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April 1, 2015

-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. 150000-EI

RE: Florida Power & Light Company's 2015 Ten Year Power Plant Site Plan

Dear Ms. Stauffer:

Please find enclosed for electronic filing Florida Power & Light Company's 2015-2024 Ten Year Power Plant Site Plan. Per Commission Staff's request, five (5) hard copies also will be provided to your office.

Sincerely,

s/ Kevin I.C. Donaldson
Kevin I.C. Donaldson
Fla. Bar No. 0833401

Enclosure

Ten Year Power Plant Site Plan

2015-2024

Submitted To:

Florida Public
Service Commission

Miami, Florida
April 2015

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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's) integrated resource planning (IRP) analyses that were carried out in 2014 and that were on-going in the first Quarter of 2015. The forecasted information presented in this plan addresses the years 2015 through 2024.

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 the resulting forecast of seasonal peaks and annual energy usage, is presented in Chapter II. Included in this discussion is the projected significant impact of federal and state energy efficiency codes and standards.

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 2014 and early 2015. This chapter also discusses a number of factors or issues that either have changed, or may change, the resource plan presented in this Site Plan. Furthermore, this chapter discusses FPL's previous and planned

demand side management (DSM) efforts, the projected significant impact of the combined effects of FPL's DSM plans and state/federal energy efficiency codes and standards, FPL's previous and planned renewable energy efforts, projected transmission planning additions, and FPL's fuel cost forecasting processes.

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	Steam 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's) 2015 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 FPL's projected incremental resource needs for the 2015 - 2024 time period. By design, the primary focus of this document is on projected 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. New DSM Goals for FPL for the time period 2015 through 2024 were set in November 2014 by the Florida Public Service Commission (FPSC). Consequently, the level of DSM additions reflected in the 2015 Site Plan is consistent with these newly approved DSM Goals. DSM is discussed later in this summary and in Chapters II and III.

In addition, 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 and are discussed in Chapter II.

The resource plan presented in FPL's 2015 Site Plan contains both similarities and differences when compared to the resource plan presented in FPL's 2014 Site Plan. There are a number of factors that have either contributed to the differences between the resource plan presented in this Site Plan and the resource plan that was previously presented in FPL's 2014 Site Plan, or which may influence FPL's on-going resource planning efforts. These factors could result in future changes to the resource plan presented in this document. A brief discussion of these similarities, differences, and factors is provided below. Additional information regarding these topics is presented in Chapters II and III.

I. Similarities Between the Current Resource Plan and the Resource Plan Previously Presented in FPL's 2014 Site Plan:

There are three key similarities between the current resource plan presented in this document and the resource plan that was discussed in the 2014 Site Plan.

Similarity # 1: Modernizations of Existing Power Plant Sites.

As discussed in previous Site Plans, FPL has been in the process of modernizing several existing power plant sites during the last few years. These modernizations consist of replacing old existing steam generating units with modern, highly efficient combined cycle (CC) generating units. The modernizations

of FPL's existing Cape Canaveral and Riviera Beach plant sites were completed in 2013 and 2014, respectively. The last of the previously approved modernization projects, the modernization of FPL's existing Port Everglades plant site, is underway and projected to be completed in 2016.

Similarity # 2: Specific generating units are projected to be retired and/or converted to synchronous condenser operation.

In the last several 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. As discussed in FPL's 2014 Site Plan, Putnam Units 1 & 2 were retired at the end of 2014. In addition, 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.

Similarity # 3: A number of older gas turbine peaking units are projected to be retired and replaced with modern combustion turbine peaking units.

In FPL's 2014 Site Plan, FPL projected that it would retire all of its existing gas turbine (GT) units in Broward County at its Lauderdale and Port Everglades sites (a decrease in peaking generating capacity of 1,260 MW) and partially replace this peaking capacity with the installation of 5 new combustion turbine (CT) units at the Lauderdale site (an increase of 1,005 MW). These changes were projected to be completed in 2019. These changes to FPL's generating system were based on concerns regarding whether the older, existing GTs would allow FPL to be able to meet the new EPA 1-hour standards for nitrogen dioxide and sulfur dioxide. Economic analyses now indicate that it is cost-effective to retire and replace a number of the existing GTs at an earlier date. Based on these analyses, FPL currently projects the retirement of a number of its existing GTs, including: 22 of 24 GTs at the Lauderdale site, all 12 GTs at the Port Everglades site, and 10 of 12 GTs at the Fort Myers plant site. Two of the existing GTs at the Lauderdale site, and two of the existing GTs at the Ft. Myers site, will be retained for black start capability. In conjunction with the retirement of these peaking units, FPL is adding a number of new, larger, and more efficient CTs: 5 at the Lauderdale site and 2 at the Fort Myers site. Also, the two existing CTs at the Fort Myers site will undergo capacity upgrades. In total, the net effect of the GT retirements, plus new/upgraded CTs, is a net reduction of approximately 40 MW in net peaking capability. All of these changes are projected to be completed by the end of 2016.

II. Differences Between the Current Resource Plan and the Resource Plan Previously Presented in FPL's 2014 Site Plan:

There are four key differences between the current resource plan presented in this document and the resource plan previously presented in the 2014 Site Plan. These differences are discussed below in chronological order as they pertain to FPL's current resource plan.

Difference # 1: FPL no longer projects that it will serve Vero Beach's electrical load.

Difficulties in the negotiations among the parties involved have led FPL to no longer project that it will serve Vero Beach's electrical load as had been assumed in FPL's most recent Site Plans and load forecasts. This factor results in a reduction of FPL's forecasted load. To the extent circumstances change and a consummation of the sale once again seems likely, FPL will reincorporate this load into its forecast.

Difference # 2: FPL's power purchase agreement with Cedar Bay will be terminated in 2015.

FPL anticipates terminating its existing power purchase agreement for 250 MW of coal-fired capacity from the Cedar Bay generating facility at the end of August 2015 as a result of a Purchase and Sale Agreement between FPL and Cedar Bay Generating Company, L.P. FPL would then own the unit starting on September 1, 2015. FPL currently anticipates that it will not need the unit for economic purposes after 2016 and, if that proves to be the case, would retire the unit at that time. FPL filed for FPSC approval of the Purchase and Sale Agreement in the first quarter of 2015.

Difference # 3: FPL will approximately triple its solar generating capacity by the end of 2016.

FPL will be adding three new photovoltaic (PV) facilities by the end of 2016. Each of the PV facilities will be approximately 74.5 MW (nameplate rating, AC). As a result, FPL's solar generation capacity will increase from its current 110 MW to approximately 333 MW. The new PV installations are projected to be sited in Manatee, Charlotte, and DeSoto counties. The economics of these specific PV projects are aided by the fact that the sites are located close to existing electric infrastructure, including tranmission lines and electric substations, and by the fact that bringing these solar facilities into service prior to the end of 2016 will allow the facilities to take advantage of the current 30% investment tax credit that is scheduled to be reduced to 10% beginning in 2017.

Difference # 4: The projected in-service dates of FPL's planned two new nuclear units, Turkey Point 6 & 7, have now been moved outside of the 10-year reporting period of this document.

In recent Site Plans, the earliest practical deployment dates for the new Turkey Point 6 & 7 nuclear unit were identified as 2022 and 2023, and these two dates were used as the projected in-service dates for these units. However, in the second half of 2014, the Nuclear Regulatory Commission (NRC) issued a new schedule for completing its review of FPL's Combined Operating License Application (COLA) for Turkey Point 6 & 7. The NRC's new schedule now projects that its review will not be completed until late 2016. As a consequence of the NRC delay, and the impacts of the recently amended Florida nuclear cost recovery (NCR) statute, FPL now projects that the earliest practical deployment dates for Turkey Point 6 & 7 will fall outside of the 10-year time period of 2015 through 2024 that is addressed in this Site Plan document. However, emissions-free, baseload capacity and energy from nuclear power remains an important part of FPL's resource plans. For that reason, Chapter IV provides detailed information regarding the Turkey Point site for these two new nuclear units.

III. Factors Which Have Impacted, or Which Could Impact, FPL's Resource Plan:

In addition to these key similarities and differences, there are a number of factors which have impacted, or which may impact, FPL's resource plan. Six (6) such factors are summarized in the text below and these are presented in no particular order. These factors, and/or their corresponding impacts on FPL's resource plan, are further discussed in Chapters II and III.

The first and second of these factors are on-going system concerns that FPL has considered in its resource planning work for a number of years. The first factor is the objective to maintain/enhance fuel diversity in the FPL system. Diversity is sought both in terms of the types of fuel utilized by FPL and how these fuels are supplied to FPL. (Related to the fuel diversity objective, FPL also seeks to enhance the efficiency with which it uses fuel to generate electricity.) The second factor is the need to maintain a balance between load and generating capacity in Southeastern Florida, particularly in Miami-Dade and Broward counties. This balance has both reliability and economic implications for FPL's system.

The third factor is also a system concern that FPL has considered in its resource planning for several years. This factor addresses system reliability and focuses upon the desirability of maintaining an appropriate balance of DSM and supply resources from a system reliability perspective. FPL addresses this through the use of a 10% generation-only reserve margin (GRM) reliability criterion 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. Together, these three criteria allow FPL to address this specific concern regarding system reliability in a comprehensive manner.

The fourth factor is the significant and increasing impact that federal and state energy efficiency codes and standards are having on FPL's projected demand and energy load forecasts. The incremental impacts of these energy efficiency codes and standards during the 2015 through 2024 time period are projected to reduce FPL's forecasted Summer peak load by more than 2,000 MW, and reduce annual energy consumption by more than 6,800 GWh, by 2024. In addition, this mandated energy efficiency significantly reduces the potential for cost-effective energy efficiency that might otherwise have been obtained through FPL's DSM programs.

The fifth factor is the increasing cost competitiveness of utility-scale PV facilities due to the continued decline of the cost of PV modules. Utility-scale PV facilities are the most economical way to utilize PV technology and the declining costs of PV modules have resulted, for the first time, in utility scale PV now being competitive on FPL's system at specific, highly advantaged sites. As a result, FPL's current resource plan presented in this year's Site Plan includes approximately 223 MW (nameplate, AC) of new PV facilities at three specific sites that offer particular cost advantages. The projected new PV facilities are also presented in Table ES – 1 at the end of this executive summary.

