delayed. Also, some of the existing high operating cost diffusion plants have shut down. As with supply for the other steps of the nuclear fuel cycle, expansion of future capacity is feasible within the lead time for constructing new nuclear units and any other projected increase in demand. Meanwhile, world supply and demand will continue to be balanced such that FPL expects adequate supply of enrichment services. The current supply/demand profile will most likely result in the price of enrichment services remaining stable or declining for the next few years before starting to increase.

(4) Fabrication: Because the nuclear fuel fabrication process is highly regulated by the Nuclear Regulatory Commission (NRC), not all production facilities can qualify as suppliers to nuclear reactors in the U.S. Although world supply and demand is expected to show significant excess capacity for the foreseeable future, the gap is not as wide for U.S. supply and demand. The supply for the U.S. market is expected to be sufficient to meet U.S. demand for the foreseeable future.

c) Other Comments Regarding FPL's Nuclear Fuel Cost Forecast

FPL's nuclear fuel price forecasts are the result of FPL's analysis based on inputs from various nuclear fuel market expert reports and studies. The calculations for the nuclear fuel cost forecasts used in FPL's 2013 and early 2014 resource planning work were performed consistent with the method then used for FPL's Fuel Clause filings, including the assumption of refueling outages every 18 months and plant operation at power uprate levels. The costs for each step to fabricate the nuclear fuels were added to come up with the total costs of the fresh fuel to be loaded at each refueling (acquisition costs). The acquisition cost for each group of fresh fuel assemblies were then amortized over the energy produced by each group of fuel assemblies. FPL also added 1 mill per kilowatt hour net to reflect payment to DOE for spent fuel disposal.

Schedule 5
Fuel Requirements
(for FPL only)

Fuel Requirements	Units	Actual 1/ 2012	2013	Forecasted 2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(1) Nuclear	Trillion BTU	188	273	298	300	306	303	300	306	302	300	357	455
(2) Coal	1,000 TON	2,692	3,540	3,414	3,778	2,124	3,076	3,574	3,791	3,835	3,803	3,756	3,756
(3) Residual (FO6) - Total	1,000 BBL	459	150	715	1,130	1,139	561	546	164	176	188	111	52
(4) Steam	1,000 BBL	459	150	715	1,130	1,139	561	546	164	176	188	111	52
(5) Distillate (FO2) - Total	1,000 BBL	23	152	37	35	226	61	293	247	284	282	184	126
(6) Steam	1,000 BBL	4	0	0	0	0	0	0	0	0	0	0	0
(7) CC	1,000 BBL	15	140	7	30	88	6	186	144	160	153	100	76
(8) CT	1,000 BBL	4	12	30	6	139	56	107	104	124	129	84	51
(9) Natural Gas - Total	1,000 MCF	595,396	550,350	550,782	544,663	584,056	578,902	581,638	580,361	596,131	600,152	570,533	518,693
(10) Steam	1,000 MCF	46,112	30,348	4,413	8,395	10,562	9,343	8,967	2,912	3,104	3,280	2,021	1,001
(11) CC	1,000 MCF	546,386	514,793	544,967	534,847	571,277	567,674	568,822	575,025	590,083	593,852	566,719	516,379
(12) CT	1,000 MCF	2,899	5,208	1,403	1,421	2,216	1,884	3,849	2,424	2,944	3,020	1,793	1,313

1/ Source: A Schedules.
Note: Solar contributions are provided on Schedules 6.1 and 6.2.

Schedule 6.1
Energy Sources

	Energy Sources	Units	Actual [1] 2012	Actual [1] 2013	Forecasted 2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(1)	Annual Energy Interchange 2/	GWH	5,186	4,445	3,539	3,876	2,165	2,316	2,640	962	0	0	0	0
(2)	Nuclear	GWH	16,916	25,243	27,792	27,981	28,593	28,279	27,959	28,550	28,177	27,971	33,464	42,915
(3)	Coal	GWH	4,745	5,981	6,020	6,662	3,827	5,486	6,488	6,850	6,923	6,867	6,778	6,779
(4)	Residual(FO6) -Total	GWH	378	75	437	722	684	333	327	104	111	118	69	32
(5)	Steam	GWH	378	75	437	722	684	333	327	104	111	118	69	32
(6)	Distillate(FO2) -Total	GWH	54	120	13	26	104	17	208	177	203	200	131	91
(7)	Steam	GWH	2	2	0	0	0	0	0	0	0	0	0	0
(8)	CC	GWH	49	114	6	25	72	5	148	115	128	122	80	60
(9)	CT	GWH	4	5	7	1	32	12	60	63	75	78	51	31
(10)	Natural Gas -Total	GWH	80,505	75,208	78,228	77,979	84,154	83,812	84,144	84,899	87,546	88,092	83,914	76,379
(11)	Steam	GWH	5,543	2,472	381	724	932	817	789	249	267	283	172	84
(12)	CC	GWH	74,668	72,308	77,722	77,131	83,029	82,833	82,978	84,412	86,994	87,519	83,567	76,167
(13)	CT	GWH	295	428	125	124	194	163	377	238	285	291	176	129
(14)	Solar [3]	GWH	159	155	191	176	195	194	194	194	194	188	192	192
(15)	PV	GWH	71	68	72	71	71	70	70	69	69	68	68	67
(16)	Solar Thermal	GWH	89	87	119	104	125	124	124	124	125	119	124	124
(17)	Other [4]	GWH	2,922	428	1,782	4,185	4,220	4,475	4,435	5,936	6,032	6,015	5,967	5,968
	Net Energy For Load [5]	GWH	110,866	111,656	118,002	121,606	123,942	124,914	126,395	127,670	129,184	129,451	130,515	132,356

1/ Source: A Schedules and Actual Data for Next Generation Solar Centers Report
2/ The projected figures are based on estimated energy purchases from SJRPP, the Southern Companies (UPS contract), and other utilities.
3/ Represents output from FPL's PV and solar thermal facilities.
4/ Represents a forecast of energy expected to be purchased from Qualifying Facilities, Independent Power Producers, net of Economy and other Power Sales.
5/ Net Energy For Load values for the years 2014- 2023 are also shown in Col. (19) on Schedule 2.3.

Schedule 6.2
Energy Sources % by Fuel Type

Energy Source	Units	Actual [1] 2012	2013	Forecasted 2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(1) Annual Energy Interchange [2]	%	4.7	4.0	3.0	3.2	1.7	1.9	2.1	0.8	0.0	0.0	0.0	0.0
(2) Nuclear	%	15.3	22.6	23.6	23.0	23.1	22.6	22.1	22.4	21.8	21.6	25.6	32.4
(3) Coal	%	4.3	5.4	5.1	5.5	3.1	4.4	5.1	5.4	5.4	5.3	5.2	5.1
(4) Residual (FO6) -Total	%	0.3	0.1	0.4	0.6	0.6	0.3	0.3	0.1	0.1	0.1	0.1	0.0
(5) Steam	%	0.3	0.1	0.4	0.6	0.6	0.3	0.3	0.1	0.1	0.1	0.1	0.0
(6) Distillate (FO2) -Total	%	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.2	0.1	0.1
(7) Steam	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(8) CC	%	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0
(9) CT	%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
(10) Natural Gas -Total	%	72.6	67.4	66.3	64.1	67.9	67.1	66.6	66.5	67.8	68.1	64.3	57.7
(11) Steam	%	5.0	2.2	0.3	0.6	0.8	0.7	0.6	0.2	0.2	0.2	0.1	0.1
(12) CC	%	67.3	64.8	65.9	63.4	67.0	66.3	65.7	66.1	67.3	67.6	64.0	57.5
(13) CT	%	0.3	0.4	0.1	0.1	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.1
(14) Solar [3]	%	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
(15) PV	%	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(16) Solar Thermal	%	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(17) Other [4]	%	2.6	0.4	1.5	3.4	3.4	3.6	3.5	4.6	4.7	4.6	4.6	4.5
		100	100	100	100	100	100	100	100	100	100	100	100

1/ Source: A Schedules and Actual Data for Next Generation Solar Centers Report
2/ The projected figures are based on estimated energy purchases from SJRPP, the Southern Companies (UPS contract), and other utilities.
3/ Represents output from FPL's PV and solar thermal facilities.
4/ Represents a forecast of energy expected to be purchased from Qualifying Facilities, Independent Power Producers, net of Economy and other Power Sales.

Schedule 7.1
Forecast of Capacity, Demand, and Scheduled Maintenance At Time Of Summer Peak

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Firm	Firm	Firm		Total Firm	Total		Firm Summer	Reserve			Total Reserve			
	Installed	Capacity	Capacity	Firm	Capacity	Peak		Peak	Margin Before		Scheduled	Margin After		Generation Reserve	
August of	Capacity	Import	Export	QF	Available	Demand	DSM	Demand	Maintenance		Maintenance	Maintenance		Margin	
Year	MW	MW	MW	MW	MW	MW	MW	MW	MW	% of Peak	MW	MW	% of Peak	MW	% of Peak
2014	25,488	1,303	0	635	27,426	22,768	1,992	20,777	6,649	32.0	826	5,823	28.0	3,831	16.8
2015	25,121	1,450	0	595	27,165	23,356	2,057	21,298	5,867	27.5	0	5,867	27.5	3,810	16.3
2016	26,358	522	0	595	27,474	23,778	2,082	21,696	5,779	26.6	0	5,779	26.6	3,697	15.5
2017	25,962	522	0	595	27,078	24,190	2,108	22,082	4,996	22.6	0	4,996	22.6	2,888	11.9
2018	25,916	485	0	595	26,996	24,544	2,136	22,408	4,587	20.5	0	4,587	20.5	2,452	10.0
2019	26,930	110	0	595	27,635	24,896	2,165	22,731	4,904	21.6	0	4,904	21.6	2,739	11.0
2020	26,930	239	0	595	27,764	25,239	2,195	23,044	4,720	20.5	0	4,720	20.5	2,524	10.0
2021	26,930	278	0	775	27,983	25,439	2,227	23,212	4,770	20.6	0	4,770	20.6	2,544	10.0
2022	28,117	110	0	775	29,002	25,908	2,259	23,649	5,353	22.6	0	5,353	22.6	3,094	11.9
2023	29,272	110	0	775	30,157	26,528	2,292	24,236	5,921	24.4	0	5,921	24.4	3,628	13.7

Col. (2) represents capacity additions and changes projected to be in-service by June 1st. These MW are generally considered to be available to meet Summer peak loads which are forecasted to occur during August of the year indicated.
Col. (6) = Col.(2) + Col.(3) - Col.(4) + Col.(5).
Col. (7) reflects the 2013 load forecast without incremental DSM or cumulative load management.
Col. (8) represents cumulative load management capability, plus incremental conservation,and load management, from 9/2013-on intended for use with the 2013 load forecast.
Col. (10) = Col. (6) - Col. (9)
Col. (11) = Col.(10) / Col.(9)
Col. (12) indicates the capacity of units projected to be out-of-service for planned maintenance during the Summer peak period; i.e., Martin Unit 2's planned outage in Summer 2014 for the installation of electrostatic precipitators.
Col. (13) = Col. (10) - Col. (12)
Col. (14) = Col.(13) / Col.(9)
Col. (15) =Col. (6) - Col. (7)
Col. (16) = Col.(15) / Col.(7)

Schedule 7.2
Forecast of Capacity , Demand, and Scheduled Maintenance At Time of Winter Peak

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
January of Year	Firm Installed Capability MW	Firm Capacity Import MW	Firm Capacity Export MW	Firm QF MW	Total Firm Capacity Available MW	Total Peak Demand MW	DSM MW	Firm Winter Peak Demand MW	Reserve Margin Before Maintenance MW	Reserve Margin Before Maintenance % of Peak	Scheduled Maintenance MW	Total Reserve Margin After Maintenance MW	Total Reserve Margin After Maintenance % of Peak	Generation Reserve Margin MW	Generation Reserve Margin % of Peak
2014	25,671	1,311	0	635	27,617	19,875	1,502	18,373	9,243	50.3	832	8,411	45.8	6,910	34.8
2015	26,597	1,458	0	595	28,649	20,971	1,530	19,442	9,208	47.4	0	9,208	47.4	7,678	36.6
2016	26,653	530	0	595	27,777	21,490	1,543	19,947	7,831	39.3	0	7,831	39.3	6,287	29.3
2017	27,601	530	0	595	28,725	21,731	1,558	20,173	8,552	42.4	0	8,552	42.4	6,994	32.2
2018	27,557	493	0	595	28,645	21,968	1,573	20,396	8,249	40.4	0	8,249	40.4	6,676	30.4
2019	27,295	493	0	595	28,383	22,180	1,588	20,592	7,790	37.8	0	7,790	37.8	6,203	28.0
2020	28,724	239	0	595	29,558	22,383	1,603	20,780	8,777	42.2	0	8,777	42.2	7,174	32.1
2021	28,724	278	0	775	29,777	22,584	1,619	20,966	8,811	42.0	0	8,811	42.0	7,192	31.8
2022	28,724	110	0	775	29,609	22,601	1,634	20,967	8,642	41.2	0	8,642	41.2	7,007	31.0
2023	29,910	110	0	775	30,795	22,891	1,651	21,241	9,554	45.0	0	9,554	45.0	7,903	34.5

Col. (2) represents capacity additions and changes projected to be in-service by January 1st. These MW are generally considered to be available to meet winter peak loads which are forecasted to occur during January of the year indicated.
Col. (6) = Col.(2) + Col.(3) - Col.(4) + Col.(5).
Col. (7) reflects the 2013 load forecast without incremental DSM or cumulative load management. 2013 load is an actual load value.
Col. (8) represents cumulative load management capability, plus incremental conservation and load management,, from 9/2013-on intended for use with the 2013 load forecast.
Col. (10) = Col. (6) - Col. (9)
Col. (11) = Col.(10) / Col.(9)
Col. (12) indicates the capacity of units projected to be out-of-service for planned maintenance during the Winter peak period; i.e., Martin Unit 1's planned outage during the Winter of 2014 for the installation of electrostatic precipitators.
Col. (13) = Col. (10) - Col. (12)
Col. (14) = Col.(13) / Col.(9)
Col. (15) =Col. (6) - Col. (7)
Col. (16) = Col.(15) / Col.(7)

Schedule 8
Planned And Prospective Generating Facility Additions And Changes [1]

Plant Name	(2) Unit No.	(3) Location	(4) Unit Type	(5) Fuel Pri.	(5) Fuel Alt.	(7) Transport Pri.	(8) Transport Alt.	(9) Const. Start Mo./Yr.	(10) Comm. In-Service Mo./Yr.	(11) Expected Retirement Mo./Yr.	(12) Gen. Max. Nameplate KW	(13) Firm Net Capability [2] Winter MW	(14) Firm Net Capability [2] Summer MW	(15) Status
ADDITIONS/ CHANGES														
2014														
Sanford CT Upgrade	5B	Volusia County	CC	NG	No	PL	No	Aug-13	Sep-13	Unknown	188,190	10	9	OT
Turkey Point CT Upgrade	5A	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	---	7	OT
Turkey Point CT Upgrade	5B	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	---	7	OT
Turkey Point CT Upgrade	5C	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	---	7	OT
Turkey Point CT Upgrade	5D	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	---	7	OT
Martin [3]	1	Martin County	ST	FO6	NG	PL	PL	Jun-13	Mar-14	Unknown	934,500	(832)	823	ESP
Riviera Beach Next Generation Clean Energy Center	1	City of Riviera Beach	CC	NG	FO2	TK	WA	Jun-12	Apr-14	Unknown	1,295,400	---	1,212	U
Martin [3]	2	Martin County	ST	FO6	NG	PL	PL	Mar-14	Dec-14	Unknown	934,500	---	(826)	OT
										2014 Changes/Additions Total:		**(822)**	**1,247**	
2015														
Turkey Point CT Upgrade	5A	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	8	---	OT
Turkey Point CT Upgrade	5B	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	8	---	OT
Turkey Point CT Upgrade	5C	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	8	---	OT
Turkey Point CT Upgrade	5D	Miami Dade County	CC	NG	FO2	PL	TK	---	Mar-14	Unknown	188,190	8	---	OT
Martin [3]	1	Martin County	ST	FO6	NG	PL	PL	Jun-13	Mar-14	Unknown	934,500	832	---	ESP
Manatee CT Upgrade	3A	Manatee County	CC	NG	No	PL	No	Aug-14	Oct-14	Unknown	188,190	9	8	OT
Manatee CT Upgrade	3B	Manatee County	CC	NG	No	PL	No	Aug-14	Oct-14	Unknown	188,190	9	8	OT
Manatee CT Upgrade	3C	Manatee County	CC	NG	No	PL	No	Apr-14	Oct-14	Unknown	188,190	9	8	OT
Manatee CT Upgrade	3D	Manatee County	CC	NG	No	PL	No	Apr-14	Oct-14	Unknown	188,190	9	8	OT
Riviera Beach Next Generation Clean Energy Center	1	City of Riviera Beach	CC	NG	FO2	TK	WA	Jun-12	Jun-14	Unknown	188,190	1,344	---	U
Vero Beach Combined Cycle	1	Indian River	CC	NG	DFO	PL	TK	---	Jan-15	Unknown	---	44	46	OT
Martin [3]	2	Martin County	ST	FO6	NG	PL	PL	Mar-14	Dec-14	Unknown	934,500	---	823	ESP
Putnam	1	Putnam County	CC	NG	FO2	PL	TK	---	---	Jun-15	290,004	(265)	(249)	
Putnam	2	Putnam County	CC	NG	FO2	PL	TK	---	---	Jun-15	290,004	(265)	(249)	
Ft. Myers CT Upgrade	2A	Lee County	CC	NG	No	PL	No	---	Jun-15	Unknown	188,190	---	9	OT
Ft. Myers CT Upgrade	2B	Lee County	CC	NG	No	PL	No	---	Mar-15	Unknown	188,190	---	9	OT
Ft. Myers CT Upgrade	2C	Lee County	CC	NG	No	PL	No	---	Jun-15	Unknown	188,190	---	9	OT
Ft. Myers CT Upgrade	2D	Lee County	CC	NG	No	PL	No	---	May-15	Unknown	188,190	---	9	OT
Ft. Myers CT Upgrade	2E	Lee County	CC	NG	No	PL	No	---	May-15	Unknown	188,190	---	9	OT
Ft. Myers CT Upgrade	2F	Lee County	CC	NG	No	PL	No	---	Mar-15	Unknown	188,190	---	9	OT
										2015 Changes/Additions Total:		**1,758**	**456**	
2016														
Ft. Myers CT Upgrade	2B	Lee County	CC	NG	No	PL	No	Feb-15	Mar-15	Unknown	188,190	9	---	OT
Ft. Myers CT Upgrade	2F	Lee County	CC	NG	No	PL	No	Feb-15	Mar-15	Unknown	188,190	9	---	OT
Ft. Myers CT Upgrade	2D	Lee County	CC	NG	No	PL	No	May-15	Jun-15	Unknown	188,190	9	---	OT
Ft. Myers CT Upgrade	2E	Lee County	CC	NG	No	PL	No	May-15	Jun-15	Unknown	188,190	9	---	OT
Ft. Myers CT Upgrade	2A	Lee County	CC	NG	No	PL	No	Jun-15	Jul-15	Unknown	188,190	9	---	OT
Ft. Myers CT Upgrade	2C	Lee County	CC	NG	No	PL	No	Jul-15	Aug-15	Unknown	188,190	9	---	OT
Port Everglades Next Generation Clean Energy Center	1	City of Hollywood	CC	NG	FO2	TK	WA	Jun-14	Jun-16	Unknown	Unknown	---	1,237	U
										2016 Changes/Additions Total:		**55**	**1,237**	

(1) Schedule 8 shows only planned and prospective changes to generating facilities and does not reflect changes to existing purchases. Those changes are reflected on Tables ES-1, I.B.1 and I.B.2.
The Winter Total MW value consists of all generation additions and changes achieved by January. The Summer Total MW value consists of all generation additions and changes achieved by June. All MW additions/changes occuring after August each year will be picked up for reserve margin calculation purposes in the following year.

(2) This generating unit is currently serving as a synchronous condenser and is not included in reserve margin calculation.

(3) Outages for ESP work.

Schedule 8
Planned And Prospective Generating Facility Additions And Changes [1]

Plant Name	(2) Unit No.	(3) Location	(4) Unit Type	(5) Fuel Pri.	(5) Fuel Alt.	(7) Fuel Transport Pri.	(8) Fuel Transport Alt.	(9) Const. Start Mo./Yr.	(10) Comm. In-Service Mo./Yr.	(11) Expected Retirement Mo./Yr.	(12) Gen. Max. Nameplate KW	(13) Firm Net Capability [2] Winter MW	(14) Firm Net Capability [2] Summer MW	(15) Status
ADDITIONS/ CHANGES														
2017														
Port Everglades Next Generation Clean Energy Center	1	City of Hollywood	CC	NG	FO2	TK	WA	Jun-14	Jun-16	Unknown	Unknown	1,346	—	U
Turkey Point Synchronous Condenser	1	Miami Dade County	ST	FO6	NG	WA	PL	—	—	Jun-17	402,050	(398)	(396)	OT
										2017 Changes/Additions Total:		**948**	**(396)**	
2018														
Vero Beach Combined Cycle	1	Indian River	CC	NG	DFO	PL	TK	—	—	Jan-18	—	(44)	(46)	OT
										2018 Changes/Additions Total:		**(44)**	**(46)**	
2019														
Lauderdale GT	1-12	Broward County	GT	NG	FO2	PL	PL	—	—	Dec-18	410,734	(459)	(420)	P
Lauderdale GT	12-24	Broward County	GT	NG	FO2	PL	PL	—	—	Dec-18	410,734	(459)	(420)	P
Port Everglades GT	1-12	Broward County	GT	NG	FO2	PL	PL	—	—	Dec-18	410,734	(459)	(420)	P
Lauderdale CT	1-5	Broward County	CT	NG	FO3	PL	PL	—	Jan-19	Unknown	Unknown	1,115	1,005	P
Unsited 3x1 CC unit	1	—	CC	NG	FO2	TK	WA	Jun-17	Jun-19	Unknown	Unknown	—	1,269	P
										2019 Changes/Additions Total:		**(262)**	**1,014**	
2020														
Unsited 3x1 CC unit			CC	NG	FO2	TK	WA	Jun-17	Jun-19	Unknown	Unknown	1,429	—	P
										2020 Changes/Additions Total:		**1,429**	**0**	
2021														
												—	—	
										2021 Changes/Additions Total:		**0**	**0**	
2022														
Cape Canaveral Next Generation Clean Energy Center	1	Brevard County	CC	NG	FO2	PL	TK	—	Jun-22	Unknown	1,295,400	—	87	P
Turkey Point	6	Miami Dade County	ST	NP	No	TK	No	2014	Jun-22	Unknown	Unknown	—	1,100	T
										2022 Changes/Additions Total:		**0**	**1,187**	
2023														
Cape Canaveral Next Generation Clean Energy Center	1	Brevard County	CC	NG	FO2	PL	TK	—	Jun-22	Unknown	1,295,400	87	—	P
Riviera Beach Next Generation Clean Energy Center	1	City of Riviera Beach	CC	NG	FO2	TK	WA	Jun-12	Apr-14	Unknown	1,295,400	—	55	P
Turkey Point	6	Miami Dade County	ST	NP	No	TK	No	2014	Jun-22	Unknown	Unknown	1,100	—	L
Turkey Point	7	Miami Dade County	ST	NP	No	TK	No	2015	Jun-23	Unknown	Unknown	—	1,100	L
										2022 Changes/Additions Total:		**1,187**	**1,155**	

(1) Schedule 8 shows only planned and prospective changes to generating facilities and does not reflect changes to existing purchases. Those changes are reflected on Tables ES-1, I.B.1 and I.B.2.

(2) The Winter Total MW value consists of all generation additions and changes achieved by January. The Summer Total MW value consists of all generation additions and changes achieved by June. All MW additions/changes occuring after August each year will be picked up for reserve margin calculation purposes in the following year.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Vero Beach Combined Cycle Capacity

(2) **Capacity**
a. Summer 46 MW
b. Winter 44 MW

(3) **Technology Type:** Combined Cycle

(4) **Anticipated Construction Timing**
a. Field construction start-date: Not Applicable - See Note 1 below.
b. Commercial In-service date: 2015

(5) **Fuel**
a. Primary Fuel Gas
b. Alternate Fuel Oil

(6) **Air Pollution and Control Strategy:** N/A

(7) **Cooling Method:** Once-through cooling water

(8) **Total Site Area:** 16 Acres

(9) **Construction Status:** See note 1 below

(10) **Certification Status:** See note 1 below

(11) **Status with Federal Agencies:** See note 1 below

(12) **Projected Unit Performance Data:**

Planned Outage Factor (POF):	20.5%	
Forced Outage Factor (FOF):	0.0%	
Equivalent Availability Factor (EAF):	72.5%	
Resulting Capacity Factor (%):	3.88%	
Average Net Operating Heat Rate (ANOHR):	9,397	Btu/kWh
Base Operation 75F,100%		

(13) **Projected Unit Financial Data**

Book Life (Years):	TBD	years
Total Installed Cost ($/kW):	Not Applicable	
Direct Construction Cost ($/kW):	Not Applicable	
AFUDC Amount ($/kW):	Not Applicable	
Escalation ($/kW):	Not Applicable	
Fixed O&M ($/kW-Yr): ($)	Not Applicable	
Variable O&M ($/MWH): ($)	Not Applicable	
K Factor:	Not Applicable	

NOTE 1: The combined cycle capacity consists of two existing units. This existing unit is being acquired by FPL as part of the arrangement for FPL to serve Vero Beach's load beginning in January 2015. FPL is also taking ownership of three steam units.The three steam units will be retired as soon as they aquired. FPL plans to retire the CC unit at the end of 2017.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Port Everglades Next Generation Clean Energy Center

(2) **Capacity**
a. Summer 1,237 MW
b. Winter 1,429 MW

(3) **Technology Type:** Combined Cycle

(4) **Anticipated Construction Timing**
a. Field construction start-date: 2014
b. Commercial In-service date: 2016

(5) **Fuel**
a. Primary Fuel: Natural Gas
b. Alternate Fuel: Ultra-low sulfur distillate

(6) **Air Pollution and Control Strategy:** Dry Low No_x Burners, SCR, Natural Gas, 0.0015% S. Distillate and Water Injection on Distillate

(7) **Cooling Method:** Once-through cooling water

(8) **Total Site Area:** Existing Site Acres

(9) **Construction Status:** U (Under construction, less than or equal to 50% complete)

(10) **Certification Status:** ---

(11) **Status with Federal Agencies:** ---

(12) **Projected Unit Performance Data:**

Planned Outage Factor (POF):	3.5%
Forced Outage Factor (FOF):	1.1%
Equivalent Availability Factor (EAF):	95.4%
Resulting Capacity Factor (%):	Approx. 90% (First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	6,330 Btu/kWh

(13) **Projected Unit Financial Data *,****

Book Life (Years):	30 years
Total Installed Cost (2016 $/kW):	928
Direct Construction Cost ($/kW):	
AFUDC Amount ($/kW):	87
Escalation ($/kW):	
Fixed O&M ($/kW-Yr): (2016 $)	30.00
Variable O&M ($/MWH): (2016 $)	0.10
K Factor:	1.51

* $/kW values are based on Summer capacity.
** Fixed O&M cost includes capital replacement.

NOTE: Total installed cost includes gas expansion, transmission interconnection and integration, escalation, and AFUDC. Demolition costs of existing plant are not included.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Lauderdale CT's (5 CTs will be added)

(2) **Capacity (for each CT)**

a. Summer	201	MW
b. Winter	223	MW

(3) **Technology Type:** Combustion Turbine

(4) **Anticipated Construction Timing**

a. Field construction start-date:	2017
b. Commercial In-service date:	2018

(5) **Fuel**

a. Primary Fuel	Natural Gas
b. Alternate Fuel	Ultra-low sulfur distillate

(6) **Air Pollution and Control Strategy:** Dry Low NO_x Burners, SCR, Natural Gas, 0.0015% S. Distillate and Water Injection on Distillate

(7) **Cooling Method:** Water to Air Heat Exchangers

(8) **Total Site Area:** Existing Site Acres

(9) **Construction Status:** P (Planned Unit)

(10) **Certification Status:** ---

(11) **Status with Federal Agencies:** ---

(12) **Projected Unit Performance Data:**

Planned Outage Factor (POF):	1.6%	
Forced Outage Factor (FOF):	1.0%	
Equivalent Availability Factor (EAF):	97.4%	
Resulting Capacity Factor (%):	3%	(First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR):	10,057	Btu/kWh
Base Operation 75F,100%		

(13) **Projected Unit Financial Data *,****

Book Life (Years):	30	years
Total Installed Cost (2018 $/kW):	547	
Direct Construction Cost ($/kW):		
AFUDC Amount ($/kW):	56	
Escalation ($/kW):		
Fixed O&M ($/kW-Yr): (2018 $)	17.63	
Variable O&M ($/MWH): (2018 $)	0.07	
K Factor:	1.59	

* $/kW values are based on Summer capacity.
** Fixed O&M cost includes capital replacement.

NOTE: Total installed cost includes transmission interconnection and integration, escalation, and AFUDC. Demolition costs of existing GTs are not included.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Unsited 3x1 CC

(2) **Capacity**

a. Summer	1,269	MW
b. Winter	1,429	MW

(3) **Technology Type:** Combined Cycle

(4) **Anticipated Construction Timing**

a. Field construction start-date:	2017
b. Commercial In-service date:	2019

(5) **Fuel**

a. Primary Fuel	Natural Gas
b. Alternate Fuel	Ultra-low sulfur distillate

(6) **Air Pollution and Control Strategy:** Dry Low NO_x Burners, SCR, Natural Gas, 0.0015% S. Distillate and Water Injection on Distillate

(7) **Cooling Method:** Once-through cooling water

(8) **Total Site Area:** TBD Acres

(9) **Construction Status:** P (Planned Unit)

(10) **Certification Status:** ---

(11) **Status with Federal Agencies:** ---

(12) **Projected Unit Performance Data:**

Planned Outage Factor (POF):	3.5%
Forced Outage Factor (FOF):	1.1%
Equivalent Availability Factor (EAF):	95.4%
Resulting Capacity Factor (%):	Approx. 90% (First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR):	6,334 Btu/kWh
Base Operation 75F,100%	

(13) **Projected Unit Financial Data *,****

Book Life (Years):	30 years
Total Installed Cost (2019 $/kW):	968
Direct Construction Cost ($/kW):	
AFUDC Amount ($/kW):	95
Escalation ($/kW):	872.79
Fixed O&M ($/kW-Yr): (2019 $)	22.25
Variable O&M ($/MWH): (2019 $)	0.72
K Factor:	1.51

* $/kW values are based on Summer capacity.
** Fixed O&M cost includes capital replacement.

NOTE: Total installed cost includes gas lateral, transmission interconnection and integration, escalation, and AFUDC.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Turkey Point Nuclear Unit 6

(2) **Capacity**
a. Summer 1,100 MW
b. Winter 1,100 MW

(3) **Technology Type:** Nuclear

(4) **Anticipated Construction Timing**
a. Field construction start-date: 2015
b. Commercial In-service date: 2022

(5) **Fuel**
a. Primary Fuel Uranium Dioxide
b. Alternate Fuel N/A

(6) **Air Pollution and Control Strategy:** N/A

(7) **Cooling Method:** Mechanical Draft Cooling Towers

(8) **Total Site Area:** 211 Acres

(9) **Construction Status:** L (Regulatory approval pending.Not under construction)

(10) **Certification Status:** L (Regulatory approval pending.Not under construction)

(11) **Status with Federal Agencies:** L (Regulatory approval pending.Not under construction)

(12) **Projected Unit Performance Data:**

Planned Outage Factor (POF):	TBD	
Forced Outage Factor (FOF):	TBD	
Equivalent Availability Factor (EAF):	TBD	
Resulting Capacity Factor (%):	Approx. 90%	(First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	TBD	Btu/kWh

(13) **Projected Unit Financial Data *,****

Book Life (Years):	TBD	years
Total Installed Cost ($/kW):	TBD	
Direct Construction Cost ($/kW):	TBD	
AFUDC Amount ($/kW):	TBD	
Escalation ($/kW):	TBD	
Fixed O&M ($/kW-Yr): ($)	TBD	
Variable O&M ($/MWH): ($)	TBD	
K Factor:	TBD	

* $/kW values are based on Summer capacity.
** Fixed O&M cost includes capital replacement.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Turkey Point Nuclear Unit 7

(2) **Capacity**
a. Summer 1,100 MW
b. Winter 1,100 MW

(3) **Technology Type:** Nuclear

(4) **Anticipated Construction Timing**
a. Field construction start-date: 2015
b. Commercial In-service date: 2023

(5) **Fuel**
a. Primary Fuel Uranium Dioxide
b. Alternate Fuel N/A

(6) **Air Pollution and Control Strategy:** N/A

(7) **Cooling Method:** Mechanical Draft Cooling Towers

(8) **Total Site Area:** 211 Acres

(9) **Construction Status:** L (Regulatory approval pending. Not under construction)

(10) **Certification Status:** L (Regulatory approval pending. Not under construction)

(11) **Status with Federal Agencies:** L (Regulatory approval pending. Not under construction)

(12) **Projected Unit Performance Data:**

Planned Outage Factor (POF):	TBD	
Forced Outage Factor (FOF):	TBD	
Equivalent Availability Factor (EAF):	TBD	
Resulting Capacity Factor (%):	Approx. 90%	(First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR):	TBD	Btu/kWh
Base Operation 75F,100%		

(13) **Projected Unit Financial Data *,****

Book Life (Years):	TBD	years
Total Installed Cost ($/kW):	TBD	
Direct Construction Cost ($/kW):	TBD	
AFUDC Amount ($/kW):	TBD	
Escalation ($/kW):	TBD	
Fixed O&M ($/kW-Yr): ($)	TBD	
Variable O&M ($/MWH): ($)	TBD	
K Factor:	TBD	

* $/kW values are based on Summer capacity.
** Fixed O&M cost includes capital replacement.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Vero Beach Existing Combined Cycle Capacity

The Vero Beach existing combined cycle capacity that FPL is projected to take ownership of starting January 1, 2015 does not require any "new" transmission lines.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Port Everglades Next Generation Clean Energy Center

The Port Everglades Next Generation Clean Energy Center which will result from the modernization of the Port Everglades power plant site does not require any "new" transmission lines.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Lauderdale Combustion Turbine Project

The Lauderdale Combustion Turbine (CT) project, which will result in the retirement of 36 aero-derivative combustion gas turbines at the Lauderdale and Port Everglades plant sites, and their replacement with 5 simple-cycle combustion turbines at the Lauderdale site, does not require any "new" transmission lines.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Unsited Combined Cycle in 2019

No projection of a new transmission line(s) can be made until a site is selected for this unit.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Turkey Point Nuclear Unit 6

The Turkey Point New Nuclear Project starting with the addition of Turkey Point Unit 6 will require a new substation and five new transmission lines terminating at existing substations.

(1)	Point of Origin and Termination:	New Clear Sky Substation – Levee Substation
(2)	Number of Lines:	2
(3)	Right-of-way	FPL Owned
(4)	Line Length:	43 miles
(5)	Voltage:	500 kV
(6)	Anticipated Construction Timing:	Start date: TBD End date: TBD
(7)	Anticipated Capital Investment: (Trans.and Sub.)	$ TBD
(8)	Substations:	New Clear Sky Substation and Levee Substation
(9)	Participation with Other Utilities:	None

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(1)	Point of Origin and Termination:	New Clear Sky Substation – Pennsuco Substation
(2)	Number of Lines:	1
(3)	Right-of-way	FPL Owned
(4)	Line Length:	52 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	Start date: TBD End date: TBD
(7)	Anticipated Capital Investment: (Trans.and Sub.)	$ TBD
(8)	Substations:	New Clear Sky Substation and Pennsuco Substation
(9)	Participation with Other Utilities:	None

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Turkey Point Nuclear Unit 6 (continued)

(1)	Point of Origin and Termination:	New Clear Sky Substation – Davis Substation
(2)	Number of Lines:	1
(3)	Right-of-way	FPL Owned
(4)	Line Length:	19 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	Start date: TBD End date: TBD
(7)	Anticipated Capital Investment: (Trans.and Sub.)	$ TBD
(8)	Substations:	New Clear Sky Substation and Davis Substation
(9)	Participation with Other Utilities:	None

(1)	Point of Origin and Termination:	Davis Substation – Miami Substation
(2)	Number of Lines:	1
(3)	Right-of-way	FPL Owned
(4)	Line Length:	18 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	Start date: TBD End date: TBD
(7)	Anticipated Capital Investment: (Trans.and Sub.)	$ TBD
(8)	Substations:	Davis Substation and Miami Substation
(9)	Participation with Other Utilities:	None

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Turkey Point Nuclear Unit 6 (continued)

(1)	Point of Origin and Termination:	New Clear Sky Substation – Turkey Point Substation
(2)	Number of Lines:	1
(3)	Right-of-way	FPL Owned
(4)	Line Length:	0.5 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	Start date: TBD End date: TBD
(7)	Anticipated Capital Investment: (Trans.and Sub.)	$ TBD
(8)	Substations:	New Clear Sky Substation and Turkey Point Substation
(9)	Participation with Other Utilities:	None

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Turkey Point Nuclear Unit 7

The transmission lines required for Turkey Point Unit 7 will be constructed with Turkey Point Unit 6 and are listed in the Schedule 10 for Turkey Point Nuclear Unit 6.

Schedule 11.1

Existing FIRM and NON-FIRM Capacity and Energy by Primary Fuel Type
Actuals for the Year 2013

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Net (MW) Capability				NEL	Fuel Mix
	Generation by Primary Fuel	Summer (MW)	Summer (%)	Winter (MW)	Winter (%)	GWh [2]	%
(1)	Coal	897	3.4%	911	3.3%	5,981	5.4%
(2)	Nuclear	3,453	13.2%	3,550	12.8%	25,243	22.6%
(3)	Residual	3,666	14.0%	3,700	13.4%	75	0.1%
(4)	Distillate	648	2.5%	710	2.6%	120	0.1%
(5)	Natural Gas	15,575	59.4%	16,785	60.6%	75,208	67.4%
(6)	Solar (Non-Firm)	35	0.1%	35	0.1%	155	0.1%
(7)	***FPL Existing Units Total [1]:***	***24,274***	***92.6%***	***25,691***	***92.8%***	***106,782***	***95.6%***
(8)	Renewables (Purchases)- Firm	61.0	0.2%	112.0	0.4%	43	0.0%
(9)	Renewables (Purchases)- Non-Firm	Not Applicable	---	Not Applicable	---	362	0.3%
(10)	***Renewable Total:***	61.0	0.2%	112.0	0.4%	405	0.36%
(11)	***Purchases Other :***	1,883.0	7.2%	1,891.0	6.8%	4,468	4.0%
(12)	***Total:***	*26,218.0*	*100.0%*	*27,694.0*	*100.0%*	*111,655*	*100.0%*

Note:
(1) FPL Existing Units Total values on row (7), columns (2) and (4), match the System Firm Generating Capacity values found on Schedule 1 for Summer and Winter.
(2) Net Energy for Load GWh values on row (12), column (6), matches Schedule 6.1 value for 2013.

Schedule 11.2

Existing NON-FIRM Self-Service Renewable Generation Facilities
Actuals for the Year 2013

(1)	(2)	(3)	(4)	(5)	(6) = (3)+(4)-(5)
Type of Facility	Installed Capacity DC (MW)	Renewable Projected Annual Output (MWh)	Annual Energy Purchased from FPL (MWh)	Annual Energy Sold to FPL (MWh)	Projected Annual Energy Used by Customers
Customer-Owned Renewable Generation (0 kW to 10 kW)	12.86	16,142	111,831	465	127,508
Customer-Owned Renewable Generation (> 10 kW to 100 kW)	6.69	8,758	197,171	376	205,553
Customer-Owned Renewable Generation (> 100 kW - 2 MW)	7.94	10,475	62,050	177	72,348
	27.49	35,375	371,052	1,018	405,409

Notes:

(1) There were 2,565 customers with renewable generation facilities interconnected with FPL on December 31, 2013.
(2) The Installed Capacity value is the sum of the nameplate ratings (DC MW) for all of the customer-owned renewable generation facilities connected as of Dec. 31,2013. One system does not have a DC rating. The AC valued of 0.75 MW was included in the (> 100 - 2 MW) row.
(3) The Projected Annual Output value is based on NREL's PV Watts 1 program and the Installed Capacity value in column (2), adjusted for the date when each facility was installed and assuming each facility operated as planned.
(4) The Annual Energy Purchased from FPL is an actual value from FPL's metered data for 2013.
(5) The Annual Energy Sold to FPL is an actual value from FPL's metered data for 2013.
(6) The Projected Annual Energy Used by Customers is a projected value that equals:
(Renewable Projected Annual output + Annual Energy Purchased) minus the Annual Energy Sold to FPL.

CHAPTER IV

Environmental and Land Use Information

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IV. Environmental and Land Use Information

IV.A Protection of the Environment

Florida is a sensitive, temperate/sub-tropical environment containing a number of distinct ecosystems with many endangered or threatened plant and animal species. Florida's residents, wildlife, and ecosystems require the same air, land, and water resources that are necessary to meet the demand for the generation, transmission, and distribution of electricity. The general public has an expectation that a large corporation, such as FPL, will conduct their business in an environmentally responsible manner that minimizes impacts to the natural environment.

FPL has been recognized for many years as one of the leaders among electric utilities for its commitment to the environment. Being responsible stewards of the environment is ingrained in FPL's corporate culture. FPL has one of the lowest emissions profiles among U.S. utilities and in 2013 its carbon dioxide (CO_2) emission rate was 35% lower (better) than the industry average.

FPL's environmental leadership and that of its parent company, NextEra Energy, Inc., has been heralded by many outside organizations as demonstrated by a few recent examples.

FPL's responsible tree care practices across its 35-county service area have been recognized for almost a decade. FPL has been the recipient of the Tree Line USA award annually from 2003 - 2013. This award is sponsored by the Arbor Day Foundation in cooperation with the National Association of State Foresters. The recognition is given to utilities that demonstrate quality tree care practices, annual worker training, and public education programs.

In 2013, FPL continued to support the Loggerhead Marinelife Center with a $21,500 donation toward the acquisition of a larger tank to assist in sea turtle rehabilitation. Two FPL employees serve as members of the Loggerhead Marinelife Center and are committed to its success. In addition, through a "Power to Care" charity event an additional $500 was collected by FPL staff and given to the Center. In past years, FPL has won the Loggerhead Marinelife Center's "Blue Business of the Year" award, which is given to those who are leading the way in raising awareness about, and have made significant contributions to improve and protect, South Florida's oceans, beaches, and wildlife. The award recognized FPL's protection and conservation of the endangered Florida manatee and the fostering of public and employee education and support.

FPL employees serve as board members for many organizations that focus on environmental restoration, preservation, and stewardship. A partial list of these organizations includes: Audubon Florida, the Everglades Foundation, the Arthur R. Marshall Foundation, The Nature Conservancy, and the Palm Beach Zoo.

IV.B FPL's Environmental Statement

At FPL and its parent company, NextEra Energy, Inc., we are committed to being an industry leader in environmental protection and stewardship, not only because it makes business sense, but because it is the right thing to do. Our commitment to compliance, conservation, communication, and continuous improvement fosters a culture of environmental excellence and drives the sustainable management of our business planning, operations, and daily work.

In accordance with our commitments to environmental protection and stewardship, FPL and NextEra Energy, Inc. endeavor to:

Comply

- Comply with all applicable environmental laws, regulations, and permits
- Proactively identify environmental risks and take action to mitigate those risks
- Pursue opportunities to exceed environmental standards
- Participate in the legislative and regulatory process to develop environmental laws, regulations, and policies that are technically sound and economically feasible
- Design, construct, operate, and maintain our facilities in an environmentally sound and responsible manner

Conserve

- Prevent pollution, minimize waste, and conserve natural resources
- Avoid, minimize, and/or mitigate impacts to habitat and wildlife
- Promote the efficient use of energy, both within our company and in our communities

Communicate

- Communicate this policy to all employees and publish it on the corporate website
- Invest in environmental training and awareness to achieve a corporate culture of environmental excellence
- Maintain an open dialogue with stakeholders on environmental matters and performance

Continuously Improve

- Establish, monitor, and report progress toward environmental targets
- Review and update this policy on a regular basis
- Drive continuous improvement through ongoing evaluations of our environmental management system to incorporate lessons learned and best practices.

This statement was updated in 2013 by FPL's parent company, NextEra Energy, Inc. to reflect changing expectations and ensure that employees are doing the utmost to protect the environment. FPL complies with all environmental laws, regulations, and permit requirements. FPL designs, constructs, and operates its facilities in an environmentally sound and responsible manner. It also responds immediately and effectively to any known environmental hazards or non-compliance situations. FPL's commitment to the environment does not end there. It proactively pursue opportunities to exceed current environmental standards, including reducing waste and emission of pollutants, recycling materials, and conserving natural resources throughout its operations and day-to-day work activities. FPL also encourages the efficient use of energy, both within the Company and in communities served by FPL. These actions are just a few examples of how FPL is committed to the environment.

To ensure that FPL is adhering to its environmental commitment, it has developed rigorous environmental governance procedures and programs. These include its Environmental Assurance Program and Corporate Environmental Governance Council. Through these programs, FPL conducts periodic environmental self-evaluations to verify that its operations are in compliance with environmental laws, regulations, and permit requirements. Regular evaluations also help identify best practices and opportunities for improvement.

IV.C Environmental Management

In order to successfully implement the Environmental Statement, FPL has developed a robust Environmental Management System program to direct and control the fulfillment of the organization's environmental responsibilities. A key component of the system is an Environmental Assurance Program. Other components of the system include: executive management support and commitment, a dedicated environmental corporate governance program, written environmental policies and procedures, delineation of organizational responsibilities and individual accountabilities, allocation of appropriate resources for environmental compliance management (which includes reporting and corrective action when non-compliance occurs), environmental incident and/or emergency response, environmental risk assessment/management, environmental regulatory development and tracking, and environmental management information systems.

As part of its commitment to excellence and continuous improvement, FPL began implementing an enhanced environmental data management information system (EDMIS) in 2013. Environmental data management software systems are increasingly viewed as an industry best-management practice to ensure environmental compliance. FPL's top goals for this project are to: 1) improve the flow of environmental data between site operations and corporate services to ensure compliance, and 2) improve operating efficiencies. In addition, the EDMIS will help standardize environmental data collection, thus improving external reporting to the public.

IV.D Environmental Assurance Program

FPL's Environmental Assurance Program consists of activities that are designed to evaluate environmental performance, verify compliance with corporate policy as well as legal and regulatory requirements, and communicate results to corporate management. The principal mechanism for pursuing environmental assurance is the environmental audit. An environmental audit may be defined as a management tool comprising a systematic, documented, periodic, and objective evaluation of the performance of the organization and of the specific management systems and equipment designed to protect the environment. The environmental audit's primary objectives are to facilitate management control of environmental practices and assess compliance with existing environmental regulatory requirements and FPL policies. In addition to FPL facility audits, the Environmental Assurance Program performs audits of third-party vendors used for recycling and/or disposal of waste generated by FPL operations. Vendor audits provide information used for selecting candidates or incumbent vendors for disposal and recycling needs.

FPL has also implemented a Corporate Environmental Governance System, in which quarterly reviews are performed by each business unit deemed to have significant environmental exposures. Quarterly reviews evaluate operations for potential environmental risks and consistency with the company's Environmental Policy. Items tracked during the quarterly reviews include processes for the identification and management of environmental risks, metrics, and indicators and progress / changes since the most recent review.

IV.E Environmental Communication and Facilitation

FPL is involved in many efforts to enhance environmental protection through the facilitation of environmental awareness and in public education. Some of FPL's 2013 environmental outreach activities are summarized in Table IV.E.1.

Table IV.E.1: 2013 FPL Environmental Outreach Activities

Activity	Count (#)
Visitors to FPL's Energy Encounter at St. Lucie	2,900
Visitors to Manatee Park, Ft. Myers	>210,000
Number of website visits to FPL's Environmental & Corporate Responsibility Websites	245,630
Visitors to Barley Barber Swamp (Treasured Lands Partnership)	1,492
Martin Energy Center Solar Tours	~850
Solar Schools Program (# of schools actively generating)	24 schools 5 demo sites An additional 67 schools will come online by the end of 2014

IV.F Preferred and Potential Sites

Based upon its projection of future resource needs, FPL has identified six (6) Preferred Sites and four (4) Potential Sites for future generation additions. Preferred Sites are those locations where FPL has conducted significant reviews and has either taken action, is currently committed to take action, or is likely to take action, to site new generating capacity. Potential Sites are those sites that have attributes that support the siting of generation and are under consideration as a location for future generation. Some of these sites are currently in use as existing generation sites and some are not. The identification of a Potential Site does not indicate that FPL has made a definitive decision to pursue generation (or generation expansion or modernization in the case of an existing generation site) at that location, nor does this designation indicate that the size or technology of a generator has been determined. Analyses of any modernization candidates would include evaluation of numerous factors including: fuel delivery, transmission, permitting, etc. The Preferred Sites and Potential Sites are discussed in separate sections below.

IV.F.1 Preferred Sites

The modernization of FPL's Riviera Beach site was scheduled to be completed on/near April 1, 2014 (the filing date for this 2014 Site Plan). Therefore, the Riviera Beach modernization is not discussed further in this chapter. FPL currently has identified six (6) Preferred Sites. Four of these are existing plant sites: Port Everglades, Lauderdale, Putnam and Turkey Point; two of these would be new plant sites: Hendry County and Northeast (NE) Okeechobee County.

The Port Everglades site is a location where modernization work, to replace the former steam generating units with new combined cycle (CC) technology, is in progress. The modernization work is scheduled to be completed in mid-2016. The existing gas turbines (GTs) at the Port Everglades and the Lauderdale sites are projected to be removed by the end of 2018. Five new

combustion turbines (CTs) are projected to be added at the Lauderdale site by the end of 2018 to partially replace the capacity from existing GTs at Port Everglades and at the Lauderdale sites. These actions will aid in addressing compliance with new air emissions standards. The Hendry County, NE Okeechobee County, and Putnam sites are the likely next locations for new CC units after the Port Everglades and Lauderdale projects mentioned above have been completed. In addition, the Hendry County and Okeechobee County sites are also likely sites for new photovoltaic (PV) facilities.

In regard to the Turkey Point site, the nuclear capacity uprate project was successfully completed in 2013. The new Turkey Point nuclear Units 6 & 7 are currently projected to come in-service in 2022 and 2023, respectively.

The first two Preferred Sites discussed below are in general chronological order with respect to when the capacity additions are projected to occur. The remaining four Preferred Sites are discussed in alphabetical order.

Preferred Site # 1: Port Everglades Plant, Broward County

This site is located on the existing FPL Port Everglades Plant property within the City of Hollywood, Broward County. The site is surrounded by the Port of Port Everglades. The site has barge access via the Port of Port Everglades. A rail line is located near the plant.

The previous site generating capacity was made up of two 200 MW (approximate) steam generating units (Units 1 & 2) and two 400 MW (approximate) steam generating units (Units 3 & 4). The four units have been taken out of service and dismantled as part of the modernization of the plant site.

The Port Everglades Plant site has been listed as a Preferred or Potential Site in previous FPL Site Plans for both CC and CT generation options. On April 9, 2012, the FPSC issued the final need order for the modernization of the existing Port Everglades Plant. As a result of the modernization of the site, the new generating unit - to be renamed the Port Everglades Next Generation Clean Energy Center (PEEC) – will replace the existing steam generating units with modern, highly efficient, lower-emission next-generation advanced CC technology. The existing four steam units have been removed from the site and will be replaced by a single new CC unit.

a. U.S. Geological Survey (USGS) Map

A USGS map of the PEEC site is found at the end of this chapter.

b. **Proposed Facilities Layout**

A general layout of the PEEC generating facilities is found at the end of this chapter.

c. **Map of Site and Adjacent Areas**

An overview map of the site and adjacent areas is also found at the end of this chapter.

d. **Existing Land Uses of Site and Adjacent Areas**

The existing Port Everglades Plant formerly consisted of two 200 MW (approximate) and two 400 MW (approximate) generating units with conventional dual-fuel fired steam boilers and steam turbine units. These generating units have now been removed as part of the modernization project. The plant site includes minimal vegetation. Adjacent land uses include port facilities and associated industrial activities, as well as light commercial and residential development.

e. **General Environment Features On and In the Site Vicinity**

1. **Natural Environment**

The majority of the site is comprised of facilities related to electric power generation for the former Port Everglades Plant generating units. The site is located adjacent to the Intracoastal Waterway. The site provides warm water as required for manatees pursuant to the facility's Manatee Protection Plan.

2. **Listed Species**

No adverse impacts to federally or state-listed terrestrial plants and animals are expected in association with construction at the site, due to the existing developed nature of the site and lack of suitable onsite habitat for listed species. The warm water discharges from the plant attract manatees, an endangered species. FPL continues to work closely with state and federal wildlife agencies to ensure protection of the manatees during the modernization process and upon operation of the new plant. FPL plans to install a temporary heating system to provide warm water for manatees as required pursuant to the facility's Manatee Protection Plan. FPL also anticipates complying with other manatee-related conditions of certification to ensure the protection of the manatees during the modernization work and during future operations of PEEC.

3. **Natural Resources of Regional Significance Status**

The construction and operation of a natural gas-fired CC generating facility at this location is consistent with the existing use at the site and is not expected to have any adverse impacts on parks, recreation areas, or environmentally sensitive lands.

4. **Other Significant Features**

FPL is not aware of any other significant features of the site.

f. **Design Features and Mitigation Options**

The design option is to replace the former units (Units 1 through 4) with one new approximately 1,237 MW (Summer) unit consisting of three new CTs, three new heat recovery steam generators (HRSG), and a new steam turbine. The new CC unit is projected to be in service in mid-2016. Natural gas delivered via an existing pipeline is the primary fuel type for the unit with ultra-low sulfur light fuel oil serving as a backup fuel.

In addition, all of the existing GTs at the Port Everglades site are projected to be removed by the end of 2018.

g. **Local Government Future Land Use Designations**

Local government future land use designation for the site is a combination of "Electrical Generating Facility" and "Utilities Use". A land use map of the site and adjacent areas is also found at the end of this chapter.

h. **Site Selection Criteria Process**

The Port Everglades site has been selected for modernization due to consideration of various factors including system load, ability to provide generation in the Miami-Dade/Broward region to help balance load and generation in the region, and economics. Environmental issues were not a deciding factor since this site does not exhibit significant environmental sensitivity or other environmental issues. However, there are environmental benefits of replacing the former steam units with a new CC unit including a significant reduction in system air emissions, improved aesthetics at the site, and continued warm water discharge for the manatees as required pursuant to the facility's Manatee Protection Plan. Further, modernizing this existing facility reduces the impact on natural resources by not requiring new land or new water resources.

i. **Water Resources**

Water from the Intracoastal Waterway via the Port of Port Everglades Slip No. 3 is currently used for once-through cooling water supply. The new plant will utilize portions of the existing once-through cooling water intake and discharge structures. Process and potable water for the modernized plant will come from the existing City of Ft. Lauderdale potable water supply.

j. **Geological Features of Site and Adjacent Areas**

FPL's Port Everglades Plant site is underlain by the surficial aquifer system. The surficial aquifer system in eastern Broward County is primarily composed of sand, sandstone, shell, silt, calcareous clay (marl), and limestone deposited during the Pleistocene and Pliocene ages. The sediments forming the aquifer system are the Pamlico Sand, Miami Oolite, Anastasia Formation, Key Largo Formation, and Fort Thompson Formation (Pleistocene) and the Tamiami Formation (Pliocene). The sediments in the eastern portion of the county are appreciably more permeable than in the west.