The sixth factor is environmental regulation, particularly the U.S. Environmental Protection Agency's (EPA) proposed Clean Power Plan issued in June 2014. The intent of the Clean Power Plan is to set carbon dioxide (CO_2) emission limits for each state. The EPA is scheduled to issue final rules and emission limits in June 2015 (several months after this Site Plan is filed). The current draft rules call for each state to submit its compliance plan by June 2016 (although a delay of at least one year is possible). FPL's resource planning work will account for the CO_2 limits as they are finalized and FPL expects to be actively engaged in the development of Florida's statewide compliance plan.

Each of these factors will continue to be examined in FPL's on-going resource planning work during the rest of 2015 and in future years.

Table ES-1 presents a current projection of major changes to specific generating units and firm capacity purchases for 2015 – 2024. 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 that are consistent with its new DSM Goals have been fully accounted for in the resource plan presented in this Site Plan.

In addition, this table shows the addition of an FPL CC unit in 2019. This potential new unit represents FPL's most economic self-build generation option for 2019 and it appears in this table and this Site Plan as a placeholder for that year. In March 2015, FPL issued a capacity request for proposals (RFP) that solicited proposals from interested parties for generation that could supply firm, dispatchable capacity starting in mid-2019. Proposals are due in May 2015. At that time, FPL and an independent evaluator will conduct separate reviews of proposals received in response to the RFP and of FPL's potential self-build

CC unit. At the conclusion of the analyses, FPL will file for a determination of need, or approval of cost recovery, from the Florida Public Service Commission for the generation option(s) that was determined in these analyses to be the best selection for FPL's customers beginning in 2019.

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

Year *	Projected Capacity & Firm Purchase Power Changes	Summer MW	Date	Summer Reserve Margin **
2015	Turkey Point	(22)	January-15	
	Fort Myers	(5)	January-15	
	Lauderdale GT	(8)	January-15	
	Lauderdale GT	(8)	January-15	
	Port Everglades GT	(8)	January-15	
	Palm Beach SWA - additional firm capacity	70	June-15	
	Martin	(3)	June-15	
	Scherer	(9)	June-15	
	Total of MW changes to Summer firm capacity:	**6**		**26.7%**
2016	Cedar Bay -PPA retirement	(250)	October-15	
	Cedar Bay -FPL Ownership	250	October-15	
	UPS Replacement	(928)	December-15	
	Fort Myers 2	37	June-16	
	Fort Myers GTs 1 -10	(540)	June-16	
	Lauderdale GTs 1- 12	(412)	June-16	
	Martin	2	June-16	
	Port Everglades Next Generation Clean Energy Center	1,237	June-16	
	Sanford	3	June-16	
	Total of MW changes to Summer firm capacity:	**(601)**		**21.3%**
2017	Babcock Solar Energy Center (Charlotte) ***	38	September-16	
	Citrus Solar Energy Center (DeSoto) ***	38	September-16	
	Manatee Solar Energy Center ***	38	September-16	
	Lauderdale GTs 13- 22	(343)	October-16	
	Turkey Point Unit 1 synchronous condenser	(396)	October-16	
	Port Everglades GTs	(412)	December-16	
	Cedar Bay	(250)	December-16	
	Lauderdale GTs - 5 CT	1,155	December-16	
	Fort Myers GTs - 2 CT	462	December-16	
	Fort Myers 3A&B - upgraded	50	December-16	
	Martin	2	January-17	
	Sanford	1	January-17	
	Sanford	4	January-17	
	Turkey Point #5	23	June-17	
	Manatee	4	June-17	
	Total of MW changes to Summer firm capacity:	**415**		**20.9%**
2018	Unspecified Short-Term Purchase	207	May-18	
	Turkey Point Nuclear Unit #3	20	June-18	
	Turkey Point Nuclear Unit #5	3	June-18	
	Total of MW changes to Summer firm capacity:	**227**		**20.0%**
2019	Unspecified Short-Term Purchase	(207)	September-18	
	SJRPP suspension of energy	(382)	2nd Quarter	
	Turkey Point Nuclear Unit #4	20	June-19	
	Okeechobee Next Generation Clean Energy Center ****	1,622	June-19	
	Total of MW changes to Summer firm capacity:	**1,053**		**22.8%**
2020	---	---	---	
	Total of MW changes to Summer firm capacity:	**0**		**21.3%**
2021	Eco-Gen PPA firm capacity	180	January-21	
	Cape Next Generation Clean Energy Center	88	June-21	
	Total of MW changes to Summer firm capacity:	**268**		**22.0%**
2022	Riviera Beach Next Generation Clean Energy Center	86	June-22	
	Total of MW changes to Summer firm capacity:	**86**		**20.9%**
2023	Unsited CC	1,317	June-23	
	Total of MW changes to Summer firm capacity:	**1,317**		**24.4%**
2024	---	---	---	
	Total of MW changes to Summer firm capacity:	**0**		**22.2%**

* Year shown reflects when the MW change begins to be accounted for in Summer reserve margin calculations.

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

*** MW values shown represent the firm capacity assumption for each 74.5 MW nameplate (AC) PV facility.

**** The Okeechobee generating is FPL's best self-build option for 2019. During 2015 it will be evaluated versus

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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 9.1 million people. FPL served an average of 4,708,829 customer accounts in 35 counties during 2014. These customers were served by a variety of resources including: FPL-owned fossil-fuel, 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 14 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). As of December 31, 2014, FPL's electrical generating facilities consisted of: four nuclear units, three coal units, 15 combined cycle (CC) units, five fossil steam units, 48 combustion gas turbines, two simple cycle combustion turbines, and two photovoltaic facilities[1]. The locations of these 79 generating units are shown on Figure I.A.1 and in Table I.A.1.

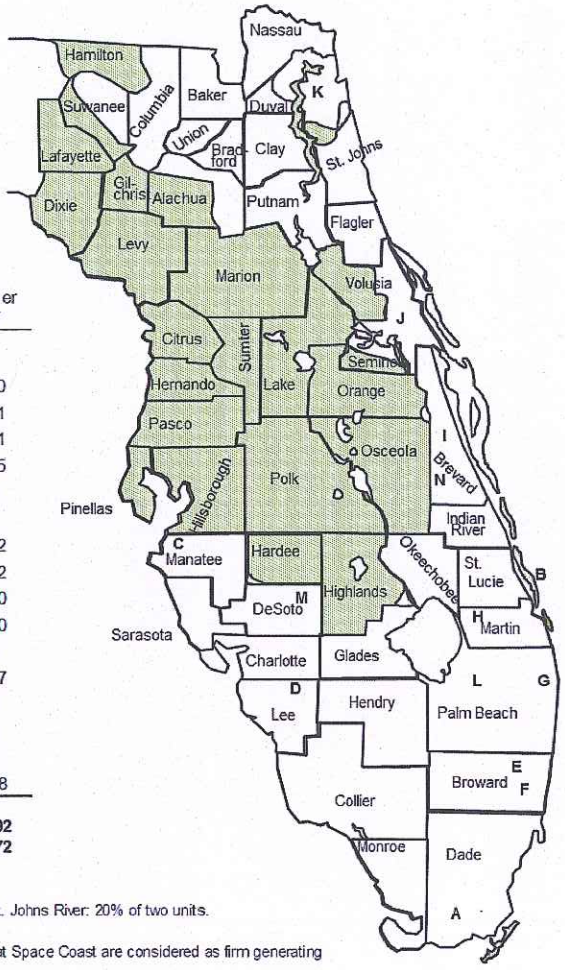
FPL's bulk transmission system, including both overhead and underground lines, is comprised of 6,888 circuit miles of transmission lines. Integration of the generation, transmission, and distribution system is achieved through FPL's 596 substations in Florida.

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	3,220
B	St. Lucie [1/]	2	1,821
C	Manatee	3	2,761
D	Fort Myers	3	1,755
E	Lauderdale	2	884
F	Everglades [2/]	0	0
G	Riviera	1	1,212
H	Martin	5	3,722
I	Cape Canaveral	1	1,210
J	Sanford	2	2,010
K	St. John's River Power Park [1/]	2	254
L	West County	3	3,657
M	DeSoto [3/]	1	25
N	Space Coast [3/]	1	10
	Scherer [4/]	1	643
	Gas Turbines	48	1,908
	Total System Generation =	**79**	**25,092**
	System Firm Generation =		**25,072**



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 Plant.
3/ Approximately 48% of the 25 MW of PV at DeSoto and 32% of the 10 MW of PV at Space Coast are considered as firm generating capacity for Summer reserve margin purposes.
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, 2014)

Table I.A.1: Capacity Resource by Unit Type (as of December 31, 2014)

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	1,436
Manatee	Parrish, FL	1	Gas	1,143
Martin	Indiantown, FL	3	Gas	2,073
Sanford	Lake Monroe, FL	2	Gas	2,010
Cape Canaveral	Cocoa, FL	1	Gas/Oil	1,210
Lauderdale	Dania, FL	2	Gas/Oil	884
Riviera Beach	City of Riviera Beach, FL	1	Gas/Oil	1,212
Turkey Point	Florida City, FL	1	Gas/Oil	1,192
West County	Palm Beach County, FL	3	Gas/Oil	3,657
Total Combined Cycle:		**15**		**14,817**
Oil/Gas Steam				
Manatee	Parrish, FL	2	Oil/Gas	1,618
Martin	Indiantown,FL	2	Oil/Gas	1,649
Turkey Point	Florida City, FL	1	Oil/Gas	396
Total Oil/Gas Steam:		**5**		**3,663**
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	319
Total Combustion Turbines:		**2**		**319**
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 =		**79**		**25,092**
System Firm Generation as of December 31, 2013 =				**25,072**

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/ Approximately 46% of the 25 MW of PV at DeSoto, and 32% of the 10 MW of PV at Space Coast, are considered as firm generating capacity for Summer reserve margin purposes.

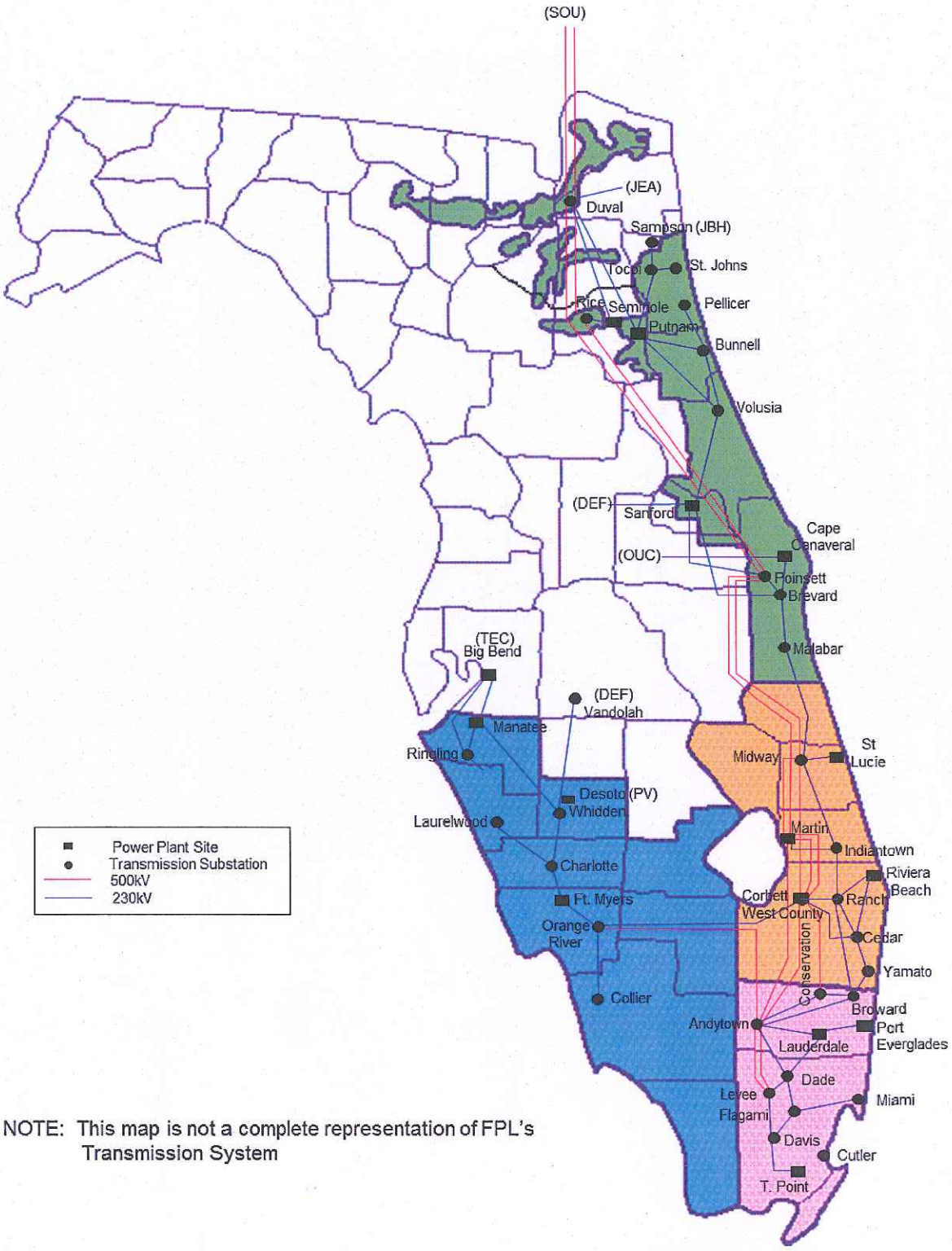


Figure I.A.2: FPL Substation and Transmission System Configuration

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 seven 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. This is shown in Table I.A.3, Table I.B.1, and Table I.B.2.

A cogeneration facility is one that simultaneously produces electrical and thermal energy, with the thermal energy (e.g., steam) used for industrial, commercial, or cooling and heating purposes. A small power production facility is one that 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 solar, wind, waste, geothermal, or other renewable resources as its primary energy source.

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- and coal-fired units.

In addition, FPL has contracts with the Jacksonville Electric Authority (JEA) for the purchase of 382 MW (Summer) and 389 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 the second quarter of 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.)

These purchases are shown in Table I.A.3, Table I.B.1, and Table I.B.2. FPL's ownership interest in the SJRPP units 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 in 2015 will cause both units to no longer meet the statutory definition of a QF. Therefore, these contracts are listed as "Other Purchases" following the 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 2014 from these facilities.

Table 1.A.3: Purchase Power Resources by Contract (as of December 31, 2014)

Firm Capacity Purchases (MW)	Location (City or County)	Fuel	Summer MW
I. Purchase from QF's: Cogeneration/Small Power Production Facilities			
Cedar Bay Generating Company	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	Palm Beach	Solid Waste	40
		Total:	635
II. Purchases from Utilities			
UPS from Southern Company	Various Georgia	Coal/Gas	928
SJRPP	Jacksonville	Coal	382
		Total:	1,310
	Total Net Firm Generating Capability:		1,945

Non-Firm Energy Purchases (MWH)			
Project	**County**	**Fuel**	**Energy (MWH) Delivered to FPL in 2014**
Okeelanta (known as Florida Crystals and New Hope I	Palm Beach	Bagasse/Wood	87,690
Broward South*	Broward	Solid Waste	93,548
Broward North*	Broward	Solid Waste	57,806
Waste Management Renewable Energy*	Broward	Landfill Gas	34,265
Waste Management - Collier County Landfill*	Broward	Landfill Gas	24,928
Tropicana	Manatee	Natural Gas	7,172
Georgia Pacific	Putnam	Paper by-product	8,606
Rothenbach Park (known as MMA Bee Ridge)*	Sarasota	PV	286
First Solar*	Dade	PV	409
Customer Owned PV & Wind	Various	PV/Wind	1,505
INEOS Bio*	Indian River	Wood	325
Miami Dade Resource Recovery*	Dade	Solid Waste	146,417

*These Non-Firm Energy Purchases are renewable and are reflected on Schedule 11.1, rows 8 and 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	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
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	08/31/15	250	0	0	0	0	0	0	0	0	0
Indiantown Cogen L.P.	12/22/95	12/01/25	330	330	330	330	330	330	330	330	330	330
U.S.EcoGen Clay[2/]	01/01/21	12/31/49	0	0	0	0	0	0	60	60	60	60
U.S.EcoGen Okeechobee[2/]	01/01/21	12/31/49	0	0	0	0	0	0	60	60	60	60
U.S.EcoGen Martin[2/]	01/01/21	12/31/49	0	0	0	0	0	0	60	60	60	60
QF Purchases Subtotal:			**595**	**345**	**345**	**345**	**345**	**345**	**525**	**525**	**525**	**525**

II. Purchases from Utilities

	Contract Start Date	Contract End Date	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
UPS Replacement	06/01/10	12/31/15	928	0	0	0	0	0	0	0	0	0
SJRPP[3/]	04/02/82	2nd Qtr/2019	382	382	382	382	0	0	0	0	0	0
Utility Purchases Subtotal:			**1,310**	**382**	**382**	**382**	**0**	**0**	**0**	**0**	**0**	**0**

Total of QF and Utility Purchases =			**1,905**	**727**	**727**	**727**	**345**	**345**	**525**	**525**	**525**	**525**

III. Other Purchases

	Contract Start Date	Contract End Date	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Palm Beach SWA - Extension[1/]	01/10/12	04/01/32	40	40	40	40	40	40	40	40	40	40
Palm Beach SWA - Additional	06/01/15	04/01/32	70	70	70	70	70	70	70	70	70	70
Unspecified Purchases[4/]	05/01/18	09/30/18	0	0	0	207	0	0	0	0	0	0
Other Purchases Subtotal:			**110**	**110**	**110**	**317**	**110**	**110**	**110**	**110**	**110**	**110**

Total "Non-QF" Purchases =			**1,420**	**492**	**492**	**699**	**110**	**110**	**110**	**110**	**110**	**110**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Summer Firm Capacity Purchases Total MW:	**2,015**	**837**	**837**	**1,044**	**455**	**455**	**635**	**635**	**635**	**635**

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

2/ The EcoGen units will enter service in 2019, however firm capacity will only be delivered starting 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 Unspecified Purchases are short-term purchases for the summer of 2018 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	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
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 Company	01/25/94	08/31/15	250	0	0	0	0	0	0	0	0	0
Indiantown Cogen L.P.	12/22/95	12/01/25	330	330	330	330	330	330	330	330	330	330
Palm Beach SWA - extension[1/]	01/10/12	04/01/32	0	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	60	60	60	60
U.S.EcoGen Okeechobee[2/]	01/01/21	12/31/49	0	0	0	0	0	0	60	60	60	60
U.S.EcoGen Martin[2/]	01/01/21	12/31/49	0	0	0	0	0	0	60	60	60	60
QF Purchases Subtotal:			**595**	**345**	**345**	**345**	**345**	**345**	**525**	**525**	**525**	**525**

II. Purchases from Utilities

	Contract Start Date	Contract End Date	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
UPS Replacement	06/01/10	12/31/15	928	0	0	0	0	0	0	0	0	0
SJRPP[3/]	04/02/82	2nd Qtr/2019	389	389	389	389	389	0	0	0	0	0
Utility Purchases Subtotal:			**1,317**	**389**	**389**	**389**	**389**	**0**	**0**	**0**	**0**	**0**

Total of QF and Utility Purchases =			**1,912**	**734**	**734**	**734**	**734**	**345**	**525**	**525**	**525**	**525**

III. Other Purchases

	Contract Start Date	Contract End Date	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Palm Beach SWA - Extension[1/]	01/10/12	04/01/32	40	40	40	40	40	40	40	40	40	40
Palm Beach SWA - Additional	06/01/15	04/01/32	0	70	70	70	70	70	70	70	70	70
Other Purchases Subtotal:			**40**	**110**	**110**	**110**	**110**	**110**	**110**	**110**	**110**	**110**

Total "Non-QF" Purchases =			**1,357**	**499**	**499**	**499**	**499**	**110**	**110**	**110**	**110**	**110**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Winter Firm Capacity Purchases Total MW:	**1,952**	**844**	**844**	**844**	**844**	**455**	**635**	**635**	**635**	**635**

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 will then be accounted for under "Other Purchases"

2/ The EcoGen units will enter service in 2019, however firm capacity will only be delivered starting 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.