The surficial aquifer is underlain by at least 600 feet of the Hawthorn formation (confining unit). The Floridan Aquifer System underlies the Hawthorn formation.

k. **Projected Water Quantities for Various Uses**

The estimated quantity of water required for processing is approximately 0.24 million gallons per day (mgd) for uses such as process water and service water. Approximately 600 mgd of cooling water would be cycled through the once-through cooling water system which is a reduction of more than 51% from the previous fossil steam unit's capability. Potable water demand is expected to average .001 mgd.

l. **Water Supply Sources by Type**

The modernized plant will continue to use the Intracoastal Waterway as the source of once-through cooling water. Process and potable water for the new plant will come from the existing City of Ft. Lauderdale potable water supply.

m. **Water Conservation Strategies Under Consideration**

No additional water resources will be required as a result of the modernization project. CC technology uses less water by design than traditional steam generation units.

n. **Water Discharges and Pollution Control**

The modernized plant will utilize portions of the existing once-through cooling water system for heat dissipation. The heat recovery steam generator blowdown will be reused to the maximum extent practicable or mixed with the cooling water flow before discharge. Reverse osmosis (R/O) reject will be mixed with the plant's once-through cooling water system prior to discharge. Stormwater runoff will be collected and routed to stormwater ponds. The facility will employ a Best Management Practices (BMP) plan and Spill Prevention, Control, and Countermeasure (SPCC) plan to prevent and control the inadvertent release of pollutants.

o. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**

Natural gas for the new unit would be transported to the site via an existing natural gas pipeline to the site. New gas compressors to raise the gas pressure of the pipeline to the appropriate level for the new unit will be installed either at the existing site or off-site. Ultra-low sulfur light fuel oil would be received by truck, pipeline, or barge and stored in a new above-ground storage tank.

p. **Air Emissions and Control Systems**

The regulated air emission rates at the new plant would be approximately 90 percent lower than the previous Port Everglades Plant's emission rates, resulting in significant annual emissions reductions and air quality benefits per unit of energy produced. The use of natural gas, ultra-low sulfur light fuel oil, and combustion controls would minimize air emissions from the unit and ensure compliance with applicable emission limiting standards. Using these fuels minimizes emissions of sulfur dioxide (SO_2), particulate matter, and other fuel-bound contaminates. Combustion controls similarly minimize the formation of nitrogen oxides (NO_x) and the combustor design will limit the formation of carbon monoxide and volatile organic compounds. When firing natural gas, NO_x emissions will be controlled using dry-low NO_x combustion technology and selective catalytic reduction (SCR). Water injection and SCR will be used to reduce NO_x emissions during operations when using ultra-low sulfur light fuel oil as backup fuel. CC facility emissions of greenhouse gas emissions (GHGs) from combustion of natural gas achieve an emission rate substantially lower than the EPA proposed new source performance standards for GHGs. These design alternatives are equivalent to the Best Available Control Technology for air emissions, and minimize such emissions while balancing economic, environmental, and energy impacts. Taken together, the design of PEEC would incorporate features that will make it among the most efficient and cleanest power plants in the State of Florida.

q. **Noise Emissions and Control Systems**

Noise expected to be caused by unit construction at the site is expected to be below current noise levels for the residents nearest the site.

r. **Status of Applications**

FPL filed a need determination with the FPSC on November 21, 2011. The FPSC's final need order was issued on April 9, 2012. The Site Certification Application (SCA) was submitted January 24, 2012 resulting in the issuance of Final Order PA 12-57 on October 9, 2012. Concurrent with the SCA filing, FPL submitted applications for a Greenhouse Gas (GHG) permit, a Prevention of Significant Deterioration (PSD) permit, and an Industrial Wastewater Facility permit revision. The revised Industrial Wastewater Facility permit was issued

December 16, 2012. The GHG permit was issued December 26, 2013 and the PSD permit was issued May 1, 2012.

Preferred Site # 2: Lauderdale Plant, Broward County

This site is located at and situated within the existing FPL Lauderdale Plant property, approximately 392 acres, within the Cities of Dania Beach and Hollywood in Broward County, Florida. The jurisdiction for the City of Hollywood is a small area south of SW 42nd Street in the eastern portion of the property. The remainder of the Plant property is located in the City of Dania Beach. The Plant property is located east of U.S. Highway 441, north of Griffin Road, west of SW 30th Avenue, and south of Interstate 595. The existing accesses to the Plant are from SW 24th Avenue and SW 42nd Street. The adjacent properties include residential properties to the south, the South Broward County Resource Recovery Facility to the west, Pond Apple Slough to the north and commercial properties to the east.

The Lauderdale Plant includes two banks of 12 simple cycle gas turbines (GTs) that began operation in the early 1970s. These GTs are first generation GTs that are used to serve peak and emergency demands in a quick-start manner. Each bank of GTs has a net capacity of 420 (Summer) megawatts (MWs), and are authorized to operate on natural gas and distillate oil. Due to new nitrogen dioxide (NO_2) environmental regulations, FPL filed in June 2013 for FPSC approval to recover costs for removing all of its existing GTs and replacing a portion of the GT capacity with new CTs. In December 2013, FPL withdrew this request pending additional environmental monitoring and analyses. Computer modeling of the emissions from the GTs projected that the GTs would exceed the new NO_2 limit. FPL believes this monitoring and analyses will confirm that the operation of its existing GTs in Broward County will not comply with the new NO_2 regulations. Therefore, for planning purposes, FPL has assumed that all of its existing Broward County GTs will be removed (a loss of 1,260 MW Summer) and that this capacity will be partially replaced by 5 new CTs that would be sited in Broward County (an increase of 1,005 MW Summer). This GT removal and CT partial replacement is assumed to occur by the end of 2018.

a. U.S. Geological Survey (USGS) Map

A USGS map of the Lauderdale site is found at the end of this chapter.

b. Proposed Facilities Layout

A general layout of the Lauderdale generating facilities is found at the end of this chapter.

c. Map of Site and Adjacent Areas

An overview map of the site and adjacent areas is also found at the end of this chapter.

d. **Existing Land Uses of Site and Adjacent Areas**

The existing Lauderdale Plant includes two combined cycle units (Units 4 and 5) and two banks of 12 simple cycle gas turbines (GT1 through GT12 and GT13 through GT24). Units 4 and 5 have net capacity of 442 (Summer) MW each. Each bank of GTs has a net capacity of 420 (Summer) MW. The northern portion of the property is comprised of a forested wetland area adjacent to the Pond Apple Slough.

The adjacent properties to the Lauderdale Site include residential properties to the south, the South Broward County Resource Recovery Facility to the west, Pond Apple Slough to the north and commercial properties to the east. The Dania Cut-off Canal is located along the southern boundary and the South New River Canal is located along the western and northern boundaries.

e. **General Environment Features On and In the Site Vicinity**

1. **Natural Environment**

FPL Lauderdale Plant property consists of approximately 392 acres, within the Cities of Dania Beach and Hollywood in Broward County, Florida. The Project area comprises approximately 20 acres in the northern portion of the existing Plant site, and includes the approximately 6-acre north gas turbine site containing 12 gas turbines as well as approximately 14 acres of surrounding forested wetlands and upland spoil piles.

2. **Listed Species**

No negative impacts to threatened or endangered species are anticipated as a result of the CT Project.

Based upon the field assessment conducted in 2013, review of United States Fish and Wildlife (USFWS) and Florida Fish and Wildlife Conservation Commission (FWC) literature and databases, the Florida Natural Areas Inventory (FNAI) database of documented listed species occurrences, and the lack of suitable habitat, federally listed species are not anticipated to utilize the CT Project area. The potential occurrence of listed flora and fauna within the CT Project area is limited due to the surrounding land uses (industrial, commercial, and residential areas, as well as Ft. Lauderdale-Hollywood International Airport), and lack of suitable habitat within and surrounding the CT Project area to support partial or full life-cycle requirements of federally listed species known to occur within Broward County.

3. **Natural Resources of Regional Significance Status**

The construction and operation of the CT Project at this location is consistent with the existing use at the site and is not expected to have any adverse impacts on parks, recreation areas, or environmentally sensitive lands. No named wetlands, named surface waters, Outstanding Florida Waters, or Aquatic Preserves would be impacted by the proposed Project.

4. **Other Significant Features**

FPL is not aware of any other significant features of the site.

f. **Design Features and Mitigation Options**

In the event monitoring confirms that emissions from operation of the existing GTs would not comply with the NO_2 regulations, the design option is to remove 24 gas turbines (GTs) at the existing Lauderdale Plant, and an additional 12 simple cycle GTs at their nearby Port Everglades Plant, and replace them with five new highly efficient simple cycle combustion turbines (CTs). The CTs operate in simple cycle mode with associated stacks and produce electrical energy by direct connection to an electric generator. The CTs will operate using natural gas and ultra-low sulfur distillate (ULSD) oil as fuel.

g. **Local Government Future Land Use Designations**

The site is zoned General Industrial by the City of Dania Beach, a designation intended to provide for light and medium intensity industrial, research, and assembly fabrication uses. Electrical power plants are permitted within a General Industrial zoning designation as a special exception use only.

A land use map of the site and adjacent areas is also found at the end of this chapter.

h. **Site Selection Criteria Process**

The Lauderdale Plant site has been selected as a "Preferred" for the location of peaking unit facilities due to consideration of various factors including maximizing opportunities to utilize existing utility infrastructure, system load, transmission interconnection, and economics.

i. **Water Resources**

The Project will require a marginal increase in demineralized water that will be obtained from the existing Lauderdale Plant's water treatment system.

j. **Geological Features of Site and Adjacent Areas**

According to the Natural Resource Conservation Service (NRCS) Soil Survey of Broward County, the Project area is dominated by Okeelanta muck, with Udorthents, shaped as a minor association.

The Okeelanta series consists of very deep, very poorly drained, rapidly permeable soils in large fresh water marshes and small depressional areas. They formed in decomposed hydrophytic non-woody organic material overlying sand. Slopes range from zero to two percent. In un-drained areas the water table is at depths of less than ten inches below the surface or the soil is covered by water 6 to 12 months during most years. Areas of Okeelanta muck within the Project area support a mixed native and exotic hardwood wetland community.

k. **Projected Water Quantities for Various Uses**

The CT Project consists of CTs that are operated in simple cycle mode and do not require a heat dissipation system. As a result, there are no associated cooling water uses, cooling water discharges, or other heat dissipation impacts.

l. **Water Supply Sources by Type**

The CT Project would continue to acquire water from existing water contracts with Broward County. Therefore, the Project will have no adverse impact to groundwater. The CT Project would not use onsite groundwater or a new groundwater source for any purpose. The CT Project would have no adverse impact to surface water.

The CT Project would continue to use municipal potable water from the City of Hollywood to provide drinking water for employees. There is no projected increase in employment at the Lauderdale Plant as a result of the CT Project and no associated potable water use increase for that purpose. Therefore, there would be no impact to drinking water sources from the CT Project.

m. **Water Conservation Strategies Under Consideration**

No additional water resources would be required as a result of the CTs project.

n. **Water Discharges and Pollution Control**

There would be no surface water discharges required for the operation of the CT Project, other than storm water discharges from non-contact areas. Operation of the CT Project would not generate leachate and the stormwater management system has been designed to prevent

direct discharge to surface waters. Therefore, there would be no adverse impact to water supplies due to runoff or leachate from the CT Project.

The facility will employ a Best Management Practices (BMP) plan and Spill Prevention, Control, and Countermeasure (SPCC) plan to prevent and control the inadvertent release of pollutants.

o. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**

The fuel to be used in the CTs is natural gas and ULSD oil. Natural gas will be transported to the facility via existing pipeline. No onsite storage is provided for natural gas. ULSD oil would be trucked or piped to the facility and stored in double walled ULSD oil tanks.

p. **Air Emissions and Control Systems**

Air emission rates for NOx with the CT Project would be approximately 90 percent lower than the existing GT emission rates, resulting in significantly lower air quality impacts. In addition to lower air emissions, the maximum total air quality impacts for the CT Project are predicted to be well below and in compliance with the National Ambient Air Quality Standards (NAAQS). For pollutants such as NO_2, the CT Project's total air quality impacts are predicted to be significantly reduced by 40 percent or more compared to the existing GTs.

The use of clean fuels (natural gas and ULSD oil) and combustion controls would minimize air emissions of SO_2, sulfuric acid mist (SAM), particulates (PM/PM10/PM2.5), and other fuel-bound contaminants and ensure compliance with applicable emission-limiting standards. Combustion controls will minimize the formation of NOx and the formation of CO and VOCs by combustor design. Further NOx reduction will be achieved by water injection during oil firing.

q. **Noise Emissions and Control Systems**

It is not expected that noise from the CT Project would exceed the maximum permissible sound levels in Section 17-86 of the City of Dania Beach noise ordinance. The operation of the CTs is not expected to exceed the City of Dania Beach maximum permissible sound levels in residential areas.

The design of the CT Project includes components that mitigate noise from being emitted to the surrounding environment. The majority of the noise sources, such as the CTs, are located within enclosures that mitigate sounds emitted by equipment.

Noise expected to be caused by unit construction at the site is expected to be below current noise levels for the residents nearest the site.

r. **Status of Applications**

No licenses or permits have been issued for the CT Project. FPL has submitted applications to: the Florida Department of Environmental Protection (FDEP) for the Prevention of Significant Deterioration (PSD) air permit; U.S. Environmental Protection Agency (EPA) for the Greenhouse Gas air permit; and to the U. S. Army Corps of Engineers (USACE) for the 404 dredge and fill permit. These applications are currently in review with the respective agencies.

Preferred Site # 3: Hendry County, Hendry County

FPL has acquired an approximately 3,120-acre site in southeast Hendry County, off CR 833. The Hendry County site has been listed as a Preferred or Potential Site in previous FPL Site Plans as a possibility for a future PV facility and/or natural gas-fired CC generation. FPL currently views the Hendry site as one of the most likely sites to be used for future large-scale generation.

a. **Geological Survey (USGS) Map**

A USGS map of the site is found at the end of this chapter.

b. **Proposed Facilities Layout**

A map of the property owned by FPL is found at the end of this chapter.

c. **Map of Site and Adjacent Areas**

An overview map of the site and adjacent areas is also found at the end of this chapter.

d. **Existing Land Uses of Site and Adjacent Areas**

The existing and future land uses on the site are zoned Planned Unit Development (PUD). The PUD is currently being challenged. The existing land uses that are adjacent to the site are predominately agricultural. The property to the south is the Seminole Big Cypress Reservation.

e. **General Environment Features On and In the Site Vicinity**

1. **Natural Environment**

The natural environment adjacent to the north, east, and west of the site are used predominately for agricultural activities such as improved, unimproved, and woodland pasture. The majority of the pasture lands includes upland scrub, pine, and hardwoods. The Seminole Big Cypress Reservation lies to the south.

2. **Listed Species**

FPL strives to have no adverse impacts on federal- or state-listed terrestrial plants and animals. Much of southwest Florida is considered habitat for the endangered Florida

Panther. Although few or no impacts are expected in association with future construction at the site, FPL anticipates minimizing or mitigating for unavoidable wildlife or wetland impacts.

3. **Natural Resources of Regional Significance Status**

   Future construction and operation of a solar and/or a natural gas-fired CC generating facility at this location is not expected to have any adverse impacts on parks, recreation areas, or environmentally sensitive lands.

4. **Other Significant Features**

   FPL is not aware of any other significant features of the site.

f. Design Features and Mitigation Options

Options include construction of CC and/or solar power generation technologies. Mitigation for unavoidable impacts may occur through a combination of on- and off-site mitigation.

g. Local Government Future Land Use Designations

Local government future land use designation for the site is Utility. A land use map of the site and adjacent areas is also found at the end of this chapter.

h. Site Selection Criteria Process

The Hendry County site has been selected as "Preferred" due to consideration of various factors including system load, transmission interconnection, and economics.

i. Water Resources

Groundwater is anticipated to supply water to the Hendry County site.

j. Geological Features of Site and Adjacent Areas

The site is at an approximate elevation of 10 to 12 feet above mean sea level (msl) and is located on the Immokalee Rise and the Big Cypress Spur considered terraces created by high sea level events. The terraces are composed of fine quartz sands that lie discontinuously upon the surficial aquifer system whose sediments are the Fort Thompson (Pleistocene), Caloosahatchee Marl (Pleistocene and Pliocene), and Tamiami Formations (Pliocene). Other soil types in the area include limestone rock, calcareous muds, sands, organic materials, and mixed solids.

The surficial aquifer is underlain by the Hawthorn formation (confining unit). The Floridan Aquifer System underlies the Hawthorn formation.

k. **Projected Water Quantities for Various Uses**

The estimated quantity of water required for processing at a CC unit is approximately 0.24 million gallons per day (mgd) for uses such as process water and service water. Potable water demand is expected to average .001 mgd. Minimal amounts of water would be required for a PV facility. Approximately 7.5 mgd of cooling water would be used in cooling towers for one CC unit.

l. **Water Supply Sources by Type**

Potential water supply source is groundwater. Additional evaluations are necessary to determine the exact source. Process and potable water for the new plant will come from the existing potable water supply.

m. **Water Conservation Strategies Under Consideration**

CC and cooling tower technologies utilize less water by design than traditional steam generation units. PV facilities have minimal water demands. Specific water conservation strategies will be evaluated and selected during the detailed design phase of any development project.

n. **Water Discharges and Pollution Control**

A CC unit at the site would utilize a closed cycle cooling (towers) system for heat dissipation. The heat recovery steam generator blowdown will be reused to the maximum extent practicable or mixed with the cooling water flow before discharge. Reverse osmosis (R/O) reject will be mixed with the plant's cooling water flow prior to discharge. Wastewater disposal is anticipated via discharge to an Underground Injection Control well system. Stormwater runoff would be collected and routed to stormwater ponds. The facility will employ a Best Management Practices (BMP) plan and Spill Prevention, Control, and Countermeasure (SPCC) plan to prevent and control the inadvertent release of pollutants.

o. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**

Natural gas for a new CC unit will be transported to the site via a new natural gas pipeline lateral to the site. New gas compressors to raise the gas pressure of the pipeline to the appropriate level for the new unit may be necessary Ultra-low sulfur light fuel oil will be received by truck or pipeline and stored in an above-ground storage tank.

p. **Air Emissions and Control Systems**

The use of natural gas, ultra-low sulfur light fuel oil, and combustion controls would minimize regulated air emissions from a CC unit and ensure compliance with applicable emission

limiting standards. Using these clean fuels minimizes emissions of SO_2, PM, and other fuel-bound contaminates. Combustion controls similarly minimize the formation of NO_x and the combustor design will limit the formation of CO and VOCs. When firing natural gas, NO_x emissions will be controlled using dry-low NO_x combustion technology and selective catalytic reduction (SCR). Water injection and SCR will be used to reduce NO_x emissions during operations when using ultra low sulfur fuel oil as backup fuel. CC facility emissions of GHGs from combustion of natural gas achieve an emission rate substantially lower than the EPA's proposed new source performance standards for GHGs. These design alternatives are equivalent to the Best Available Control Technology for air emissions, and minimize such emissions while balancing economic, environmental, and energy impacts. Taken together, the design of a CC unit would incorporate features that would make it among the most efficient and cleanest power plants in the State of Florida. PV generation does not produce air emissions.

q. Noise Emissions and Control Systems

Noise anticipated to be caused by unit construction at the site is expected to be minimal.

r. Status of Applications

FPL has not submitted any application associated with the Hendry County site.

Preferred Site # 4: NE Okeechobee County, Okeechobee County

FPL has purchased a site of approximately 2,800 acres in Northeast Okeechobee County. The site is in an unincorporated, rural area and is predominantly used for agricultural production. FPL's transmission lines intersect the property. The Northeast Okeechobee County site has been listed as a Preferred or Potential Site in previous FPL Site Plans as a possibility for a natural gas-fired CC generation and/or future PV facility. Natural gas-fired CC generation will be made possible by the May,2017 projected commercial operating date of the Florida Southeast Connection (FSC) natural gas pipeline. FSC is within 3 miles of the NE Okeechobee County site. FPL currently views the Okeechobee site as one of the most likely sites to be used for future large-scale generation.

a. U.S. Geological Survey (USGS) Map

A USGS map of the Northeast Okeechobee site is found at the end of this chapter.

b. Proposed Facilities Layout

A map of the property owned by FPL is found at the end of this chapter.

c. **Map of Site and Adjacent Areas**

An overview map of the site and adjacent areas is also found at the end of this chapter.

d. **Existing Land Uses of Site and Adjacent Areas**

The Northeast Okeechobee County site is predominantly used for agricultural production (cattle and citrus). Adjacent land uses include primarily agriculture and conservation.

e. **General Environment Features On and In the Site Vicinity**

1. **Natural Environment**

The majority of the site is comprised of lands dedicated to agricultural production.

2. **Listed Species**

Minimal impacts to federal- or state-listed terrestrial plants and animals are expected in association with construction at the site, due to the existing developed nature of the site and lack of suitable onsite habitat for listed species.

3. **Natural Resources of Regional Significance Status**

The construction and operation of a power generating facility at this location is not expected to have any adverse impacts on parks, recreation areas, or environmentally sensitive lands.

4. **Other Significant Features**

FPL is not aware of any other significant features of the site.

f. **Design Features and Mitigation Options**

Options include construction of PV or CC technologies. Mitigation for unavoidable impacts may occur through a combination of on- and off-site mitigation.

g. **Local Government Future Land Use Designations**

Local government future land use designation for the site is predominantly unimproved pasture. A land use map of the site and adjacent areas is also found at the end of this chapter.

h. **Site Selection Criteria Process**

The Northeast Okeechobee County site has been selected as a Preferred Site due to consideration of various factors including system load, transmission interconnection, the proximity of the proposed FSC natural gas pipeline, and economics. Environmental issues were not a deciding factor since this site does not exhibit significant environmental sensitivity.

i. **Water Resources**

Groundwater is anticipated to supply water to the Northeast Okeechobee County site.

j. **Geological Features of Site and Adjacent Areas**

The hydrostratigraphy of the Northeast Okeechobee County site is similar to that of most of South Florida. In general, the groundwater system underlying Okeechobee County consists of the Surficial Aquifer System (SAS), the Intermediate Confining Unit (ICU), and the Floridan Aquifer System (FAS). The SAS consists of approximately 100 to 250 feet of undifferentiated deposits of sand, shell, clay and silt. The ICU consists of approximately 200 feet of carbonate rocks interbedded with sandy and silty clay. The multiple layers of the FAS extend thousands of feet below the ICU.

k. **Projected Water Quantities for Various Uses**

Potable water demand is expected to average .001 mgd. The estimated quantity of water required for processing at a CC unit is approximately 0.24 million gallons per day (mgd) for uses such as process water and service water. Approximately 7.5 mgd of cooling water would be used in cooling towers for a CC unit. Minimal amounts of water would be required for a PV facility.

l. **Water Supply Sources by Type**

Potential water supply source is groundwater. Additional evaluations are necessary to determine the exact source. Process and potable water for the new plant will come from the existing a potable water supply.

m. **Water Conservation Strategies Under Consideration**

CC technology utilizes less water by design than traditional steam generation units. PV facilities have minimal water demands. Specific water conservation strategies will be evaluated and selected during the detailed design phase of any development project.

n. **Water Discharges and Pollution Control**

A CC plant is anticipated to utilize a closed cycle cooling (towers) system for heat dissipation. The heat recovery steam generator blowdown will be reused to the maximum extent practicable or mixed with the cooling water flow before discharge. Reverse osmosis (R/O) reject will be mixed with the plant's cooling water flow prior to discharge. Wastewater disposal is anticipated via discharge to an Underground Injection Control well system. Stormwater runoff would be collected and routed to stormwater ponds. The facility will employ Best

Management Practices (BMP) and Spill Prevention, Control, and Countermeasure (SPCC) plans to prevent and control the inadvertent release of pollutants.

o. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**

Natural gas for a new CC unit will be transported to the site via a new natural gas pipeline lateral. New gas compressors to raise the gas pressure of the pipeline to the appropriate level for the new unit may be necessary. Back-up fuel supplies of ultra-low sulfur light fuel oil will be received by truck or pipeline and stored in an above-ground storage tank to ensure reliability of operations.

p. **Air Emissions and Control Systems**

The use of natural gas, ultra-low sulfur light fuel oil, and combustion controls would minimize regulated air emissions from a CC unit and ensure compliance with applicable emission limiting standards. Using these clean fuels minimizes emissions of SO_2, PM, and other fuel-bound contaminates. Combustion controls similarly minimize the formation of NO_x and the combustor design will limit the formation of CO and VOCs. When firing natural gas, NO_x emissions will be controlled using dry-low NO_x combustion technology and selective catalytic reduction (SCR). Water injection and SCR will be used to reduce NO_x emissions during operations when using ultra-low sulfur light fuel oil as backup fuel. CC facility emissions of GHGs from combustion of natural gas achieve an emission rate substantially lower than the EPA's proposed new source performance standards for GHGs. These design alternatives are equivalent to the Best Available Control Technology for air emissions, and minimize such emissions while balancing economic, environmental, and energy impacts. Taken together, the design of a CC unit would incorporate features that would make it among the most efficient and cleanest power plants in the State of Florida. PV generation does not produce air emissions.

q. **Noise Emissions and Control Systems**

Noise anticipated to be caused by unit construction at the site is expected to be minimal.

r. **Status of Applications**

FPL has not filed any applications associated with the Northeast Okeechobee County site.

Preferred Site # 5: Putnam Site, Putnam County

FPL is currently evaluating the existing Putnam Plant site for future natural gas-fired generation as part of a potential modernization project. This 66 acre site is located on the east side of Highway 100 opposite the former FPL Palatka Plant in East Palatka. The Putnam site has been listed as a Potential Site in previous FPL Site Plans as a possibility for future natural gas-fired CC generation.

FPL currently views the Putnam site as one of the most likely sites to be used for future large-scale generation.

a. U.S. Geological Survey (USGS) Map

A USGS map of the Putnam site is found at the end of this chapter.

b. Proposed Facilities Layout

A map of the property owned by FPL is found at the end of this chapter.

c. Map of Site and Adjacent Areas

An overview map of the site and adjacent areas is also found at the end of this chapter.

d. Existing Land Uses of Site and Adjacent Areas

The Putnam site is designated as Industrial land use. Adjacent land uses include power generation and associated facilities (the former Palatka Plant) as well as Mixed Wetland Hardwoods, Residential, and Hardwood-Coniferous Mixed.

e. General Environment Features On and In the Site Vicinity

1. Natural Environment

The majority of the site is developed and has facilities necessary for power plant operations. No significant environmental features have been identified at this time.

2. Listed Species

Minimal impacts to federal- or state-listed terrestrial plants and animals are expected in association with construction at the site, due to the existing developed nature of the site and lack of suitable onsite habitat for listed species.

3. Natural Resources of Regional Significance Status

The construction and operation of a power generating facility at this location is not expected to have any adverse impacts on parks, recreation areas, or environmentally sensitive lands.