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 2014 have resulted in a cumulative Summer peak reduction of approximately 4,793 MW at the generator and an estimated cumulative energy saving of approximately 70,997 Gigawatt-hour (GWh) at the generator. After accounting for reserve margin requirements, FPL's DSM efforts through 2014 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 were set by the FPSC in November 2014. The new DSM Goals are discussed in Chapter III.

Schedule 1

Existing Generating Facilities
As of December 31, 2014

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						Fuel		Alt. Fuel		Actual/		Net Capability [1]	
Plant Name	Unit No.	Location	Unit Type	Fuel Pri.	Fuel Alt.	Transport. Pri.	Transport. Alt.	Days Use	Commercial In-Service Month/Year	Expected Retirement Month/Year	Gen. Max. Nameplate KW	Winter MW	Summer MW
Cape Canaveral		Brevard County											
		19/24S/36E									1,295,400	1,355	1,210
	3		CC	NG	FO2	PL	TK	Unknown	Apr-13	Unknown	1,295,400	1,355	1,210
DeSoto [2]		DeSoto County											
		27/36S/25E									25,000	25	25
	1		PV	Solar	Solar	N/A	N/A	Unknown	Oct-09	Unknown	25,000	25	25
Fort Myers		Lee County											
		35/43S/25E									2,653,800	2,553	2,403
	2		CC	NG	No	PL	No	Unknown	Jun-02	Unknown	1,721,490	1,491	1,436
	3		CT	NG	FO2	PL	TK	Unknown	Jun-03	Unknown	188,190	352	319
	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	2,871	2,761
	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	1,233	1,143
Martin		Martin County											
		29/29S/38E									4,317,510	3,866	3,722
	1		ST	FO6	NG	PL	PL	Unknown	Dec-80	Unknown	934,500	829	823
	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	1,227	1,135
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
Riviera Beach		City of Riviera Beach											
		33/42S/432E									1,295,400	1,344	1,212
	5		CC	NG	FO2	PL	WA	Unknown	Apr-14	Unknown	1,295,400	1,344	1,212

1/ These ratings are peak capability.

2/ Approximately 46% of the 25 MW (Nameplate, AC) PV facility at DeSoto is considered as firm generating capacity for Summer reserve margin purposes and 0% is considered as firm capacity for Winter reserve margin purposes.

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, 2014

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						Fuel		Alt. Fuel		Actual/		Net Capability [1]	
Plant Name	Unit No.	Location	Unit Type	Fuel Pri.	Fuel Alt.	Transport Pri.	Transport Alt.	Days Use	Commercial In-Service Month/Year	Expected Retirement Month/Year	Gen. Max. Nameplate KW	Winter MW	Summer MW
Sanford		Volusia County 16/19S/30E									2,377,720	2,200	2,010
	4		CC	NG	No	PL	No	Unknown	Oct-03	Unknown	1,188,860	1,100	1,005
	5		CC	NG	No	PL	No	Unknown	Jun-02	Unknown	1,188,860	1,100	1,005
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	3,322	3,220
	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	1,237	1,192
West County		Palm Beach County 29&32/43S/40E									4,100,400	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, 2014 [6] =		**26,668**	**25,092**
										System Firm Generating Capacity as of December 31, 2014 [7] =		**26,633**	**25,072**

1/ These ratings are peak capability.

2/ These ratings relate to FPL's 76.36% share of Plant Scherer Unit 4 operated by Georgia Power, and represent FPL's 73.923% owemership share available at point of interchange.

3/ Approximately 32% of the 10 MW (Nameplate, AC) PV facility at Space Coast is considered as firm generating capacity for Summer reserve margin purposes and 0% is considered as firm capacity for Winter reserve margin purposes.

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 7.448% 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

At FPL, long-term forecasts of sales, net energy for load (NEL), and peak loads typically are developed on an annual basis for resource planning work. FPL developed new long-term forecasts in late 2014 that replaced the previous long-term load forecasts used by FPL during 2014 in much of its resource planning work and which were presented in FPL's 2014 Site Plan. These new load forecasts are utilized throughout FPL's 2015 Site Plan and 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 including: 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 IHS Global Insight, a leading economic forecasting firm. 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 and the build-up of cooling degree-hours prior to the peak are used to forecast Summer peaks.
3. The minimum temperature on the peak day and the build-up of heating degree-hours based on 66° F on the morning of 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 that are 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 where 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 previously presented in its 2014 Site Plan. Three primary factors drive the current load forecast: projected population growth, the performance of Florida's economy, and energy efficiency codes and standards. An additional fourth factor, which represents a change in assumptions from the 2014 Site Plan, pertains to FPL's previously planned acquisition of the City of Vero Beach's electric system.

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's voters on March 12, 2013. FPL projected in its 2014 Site Plan that it would begin serving Vero Beach's electric load in January 2015. Accordingly, NEL, customers, and peaks for Vero Beach from 2015 through 2023 were included in FPL's load forecasts in its 2014 Site Plan. However, lack of progress among negotiating parties has resulted in uncertainty regarding whether FPL will provide, or when it can begin providing, Vero Beach's electric load. As a result, FPL's current load forecast does not include electric service to Vero Beach.

The customer forecast is based on recent population projections as well as the actual levels of customer growth experienced historically. Population projections are derived from the EDR's July 2014 Demographic Estimating Conference. This forecast is generally consistent with previous forecasts indicating steady growth in Florida's population. On a percentage basis, the projected rates of population growth are expected to be somewhat below the state's long-term historical averages. However, the absolute increases in population are projected to be significant. The state's population is expected to reach 20 million by 2016 and exceed 22 million by 2023. Overall, the state's population is expected to increase by approximately three million between 2014 and 2024.

FPL customer growth is expected to mirror the overall level of population growth in the state. From 2014 through 2024 the total number of customers is projected to increase at an annual rate of 1.3% resulting in a cumulative increase of more than 670,000 customers. By 2019, the total number of customers served by FPL is expected to exceed five million. By 2024, the total number of FPL customers is expected to reach approximately 5.4 million.

The economic projections incorporated into FPL's load forecast are provided by IHS Global Insight. IHS Global Insight projects solid growth in the Florida economy with relatively healthy increases in employment and income levels from 2015 through 2019. This firm projects particularly robust growth for the professional and business services, trade, 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 field. These estimates include 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 resulting from the use of compact fluorescent bulbs and light-emitting diodes (LEDs)[2]. The impact of these savings began in 2005 and their cumulative impact on the Summer peak is expected to reach 3,568 MW by 2024, the equivalent of an approximately 12% reduction in what the forecasted Summer peak load for 2024 would have been without these codes and standards. The cumulative impact on NEL from these savings is expected to reach 11,405 GWH over the same period while the cumulative impact on the Winter peak is expected to be 2,022 MW by 2024. This represents a decrease of approximately 8% in the forecasted NEL for 2024 and an 8% reduction in forecasted Winter peak load for 2024.

Consistent with the forecast presented in FPL's 2014 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 26,771 MW by 2024, an increase of 3,836 MW over the 2014 actual Summer peak. Likewise, NEL is projected to reach 133,276 GWH in 2024, an increase of 17,308 GWH from the actual 2014 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 2015 through 2024 are presented in Schedules 2.1 - 2.3 that 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, 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, twelve-month average Consumer Price Index for Energy, and Florida real per capita income weighted by the percent of the population that is employed. The impact of weather is captured by the cooling degree-hours and winter heating degree-days. The impact energy prices have on electricity consumption is captured through the Consumer Price Index for Energy variable. As energy prices rise, less disposable income is available for all goods and services, including electricity. 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 projected residential use per customer by the projected number of residential customers.

2. **Commercial Sales**

The commercial sales forecast is also developed using econometric models. The commercial class is forecast using three separate models, based on customer size, including: small accounts (less than 20 kW of demand), medium accounts (21 kW to 499 kW of demand), and large accounts (demand of 500 kW or higher). Commercial sales are driven by economic and weather variables. Specifically, the small commercial sales model utilizes the following variables: Florida real per capita income weighted by the percent of the population that is employed, cooling degree-hours, heating degree-hours, lagged cooling degree-hours, the Consumer Price Index, dummy variables for the month of December and for the specific months of January 2007 and November 2005, and an autoregressive term. The medium commercial sales model utilizes the same variables as the small commercial model with the exception of a January heating degree-day term rather than the heating degree-hours term. The large commercial sales model utilizes the following variables: Florida real per capita income, cooling degree-hours, heating degree-hours, lagged cooling degree-hours, dummy variables for the month of December and for the specific months of January 2007 and November 2005, 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**

Like the commercial class, the industrial class is forecast using three separate models, based on customer size. The industrial class is comprised of three distinct groups: small accounts (less than 20 kW of demand), medium accounts (21 kW to 499 kW of demand), and large accounts (demands of 500 kW or higher). The small industrial sales model utilizes the

following variables: Florida real household disposable income, cooling degree-hours, heating degree-hours, and autoregressive terms. The medium industrial sales model utilizes the following variables: Florida real Gross State Product, the Consumer Price Index, cooling degree-hours, January heating degree-days, dummy variables for the specific months of February 2005 and November 2005, and autoregressive terms. The large industrial sales model utilizes the following variables: cooling degree-hours, Florida Gross State Product for manufacturing, the Consumer Price Index, the employee to population ratio, and dummy variables for the specific months of October 2004 and November 2004.

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. There are currently seven customers in this class: Florida Keys Electric Cooperative, Lee County Electric Cooperative, New Smyrna Beach, Wauchula, Winter Park, Blountstown, and Seminole Electric Cooperative[3].

   Beginning in May 2011, FPL began providing service to the Florida Keys Electric Cooperative under a long-term full requirements contract. FPL previously served the Florida Keys under a

[3] FPL continues to evaluate the possibility of serving the electrical loads of other entities at the time this 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.

partial requirements contract. The sales to Florida Keys Electric Cooperative are based on customer-supplied information and historical coincidence factors.