4. Other Significant Features

FPL is not aware of any other significant features of the site.

f. Design Features and Mitigation Options

Options include construction of CC technology. Mitigation for unavoidable impacts may occur through a combination of on- and off-site mitigation.

g. **Local Government Future Land Use Designations**

Local government future land use designation for the site is Industrial. A land use map of the site and adjacent areas is also found at the end of this chapter.

h. **Site Selection Criteria Process**

The Putnam site has been selected as a Preferred Site due to consideration of various factors including system load, transmission interconnection, and economics.

i. **Water Resources**

The St John's River and/or regional water supply initiatives are potential water sources.

j. **Geological Features of Site and Adjacent Areas**

The hydrostratigraphy of the Putnam site is similar to that of most of North Florida. In general, the groundwater system underlying Putnam consists of the Surficial Aquifer System (SAS), and the Floridan Aquifer System (FAS).

k. **Projected Water Quantities for Various Uses**

Potable water demand is expected to average .001 million gallons per day (mgd). The estimated quantity of water required at a CC unit is approximately 0.24 mgd for uses such as process water and service water. Approximately 7.5 mgd of cooling water would be used in cooling towers for a CC unit.

l. **Water Supply Sources by Type**

Potential water supply source is the St. John's River. Additional evaluations are necessary to determine the exact source. Process and potable water for the new plant will come from the existing a potable water supply.

m. **Water Conservation Strategies Under Consideration**

CC and cooling tower technologies utilize less water by design than traditional steam generation units. Specific water conservation strategies will be evaluated and selected during the detailed design phase of the project development.

n. **Water Discharges and Pollution Control**

A CC plant is anticipated to utilize a closed cycle cooling (towers) system for heat dissipation. The heat recovery steam generator blowdown will be reused to the maximum extent practicable or mixed with the cooling water flow before discharge. Reverse osmosis (R/O)

reject will be mixed with the plant's cooling water flow prior to discharge. Wastewater disposal is anticipated via discharge to surface and/or ground water as is the case with the existing Putnam Plant. Stormwater runoff would be collected and routed to stormwater ponds. The facility will employ Best Management Practices (BMP) and Spill Prevention, Control, and Countermeasure (SPCC) plans to prevent and control the inadvertent release of pollutants.

o. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**

Natural gas for a new CC unit will be transported to the site via a new natural gas pipeline lateral. New gas compressors to raise the gas pressure of the pipeline to the appropriate level for the new unit may be necessary. Back-up fuel supplies of ultra-low sulfur light fuel oil will be received by water-borne delivery, truck, or pipeline and stored in an above-ground storage tank to ensure reliability of operations.

p. **Air Emissions and Control Systems**

The use of natural gas, ultra-low sulfur light fuel oil, and combustion controls would minimize regulated air emissions from a CC unit and ensure compliance with applicable emission limiting standards. Using these clean fuels minimizes emissions of SO_2, PM, and other fuel-bound contaminates. Combustion controls similarly minimize the formation of NO_x and the combustor design will limit the formation of CO and VOCs. When firing natural gas, NO_x emissions will be controlled using dry-low NO_x combustion technology and selective catalytic reduction (SCR). Water injection and SCR will be used to reduce NO_x emissions during operations when using ultra- low sulfur light fuel oil as backup fuel. CC facility emissions of GHGs from combustion of natural gas achieve an emission rate substantially lower than the EPA's proposed new source performance standards for GHGs. These design alternatives are equivalent to the Best Available Control Technology for air emissions and minimize such emissions while balancing economic, environmental, and energy impacts. Taken together, the design of a CC unit would incorporate features that would make it among the most efficient and cleanest power plants in the State of Florida.

q. **Noise Emissions and Control Systems**

Noise anticipated to be caused by unit construction at the site is expected to be minimal.

r. **Status of Applications**

FPL has not submitted any applications associated with the Putnam site.

Preferred Site # 6: Turkey Point Plant, Miami-Dade County

The Turkey Point Plant (Turkey Point) is located on the west side of Biscayne Bay, 25 miles south of Miami. Turkey Point is directly on the shoreline of Biscayne Bay and is geographically located

approximately 9 miles east of Florida City on Palm Drive. The land surrounding Turkey Point is owned by FPL and acts as a buffer zone. Turkey Point is comprised of two natural gas/oil conventional steam units (Units 1 & 2), two nuclear units (Units 3 & 4), one combined cycle natural gas unit (Unit 5), nine small diesel generators, and the cooling canals. A capacity uprate project for the two nuclear units was successfully completed in 2013. The Everglades Mitigation Bank (EMB), an approximately 13,000 acre, FPL-maintained natural wildlife and wetlands area that has been set aside, is located to the south and west of the site.

In regard to Turkey Point Units 6 & 7, FPL is pursuing licensing for two new nuclear units at Turkey Point. Each of these two units would provide 1,100 MW of capacity. The current projections for the earliest in-service dates for the two new units remain 2022 (for Turkey Point Unit 6) and 2023 (for Turkey Point Unit 7). In addition to the two generating units, supporting buildings, facilities, and equipment will be located on the Turkey Point Units 6 & 7 site, along with a construction laydown area. Proposed associated facilities include: a nuclear administration building, a training building, a parking area, an FPL reclaimed water treatment facility and reclaimed water pipelines, radial collector wells and delivery pipelines, an equipment barge unloading area, transmission lines (and transmission system improvements elsewhere within Miami-Dade County), access roads and bridges, and potable water pipelines.

a. U.S. Geological Survey (USGS) Map

USGS maps of the Turkey Point area, with the proposed location of Turkey Point Units 6 & 7 identified, are found at the end of this chapter.

b. Proposed Facilities Layout

Maps of the general layout of Turkey Point Units 6 &7 are found at the end of this chapter.

c. Map of Site and Adjacent Areas

Land Use / Land Cover overview maps of the Turkey Point Units 6 & 7 site and adjacent areas are also found at the end of this chapter.

d. Existing Land Uses of Site and Adjacent Areas

Turkey Point Plant is currently home to five generating units and support facilities that occupy approximately 150 acres of the approximately 9,400-acre Turkey Point property. Prominent features beyond the power block area include the intake system, cooling canal system, switchyard, spent fuel storage facilities, and technical and administrative support facilities The cooling canal system occupies approximately 5,900 acres.

The two 400-megawatt (MW) (nominal) fossil fuel-fired steam electric generation units at Turkey Point have been in service since 1967 (Unit 1) and 1968 (Unit 2). These units have historically burned residual fuel oil and/or natural gas with a maximum equivalent sulfur content of one percent. Unit 2 is currently serving, not as a power generating unit, but as a synchronous condenser to provide voltage support to the southeastern end of FPL's transmission system. The two original 700-MW (nominal) nuclear units have been in service since 1972 (Unit 3) and 1973 (Unit 4) and were uprated to a total of approximately 1,632 (Summer) MW's in 2013. Turkey Point Units 3 and 4 are pressurized water reactor (PWR) units. Turkey Point Unit 5 is a net 1,148 (Summer) MW natural gas-fired combined cycle unit that began operation in 2007. The site for the new Units 6 & 7 is south of existing Units 3 and 4 and occupies approximately 300 acres within the existing cooling canal system.

Properties adjacent to Turkey Point property are almost exclusively undeveloped land. The FPL-owned EMB is adjacent to most of the western and southern boundaries of Turkey Point property. The South Florida Water Management District (SFWMD) Canal L-31E is also situated to the west of Turkey Point property. The eastern portions of Turkey Point property are adjacent to Biscayne Bay, the Biscayne National Park (BNP), and Biscayne Bay Aquatic Preserve. The southeastern portion of Turkey Point property is bounded by state-owned land located on Card Sound. The Homestead Bayfront Park, owned and operated by Miami-Dade County, is situated to the north of the Turkey Point property.

e. General Environment Features On and In the Site Vicinity

1. Natural Environment

Turkey Point is located directly on the northwest, west, and southwest shoreline of Biscayne Bay and the Biscayne National Park, 25 miles south of Miami. Biscayne National Park was first established in 1968 as a National Monument and was expanded in 1980 to approximately 173,000 acres of water, coastal lands, and 42 keys. A portion of Biscayne Bay Aquatic Preserve, a state-owned preserve, is adjacent to the eastern boundary of the Turkey Point plant property. The Biscayne Bay Aquatic Preserve is a shallow, subtropical lagoon consisting of approximately 69,000 acres of submerged State land that has been designated as an Outstanding Florida Water.

The approximately 300-acre Turkey Point Units 6 & 7 site consists of the plant area and adjacent areas designated for laydown and ancillary facilities. The site includes hypersaline mud flats, man-made active cooling canals, man-made remnant canals, previously filled areas/roadways, mangrove heads associated with historical tidal channels, dwarf mangroves, open water /discharge canal associated with the cooling

canals on the western portion of the site, wet spoil berms associated with remnant canals, and upland spoil areas.

2. **Listed Species**

Threatened, endangered, and/or animal species of special concern known to occur at the site, transmission line corridors, or in the nearby Biscayne National Park, include the peregrine falcon *(Falco peregrinus)*, wood stork *(Mycteria americana)*, American crocodile *(Crocodylus acutus)*, roseate spoonbill (*Ajaja ajaja)*, little blue heron *(Egretta caerulea),* snowy egret *(Egretta thula),* American oystercatcher *(Haematopus palliates),* least tern *(Sterna antillarum)*, the white ibis *(Eudocimus albus)*, Florida manatee (Trichechus manatus latirostris), eastern indigo snake (Drymarchon couperi), snail kite (Rostrhamus sociabilis plumbeus), white-crowned pigeon (Patagioenas leucocephala), and bald eagle *(Haliaeetus leucocephalus)*. No bald eagle nests are known to exist in the vicinity of the site. The federally listed, threatened American crocodile thrives at Turkey Point, primarily in and around the southern end of the cooling canals which lie south of the Turkey Point Unit 6 & 7 area. The majority of Turkey Point is considered American crocodile habitat due to the mobility of the species and use of the site for foraging, traversing, and basking. FPL manages a program for the conservation and enhancement of the American Crocodile and the program is credited with survival improvement and contributing to the downlisting of the American Crocodile from endangered to threatened.

Some listed flora species likely to occur at the site or vicinity include pinepink (Bletia purpurea), Florida brickell-bush (Brickellia mosieri), Florida lantana (Lantana depressa var. depressa), mullien nightshade (Solanum donianum), and lamarck's trema (Trema lamarckianum).

The construction, and operation after construction, of Turkey Point Unit 6 & 7 project is not expected to adversely affect any rare, endangered, or threatened species.

3. **Natural Resources of Regional Significance Status**

Significant features within the vicinity of the site include Biscayne National Park, the Biscayne Bay Aquatic Preserve, Miami-Dade County Homestead Bayfront Park, and Everglades National Park. The portion of Biscayne Bay adjacent to the site is included within the Biscayne National Park. Biscayne National Park contains 180,000 acres, approximately 95 percent of which is open water interspersed with more than 40 keys. The Biscayne National Park headquarters is located approximately two miles north of Turkey Point and is adjacent to the Miami-Dade County Homestead Bayfront Park, which contains a marina and day-use recreational facilities.

4. **Other Significant Features**

FPL is not aware of any other significant features of the site.

f. **Design Features and Mitigation Options**

For Turkey Point Units 6 & 7, the technology proposed is the Westinghouse AP1000 pressurized water reactor (PWR). This design is certified by the Nuclear Regulatory Commission (NRC) under 10 CFR 52 and incorporates the latest technology and more advanced safety features than today's nuclear plants that have already achieved record safety levels. The Westinghouse AP1000 unit consists of the reactor, steam generators, pressurizer, and steam turbine/electric generator. Condenser cooling for the Units 6 & 7 steam turbines will be accomplished using six circulating water cooling towers. The makeup water reservoir is the reinforced concrete structure beneath the circulating water system cooling towers that will contain reserve reclaimed water capacity to be used for the circulating water system. The structures for the Westinghouse AP1000 are the nuclear island (containment building, shield building, and auxiliary building), turbine building, annex building, diesel generator building, and radwaste building. The plant area will also contain the Clear Sky substation (switchyard) that will connect Units 6 & 7 to FPL's transmission system.

g. **Local Government future Land Use Designations**

The Turkey Point Plant site is designated by the Miami-Dade County Comprehensive Development Management Plan as an IU-3 (Industrial, Utilities, and Communications) Unlimited Manufacturing District that carries a dual designation of MPA (Mangrove Protection Area) in portions of the property. There are also areas designated GU – "Interim District." Designations for the surrounding area are primarily GU – "Interim District."

h. **Site Selection Criteria Process**

For Turkey Point Units 6 & 7, FPL conducted an extensive site selection analysis leading to the selection of the Turkey Point site as the site that, on balance, provided the most favorable location for developing new nuclear generation to serve FPL's customers. The Site Selection Study employed the principles of the Electric Power Research Institute (EPRI) siting guidelines and is modeled upon applicable NRC site suitability and National Environmental Policy Act (NEPA) criteria regarding the consideration of alternative sites. The study convened a group of industry and FPL subject matter experts to develop and assign weighting factors to a broad range of site selection criteria. Twenty-three candidate sites were then ranked using the siting criteria. This review allowed the list of candidates to be reduced until the best site emerged. Key factors contributing to the selection of the Turkey Point site include the existing transmission and transportation infrastructure to support new generation, the large size and seclusion of the site while being relatively close to the load center, and the

long-standing record of safe and secure operation of nuclear generation at the site since the early 1970s.

i. **Water Resources**

In regard to Turkey Point Units 6 & 7, the primary source of cooling water makeup will be reclaimed water from the Miami-Dade County Water and Sewer Department (MDWASD), with potable water also from MDWASD. When reclaimed water is not available in sufficient quantity and quality of water needed for cooling, makeup water will be saltwater supplied by radial collector wells that are recharged from the marine environment of Biscayne Bay. Horizontal collector wells (radial collector wells) have become widely used for the purpose of inducing infiltration from surface water bodies into hydraulically-connected aquifer systems in order to develop moderate to high capacity water supplies. Turkey Point Units 6 & 7 wastewater will be discharged via on-site deep injection wells.

j. **Geological Features of Site and Adjacent Areas**

Turkey Point lies upon the Floridian Plateau, a partly-submerged peninsula of the continental shelf. The peninsula is underlain by approximately 4,000 to 15,000 feet of sedimentary rocks consisting of limestone and associated formations that range in age from Paleozoic to Recent. Little is known about the basement complex of Paleozoic igneous and metamorphic rocks due to their great depth.

Generally in Miami-Dade County, the surficial aquifer (Biscayne Aquifer) consists of a wedge-shaped system of porous clastic and carbonate sedimentary materials, primarily limestone and sand deposits of the Miocene to late Quaternary age. The Biscayne Aquifer is thickest along the eastern coast and varies in thickness from 80 to 200 feet thick. The surficial aquifer is typically composed of Pamlico Sand, Miami Limestone (Oolite), the Fort Thompson and Anastasia Formations (lateral equivalents), Caloosahatchee Marl, and the Tamiami formation. The lower confining layers below the surficial aquifer range in thickness from 350 to 600 feet and are composed of the Hawthorn Group. Beneath the Hawthorn Group, the Floridan Aquifer System ranges from 2,800 to 3,400 feet thick and consists of Suwannee Limestone, Avon Park Limestone, and the Oldsmar Formations.

k. **Projected Water Quantities for Various Uses**

The estimated quantity of water required for the new Turkey Point Units 6 & 7 for industrial processing is approximately 936 gallons per minute (gpm) for uses such as process water and service water. Approximately 55.3 million gallons per day (mgd) of cooling water would be cycled through the cooling towers. Water quantities needed for other uses such as potable water are estimated to be approximately 50,400 gallons per day (gpd) for Units 6 & 7.

l. **Water Supply Sources and Type**

The water for the various water needs of Turkey Point 6 & 7 will be obtained from a reclaimed water supply, a saltwater supply, and a potable water supply. Reclaimed water will be used as makeup water to the cooling water system with saltwater from radial collector wells as a back-up water source to be used when reclaimed water is not available in sufficient quantity or quality.

Potable water will be used as makeup water for the service water system. The potable water supply will also provide water to the fire protection system, demineralized water treatment system, and other miscellaneous uses.

m. **Water Conservation Strategies**

Use of reclaimed water from MDWASD Turkey Point Units 6 & 7 is a beneficial and cost-effective means of increasing the use of reclaimed water. This use of reclaimed water helps Miami-Dade County meet approximately half of its wastewater reuse goals and will provide environmental benefits by reducing the volume of wastewater discharged by the County. In the absence of reuse opportunities, this treated domestic wastewater would likely continue to be discharged to the ocean or into deep injection wells.

Miami-Dade County is required to eliminate ocean outfalls and increase the amount of water that is reclaimed for environmental benefit and other beneficial uses. Turkey Point Units 6 & 7 will use reclaimed water 24 hours per day, 365 days per year when operating and when the reclaimed water is available in sufficient quantity and quality.

n. **Water Discharges and Pollution Control**

Turkey Point Units 6 & 7 will dissipate heat from the power generation process using cooling towers. Blowdown water or discharge from the cooling towers, along with other wastestreams, will be injected into the boulder zone of the Floridan Aquifer. Non-point source discharges are not an issue since there will be none at this facility. Storm water runoff will be released to the closed-loop cooling canal system.

Turkey Point Units 6 & 7 will employ Best Management Practices (BMP) plans and Spill Prevention, Control, and Countermeasure (SPCC) plans to prevent and control the inadvertent release of pollutants.

o. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**

The Turkey Point Units 6 & 7, reactors will contain enriched uranium fuel assemblies. A fuel assembly consists of 264 fuel rods, 24 guide thimbles, and 1 instrumentation tube in a 17-by-

17 square array. The fuel rods consist of enriched uranium, in the form of cylindrical pellets of sintered uranium dioxide contained in ZIRLO™ tubing.

New fuel assemblies will be transported to Turkey Point for use in Units 6 & 7 by truck from a fuel fabrication facility in accordance with U.S. Department of Transportation (DOT) and NRC regulations. Spent fuel assemblies being discharged will remain in the spent fuel pool while short half-life isotopes decay.

After a sufficient decay period, the fuel would be transferred to an on-site independent spent fuel storage installation facility or an off-site disposal facility. Packaging of the fuel for off-site shipment will comply with the applicable DOT and NRC regulations for transportation of radioactive material.

The U.S. Department of Energy (DOE) is responsible for spent fuel transportation from reactor sites to a repository under the Nuclear Waste Policy Act of 1982, as amended. FPL has executed a standard spent nuclear fuel disposal contract with DOE for fuel used in Units 6 & 7.

p. **Air Emissions and Control Systems**

Turkey Point Units 1, 2, and 5, and the emergency diesel generators associated with Units 3 and 4, are classified as a major source of air pollution. FDEP has issued a separate Title V Air Operating Permit for the fossil units at Turkey Point and for the emergency diesel generators associated with the nuclear units. There are no operating limits for the emergency generators or diesel engines. Emergency diesel generators are limited to use ultra-low sulfur diesel fuel (0.0015% sulfur). NO_x emissions are regulated under Reasonably Available Control Technology (RACT) requirements in Rule 62-296.570(4) (b) 7 F.A.C., which limit NO_x emissions to 4.75 lb/MMBtu. The use of 0.05 percent sulfur diesel fuel and good combustion practices serve to keep NO_x emissions under this limit.

Regarding Turkey Point Units 6 & 7, the units will also minimize FPL system air pollutant emissions by using nuclear fuel to generate electric power. This includes avoiding emissions of particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO_2), and volatile organic compounds (VOC). The circulating water cooling towers will be equipped with high-efficiency drift or mist eliminators to minimize emissions of PM to 0.0005 percent of the circulating water; which represents 99.99-percent control of potential drift emissions based on the circulating water flow.

The diesel engines necessary to support Turkey Point Units 6 & 7 and fire pump engines will be purchased from manufacturers whose engines meet the EPA's New Source Performance Standards (NSPS) Subpart IIII emission limits.

q. **Noise Emissions and Control Systems**

Field surveys and impact assessments of noise expected to be caused by activities associated with the Turkey Point Units 6 & 7 project were conducted. Predicted noise levels associated with these projects are not expected to result in adverse noise impacts in the vicinity of the site.

r. **Status of Applications**

The Turkey Point Units 6 & 7 Site Certification Application (SCA), under the Florida Electrical Power Plant Siting Act, was filed in June 2009 and a final order is anticipated in mid-2014. The FPSC issued the final order approving the need for this additional nuclear capacity in April 2008.

A Combined License Application for Units 6 & 7 was submitted to the NRC in June 2009. There are two components to that application; one is the Environmental Assessment (EA) and the other is the Safety component. The Application is still in process.

Besides the certification and the license, additional approvals have been issued for Turkey Point Units 6 & 7 including Miami-Dade County Unusual Use approvals that were issued in 2007 and 2013 and a Land Use Consistency Determination that was issued in 2013. The Prevention of Significant Deterioration (Air permit) was issued in 2009. In addition, a permit to construct an exploratory well and a dual zone monitoring well, under the Underground Injection Control Program, was issued in 2010, and a permit to convert the exploratory well, to an injection well and to operationally test the system, was issued in 2013. Permits from the Federal Aviation Administration (FAA) for the containment structure were originally issued in 2009 and renewed in 2012.

The western transmission lines associated with Units 6 & 7 (2 500 kV New Clear Sky Substation – Levee Substation and 1 230 kV New Clear Sky Substation – Pennsuco Substation) will utilize the existing approximately 40-mile-long transmission line right-of-way acquired by FPL in the 1960s and early 1970s between the Turkey Point plant property and Levee Substation. A 7.4 mile long segment of that existing right-of-way became surrounded by the Everglades National Park in 1989 when the East Everglades Expansion Area south of Tamiami Trail (US-41) was added to the Park. The National Park Service and several other federal, state and local agencies entered into contingent agreements in 2008 to exchange

FPL's fee-owned property within the Park for an alternative right-of-way along the Park's eastern boundary (the Exchange Right-of-Way). That land exchanges was authorized by the U.S. Congress in the 2009 Omnibus Public Lands Management Act, and the National Park Service is currently engaged in a National Environmental Policy Act (NEPA) review of the proposed exchange. The Recommended Order to be considered by the Siting Board in 2014 recommends for approval FPL's West Preferred Corridor, which includes the Exchange Right-of-Way, as a back-up western transmission line corridor to another corridor. The primary western corridor recommended for approval is the West Consensus Corridor (comprising an alternate corridor proposed by the Miami-Dade Limestone Products Association and a portion of FPL's West Preferred Corridor). Both of those western transmission line corridors recommended for certification use the Exchange Right-of-Way. In the event the pending land exchange with the National Park Service and other agencies is not consummated on a timely basis, FPL will need to evaluate other potential western corridors for the western transmission lines associated with Units 6 & 7, including its existing fee-owned right-of-way in the Park, and seek necessary approvals for construction of the required transmission facilities.

IV.F.2 Potential Sites for Generating Options

Four (4) sites are currently identified as Potential Sites for future generation additions to meet FPL's projected capacity and energy needs.[6] These sites have been identified as Potential Sites due to considerations of location to FPL load centers, space, infrastructure, and/or accessibility to fuel and transmission facilities. These sites are suitable for different capacity levels and technologies, including both renewable energy and non-renewable energy technologies for various sites.

Each of these Potential Sites offer a range of considerations relative to engineering and/or costs associated with the construction and operation of feasible technologies. In addition, each Potential Site has different characteristics that will require further definition and attention.

Permits are presently considered to be obtainable for each of these sites. No significant environmental constraints are currently known for any of these sites. The Potential Sites briefly discussed below are presented in alphabetical order. At this time, FPL considers each site to be equally viable.

[6] As has been described in previous FPL Site Plans, FPL also considers a number of other sites as possible sites for future generation additions. These include the remainder of FPL's existing generation sites and other Greenfield sites. Greenfield sites that FPL currently does not own, or for which FPL has not currently secured the necessary rights to, are not specifically identified as Potential Sites in order to protect the economic interests of FPL and its customers.

Potential Site # 1: Babcock Ranch, Charlotte County

This site is located within the proposed Babcock Ranch Community on the north side of Tuckers Grade, approximately 10.5 miles north of the intersection of SR-80 and SR-31 and 1.1 miles east of SR-31. The project is bordered on the north by the Babcock Ranch Preserve owned by the State of Florida. This site is a possibility for an FPL PV facility. FPL has received all permits necessary to construct a 74 MW PV facility at this location.

a. **U.S. Geological Survey (USGS) Map**

A map of this site is found at the end of this chapter.

b. **Land Uses**

Existing land use on the site is the Babcock Ranch Overlay District, and it is zoned as the Babcock Ranch Overlay Zoning District. This land use and zoning allows for solar facilities.

c. **Environmental Features**

FPL anticipates mitigating for unavoidable wildlife and/or wetland impacts as needed as a result of a PV project constructed at this site.

d. **Water Quantities**

Minimal amounts of water, if any, would be required for a PV facility.

e. **Supply Sources**

Minimal water would be required for a PV facility. A small amount may be needed to occasionally clean the solar panels in the absence of sufficient rainfall. Any such water may be brought to the site by truck.

Potential Site # 2: DeSoto Solar Expansion, DeSoto County

The DeSoto site is located at 4051 Northeast Karson Street which is approximately 0.3 miles east of U.S. Highway 17 and immediately north of Bobay Road in Arcadia, Florida. The site is located in Sections 26, 27, & 35, Township 36 South, and Range 25 East. FPL owns an approximate 13,000 acre parcel in DeSoto County. FPL has designated approximately 5,177 acres for development of a PV facility.

The DeSoto site is home to a 25 MW PV facility that has been operational since 2009. Up to an additional 275 MW of PV generation could be constructed in phases on the remaining undeveloped land. FPL has initiated permitting for the additional PV facilities.

a. **U.S. Geological Survey (USGS) Map**

A map of this site is found at the end of this chapter.

b. **Land Uses**

Existing land use on the site is agricultural. The future land use is Electric Generating Facility.

c. **Environmental Features**

There are no significant environmental features on the site.

d. **Water Quantities**

Minimal amounts of water would be required for a future expansion of the existing PV facility.

e. **Supply Sources**

Minimal water would be required for an expanded PV facility. A small amount may be needed to occasionally clean the PV panels in the absence of sufficient rainfall. Potable water will be required in the administration building and maintenance building. FPL would propose to utilize existing wells onsite to accommodate water needs.

Potential Site # 3: Manatee Plant Site, Manatee County

The existing FPL Manatee Plant 9,500-acre site is located in unincorporated north-central Manatee County. The existing power generating facilities are located in all or portions of Sections 18 and 19 of Township 33S, Range 20-E. The plant site lies approximately 5 miles east of Parrish, Florida. It is approximately 5 miles east of U.S. Highway 301 and 9.5 miles east of Interstate Highway 75 (I-75). The existing plant is approximately 2.5 miles south of the Hillsborough-Manatee County line. A portion of the north property boundary of the plant site abuts the county line. State Road 62 (SR 62) is about 0.7 mile south of the plant, with the plant entrance road going north from that highway. This site is a possible location for an FPL PV facility. FPL has received the federal and state permits required to construct approximately 50 MW of PV at this location.

a. **U.S. Geological Survey (USGS) Map**

A map of the site is found at the end of this chapter.

b. **Land Uses**

Existing land use on the site is agricultural. The property is zoned Planned Development / Public Interest (PD-PI), which will allow for electrical generation.

c. **Environmental Features**

FPL anticipates mitigating for unavoidable wildlife and/or wetland impacts as needed as a result of a PV project constructed at this site.

d. **Water Quantities**

Minimal amounts of water would be required for a PV facility.

e. **Supply Sources**

Minimal water would be required for a PV facility. A small amount may be needed to occasionally clean the PV panels in the absence of sufficient rainfall. Panel cleaning water source may be existing potable water or water tank trucked to the site.

Potential Site # 4: Martin County, Martin County

FPL is currently evaluating potential sites in Martin County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**

A USGS map of the county has been included at the end of this chapter.

b. **Land Uses**

This information is not available because a specific site has not been selected at this time.

c. **Environmental Features**

This information is not available because a specific site has not been selected at this time.

d. **Water Quantities**

Minimal amounts of water would be required for a PV facility.

e. **Supply Sources**

Minimal water would be required for a PV facility. A small amount may be needed to occasionally clean the PV panels in the absence of sufficient rainfall.