Lee County contracted with FPL for FPL to supply a portion of the Lee County load through 2013, then to serve the entire Lee County load beginning in 2014. This contract began in January 2010. Forecasted NEL for Lee County is based on an econometric model utilizing the following variables: cooling and heating degree-hours, January heating degree-days, real disposable household income, and autoregressive terms.

FPL sales to New Smyrna Beach began in February 2014 and will continue through December 2017.

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

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

Blountstown became an FPL wholesale customer in May 2012 under a contract that expires in April 2017.

FPL sales to Seminole Electric Cooperative are based on delivery of 200 MW that began in June 2014 and continues 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 that is 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 45o F. In addition, the model also includes a variable for energy efficiency codes and standards. A dummy variable is included for the specific month of November 2005. There are also two autoregressive terms 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 savings resulting from the use of compact fluorescent bulbs and LEDs. The estimated impact from these codes and standards includes 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 11,405 GWH by 2024. This represents an approximately 8% reduction in what the forecasted NEL for 2024 would have been absence these

codes and standards. From the end of 2014, the incremental reduction through 2024 is expected to be 6,808 GWH. An additional adjustment is made due to the impact of incremental distributed generation not otherwise included in the forecast. The adjustment to the forecast due to distributed generation begins in 2014 and is expected to reduce the NEL forecast by 444 GWH by 2024.

The forecast was also adjusted for the additional load estimated from hybrid vehicles, beginning in 2014, which resulted in an increase of approximately 616 GWH by the end of the ten-year reporting period. The forecast was further adjusted for the incremental load resulting from FPL's economic development riders which began in 2014 and this incremental load is projected to grow to 242 GWH before leveling off in 2020

The NEL forecast is developed by first multiplying the NEL per customer forecast by the projected total number of customers and then adjusting the forecasted results for the expected changes in load resulting from hybrid vehicles, new wholesale contracts, distributed generation, and FPL's economic development riders. Once the NEL forecast is determined, total billed sales are computed using a historical ratio of sales to NEL. The sales by class forecasts discussed previously are then adjusted to match the total billed sales. The forecasted NEL values for 2015 through 2024 are presented in Schedule 3.3 which 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 changes in wholesale contracts, distributed generation, 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 and LEDs. The impact from these energy efficiency standards began in 2005 and their cumulative impact on the Summer peak is expected to reach 3,568 MW by 2024. This reduction includes engineering estimates and any resulting behavioral changes. This reduction also represents significant energy efficiency that is not funded by FPL's customers through the Energy Conservation Cost Recovery Clause.

The cumulative 2024 impact from these energy efficiency codes and standards effectively reduces FPL's Summer peak for that year by approximately 12%. From the end of 2014, the projected

incremental impact on the Summer peak from these energy efficiency codes and standards is projected to be a reduction of 2,035 MW through 2024. By 2024, the Winter peak is expected to be reduced by 2,022 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 2014, the impact on the Winter peak from these energy efficiency standards is expected to reach 1,321 MW in 2024.

The forecast also was adjusted for additional load estimated from hybrid vehicles which is projected to be an increase of approximately 173 MW in the Summer and 86 MW in the Winter by the end of the ten-year reporting period. The incremental impact of distributed generation results in an expected decrease of approximately 105 MW in the Summer and a negligible reduction in the Winter by the end of the ten-year reporting period. The incremental impact from distributed generation is based on forecasted increases in rooftop photovoltaic (PV) installations not otherwise reflected in the load forecast. The ratio of the expected Summer Peak MW reduction relative to the installed nameplate MW (DC) capacity is appropriately 34% for residential PV installations and appropriately 37% for commercial PV installations. The ratio of the expected Winter Peak MW reduction to installed nameplate MW (DC) capacity is close to 0% for both residential and commercial PV installations.

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 2015 through 2024 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 dummy variable for the year 1990. The model is based on the Summer peak contribution per customer which is multiplied by total customers. This product is then adjusted to account for the expected changes in loads resulting from hybrid vehicles, new wholesale contracts, distributed generation, 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 also is an econometric model. The model consists of two weather-related variables: the minimum temperature on the peak day and heating degree-hours for the prior day squared. The model also includes two dummy

variables; one for Winter peaks occurring on weekends and one for the year 1994. 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 the total number of customers. This product then is adjusted for the expected changes in loads resulting from hybrid vehicles, new wholesale contracts, distributed generation, 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 which historically has 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 which historically has 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. Hourly Load Forecast

Forecasted values for system hourly load for the period 2015 through 2024 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

Uncertainty is inherent in the load forecasting process. This uncertainty can result from a number of factors, including unexpected changes in consumer behavior, structural shifts in the economy, and fluctuating weather conditions. Large weather fluctuations, in particular, can result in significant deviations between actual and forecasted peak demands. The load forecast is based on average expected or normal weather conditions; i.e. a 50% probability (or P50) forecast. An extreme P90 cold weather event, however, can add an additional 3,000 MW to the Winter Peak and an extreme P90 hot weather event can add an additional 800 MW to the Summer Peak.

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 that may affect the input variables.

Uncertainty is also addressed in the modeling process. Econometric models generally 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 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 analyses identify 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, a Loss-of-Load-Probability (LOLP) criterion of 0.1, and a 10% generation-only reserve margin criterion, are designed to maintain reliable electric service for 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 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 2014 are assumed to be embedded in the actual usage data for forecasting purposes. The following are accounted for as "line item reductions" to the forecasts as part of the IRP process: the impacts of incremental energy efficiency that FPL has implemented in the September 2014 through December 2014 time period, incremental energy efficiency that FPL plans to implement in the future based on the new DSM Goals set for FPL by the FPSC in November 2014, and the cumulative and projected incremental impacts of FPL's load management programs. After making these adjustments to the load forecasts, the resulting "firm" load forecast is then used in FPL's IRP work as shown in Chapter III in Schedules 7.1 and 7.2.

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
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
2014	9,122,932	2.19	55,202	4,169,028	13,241	45,684	525,591	86,919

Historical Values (2005 - 2014):

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
2015	9,306,139	2.20	57,634	4,230,063	13,625	45,958	532,023	86,384
2016	9,445,807	2.20	59,347	4,293,549	13,822	46,694	538,297	86,743
2017	9,586,474	2.20	60,613	4,357,488	13,910	47,162	544,230	86,659
2018	9,726,794	2.20	61,841	4,421,270	13,987	47,649	549,723	86,678
2019	9,866,497	2.20	62,967	4,484,771	14,040	48,078	554,918	86,640
2020	10,003,258	2.20	64,192	4,546,935	14,118	48,560	559,848	86,737
2021	10,137,730	2.20	65,090	4,608,059	14,125	48,581	564,581	86,048
2022	10,269,789	2.20	65,922	4,668,086	14,122	48,861	569,300	85,826
2023	10,400,493	2.20	66,903	4,727,497	14,152	49,225	573,828	85,784
2024	10,530,845	2.20	68,082	4,786,748	14,223	49,741	578,049	86,050

Projected Values (2015 - 2024):

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
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
2014	2,941	10,415	282,398	91	446	24	104,389

Historical Values (2005 - 2014):

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
2015	2,929	11,265	260,033	91	461	22	107,096
2016	2,932	12,542	233,811	91	468	22	109,554
2017	2,914	13,496	215,931	91	473	22	111,275
2018	2,871	13,792	208,152	91	479	22	112,952
2019	2,820	13,687	206,006	91	483	22	114,461
2020	2,763	13,594	203,246	91	488	22	116,115
2021	2,696	13,455	200,356	91	492	22	116,971
2022	2,634	13,316	197,791	91	496	22	118,025
2023	2,566	13,138	195,327	91	499	22	119,307
2024	2,493	12,849	193,999	91	503	22	120,931

Projected Values (2015 - 2024):

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)
		Utility	Net	Average	
	Sales for	Use &	Energy	No. of	Total Average
	Resale	Losses	For Load	Other	Number of
Year	GWh	GWh	GWh	Customers	Customers
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
2014	5,375	6,204	115,968	3,795	4,708,829

Historical Values (2005 - 2014):

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 2012-2014 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)
		Utility	Net	Average	
	Sales for	Use &	Energy	No. of	Total Average
	Resale	Losses	For Load	Other	Number of
Year	GWh	GWh	GWh	Customers	Customers
2015	6,021	6,595	119,713	3,858	4,777,210
2016	6,126	6,727	122,407	3,906	4,848,294
2017	5,882	6,788	123,946	3,947	4,919,162
2018	5,629	6,852	125,433	3,987	4,988,771
2019	5,659	6,950	127,070	4,024	5,057,400
2020	5,700	7,036	128,851	4,058	5,124,436
2021	5,256	7,011	129,237	4,090	5,190,185
2022	4,955	7,097	130,077	4,118	5,254,820
2023	5,013	7,176	131,495	4,145	5,318,608
2024	5,073	7,271	133,276	4,170	5,381,815

Projected Values (2015 - 2024):

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
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
2014	22,935	955	21,980	0	1,010	1,444	843	840	21,082

Historical Values (2005 - 2014):

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 2014 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
2015	23,286	1,231	22,054	0	1,020	46	862	25	21,334
2016	23,778	1,240	22,538	0	1,030	60	873	37	21,778
2017	24,252	1,186	23,066	0	1,040	71	885	50	22,206
2018	24,648	1,145	23,502	0	1,051	82	897	63	22,555
2019	25,045	1,149	23,896	0	1,061	94	909	77	22,904
2020	25,369	1,150	24,219	0	1,071	106	920	91	23,181
2021	25,497	953	24,544	0	1,082	118	932	106	23,260
2022	25,833	957	24,875	0	1,092	131	944	121	23,545
2023	26,286	965	25,321	0	1,102	144	956	136	23,948
2024	26,771	972	25,798	0	1,113	157	968	152	24,381

Projected Values (2015 - 2024):

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 (MW)

(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
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
2014	17,500	890	16,610	0	768	805	590	337	16,142

Historical Values (2005 - 2014):

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 2005 through 2014 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 (MW)

(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
2015	21,136	1,195	19,941		841	12	593	5	19,684
2016	21,369	1,206	20,163		850	24	598	11	19,886
2017	21,485	1,151	20,334		858	28	603	20	19,976
2018	21,598	1,114	20,484		867	31	609	30	20,061
2019	21,792	1,125	20,667		875	35	614	40	20,227
2020	21,965	1,133	20,833		883	40	620	50	20,372
2021	22,096	1,141	20,956		892	44	625	61	20,475
2022	22,026	948	21,078		900	49	631	72	20,374
2023	22,202	956	21,246		909	53	636	83	20,520
2024	22,408	965	21,443		917	59	642	95	20,695

Projected Values (2015 - 2024):

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(%)
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%
2014	121,621	3,125	2,529	115,968	5,375	6,204	104,389	57.7%

Historical Values (2005 - 2014):

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 2014 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 2005 - 2014.

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 mete

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) * 876(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(%)
2015	119,713	58	51	119,604	6,021	6,595	107,096	58.7%
2016	122,407	98	88	122,221	6,126	6,727	109,554	58.6%
2017	123,946	121	112	123,713	5,882	6,788	111,275	58.3%
2018	125,433	144	137	125,151	5,629	6,852	112,952	58.1%
2019	127,070	168	164	126,738	5,659	6,950	114,461	57.9%
2020	128,851	192	192	128,467	5,700	7,036	116,115	57.8%
2021	129,237	218	221	128,798	5,256	7,011	116,971	57.9%
2022	130,077	244	252	129,581	4,955	7,097	118,025	57.5%
2023	131,495	271	284	130,940	5,013	7,176	119,307	57.1%
2024	133,276	299	318	132,659	5,073	7,271	120,931	56.7%

Projected Values (2015 - 2024):

Col. (2) represents Forecasted Net Energy for Load and does not include incremental DSM from 2015 - on. The Col. (2) values are extracted from Schedule 2.3, Col(19). The effects of conservation implemented prior to September 2014 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 2015 - 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 2015 - 2024 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)
	2014 Actual		2015 FORECAST		2016 FORECAST	
Month	Total Peak Demand MW	NEL GWh	Total Peak Demand MW	NEL GWh	Total Peak Demand MW	NEL GWh
JAN	17,500	8,634	21,136	8,974	21,369	9,218
FEB	16,297	7,957	18,170	8,036	18,554	8,562
MAR	16,183	8,491	18,030	8,882	18,411	9,109
APR	19,934	9,230	19,033	9,214	19,435	9,414
MAY	20,295	10,400	21,262	10,556	21,712	10,750
JUN	21,786	10,438	22,600	10,974	23,078	11,146
JUL	22,935	11,392	23,001	11,759	23,488	11,920
AUG	22,900	12,125	23,286	11,914	23,778	12,089
SEP	21,673	10,641	22,498	11,057	22,974	11,233
OCT	21,079	10,074	21,145	10,427	21,593	10,616
NOV	17,830	8,129	18,588	8,804	18,982	9,015
DEC	16,095	8,457	18,027	9,115	18,408	9,336
Annual Values:		**115,968**		**119,713**		**122,407**

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 dictated by analysis needs, 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. It also discusses some of the key assumptions, in addition to a new load forecast discussed in the previous chapter, that were used in developing the resource plan presented in this Site Plan.

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

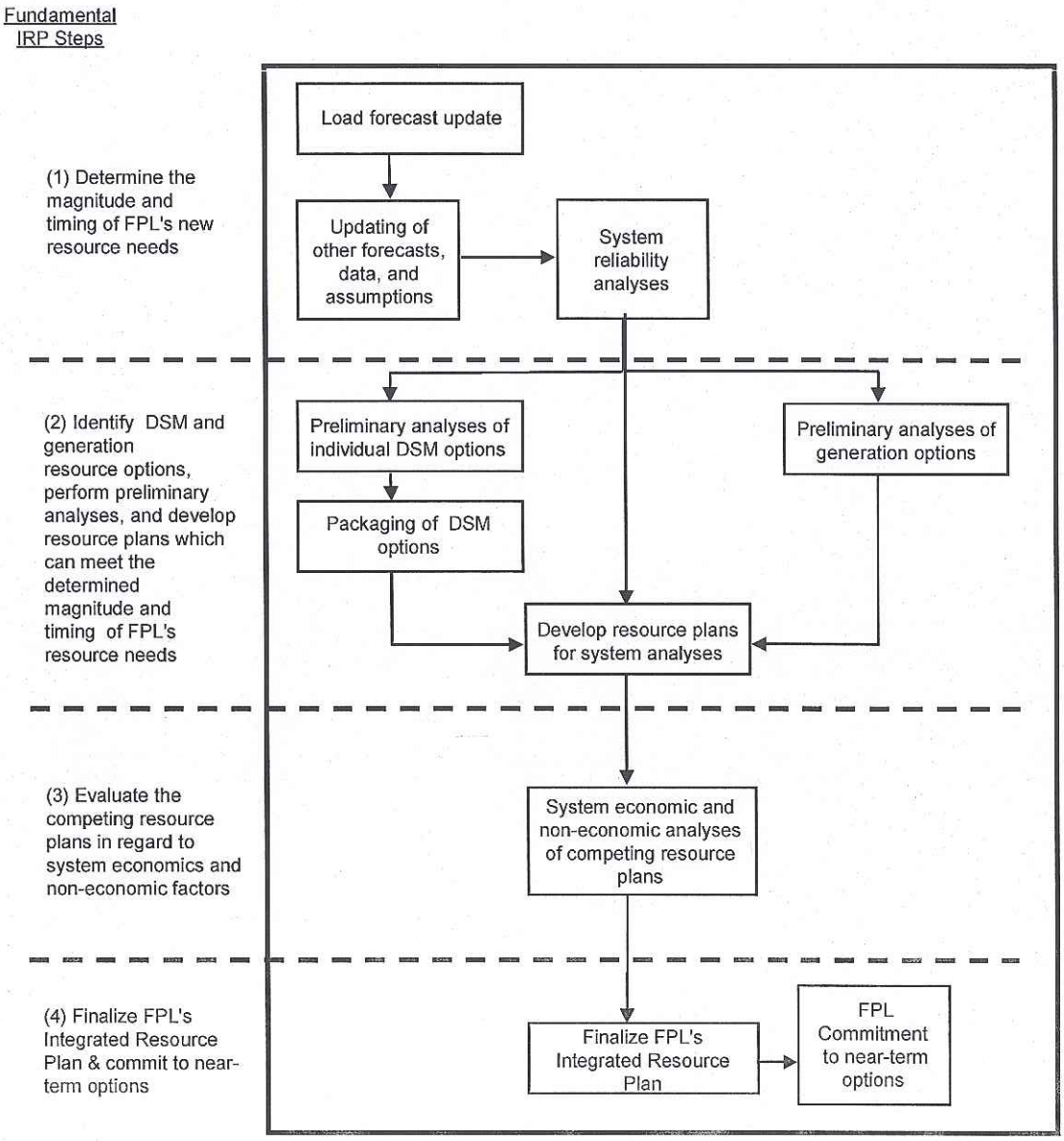

Figure III.A.1: Overview of FPL's IRP Process

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, current power plant capability and operating assumptions, and current demand side management (DSM) demand and energy reduction assumptions. FPL also includes key sets of projections regarding three specific types of resources: (1) FPL unit capacity changes, (2) firm capacity power purchases, and (3) 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 2015 Site Plan, there are six (6) such projected capacity changes through the 10-year reporting time frame of this document. These changes are listed below in general chronological order:

1) Retirement of existing Putnam Units 1 & 2:
   As explained in FPL's 2014 Site Plan, analyses conducted during 2013 and early 2014 showed that it would be cost-effective to retire 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. As a result, these two units were retired at 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. 221 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 early 2016.

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.

4) New Solar Facilities:

FPL currently projects that it will add new photovoltaic (PV) facilities by the end of 2016 at three sites. These sites are FPL's existing Manatee plant site in Manatee County, the Citrus site in DeSoto County, and the Babcock Ranch site in Charlotte County. Each of the PV facilities is projected to have a nameplate rating of approximately 74.5 MW (AC). Therefore, the three PV facilities will have a combined total nameplate (AC) rating of approximately 223 MW. FPL's analyses of these three specific projects have led to a conclusion that approximately 52% of their nameplate (AC) rating can be accounted for as firm Summer capacity, and 0% for firm Winter capacity, in FPL's reliability analyses.

5) GT Replacement:

FPL plans, for economic reasons, to retire a number of its older gas turbine (GT) peaking units at its three GT sites (Lauderdale, Port Everglades, and Fort Myers) and partially replace this peaking capacity with new combustion turbine (CT) capacity at the Lauderdale and Fort Myers sites. In addition, the two existing CTs at the Fort Myers site will be upgraded, which will increase their capacity. These changes are projected to be completed by the end of 2016. The MW impact of these changes to FPL's peaking capacity is a net decrease of approximately 40 MW.

6) New Combined Cycle Capacity:

FPL currently projects a need for a significant capacity addition in 2019. FPL's best self-build option to meet this need is a new combined cycle (CC) unit that would be built in Okeechobee County. In order to ensure that the best generation option for FPL's customers is chosen to meet this need, and in keeping with the FPSC's Bid Rule, FPL issued a Request for Proposals (RFP) in March 2015 that invited generation proposals from outside parties. These proposals are scheduled to be received in May 2015. Once

these proposals and FPL's self-build CC unit have been thoroughly evaluated by both FPL and an independent evaluator, FPL expects to file in mid-2015 for an FPSC determination of need approval, and/or for FPSC approval for cost recovery, for the best option(s).

In addition, FPL's current resource plan presented in this Site Plan also shows potential new CC capacity being added in 2023. No decision on this potential addition is yet needed and FPL expects to make a decision on this capacity addition at an appropriate time in a manner similar to how the decision for the 2019 need will be reached.