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Environmental and Land Use Information:

Supplemental Information

Preferred Site #1: Port Everglades Plant

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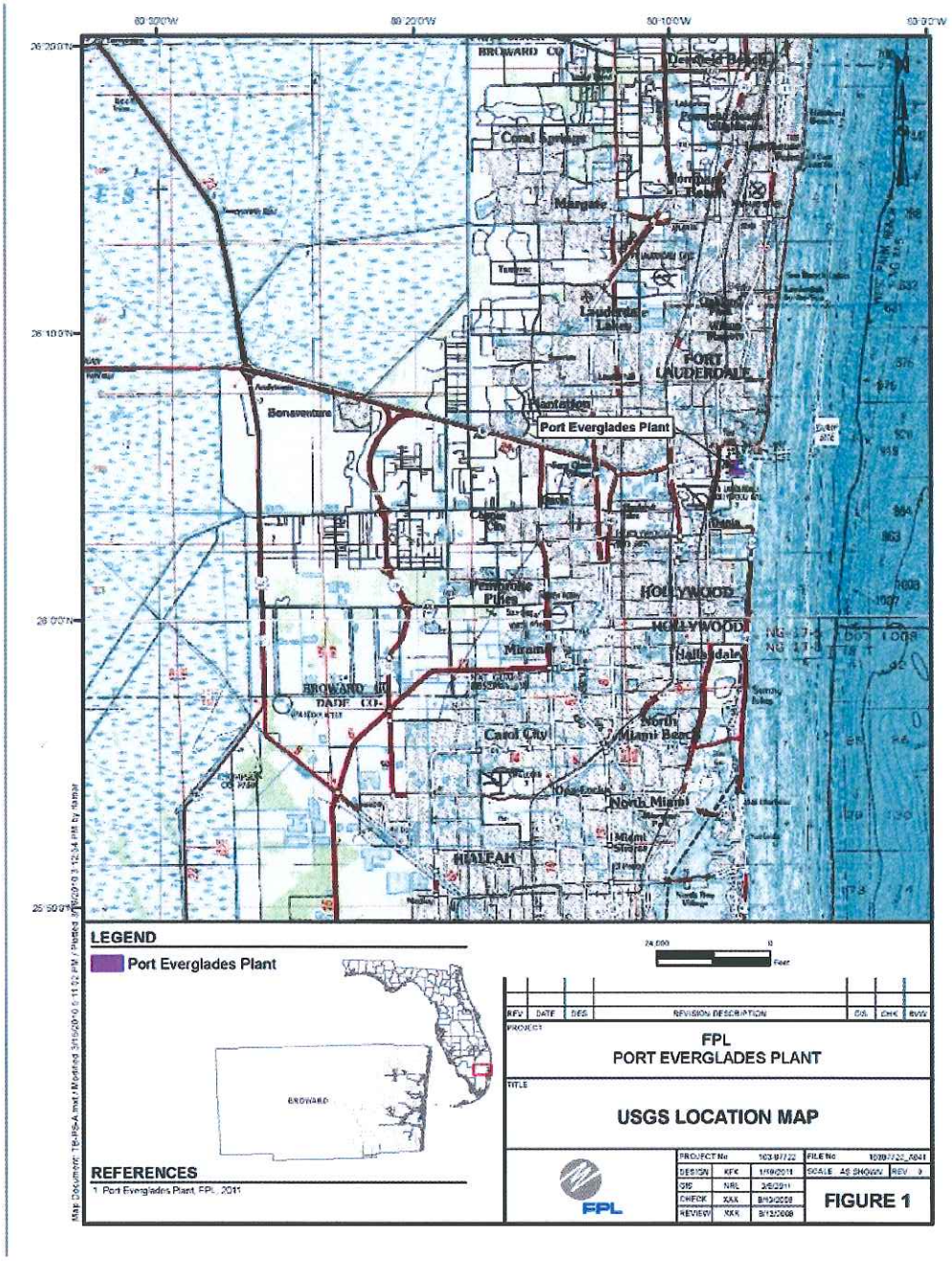
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Tamarac
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FORT LAUDERDALE
Plantation
Sunrise
Port Everglades Plant
Pembroke Pines
HOLLYWOOD
Miramar
Hallandale
BROWARD CO
DADE CO
Coral City
North Miami Beach
North Miami
Miami Springs
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REFERENCES
1. Port Everglades Plant, FPL, 2011
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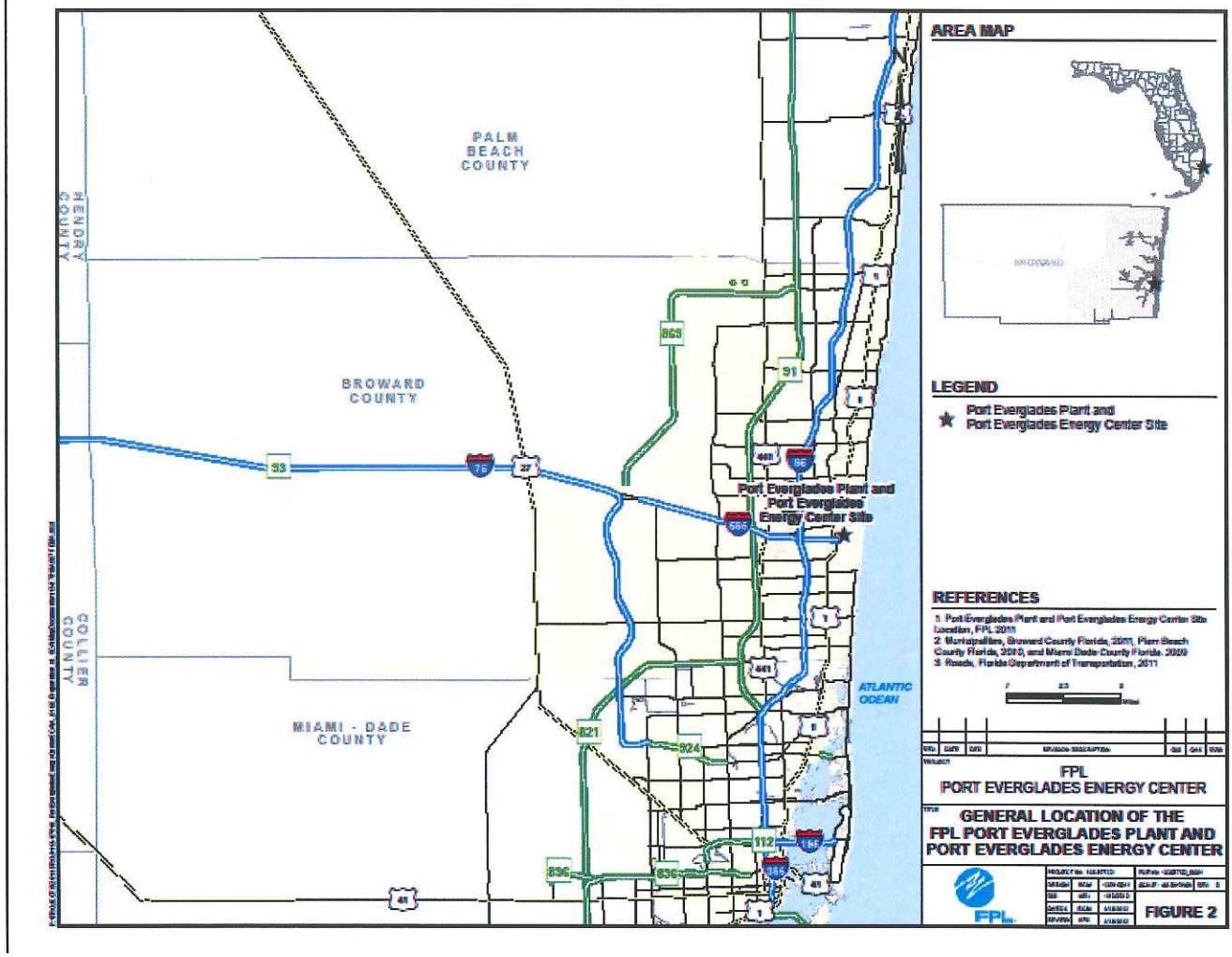
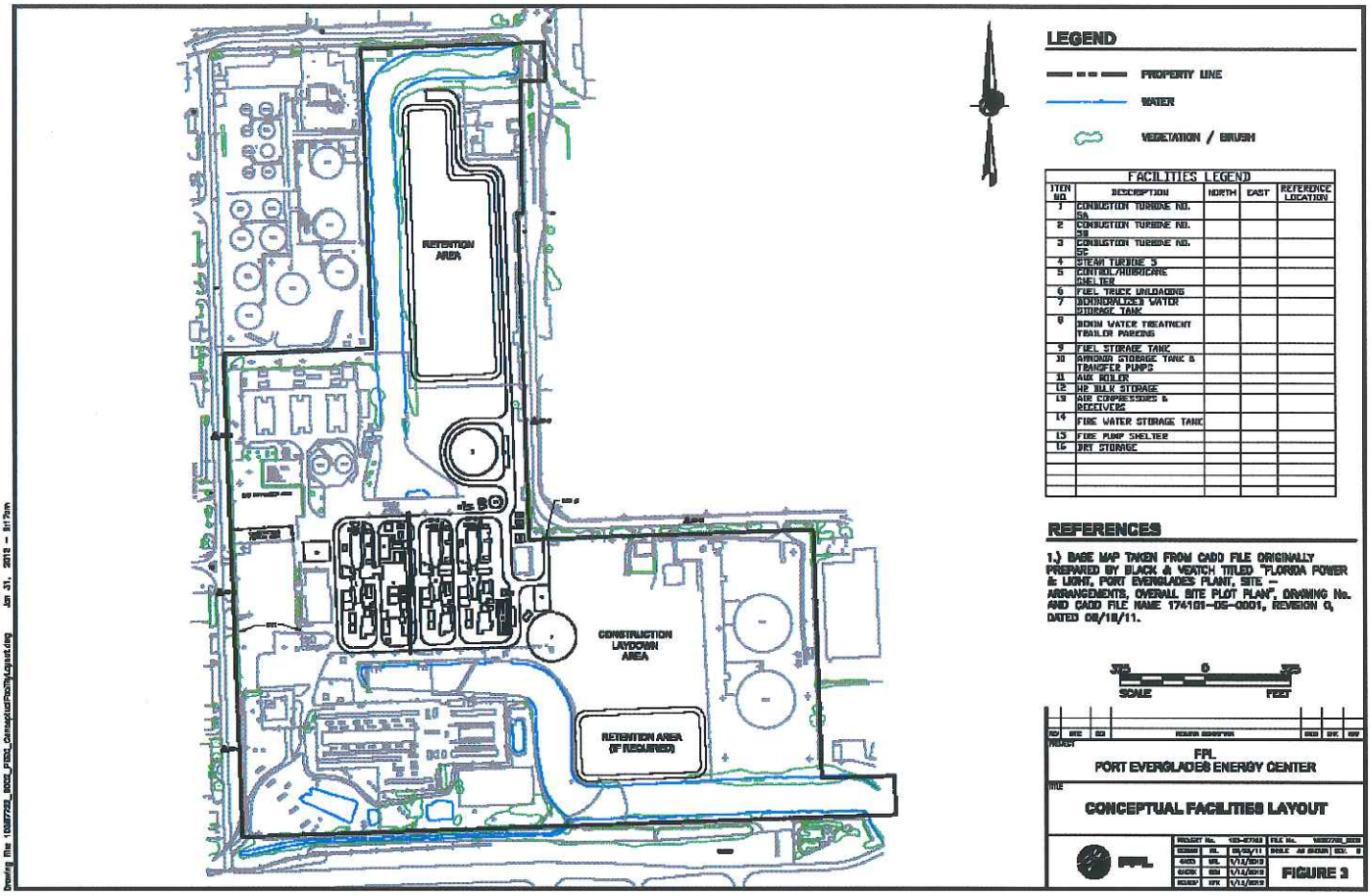
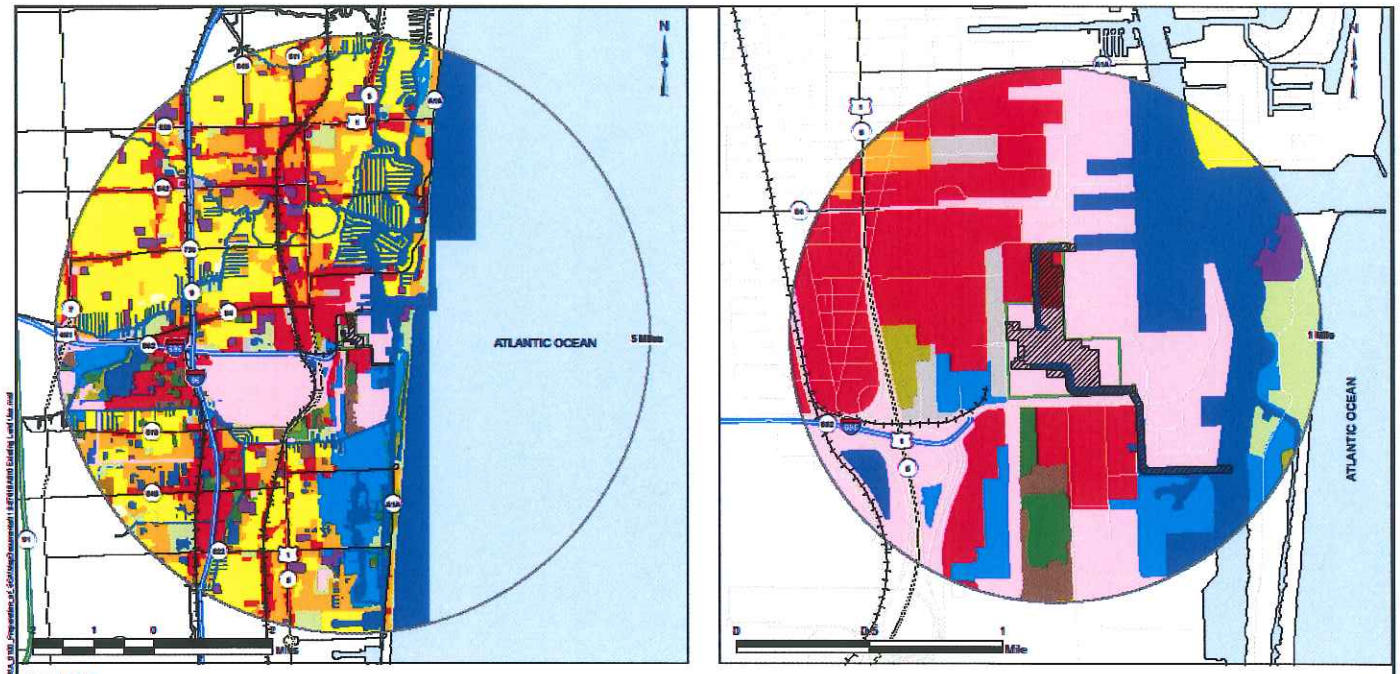
FIGURE 1


PALM BEACH COUNTY
BROWARD COUNTY
MIAMI - DADE COUNTY
HENDRY COUNTY
COLLIER COUNTY
ATLANTIC OCEAN
Port Everglades Plant and Port Everglades Energy Center Site
AREA MAP
LEGEND
Port Everglades Plant and Port Everglades Energy Center Site
REFERENCES
1. Port Everglades Plant and Port Everglades Energy Center Site Location, FPL 2011
2. Municipalities, Broward County Florida, 2001, Palm Beach County Florida, 2010, and Miami Dade County Florida, 2009
3. Roads, Florida Department of Transportation, 2011
FPL
PORT EVERGLADES ENERGY CENTER
GENERAL LOCATION OF THE FPL PORT EVERGLADES PLANT AND PORT EVERGLADES ENERGY CENTER
FIGURE 2


RETENTION AREA
CONSTRUCTION LAYDOWN AREA
RETENTION AREA (IF REQUIRED)
LEGEND
PROPERTY LINE
WATER
VEGETATION / BRUSH
FACILITIES LEGEND
ITEM NO.
DESCRIPTION
NORTH
EAST
REFERENCE LOCATION
1 COMBUSTION TURBINE NO. 5A
2 COMBUSTION TURBINE NO. 5B
3 COMBUSTION TURBINE NO. 5C
4 STEAM TURBINE 5
5 CONTROL/HURRICANE SHELTER
6 FUEL TRUCK UNLOADING
7 DEMINERALIZED WATER STORAGE TANK
8 ZERO WATER TREATMENT TRAILER PARKING
9 FUEL STORAGE TANK
10 AMMONIA STORAGE TANK & TRANSFER PUMPS
11 AUX BOILER
12 HP BULK STORAGE
13 AIR COMPRESSORS & RECEIVERS
14 FIRE WATER STORAGE TANK
15 FIRE PUMP SHELTER
16 DRY STORAGE
REFERENCES
1.) BASE MAP TAKEN FROM CADD FILE ORIGINALLY PREPARED BY BLACK & VEATCH TITLED "FLORIDA POWER & LIGHT, PORT EVERGLADES PLANT, SITE – ARRANGEMENTS, OVERALL SITE PLOT PLAN", DRAWING No. AND CADD FILE NAME 174101-05-0001, REVISION 0, DATED 08/18/11.
375
0
375
SCALE
FEET
FPL
PORT EVERGLADES ENERGY CENTER
CONCEPTUAL FACILITIES LAYOUT
FIGURE 3


N
ATLANTIC OCEAN
5 Miles
1 0 1 2 3 Miles
N
1 Mile
ATLANTIC OCEAN
0 0.5 1 Mile
LEGEND
Port Everglades Plant Property
Port Everglades Energy Center Site
Existing Land Use (SFWMD based on FLUCCS Level II)
Low Density Urban
Medium Density Urban
High Density Urban
Commercial
Industrial
Mining
Institutional
Recreational
Open Land
Agriculture
Rangeland
Upland Forests
Water
Wetlands
Barren Land
Transportation, Communication, Utilities
REFERENCES
1. Port Everglades Plant Property, Port Everglades Energy Center Site, FPL, 2011
2. Existing Land Use, South Florida Water Management District Florida Land Use, Cover and Forms Classification System Level II, 2008
REVISION DESCRIPTION
FPL
PORT EVERGLADES ENERGY CENTER
EXISTING LAND USE
FIGURE 4

Environmental and Land Use Information:

Supplemental Information

Preferred Site #2: Lauderdale Plant

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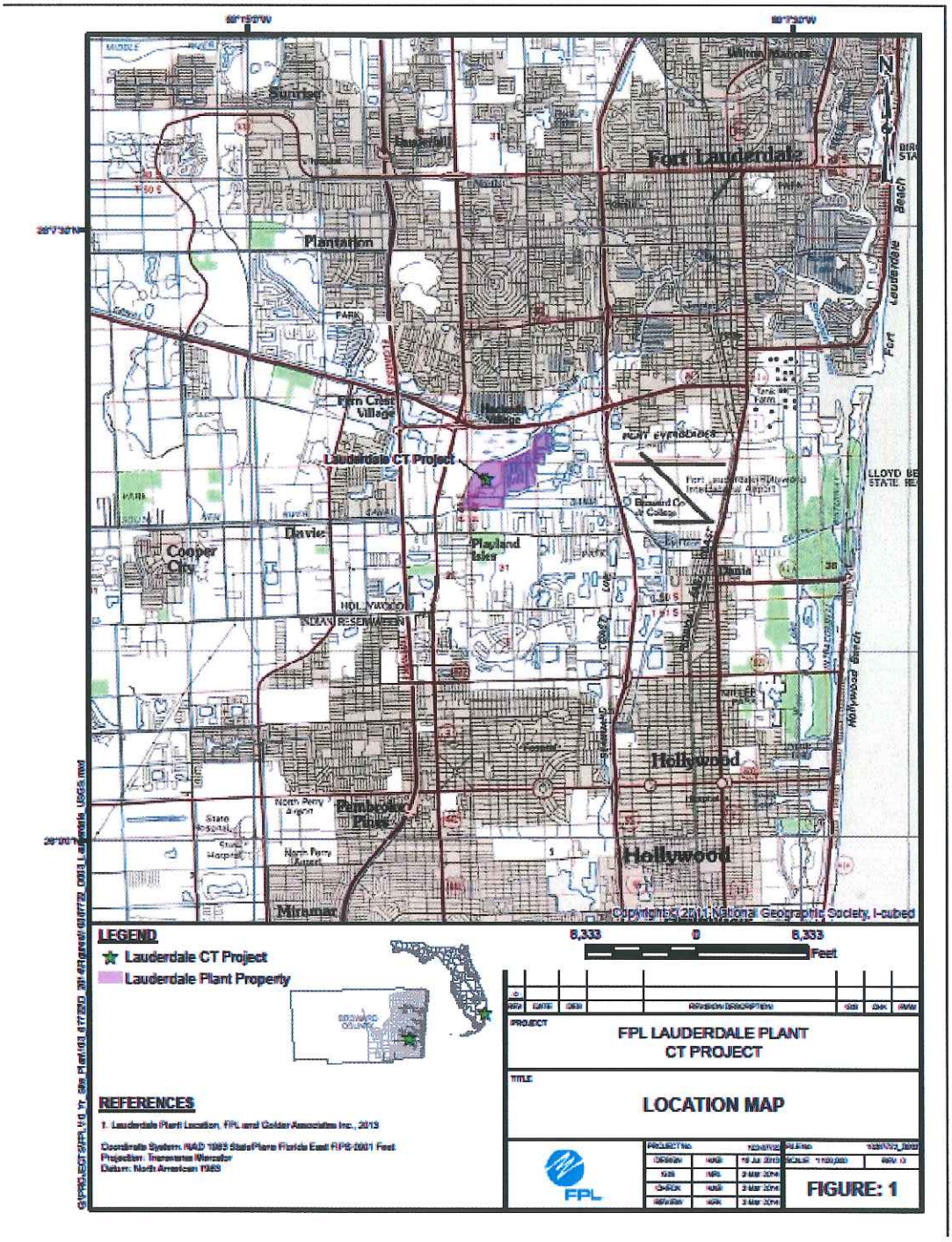
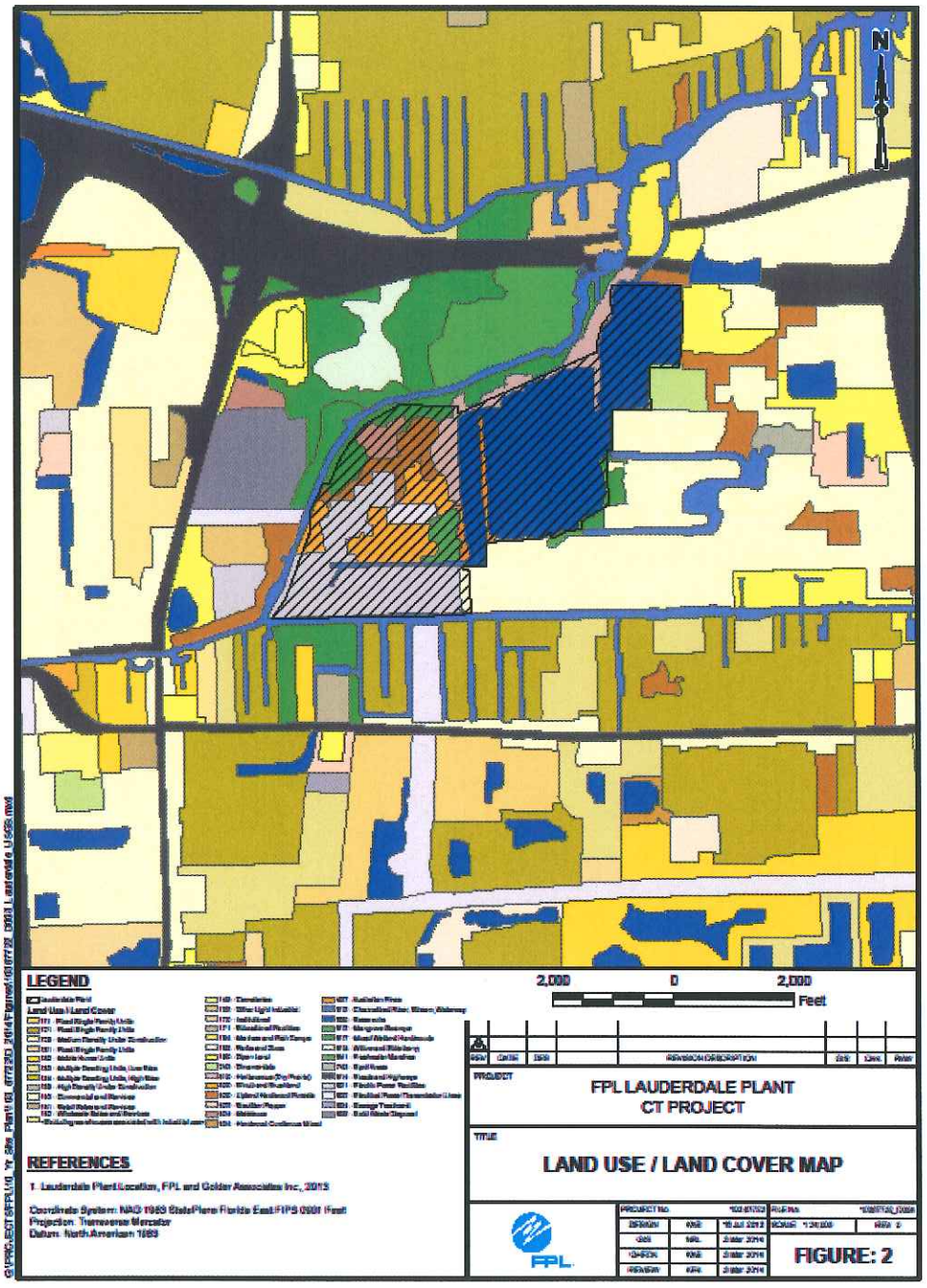

Lauderdale CT Project
Fort Lauderdale
Plantation
Davie
Hollywood
Miramar
Pembroke Pines
Cooper City
Sunrise
Tamarac
Fern Crest Village
Playland Isles
Dania
Copyright © 2011 National Geographic Society, i-cubed
LEGEND
Lauderdale CT Project
Lauderdale Plant Property
8,333
0
8,333
Feet
REFERENCES
1. Lauderdale Plant Location, FPL and Golder Associates Inc., 2013
Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet
Projection: Transverse Mercator
Datum: North American 1983
PROJECT
FPL LAUDERDALE PLANT
CT PROJECT
TITLE
LOCATION MAP
FPL
FIGURE: 1


N
LEGEND
2,000
0
2,000
Feet
REFERENCES
1. Lauderdale Plant Location, FPL and Golder Associates Inc., 2013
Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet
Projection: Transverse Mercator
Datum: North American 1983
PROJECT
FPL LAUDERDALE PLANT
CT PROJECT
TITLE
LAND USE / LAND COVER MAP
FPL
FIGURE: 2

Environmental and Land Use Information:

Supplemental Information

Preferred Site #3: Hendry County

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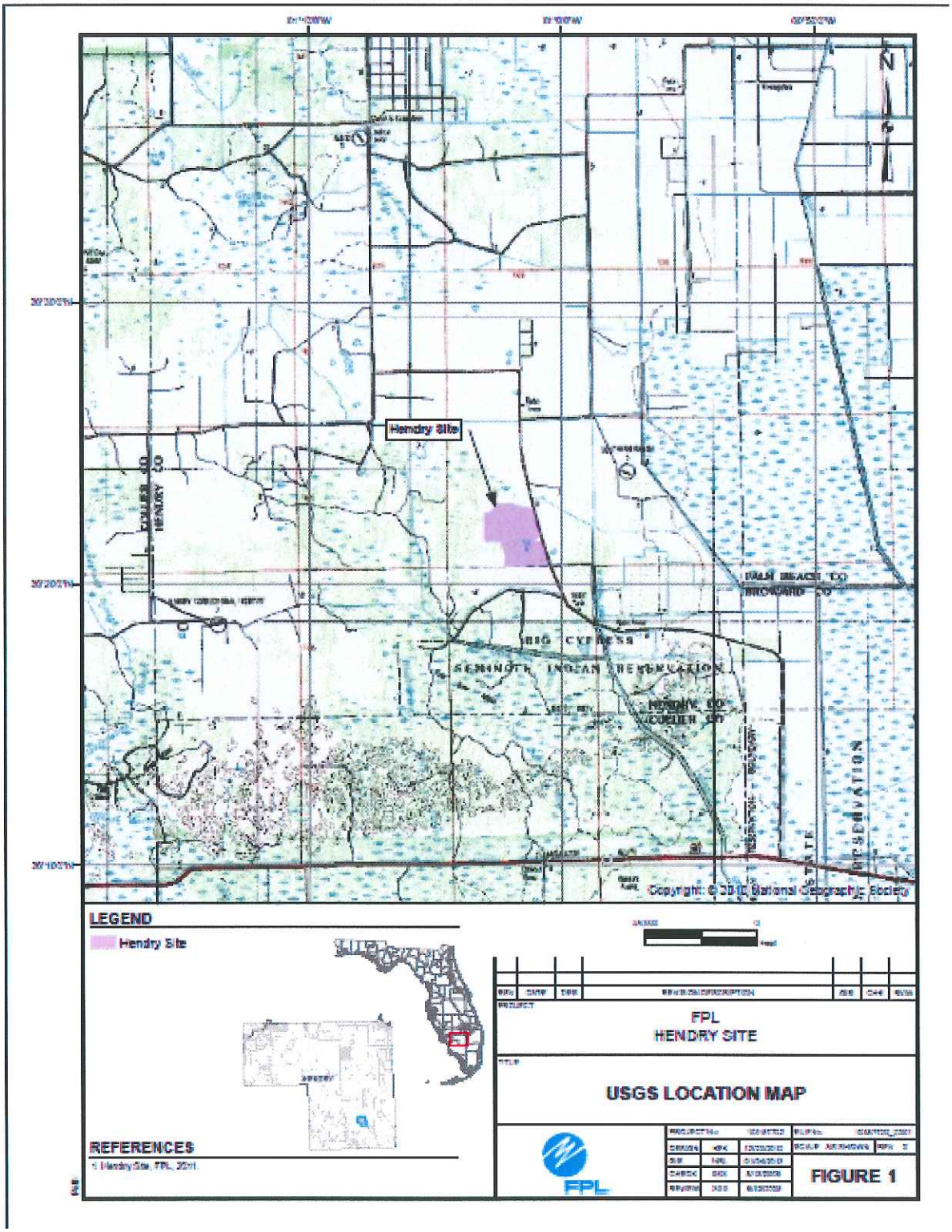
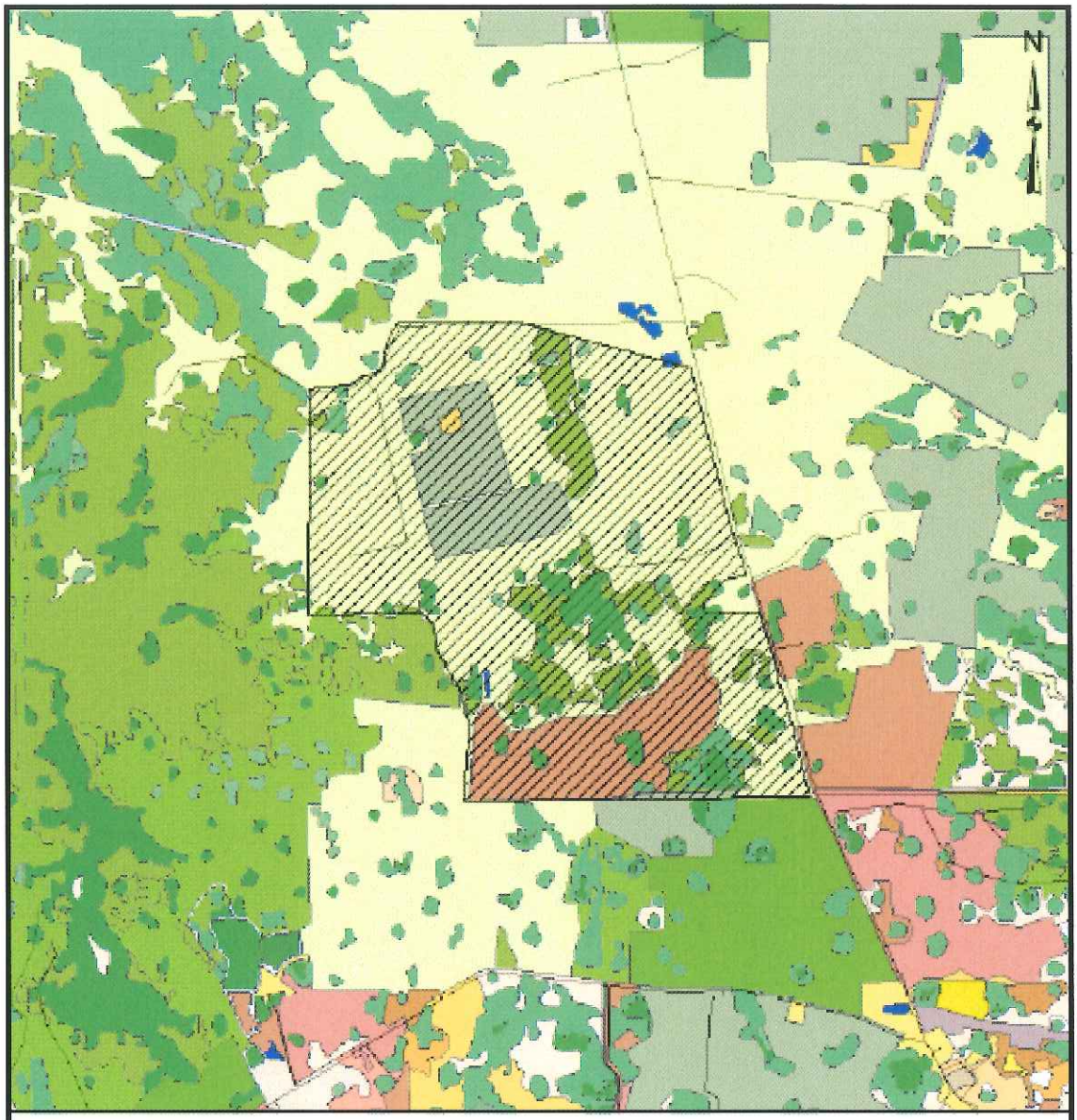

Hendry Site
Copyright: © 2010 National Geographic Society
LEGEND
Hendry Site
REFERENCES
1. Hendry Site, FPL, 2011.
FPL
HENDRY SITE
USGS LOCATION MAP
FPL
FIGURE 1


N
LEGEND
REFERENCES
FPL
HENDRY SITE
LAND USE / LAND COVER
FIGURE 2

Environmental and Land Use Information:

Supplemental Information

Preferred Site #4: NE Okeechobee County

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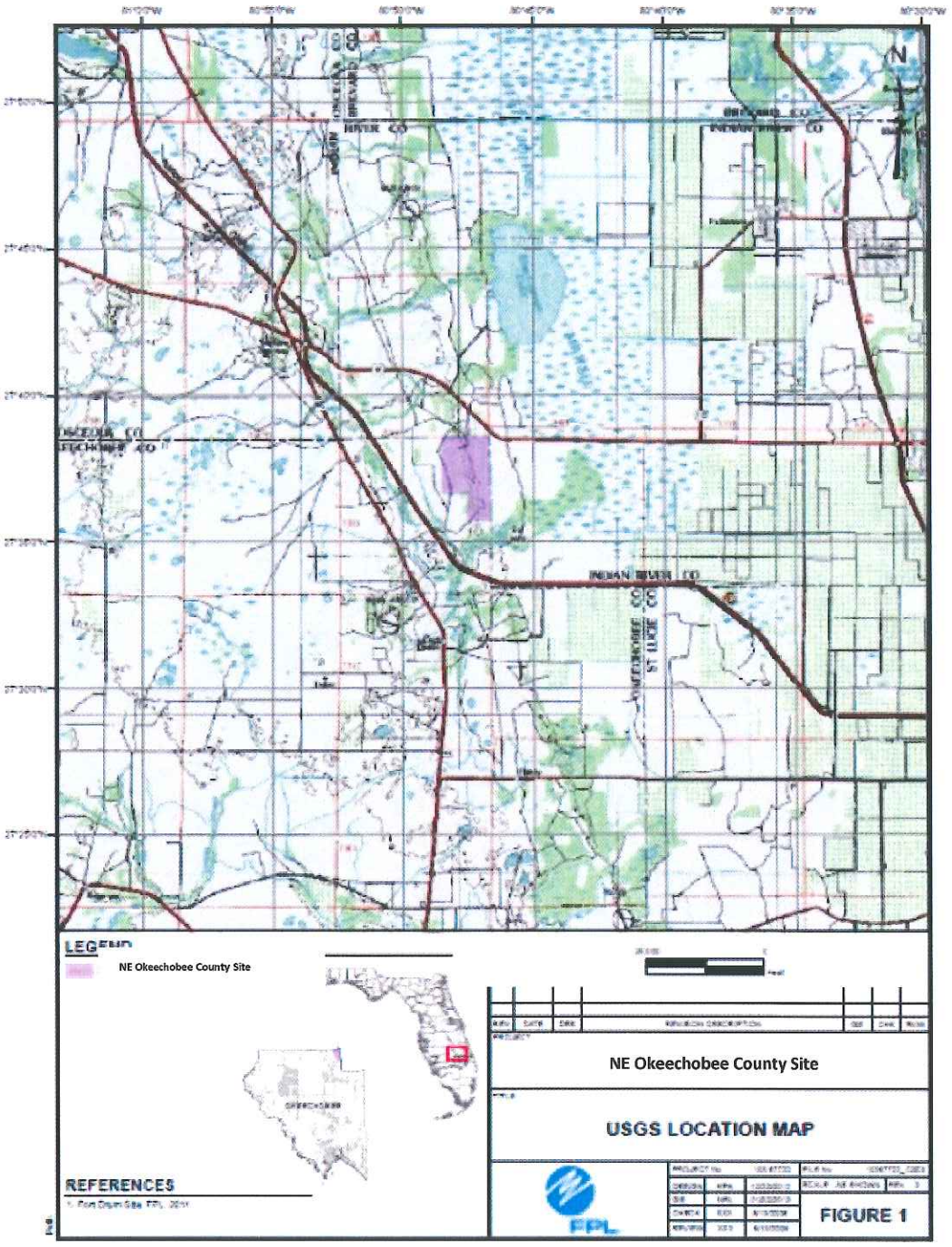
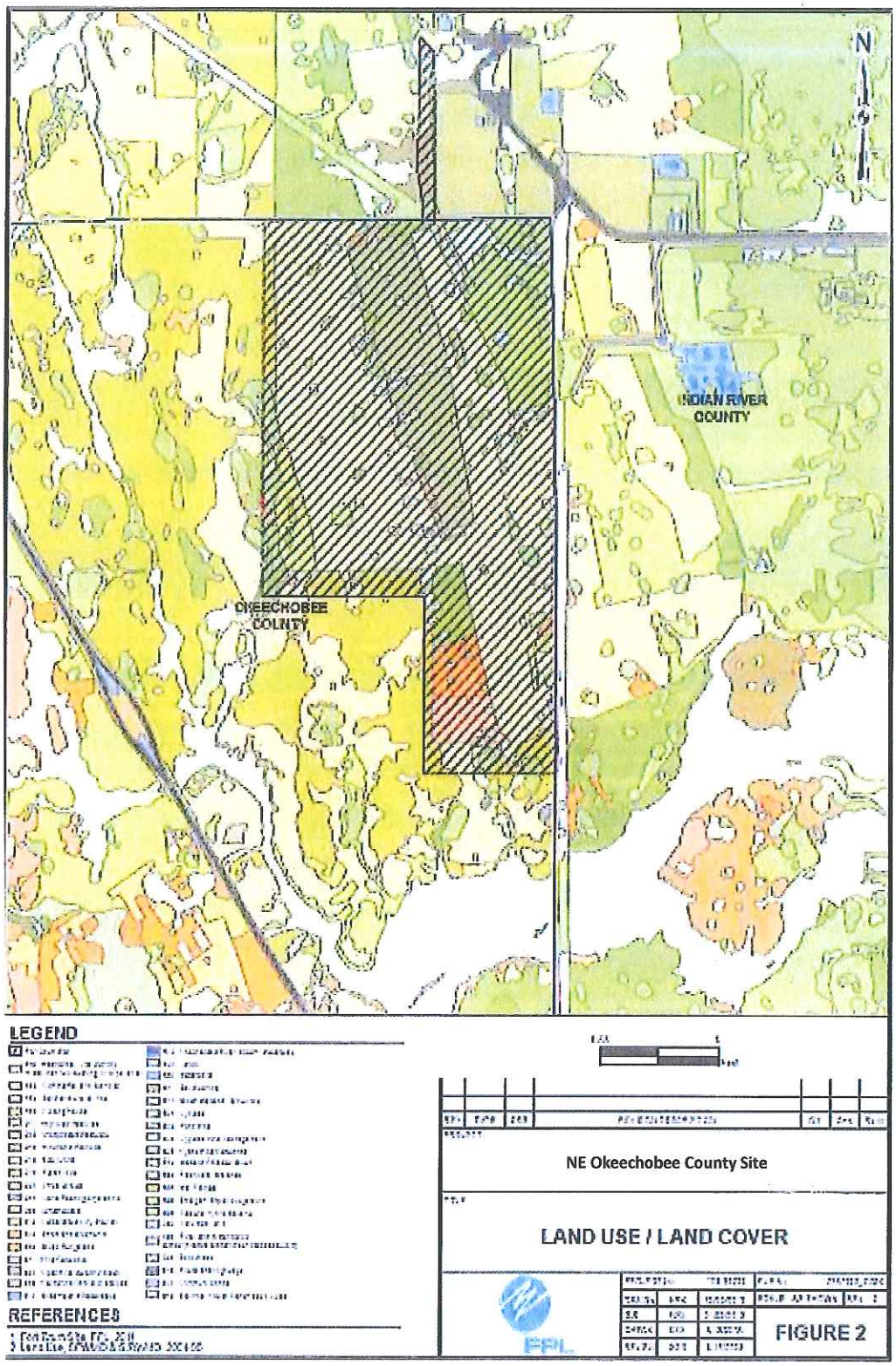

N
INDIAN RIVER CO
OKEECHOBEE CO
LEGEND
NE Okeechobee County Site
REFERENCES
NE Okeechobee County Site
USGS LOCATION MAP
FPL
FIGURE 1


N
INDIAN RIVER COUNTY
OKEECHOBEE COUNTY
LEGEND
REFERENCES
NE Okeechobee County Site
LAND USE / LAND COVER
FPL
FIGURE 2


AG-3
N
OKEECHOBEE COUNTY
Florida's Turnpike
18
LEGEND
Indian River County FLU Codes
AG-3
CI
Okeechobee County FLU Codes
18
REFERENCES
NE Okeechobee County Site
FUTURE LAND USE
FPL
FIGURE 3

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Environmental and Land Use Information:

Supplemental Information

Preferred Site #5: Putnam Site

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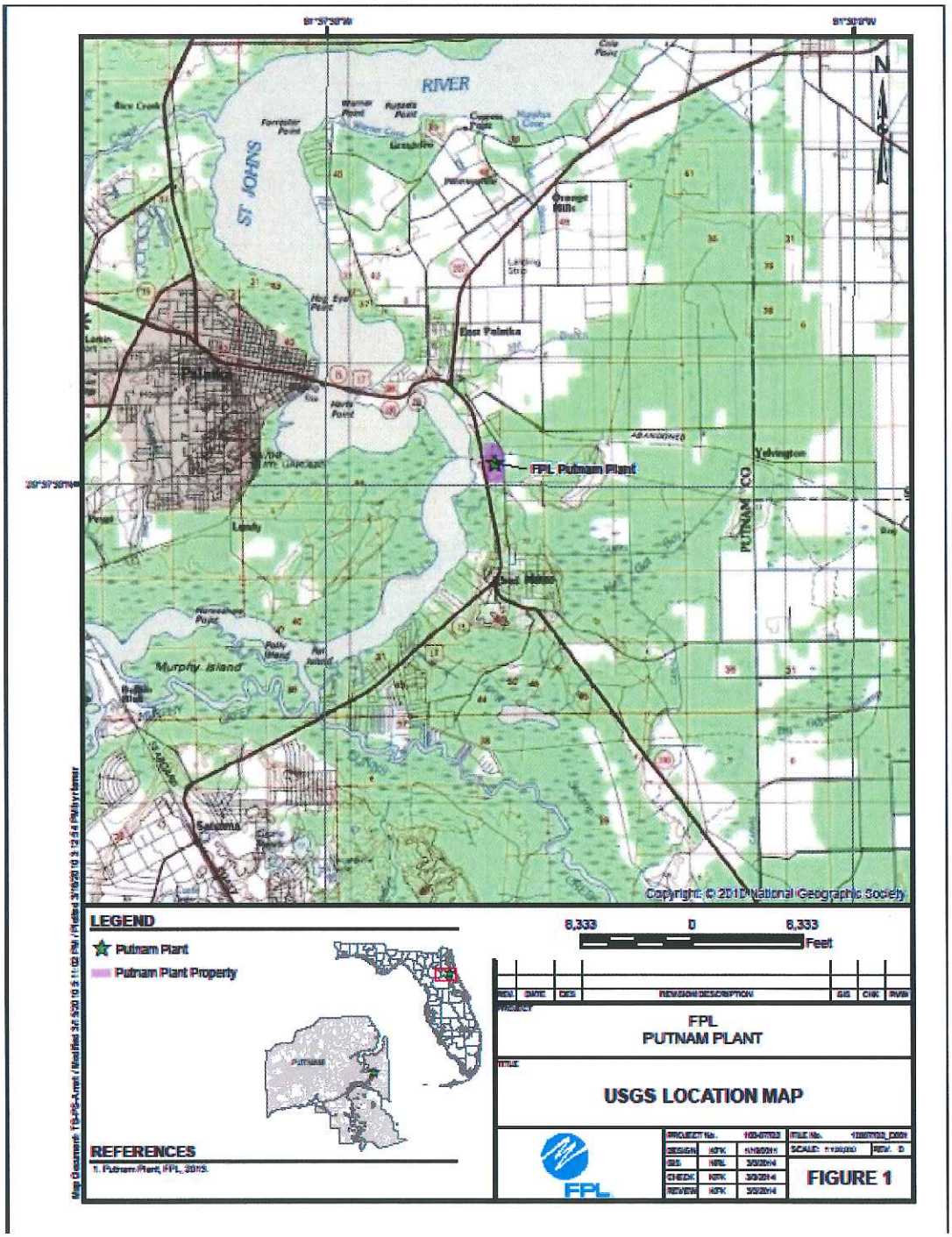
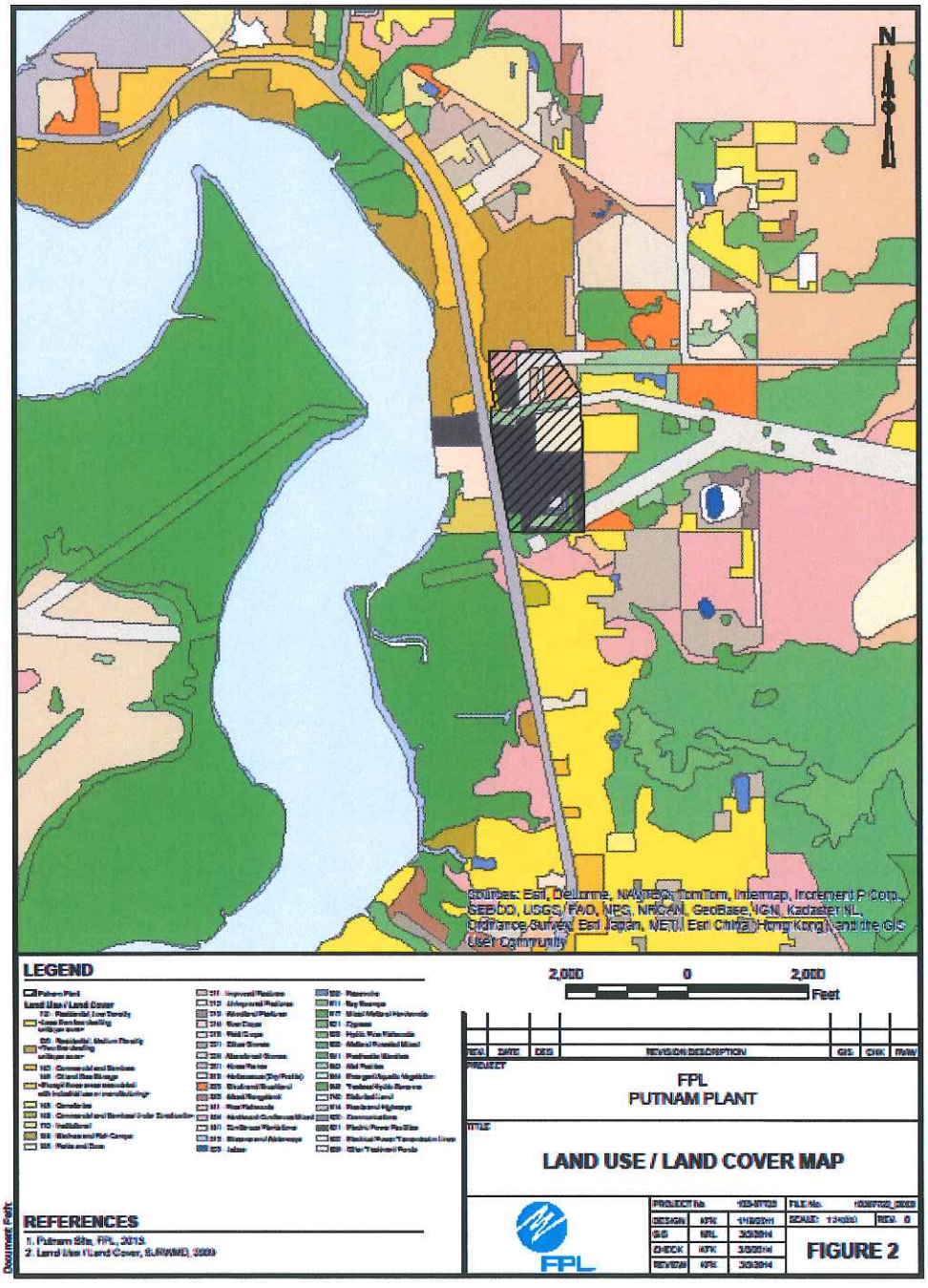

ST JOHNS
RIVER
FPL Putnam Plant
PUTNAM CO
Copyright: © 2013 National Geographic Society
LEGEND
Putnam Plant
Putnam Plant Property
REFERENCES
1. Putnam Plant, FPL, 2013.
8,333
0
8,333
Feet
FPL
PUTNAM PLANT
USGS LOCATION MAP
FIGURE 1


N
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community
LEGEND
2,000 0 2,000
Feet
REFERENCES
1. Putnam Site, FPL, 2013.
2. Land Use / Land Cover, SJRWMD, 2009
Document Path:
REV. DATE DES REVISION DESCRIPTION GIS CHK. PM/M
PROJECT
FPL
PUTNAM PLANT
TITLE
LAND USE / LAND COVER MAP
FPL
PROJECT No.
FILE No.
DESIGN
GIS
CHECK
REVIEW
SCALE:
REV. 0
FIGURE 2

Environmental and Land Use Information:

Supplemental Information

Preferred Site #6: Turkey Point Plant

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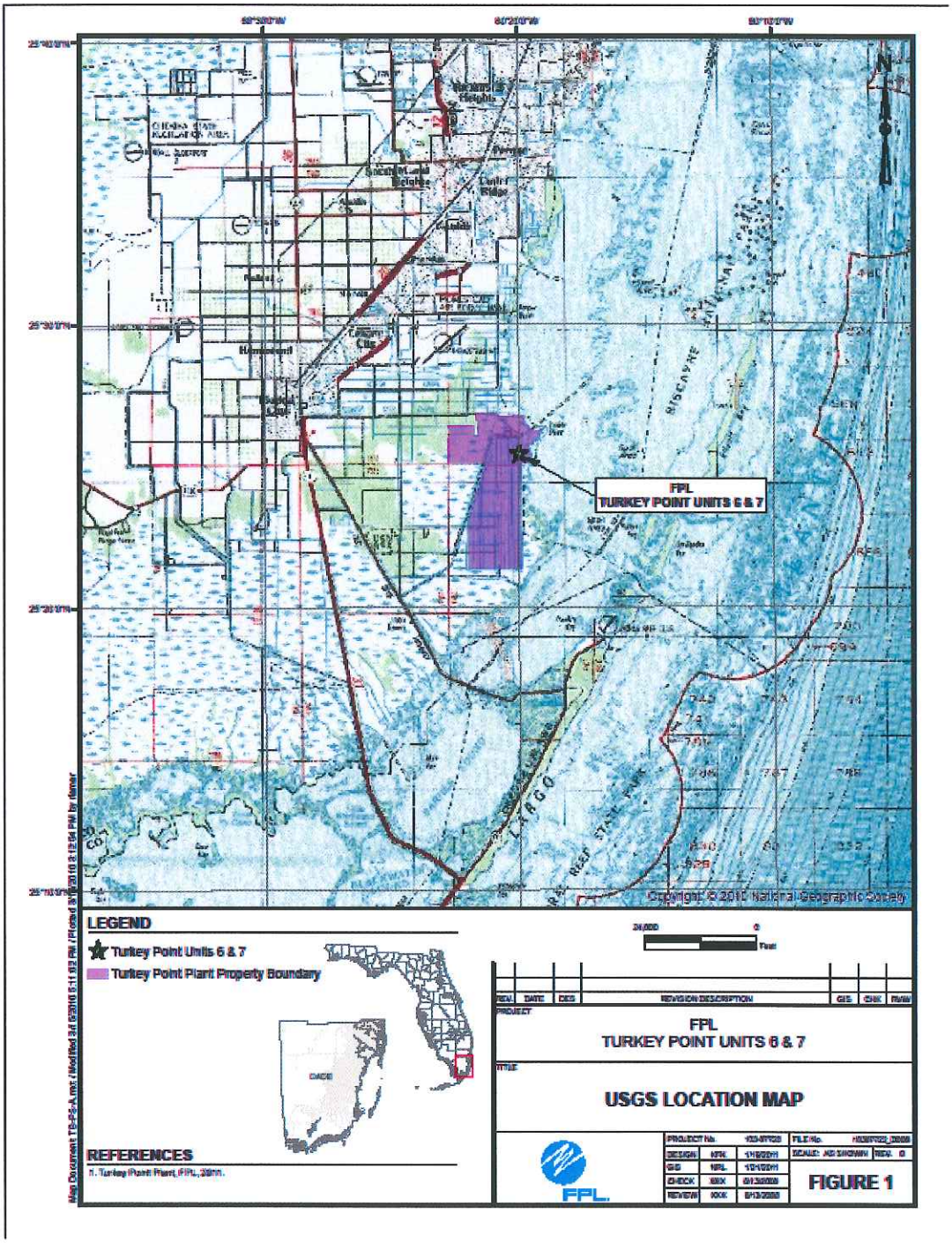
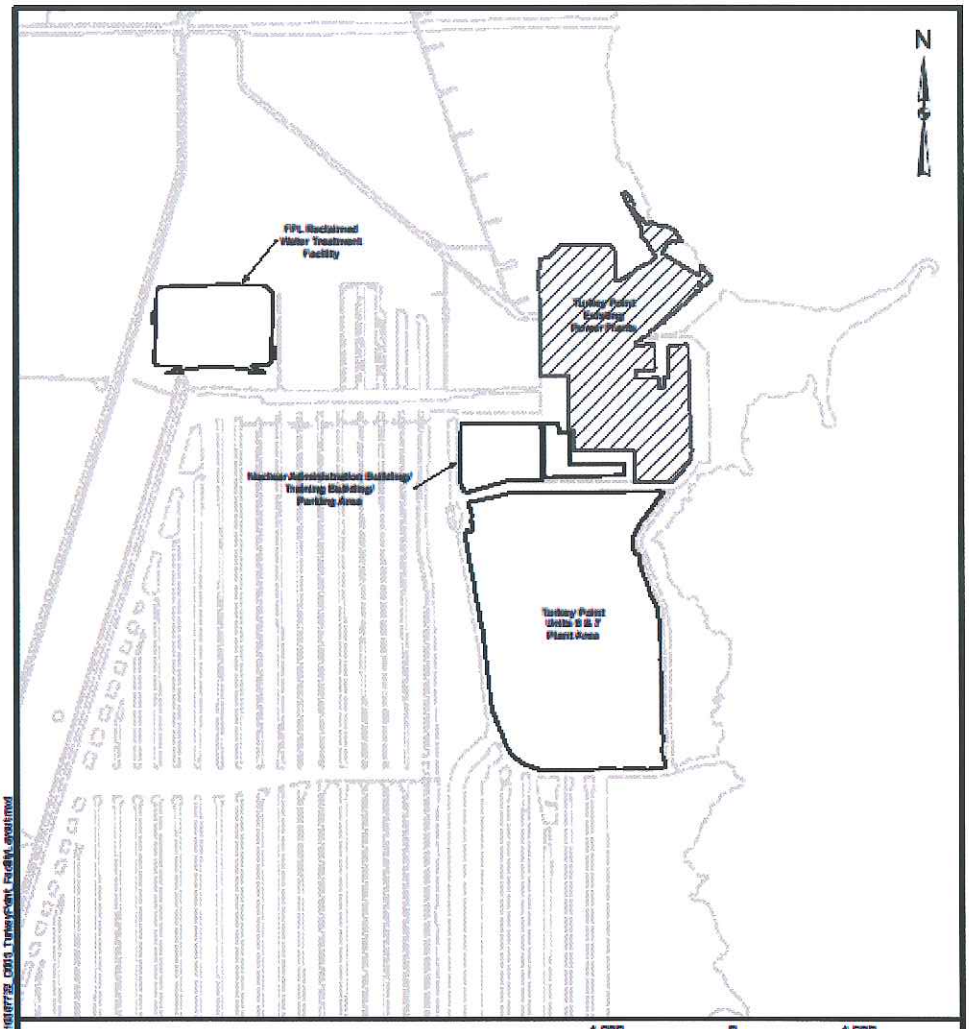