The second set of assumptions involves firm capacity power purchases. There are two significant changes in firm capacity power purchases from those shown in FPL's 2014 Site Plan. The first of those is due to the fact that FPL no longer is projecting that it will serve Vero Beach's electrical load (as discussed in Chapter II). Thus FPL is no longer projecting that it will acquire the Vero Beach combined cycle unit (46 MW), or that it will acquire two of Vero Beach's existing power purchase agreements which total approximately 37 MW of coal-fired capacity that were projected to run through the end of 2017. The second change is that FPL anticipates terminating its existing power purchase agreement for 250 MW of coal-fired capacity from the Cedar Bay generating facility at the end of August 2015 as a result of a Purchase and Sale Agreement between FPL and Cedar Bay Generating Company, L.P. FPL would then own the unit starting on September 1, 2015. FPL currently anticipates that it will not need the unit for economic purposes after 2016 and, if that proves to be the case, would retire the unit at that time. FPL filed for FPSC approval of the Purchase and Sale Agreement in the first quarter of 2015.

None of the other purchase projections has changed from those in the 2014 Site Plan. FPL's current projection includes an additional 70 MW of waste-to-energy capacity from the Palm Beach Solid Waste Authority (SWA) starting in mid-2015. In addition, FPL continues to project 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) will result in the suspension of the delivery of capacity and energy to FPL in the second quarter of 2019.[4] 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 affiliates of U.S. 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.

[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.

The third set of assumptions involves a projection of the amount of additional DSM that FPL anticipates it will implement annually over the ten-year period of 2015 through 2024. 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 November 2014, the FPSC established new DSM Goals for FPL that address the years 2015 through 2024, a time period that matches the reporting period of this Site Plan. The FPSC's DSM Goals Order No. PSC-14-0696-FOF-EU recognized that two key market forces currently were affecting the feasibility and cost-effectiveness of utility DSM programs. The first of these is the growing impact of federal and state energy efficiency codes and standards. As discussed in Chapter II, the projected incremental impacts of these energy efficiency codes and standards during the 2015 through 2024 time period are: a Summer peak reduction of approximately 2,035 MW, a Winter peak reduction of approximately 1,321 MW, and approximately 6,808 GWh of energy reduction. As a result, these energy efficiency codes and standards significantly reduce the potential for cost-effective utility DSM programs.

The second market force was lower generating costs with which DSM must compete. This is particularly noticeable in regard to current and projected fuel costs compared to those when Florida previously established DSM Goals in 2009. As an example, natural gas cost projections are 50% lower than natural gas costs projections were in 2009. Although lower generating costs, such as lower fuel costs, are very beneficial for FPL's customers, they also negatively impact the economics of utility DSM programs. Therefore, fewer DSM programs are now cost-effective. In addition, for some DSM programs to remain cost-effective, incentive payments to participating customers have to be lowered, thus reducing the attractiveness of these programs to potential participants.

The FPSC recognized the impact these market forces have on utility DSM programs and set the new DSM Goals accordingly. Although the new DSM Goals are lower than the previous goals, the new goals will help ensure that the electric rate impacts to all of FPL's customers from pursuing DSM are minimized. In March 2015, FPL filed for FPSC approval of its DSM Plan that presents specific DSM programs designed to achieve the new DSM Goals. A decision regarding FPL's DSM Plan is expected by mid-2015. In this Site Plan, the resource plan that is presented assumes that the new DSM Goals will be met in each year of the reporting period. FPL's DSM efforts are further discussed later in this chapter in section III.D.

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: determining the magnitude and 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 total 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 in 2014, FPL also implemented a third reliability criterion: a 10% generation-only reserve margin (GRM).

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 that 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 that 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 in use for performing 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 integrated resource planning work over the last several years examined a projected fundamental change in FPL's resource plans. This change was a significant shift in the mix of generation and DSM resources in which FPL was becoming increasingly reliant on DSM resources to maintain system reliability. As discussed in detail in FPL's 2014 Site Plan, extensive analyses examined this shift from a system reliability perspective.

In these analyses, 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 another version of a reserve margin calculation. The resulting GRM value provides an indication of how large a role generation is projected to play each year as FPL maintains its 20% Summer and Winter "total" reserve margins (which account for both generation and DSM resources).

These analyses examined the two types of resources, DSM and Supply options, from both an operational and a resource planning perspective. Based on these analyses, FPL 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, in 2014 FPL implemented a minimum GRM criterion of 10% as a third reliability criterion in its resource planning process.

The 10% minimum Summer and Winter GRM criterion augments the other two reliability criteria used by FPL: a 20% total reserve margin criterion for Summer and Winter, and a 0.1 day/year LOLP criterion. All three reliability criteria are potentially useful in terms of identifying the timing of the resource need. In terms of identifying the magnitude of the resource need on FPL's system, the total reserve margin and GRM criteria are more useful although the projected magnitudes under each of these criteria may differ. In addition, 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. These preliminary analyses 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 a production cost model and a Fixed Cost Spreadsheet, and/or an optimization model 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, which FPL uses to develop 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 that each 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 2014 and early 2015 resource planning work, once the resource plans were developed, FPL utilized the UPLAN production cost model and a Fixed Cost Spreadsheet, and/or the EGEAS optimization model, to perform the system economic analyses of the resource plans. 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/or FPSC approval, and therefore the only competing options are 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. Although 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 2015 through 2024 are depicted in Table ES-1 which was previously presented in the Executive Summary chapter. These capacity additions/changes include the 6 generation additions/changes previously discussed in this chapter.

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 Table ES-1 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 2014 and early 2015 resulted in a resource plan that has four (4) key differences compared to the resource plan presented in FPL's 2014 Site Plan. These 4 key differences are discussed below in chronological order.

1. **FPL No Longer Projects That It Will Serve Vero Beach's Electrical Load:**
   Difficulties in the negotiations between the parties involved have led FPL to no longer project that it will serve Vero Beach's electrical load which was assumed in FPL's most recent Site Plans and load forecasts. This factor results in a lowering of FPL's forecasted load and projected resource needs. To the extent circumstances change and a consummation of the sale once again seems likely, FPL will reincorporate this load into its forecast.

2. **FPL's Power Purchase Agreement with Cedar Bay Will Be Terminated in 2015:**
   FPL anticipates terminating its existing power purchase agreement for 250 MW of coal-fired capacity from the Cedar Bay generating facility at the end of August 2015 as a result of a Purchase and Sale Agreement between FPL and Cedar Bay Generating Company, L.P. FPL would then assume ownership of the facility starting on September 1, 2015. FPL currently anticipates that it will not need the unit for economic purposes after 2016 and, if that proves to be the case, would retire the unit at that time. FPL filed for FPSC approval of the Purchase and Sale Agreement in the first quarter of 2015.

3. **FPL Will Approximately Triple Its Solar Generation Capacity by the End of 2016:**

   FPL will be adding three new photovoltaic (PV) facilities by the end of 2016. Each of the PV facilities will be approximately 74.5 MW (nameplate rating, AC). As a result, FPL's solar generation capacity will increase from its current 110 MW to approximately 333 MW. The new PV installations are projected to be sited in Manatee, Charlotte, and DeSoto counties. The economics of these specific PV projects are aided by the fact that the sites are located close to existing electric infrastructure, including tranmission lines and electric substations, and by the fact that bringing these solar facilities into service prior to the end of 2016 will allow the facilities to take advantage of the current 30% investment tax credit that is scheduled to be reduced to 10% beginning in 2017.

4. **Turkey Point 6 & 7 Projected In-Service Dates Have Been Moved Outside of the 10-year Reporting Period of This Document.**

   In recent Site Plans, the earliest practical deployment dates for the new Turkey Point 6 & 7 nuclear units were identified as 2022 and 2023 and these two dates were used as the in-service dates for these units. However, in the second half of 2014, the Nuclear Regulatory Commission (NRC) issued a new schedule for completing its review of FPL's Combined Operating License Application (COLA) for Turkey Point 6 & 7. The NRC's new schedule now projects that its review will not be completed until late 2016 which is a significant delay from the NRC's previous projection of a 2014 completion of its COLA review. As a consequence of the NRC delay, and the impacts of the recently amended Florida nuclear cost recovery (NCR) statute, FPL now projects that the earliest practical deployment dates for Turkey Point 6 & 7 will fall outside of the 10-year time period of 2015 through 2024 that is addressed in this Site Plan document. However, emissions-free, baseload capacity and energy from nuclear power remains an important part of FPL's resource plans. For that reason, Chapter IV provides detailed information regarding the Turkey Point site for these two new nuclear units.

In addition, there are six (6) significant factors that either influenced the current resource plan presented in this document or which may result in changes in this resource plan in the future. These 6 factors are discussed below (in no particular order of importance).

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

   FPL currently uses natural gas to generate approximately two-thirds 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 natural gas-fired combined cycle (CC) units. The first of these factors is a significant reduction in the fuel cost difference between coal and natural gas when compared to the fuel cost difference projected in 2007 which 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, which 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, diversifying the sources of natural gas, diversifying the gas transportation paths used to deliver natural gas to FPL's generating units, and 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 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 incremental 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 are 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. However, as discussed below, a several year delay in the Nuclear Regulatory Commission's (NRC) schedule for completing its review of FPL's Combined Operating License Application (COLA) have resulted in the earliest deployment dates for the two new nuclear units, Turkey Point Units 6 & 7, moving beyond the 2015 through 2024 reporting time period of this Site

Plan. The projected new in-service dates for Turkey Point Units 6 & 7 are June 2027 and June 2028, respectively.

FPL also has been involved in activities to investigate adding and/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 U.S. EcoGen which 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 of then new renewable facilities through three 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 by enabling legislation enacted by 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.

The capital costs for PV modules have steadily declined. In addition, FPL's on-going analyses of its existing PV facilities have led FPL to develop a methodology with which to determine appropriate firm capacity values for PV facilities for use in reserve margin calculations. This methodology has concluded, in general, that it is possible on FPL's system to develop a utility-scale PV project-specific non-zero firm capacity value for the Summer peak hour, but not for FPL's Winter morning peak hour. Partly as a result of developing this methodology, FPL's current resource plan that is presented in this Site Plan shows that FPL plans to add approximately 223 MW (nameplate, AC) of new PV generation by the end of 2016. These 3 specific PV projects are projected to contribute a total of approximately 116 MW (or 52% of the nameplate AC value for each project) of firm Summer capacity, but no MW of firm Winter capacity. Significant cost advantages that exist at the 3 specific sites selected for the new PV facilities greatly assisted in being able to bring the PV facilities in-service in 2016. In addition, the fact that bringing these solar facilities into service prior to the end of 2016 allows the facilities to take advantage of the current 30% investment tax credit that is scheduled to be reduced to 10% beginning in 2017, also assisted in this regard. The PV facilities are further discussed later in section III.F of this chapter.