FPL
TURKEY POINT UNITS 6 & 7
Copyright © 2010 National Geographic Society
LEGEND
Turkey Point Units 6 & 7
Turkey Point Plant Property Boundary
REFERENCES
1. Turkey Point Plant, FPL, 2010.
FPL
TURKEY POINT UNITS 6 & 7
USGS LOCATION MAP
FIGURE 1



REFERENCES

1. Facility Features, Existing Turkey Point Plant Area, FPL & Golder Associates Inc., 2009-2015

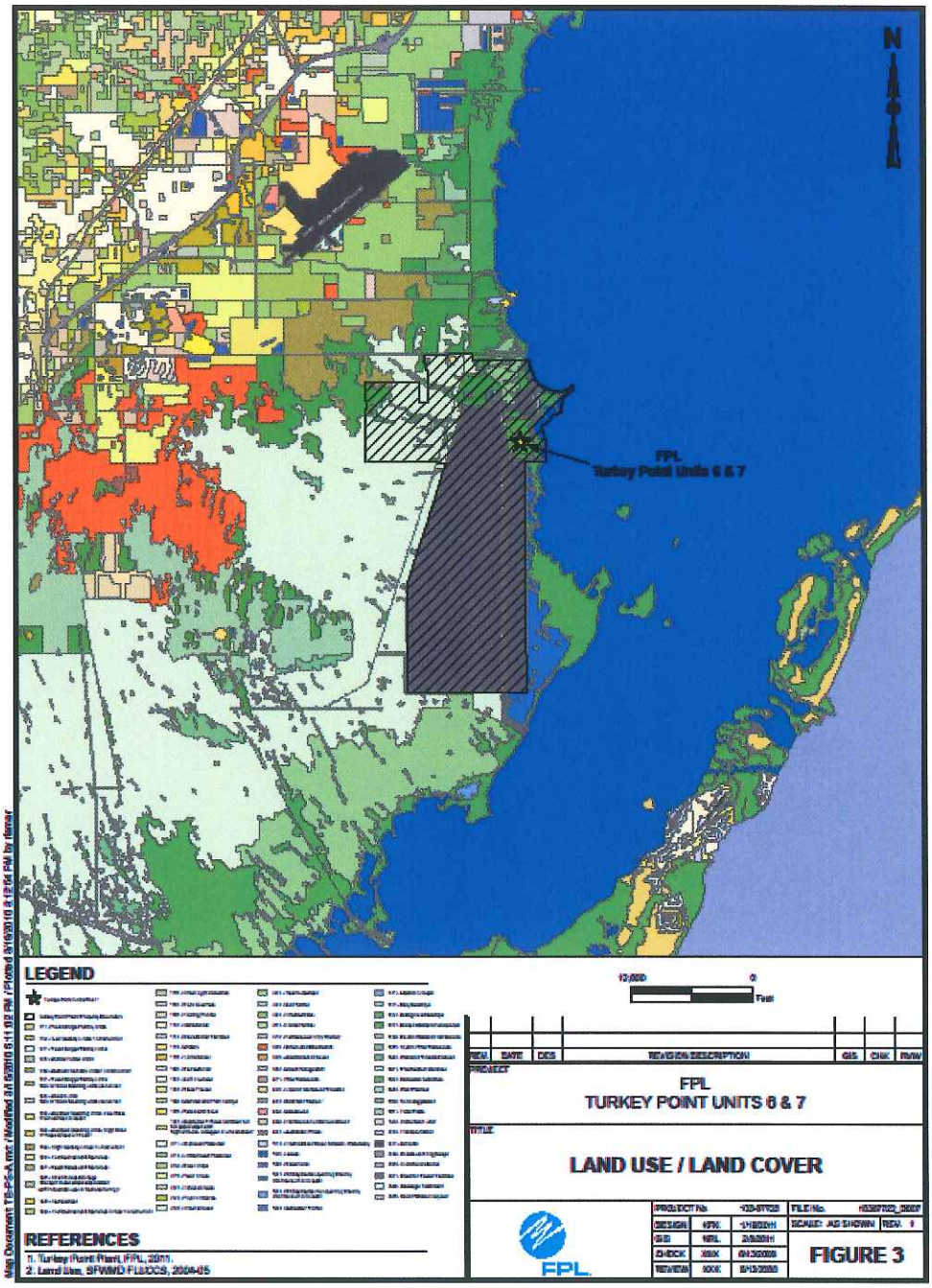
Coordinate System: NAD 1983 StatePlane Florida East FIPS 0901 Feet
Projection: Transverse Mercator
Datum: North American 1983

FPL
TURKEY POINT UNITS 6 & 7

FACILITY PLOT PLAN

Golder Associates

FIGURE: 2


N
FPL
Turkey Point Units 6 & 7
LEGEND
REFERENCES
1. Turkey Point Plant, (FPL, 2011).
2. Land Use, SFWMD FLUCCS, 2004-05
FPL
TURKEY POINT UNITS 6 & 7
LAND USE / LAND COVER
FIGURE 3

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Environmental and Land Use Information: Supplemental Information

Potential Site #1: Babcock Ranch

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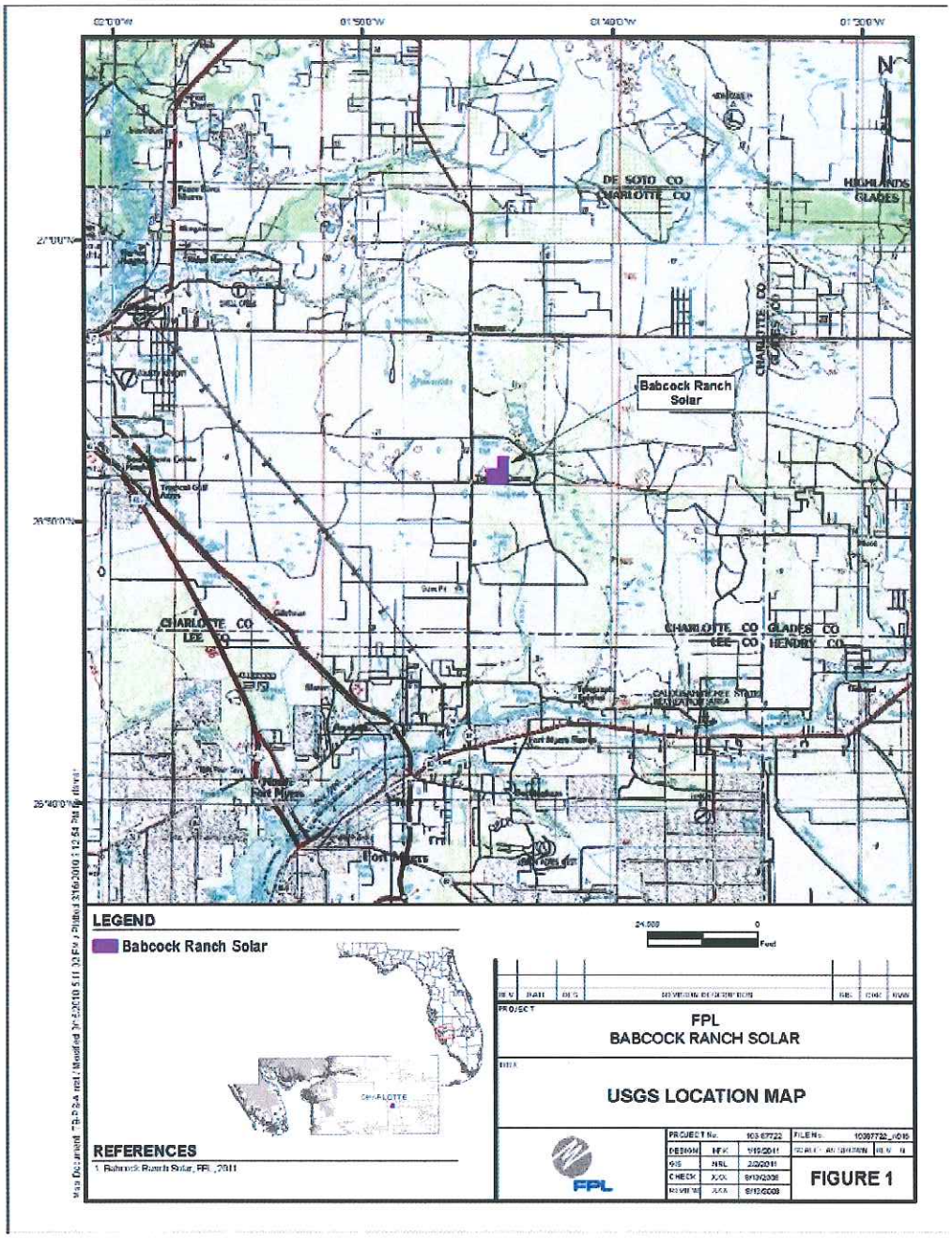
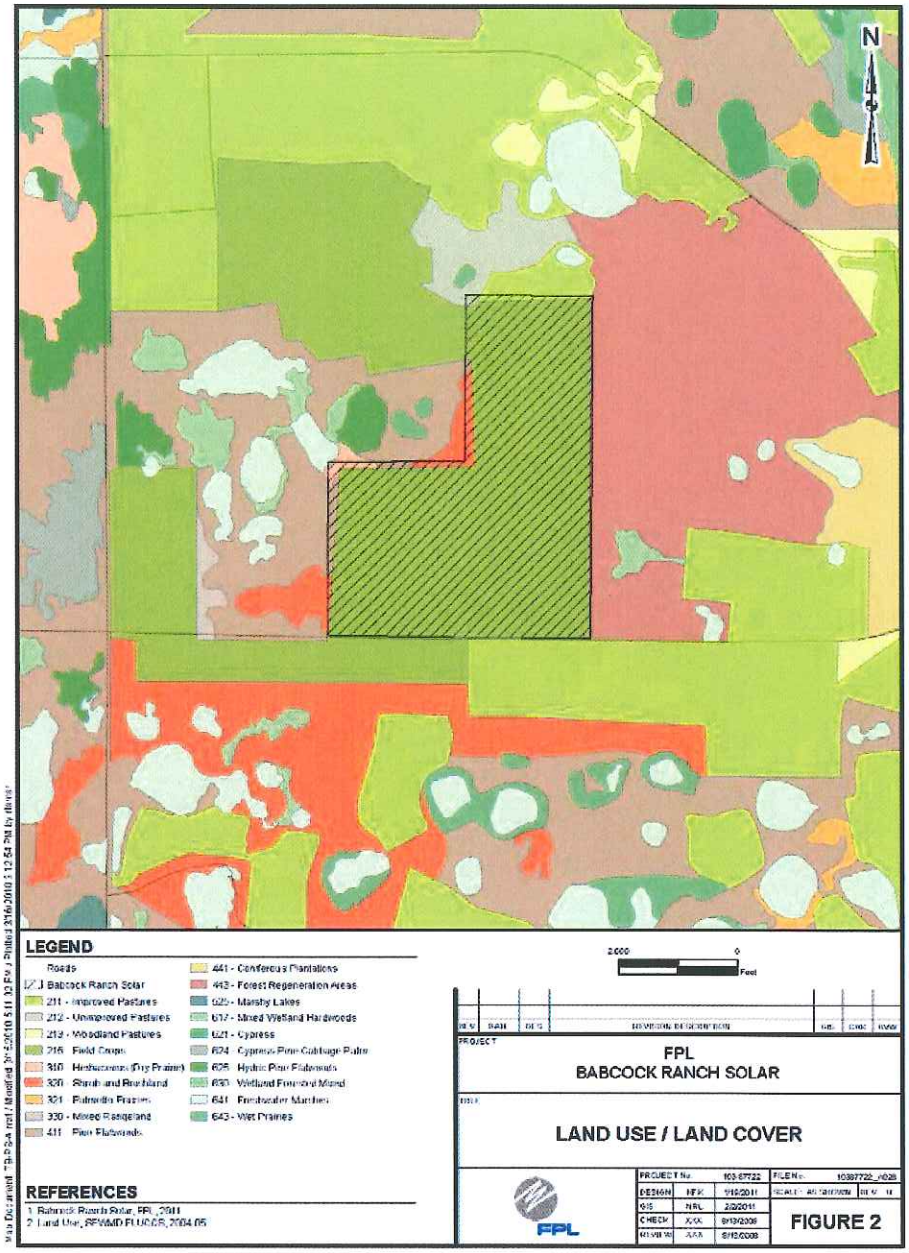

Babcock Ranch Solar
DE SOTO CO
CHARLOTTE CO
HIGHLANDS
GLADES
LEE CO
HENDRY CO
LEGEND
Babcock Ranch Solar
REFERENCES
1. Babcock Ranch Solar, PPL, 2011
FPL
BABCOCK RANCH SOLAR
USGS LOCATION MAP
FIGURE 1


N
LEGEND
Roads
Babcock Ranch Solar
211 - Improved Pastures
212 - Unimproved Pastures
213 - Woodland Pastures
216 Field Crops
310 Herbaceous (Dry Prairie)
320 Shrubland Rangeland
321 Palmetto Prairies
330 - Mixed Rangeland
411 Pine Flatwoods
441 - Coniferous Plantations
443 - Forest Regeneration Areas
520 - Marshy Lakes
617 - Mixed Wetland Hardwoods
621 - Cypress
624 - Cypress Pine Cabbage Palm
625 Hydric Pine Flatwoods
630 - Wetland Forested Mixed
641 Freshwater Marshes
643 - Wet Prairies
2,000
0
Feet
REFERENCES
1. Babcock Ranch Solar, FPL, 2011
2. Land Use, SFWMD FLUCCS, 2004-05
PROJECT
FPL
BABCOCK RANCH SOLAR
LAND USE / LAND COVER
FPL
FIGURE 2

Environmental and Land Use Information: Supplemental Information

Potential Site #2: Desoto Solar Expansion

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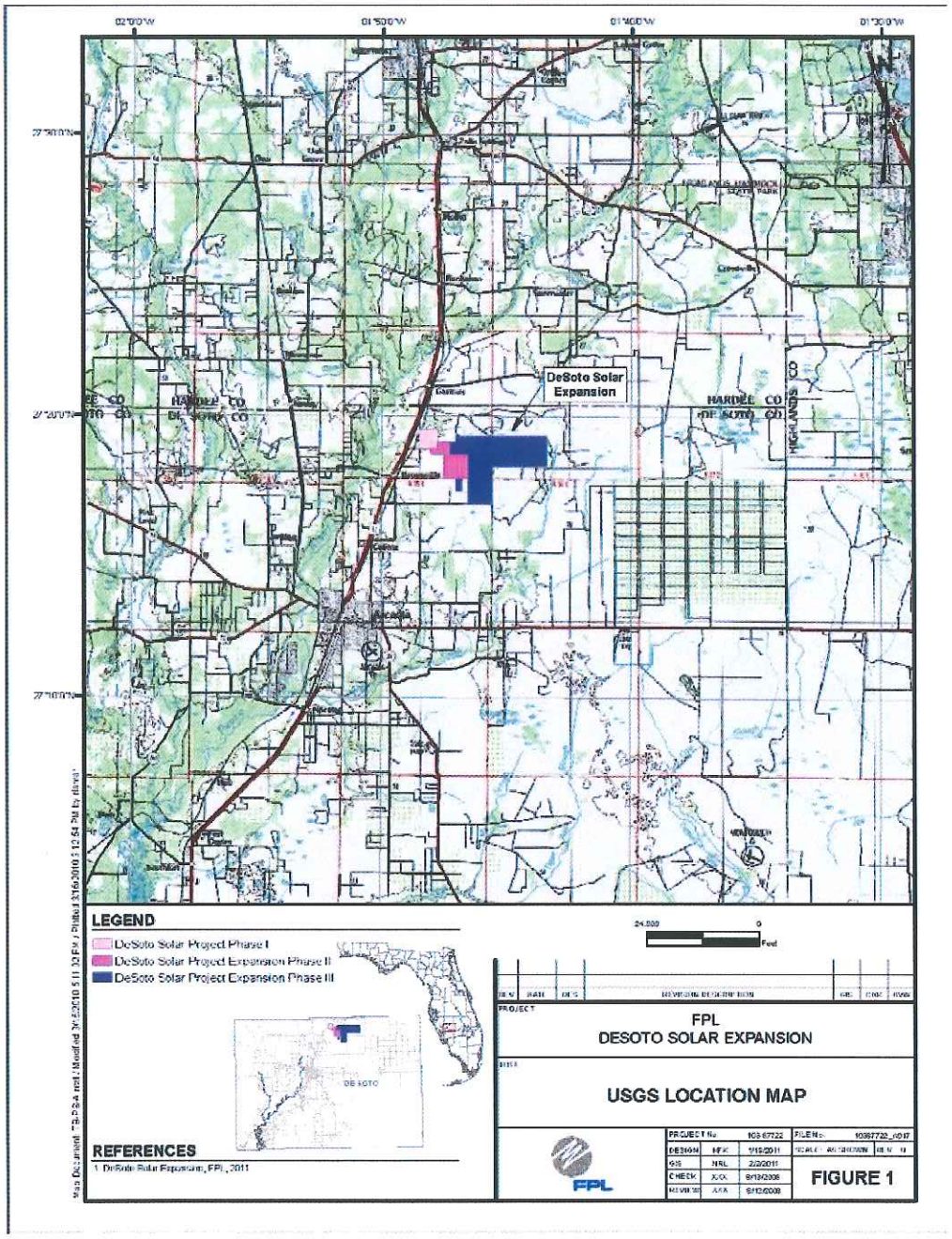
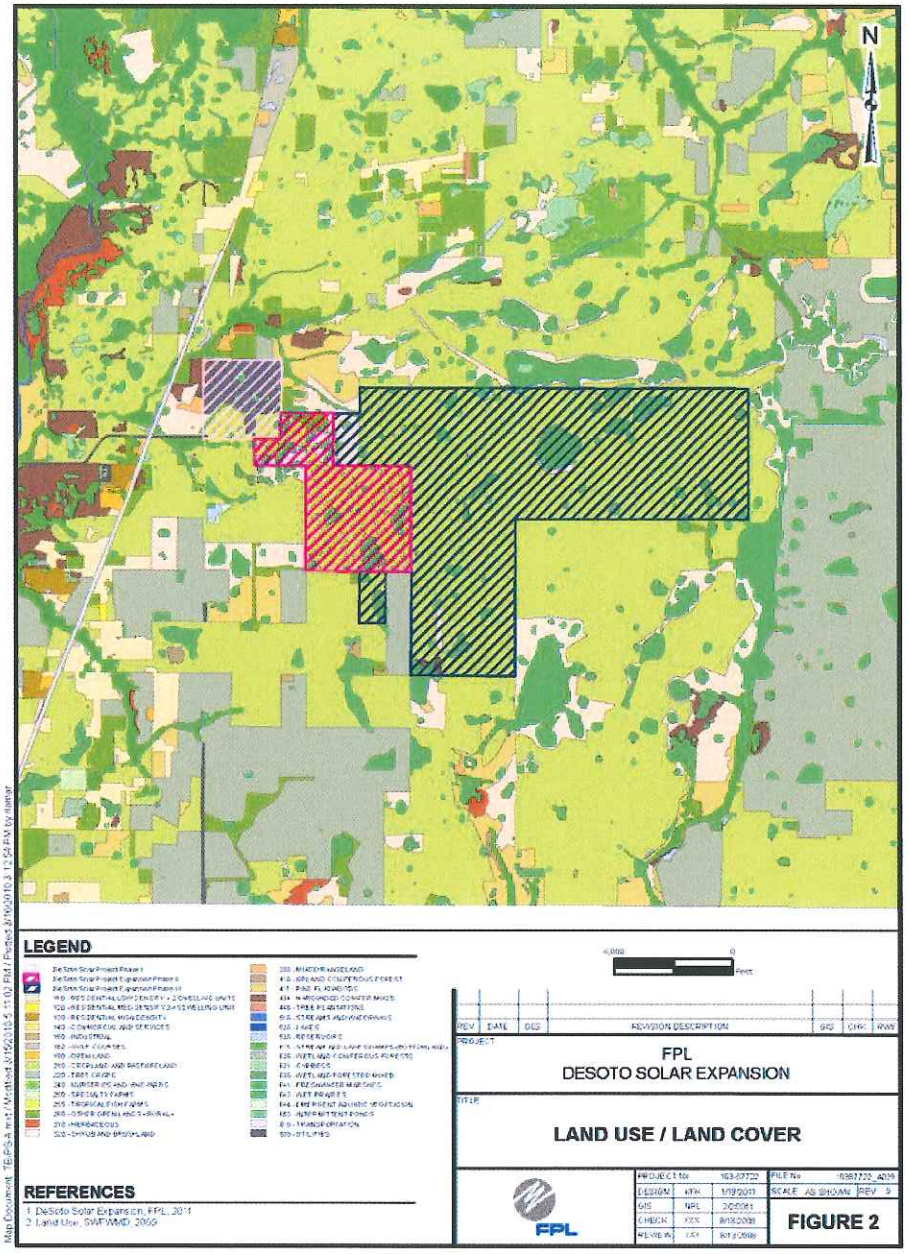

DeSoto Solar Expansion
HARDEE CO
DE SOTO CO
HIGHLANDS CO
LEGEND
DeSoto Solar Project Phase I
DeSoto Solar Project Expansion Phase II
DeSoto Solar Project Expansion Phase III
REFERENCES
1. DeSoto Solar Expansion, FPL, 2011
FPL
DESOTO SOLAR EXPANSION
USGS LOCATION MAP
FIGURE 1


N
LEGEND
REFERENCES
1. DeSoto Solar Expansion, FPL, 2011
2. Land Use, SWFWMD, 2009
REVISION DESCRIPTION
PROJECT
FPL
DESOTO SOLAR EXPANSION
TITLE
LAND USE / LAND COVER
FPL
FIGURE 2

Environmental and Land Use Information: Supplemental Information

Potential Site #3: Manatee Plant Site

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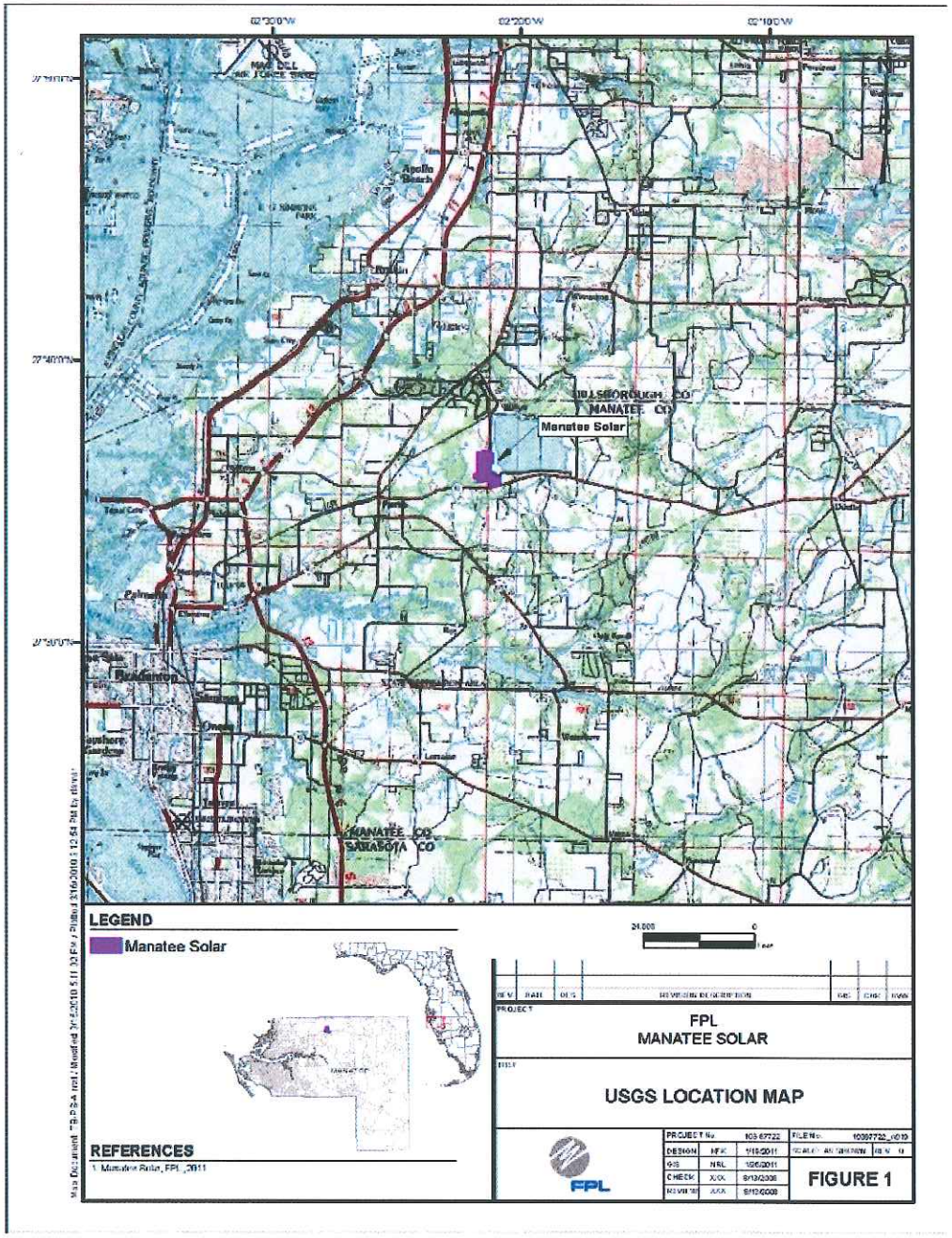
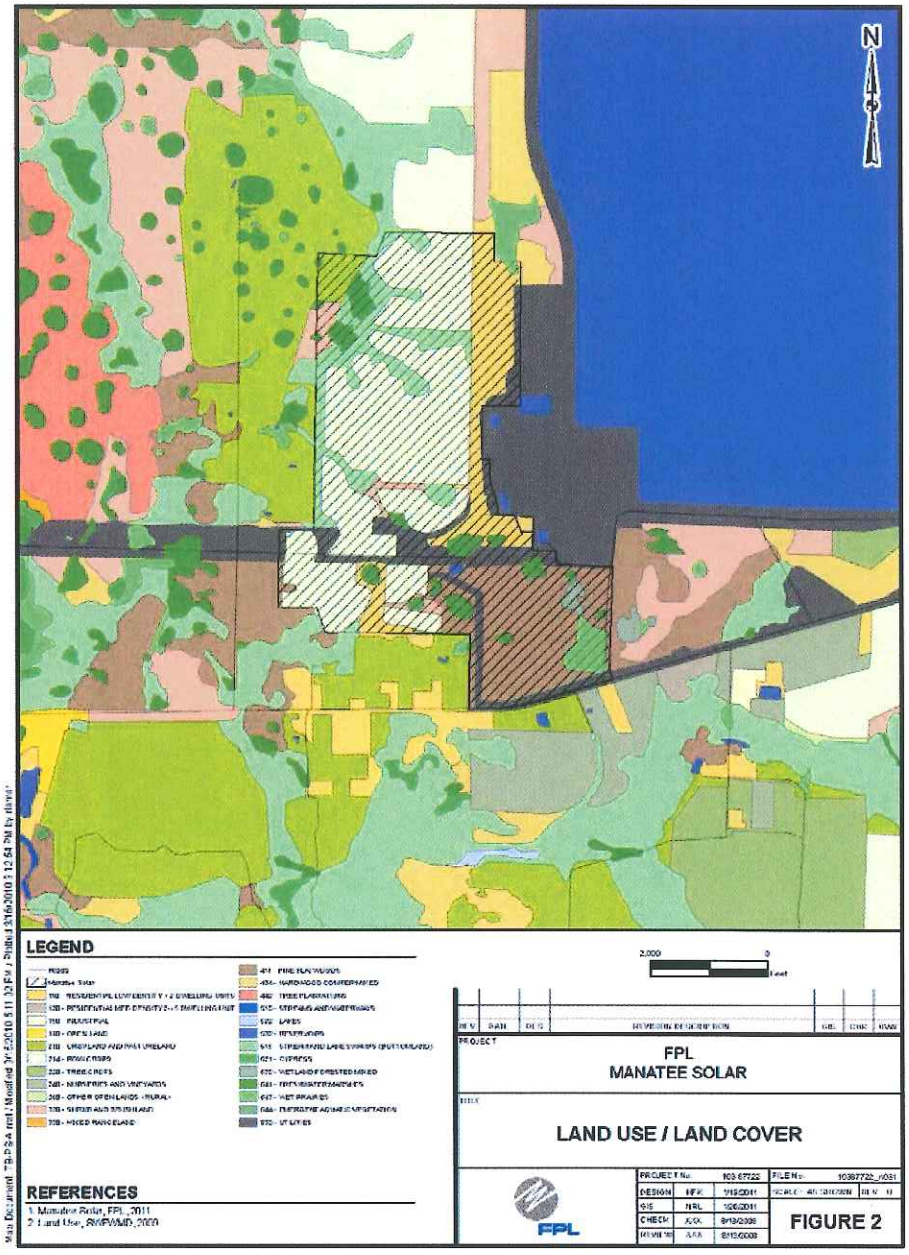

82°30'0"W
82°20'0"W
82°10'0"W
Manatee Solar
HILLSBOROUGH CO
MANATEE CO
MANATEE CO
SARASOTA CO
LEGEND
Manatee Solar
REFERENCES
FPL
MANATEE SOLAR
USGS LOCATION MAP
FIGURE 1


N
LEGEND
REFERENCES
1. Manatee Solar, FPL, 2011
2. Land Use, SWFWMD, 2009
2,000
0
FPL
MANATEE SOLAR
LAND USE / LAND COVER
FIGURE 2

Environmental and Land Use Information: Supplemental Information

Potential Site #4: Martin County

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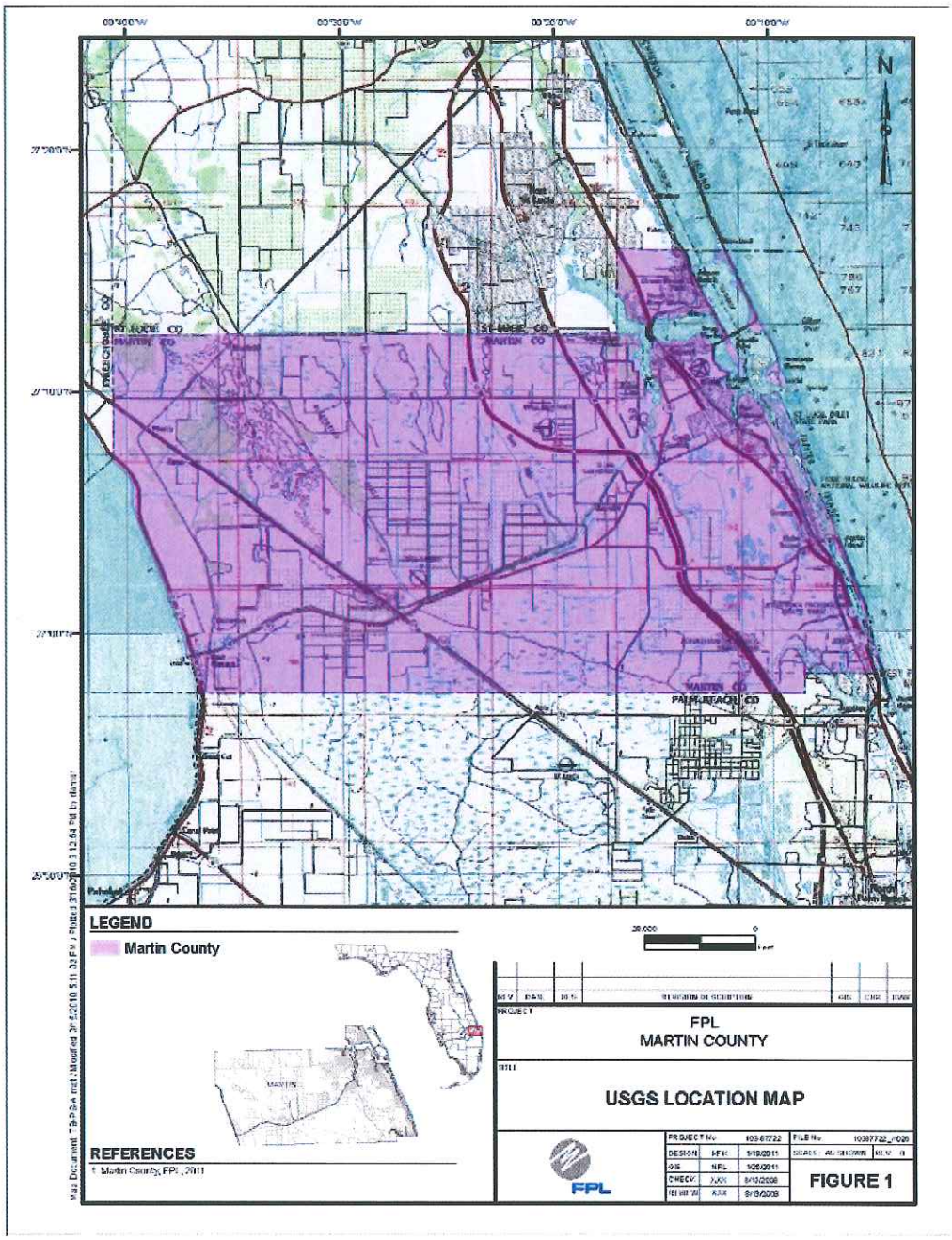
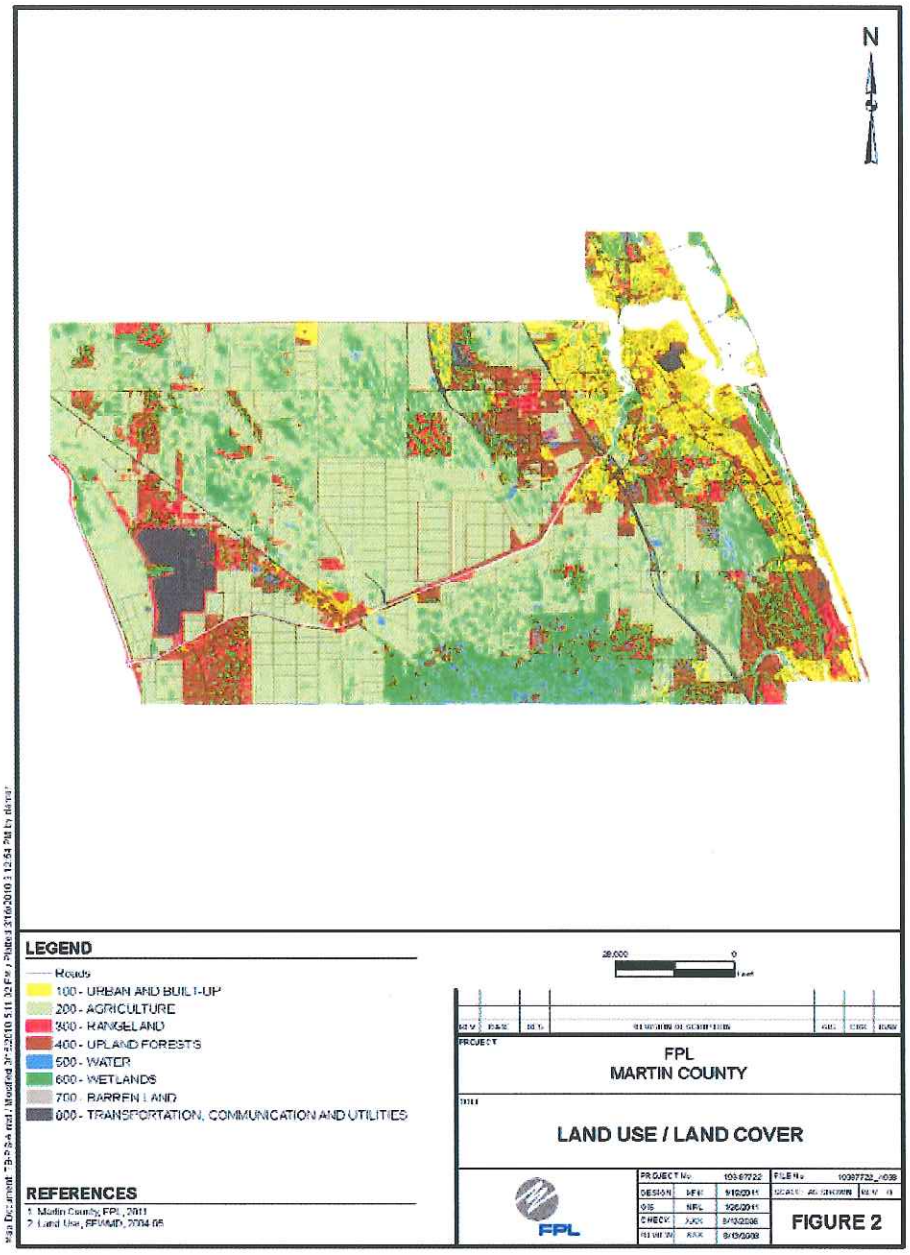

LEGEND
Martin County
REFERENCES
1. Martin County, FPL, 2011
FPL
MARTIN COUNTY
USGS LOCATION MAP
FIGURE 1


N
LEGEND
Roads
100 - URBAN AND BUILT-UP
200 - AGRICULTURE
300 - RANGELAND
400 - UPLAND FORESTS
500 - WATER
600 - WETLANDS
700 - BARREN LAND
800 - TRANSPORTATION, COMMUNICATION AND UTILITIES
REFERENCES
1. Martin County FPL, 2011
2. Land Use, SFWMD, 2004-05
PROJECT
FPL
MARTIN COUNTY
LAND USE / LAND COVER
FPL
FIGURE 2

CHAPTER V

Other Planning Assumptions & Information

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Introduction

The Florida Public Service Commission (FPSC), in Docket No. 960111-EU, specified certain information that was to be included in an electric utility's Ten Year Power Plant Site Plan filing. Among this specified information was a group of 12 items listed under a heading entitled "Other Planning Assumptions and Information." These 12 items basically concern specific aspects of a utility's resource planning work. The FPSC requested a discussion or a description of each of these items.

These 12 items are addressed individually below as separate "Discussion Items".

Discussion Item # 1: Describe how any transmission constraints were modeled and explain the impacts on the plan. Discuss any plans for alleviating any transmission constraints.

FPL's resource planning work considers two types of transmission limitations/constraints: external limitations and internal limitations. External limitations deal with FPL's ties to its neighboring systems. Internal limitations deal with the flow of electricity within the FPL system.

The external limitations are important since they affect the development of assumptions for the amount of external assistance that is available to the FPL system as well as the amount and price of economy energy purchases. Therefore, these external limitations are incorporated both in the reliability analysis and economic analysis aspects of resource planning. The amount of external assistance which is assumed to be available is based on the projected transfer capability to FPL from outside its system as well as historical levels of available assistance. In the loss of load probability (LOLP) portion of its reliability analyses, FPL models this amount of external assistance as an additional generator within FPL's system which provides capacity in all but the peak load months. The assumed amount and price of economy energy are based on historical values and projections from production costing models.

Internal transmission limitations are addressed by identifying potential geographic locations for potential new generating units that minimize adverse impacts to the flow of electricity within FPL's system. The internal transmission limitations are also addressed by developing the direct costs for siting new units at different locations, by evaluating the cost impacts created by the new unit/unit location combination on the operation of existing units in the FPL system, and/or by evaluating the costs of transmission additions that may be needed to address regional concerns regarding an imbalance between load and generation in a given region. Both of these site- and system-related transmission costs are developed for each different unit/unit location option or groups of options. When analyzing DSM portfolios, such as in a DSM Goals docket, FPL also examines the potential of utility DSM energy efficiency programs to avoid/defer regional transmission expenditures that would otherwise be needed to import power into that region by lowering electrical load in Southeastern Florida. In addition, transfer limits for capacity and energy that can be

imported into the Southeastern Florida region (Miami-Dade and Broward Counties) of FPL's system are also developed for use in FPL's production costing analyses. (A further discussion of the Southeastern Florida region of FPL's system, and the need to maintain a regional balance between generation and transmission contributions to meet regional load, is found in Chapter III.)

FPL's annual transmission planning work determines transmission additions needed to address limitations and to maintain/enhance system reliability. FPL's planned transmission facilities to interconnect and integrate generating units in FPL's resource plans, including those transmission facilities that must be certified under the Transmission Line Siting Act, are presented in Chapter III.

Discussion Item # 2: Discuss the extent to which the overall economics of the plan were analyzed. Discuss how the plan is determined to be cost-effective. Discuss any changes in the generation expansion plan as a result of sensitivity tests to the base case load forecast.

FPL typically performs economic analyses of competing resource plans using as an economic criterion FPL's levelized system average electric rates (i.e., a Rate Impact Measure or RIM approach). In addition, for analyses in which DSM levels are not changed, FPL uses the equivalent criterion of the cumulative present value of revenue requirements for the FPL system.[7]

The load forecast that is presented in FPL's 2014 Site Plan was developed in October 2014. The only load forecast sensitivities analyzed during 2013/early 2014 were high load forecast sensitivities developed to analyze FPL's potential future natural gas needs and to analyze the quality of FPL's future reserves.

[7] FPL's basic approach in its resource planning work is to base decisions on a lowest electric rate basis. However, when DSM levels are considered a "given" in the analysis (i.e., when only new generating options are considered), the lowest electric rate basis approach and the lowest system cumulative present value of revenue requirements basis approach yield identical results in terms of which resource options are more economic. In such cases FPL evaluates resource options on the simpler-to-calculate (but equivalent) lowest cumulative present value system revenue requirements basis.

Discussion Item # 3: Explain and discuss the assumptions used to derive the base case fuel forecast. Explain the extent to which the utility tested the sensitivity of the base case plan to high and low fuel price scenarios. If high and low fuel price sensitivities were performed, explain the changes made to the base case fuel price forecast to generate the sensitivities. If high and low fuel price scenarios were performed as part of the planning process, discuss the resulting changes, if any, in the generation expansion plan under the high and low fuel price scenario. If high and low fuel price sensitivities were not evaluated, describe how the base case plan is tested for sensitivity to varying fuel prices.

The basic assumptions FPL used in deriving its fuel price forecasts are discussed in Chapter III of this document. FPL used three fuel cost, and three environmental compliance cost, forecasts in analyses supporting its 2013 nuclear cost recovery filing. Also, in response to a request from the FPSC Staff, FPL used three fuel cost forecasts in sensitivity case analyses for the 2014 DSM Goals docket.

A Medium fuel cost forecast is developed first. Then the Medium fuel cost forecast is adjusted upwards (for the High fuel cost forecast), or downwards (for the Low fuel cost forecast), by multiplying the annual cost values from the Medium fuel cost forecast by a factor of (1 + the historical volatility in the 12-month forward price, one year ahead) for the High fuel cost forecast, or by a factor of (1 – the historical volatility of the 12-month forward price, one year ahead) for the Low fuel cost forecast.

The resource plan presented in this Site Plan is based, in part, on those prior analyses. For that reason, this resource plan has not been further tested for different fuel cost forecasts.

Discussion Item # 4: Describe how the sensitivity of the plan was tested with respect to holding the differential between oil/gas and coal constant over the planning horizon.

As described above in the answer to Discussion Item # 3, FPL used up to three fuel cost forecasts in its 2013/early 2014 resource planning analyses. While these forecasts did not represent a constant cost differential between oil/gas and coal, a variety of fuel cost differentials were represented in these forecasts.

Discussion Item # 5: Describe how generating unit performance was modeled in the planning process.

The performance of existing generating units on FPL's system was modeled using current projections for scheduled outages, unplanned outages, capacity output ratings, and heat rate information. Schedule 1 in Chapter I and Schedule 8 in Chapter III present the current and projected capacity output ratings of FPL's

existing units. The values used for outages and heat rates are generally consistent with the values FPL has used in planning studies in recent years.

In regard to new unit performance, FPL utilized current projections for the capital costs, fixed and variable operating & maintenance costs, capital replacement costs, construction schedules, heat rates, and capacity ratings for all construction options in its resource planning work. A summary of this information for the new capacity options FPL currently projects to add over the reporting horizon for this document is presented on the Schedule 9 forms in Chapter III.

Discussion Item # 6: Describe and discuss the financial assumptions used in the planning process. Discuss how the sensitivity of the plan was tested with respect to varying financial assumptions.

During 2013, FPL used the following financial assumptions: i) a capital structure of 40.38% debt and 59.62% equity; (ii) a 4.79% cost of debt; (iii) a 10.5% return on equity; and (iv) an after-tax discount rate of 7.45%. In early 2014, the cost of debt and the after-tax discount rate changed slightly to 5.14% and 7.54%, respectively. The other assumptions did not change. No sensitivities of these financial assumptions were used in FPL's 2013/early 2014 resource planning work.

Discussion Item # 7: Describe in detail the electric utility's Integrated Resource Planning process. Discuss whether the optimization was based on revenue requirements, rates, or total resource cost.

FPL's integrated resource planning (IRP) process is described in detail in Chapter III of this document.

The standard basis for comparing the economics of competing resource plans in FPL's basic IRP process is the impact of the plans on FPL's electricity rate levels with the objective generally being to minimize FPL's projected levelized system average electric rate (i.e., a Rate Impact Measure or RIM approach). As discussed in response to Discussion Item # 2, both the electricity rate perspective and the cumulative present value of system revenue requirement perspective yield identical results in terms of which resource options are more economic when DSM levels are unchanged between competing resource plans. Therefore, in planning work in which DSM levels were unchanged, the equivalent, but simpler-to-calculate, cumulative present value of revenue requirements perspective was utilized.

Discussion Item # 8: Define and discuss the electric utility's generation and transmission reliability criteria.

FPL uses three system reliability criteria in its resource planning work that addresses generation, purchase, and DSM options. One criterion is a minimum 20% Summer and Winter reserve margin. Another reliability criterion is a maximum of 0.1 days per year loss-of-load-probability (LOLP). The third criterion is a minimum 10% generation-only reserve margin (GRM) criterion. These three reliability criteria are discussed in Chapter III of this document.

In regard to transmission reliability analysis work, FPL has adopted transmission planning criteria that are consistent with the planning criteria established by the Florida Reliability Coordinating Council (FRCC). The FRCC has adopted transmission planning criteria that are consistent with the Reliability Standards established by the North American Electric Reliability Council (NERC). The *NERC Reliability Standards* are available on the internet site (http://www.nerc.com/).

In addition, FPL has developed a *Facility Connection Requirements* (FCR) document as well as a *Facility Rating Methodology* document that are also available on the internet under the Interconnection Request Information, and FPL Facility Ratings Methodologies, directories respectively at https://www.oatioasis.com/FPL/index.html.

Generally, FPL limits its transmission facilities to 100% of the applicable thermal rating. The normal and contingency voltage criteria for FPL stations are provided below:

	Normal/Contingency	
Voltage Level (kV)	**Vmin (p.u.)**	**Vmax (p.u.)**
69, 115, 138	0.95/0.95	1.05/1.07
230	0.95/0.95	1.06/1.07
500	0.95/0.95	1.07/1.09
Turkey Point (*)	1.01/1.01	1.06/1.06
St. Lucie (*)	1.00/1.00	1.06/1.06

(*) Voltage range criteria for FPL's Nuclear Power Plants

There may be isolated cases for which FPL may have determined that it is acceptable to deviate from the general criteria stated above. There are several factors that could influence these criteria, such as the overall number of potential customers that may be impacted, the probability of an outage actually occurring, or transmission system performance, as well as others.

Discussion Item # 9: Discuss how the electric utility verifies the durability of energy savings for its DSM programs.

The projected impacts of FPL's DSM programs on demand and energy consumption are revised periodically. Engineering models, calibrated with current field-metered data, are updated at regular intervals. Participation trends are tracked for all of FPL's DSM programs in order to adjust impacts each year for changes in the mix of efficiency measures being installed by program participants. For its load management programs, FPL conducts periodic tests of the load control equipment to ensure that the equipment is functioning correctly. These tests, plus actual, non-test load management events, also allows FPL to gauge the MW reduction capabilities of its load management programs on an on-going basis.

Discussion Item # 10: Discuss how strategic concerns are incorporated in the planning process.

The Executive Summary and Chapter III provide a discussion of a variety of system concerns/issues that influence FPL's resource planning process. Please see those chapters for a discussion of those concerns/issues.

In addition to these system concerns/issues, there are other strategic factors FPL typically considers when choosing between resource options. These include the following: (1) technology risk; (2) environmental risk, and (3) site feasibility. The consideration of these factors may include both economic and non-economic aspects.

Technology risk is an assessment of the relative maturity of competing technologies. For example, a prototype technology, which has not achieved general commercial acceptance, has a higher risk than a technology in wide use and, therefore, assuming all else equal, is less desirable.

Environmental risk is an assessment of the relative environmental acceptability of different generating technologies and their associated environmental impacts on the FPL system, including environmental compliance costs. Technologies regarded as more acceptable from an environmental perspective for FPL's resource plan are those which minimize environmental impacts for the FPL system as a whole through highly efficient fuel use, state of the art environmental controls, generating technologies that do not utilize fossil fuels (such as nuclear and solar), etc.

Site feasibility assesses a wide range of economic, regulatory, and environmental factors related to successfully developing and operating the specified technology at the site in question. Projects that are more acceptable have sites with few barriers to successful development.

All of these factors play a part in FPL's planning and decision-making, including its decisions to construct capacity or to purchase power.

Discussion Item # 11: Describe the procurement process the electric utility intends to utilize to acquire the additional supply-side resources identified in the electric utility's ten-year site plan.

As shown in this 2014 Site Plan, FPL's resource plan currently reflects the following major supply-side resource additions: the on-going modernization at Port Everglades, on-going upgrading of CTs in several CCs throughout FPL's system, the projected addition of CTs at FPL's Lauderdale plant site, the implementation of the previously executed EcoGen PPA, a projected new CC unit (at a site that has not yet been selected), and the projected Turkey Point Units 6 & 7.

In regard to the above capacity additions for which a need determination has already been granted, Turkey Point Units 6 & 7, did not lend themselves to a request for proposal (RFP) approach involving bids from third parties who would build new nuclear generation capacity. In addition, nuclear capacity additions are exempted from the Commission's Bid Rule by section 403.519 (4) (c). For nuclear projects, FPL's procurement activities are conducted to ensure the best combination of quality and cost for the delivered products. In regard to the modernization project at Port Everglades, the project received a Commission waiver from the Bid Rule due to attributes specific to the Port Everglades site and to modernization projects in general (such as use of existing land, water, transmission, etc.) plus other economic benefits to FPL's customers. This waiver from the Bid Rule was granted in Order No. PSC-11-0360-PAA-EI for Port Everglades.

CT upgrades are currently taking place at several CC units throughout the FPL system. FPL was approached by the original equipment manufacturer (OEM) of the CTs regarding the possibility of upgrading these units. Following negotiations with the OEM, and economic analyses that showed that upgrading was cost-effective for FPL's customers, the decision was made to proceed with the CT upgrades. That process is underway and is scheduled to be completed in 2015.

In regard to the addition of five new CTs at FPL's Lauderdale plant site, FPL anticipates selecting the CTs through negotiations with, and/or competitive solicitation of, CT manufacturers. The EcoGen PPA, which was approved by the Commission in Order No. PSC-13-0205-CO-EQ dated 5/21/13, was the result of negotiations between EcoGen and FPL.

Identification of projected self-build options, beyond those units already approved by the FPSC and Governor and Siting Board or units, such as the 2019 CC unit presented in this Site Plan, is required of FPL in its Site Plan filings and represents FPL's current view of alternatives that appear to be FPL's best, most cost-effective self-build options at present. FPL reserves the right to refine its planning analyses and

to identify and evaluate other options before making decisions regarding future capacity additions. Such refined analyses have the potential to yield a variety of self-build options, some of which might not require an RFP. If an RFP is issued for Supply options, FPL reserves the right to choose the best alternative for its customers, even if that option is not an FPL self-build option.

Discussion Item # 12: Provide the transmission construction and upgrade plans for electric utility system lines that must be certified under the Transmission Line Siting Act (403.52 – 403.536, F. S.) during the planning horizon. Also, provide the rationale for any new or upgraded line.

(1) FPL has identified the need for a new 230 kV transmission line that required certification under the Transmission Line Siting Act which was issued in April 2006. The new line is to be completed in two phases connecting FPL's St. Johns Substation to FPL's Pringle Substation (shown on Table III.E.1 in Chapter III). Phase 1 was completed in May 2009 and consisted of a new line connecting Pringle to a new Pellicer Substation. Phase 2 is planned to connect St. Johns to Pellicer and is scheduled to be completed by December 2018. The construction of this line is necessary to serve existing and future customers in the Flagler and St. Johns areas in a reliable and effective manner.

(2) FPL has identified the need for a new 230 kV transmission line (by December 2014) that required certification under the Transmission Line Siting Act which was issued on November 2008. The new line will connect FPL's Manatee Substation to FPL's proposed Bob White Substation (also shown on Table III.E.1 in Chapter III). The construction of this line, scheduled to be completed in 2014, is necessary to serve existing and future customers in the Manatee and Sarasota areas in a reliable and effective manner.