In regard to diversity in natural gas sourcing and delivery, in 2013 the FPSC approved FPL's contracts to bring more natural gas into FPL's service territory through a 3rd natural gas pipeline system into Florida. The process by the pipeline companies to obtain approval for the new pipeline system from the Federal Energy Regulatory Commission (FERC) is currently underway. The new pipeline system will utilize an independent 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 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 to 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 was commissioned on April 1, 2014. On April 9, 2012, FPL received FPSC approval to proceed with a similar modernization project at the Port Everglades site. The project is scheduled for completion in mid-2016. All three of these modernized sites will retain the capability of receiving water-borne delivery of ultra-low sulfur diesel (ULSD) oil as a backup fuel.

In the future, FPL will continue to identify and evaluate alternatives that may maintain or enhance system fuel diversity. In this regard, FPL is also maintaining the ability to utilize heavy oil and/or ULSD oil at existing units that have that capability. For this purpose, FPL has completed the installation of electrostatic precipitators (ESPs) at the two 800 MW steam generating units at its Manatee site and at the two 800 MW steam generating units at its Martin site. These installations will enable FPL to retain the ability to burn heavy oil, as needed, at these sites while retaining the flexibility to use natural gas when economically attractive. In addition, the new CTs that FPL plans to install at its existing Lauderdale and Fort Myers sites, which will replace older GT units that are being retired, will have the capability to burn either natural gas or ULSD oil.

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: importing energy through the transmission system from generating units located outside the region, operating less efficient generating units located in Southeastern Florida out of economic dispatch, or 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 in Southeastern Florida, 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 its 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. Implementing the additional generation capacity through the projects mentioned above has contributed to addressing the imbalance between generation, transmission capacity, and load in Southeastern Florida for much, if not all, of the 2015 through 2024 reporting time frame of this Site Plan. However, due to forecasted steadily increasing load in the Southeastern Florida region, the Southeastern Florida imbalance issue will remain an important consideration in FPL's on-going resource planning work in future years.

3. **Maintaining a Balance Between Generation and DSM Resources in Regard to System Reliability:**

   There is another system concern that FPL has considered in its resource planning for several years. This concern surfaced beginning in 2010 when FPL's system was projected to become increasingly dependent upon DSM resources for system reliability in later years. FPL discussed this concern previously in its Site Plans from 2011 through 2014. As a result of this concern, FPL conducted extensive analyses of its system from both a resource planning perspective and a system operations perspective. Those analyses showed 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. As a result, in 2014 FPL implemented a new reliability criterion of a minimum 10% generation-only reserve margin (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. Together, these three criteria allow FPL to address this specific concern regarding system reliability in a comprehensive manner.

4. **The Significant Impacts 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.

FPL currently projects a cumulative Summer peak reduction impact of 3,568 MW from these codes and standards beginning in 2005 (the year the National Energy Policy Act was enacted) and extending through the year 2024 (i.e., the last year in the 2015 through 2024 reporting time period for this Site Plan) compared to what the projected load would have been without the codes and standards. The projected incremental Summer MW impact from these codes and standards during the 2015 through 2024 reporting period of this Site Plan; i.e., from year-end 2014 through 2024, is 2,035 MW compared to what the projected load would have been without the codes and standards. Both of these projections show the significant impact of these energy efficiency codes and standards.

In addition to lowering FPL's load forecast from what it otherwise would have been, and thus serving to lower FPL's projected load and 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 cost-effectively deliver energy efficiency for the appliances and equipment that are directly addressed by the codes and standards. This effect was taken into account by the FPSC in the new DSM Goals for the 2015 – 2024 time period set by the FPSC in November 2014.

5. **The Economic Competitiveness of Utility-Scale Photovoltaics (PV):**

A factor that is now significantly influencing FPL's resource planning is the increasing attractiveness of utility-scale photovoltaic (PV) facilities. This is due largely to the continued decline of the cost of PV modules. Because utility-scale PV facilities are at least twice as economical on an installed $/kw basis than distributed PV, the declining costs of PV modules has resulted, for the first time, in utility-scale PV in specific locations now being cost competitive on FPL's system. In addition, FPL's analyses of the output from its existing PV facilities in DeSoto and Brevard counties have resulted in FPL establishing a methodology for determining Summer and Winter firm capacity values for utility-scale PV facilities.

Therefore, FPL's current resource plan that is presented in this Site Plan shows that FPL plans to add approximately 223 MW (nameplate AC) of new PV generation by the end of 2016. Details regarding the projected new PV facilities are discussed further in this chapter in section III.F.

6. **Environmental Regulation in General and Specifically, the EPA's Proposed Clean Power Plan:**

Another important factor is environmental regulation in general and, specifically, the U.S. Environmental Protection Agency's (EPA's) proposed Clean Power Plan issued in June 2014. The intent of the Clean Power Plan is to establish carbon dioxide (CO_2) emission limits for

each state. The process for finalizing all aspects of the proposed CO_2 regulations will encompass several years at least. The EPA is scheduled to issue final rules and emission limits in the Summer of 2015 (i.e., several months after this Site Plan is filed). The current draft rules then call for each state to submit its state compliance plan by June 2016 (although a delay of at least one year is possible). Legal challenges to the proposed Clean Power Plan are expected and such challenges have the potential to delay the proposed timetable.

FPL's resource planning work will account for the CO_2 limits as they are finalized. In addition, FPL expects to be actively engaged in the development of Florida's statewide compliance plan.

Each of these 6 factors will continue to be examined in FPL's on-going resource planning work during the remainder of 2015 and in future years.

III.D Demand Side Management (DSM)

FPL has sought 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 many energy efficiency and load management programs and initiatives. FPL's DSM efforts through 2014 have resulted in a cumulative Summer peak reduction of approximately 4,793 MW (Summer) at the generator and an estimated cumulative energy saving of approximately 70,997 Gigawatt Hour (GWh) at the generator. After accounting for the 20% total reserve margin requirement, FPL's DSM efforts through 2014 have eliminated the need to construct the equivalent of approximately 14 new 400 MW power plants.

FPL consistently has been among the leading utilities nationally in DSM achievement. For example, according to the U.S. Department of Energy's 2013 data (the last year for which the DOE ranking data was available at the time this Site Plan was 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 November 2014, new DSM Goals for FPL for the years 2015 through 2024 were set by the FPSC. These DSM Goals were lower than the previous DSM Goals for FPL due to two factors. The first factor is the significant impact of federal and state energy efficiency codes and standards. The projected impact of these codes and standards has significantly lowered FPL's projected load and resource needs. In addition, these codes and standards have removed a significant amount of potential energy efficiency that otherwise might have been addressed by utility DSM programs. The projected impacts from these codes and standards are discussed in Chapter II.

The second factor why FPL's resource plan currently shows a diminished role for utility DSM is the decline in the projected cost-effectiveness of utility DSM measures and programs. 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. The diminished cost-effectiveness of utility DSM programs can be illustrated by looking only at potential benefits that DSM's kWh reductions can provide. There are at least two reasons for projections of lower kWh reduction-based benefits and thus projections of lower DSM cost-effectiveness.

The first reason is lower fuel costs. For example, comparing the current fuel cost forecast (at the time this Site Plan was prepared) with the fuel forecast used in 2009 – the year when FPL's DSM Goals were previously set by the FPSC – shows that current forecasts of fuel costs are now much lower than those forecasted in 2009. 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 that were addressed in the 2009 DSM goals-setting: 2015 and 2019:

Year	2009 Forecast	Current Forecast
2015	$9.64	$4.02
2019	$12.63	$4.70

As shown from these values, natural gas prices are forecast to be less than 50% of what they were forecast to be in 2009 when DSM goals were previously set. Lower forecasted natural gas costs are very beneficial for FPL's customers because they result in lower fuel costs and lower electric rates. At the same time, 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 reason for the decline in the cost-effectiveness of utility DSM on the FPL system is the steadily increasing efficiency with which FPL generates electricity. FPL's generating system has steadily become 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 MWh 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 and electric rates.

However, 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 further lowering potential DSM benefits and DSM cost-effectiveness.

The two reasons discussed above – lower forecasted fuel costs and greater efficiency in FPL's electricity generation – are good for FPL's customers because they will result in lower electric rates. Although beneficial for FPL's customers, these factors also contribute to lowering the cost-effectiveness of utility DSM programs. Therefore, the reduction in DSM cost-effectiveness, plus the growing impacts of energy efficiency codes and standards, led to the FPSC setting lower DSM Goals for FPL.

Although the new DSM Goals are appropriately lower due to these market forces, the projected cumulative effect of FPL's DSM programs from their inception through 2024 is truly significant. FPL's Summer MW Goals for the 2015 – 2024 time period were set at 526 MW. After accounting for the 20% total reserve margin requirements, the combination of this new Summer MW reduction value, and the Summer MW reductions from FPL's DSM programs from their inception through 2014, represent the equivalent of avoiding the need to build approximately sixteen (16) 400 MW power plants. The resource plan presented in this 2015 Site Plan accounts for the DSM MW and GWh reductions set forth in FPL's new DSM Goals. The reductions from the new DSM Goals are accounted for in Schedules 7.1 and 7.2 which appear later in this chapter.

In the March 2015, FPL filed for FPSC approval of a DSM Plan that consists of numerous DSM programs to meet the new DSM Goals. A decision by the FPSC on these new DSM programs is expected in mid-2015.

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	Levee [2/]	Midway	150	Jun – 23	500	2598
FPL	Raven [3/]	Duval	45	Dec – 19	230	759

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 in April 1990. Construction of 114 miles is complete and in-service. Remaining 36 miles are scheduled to be completed by Jun-2023.

3/ TLSA is being initiated in 2015 for the Raven to Duval project.

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 that will be completed in mid-2016, the PV additions in late 2016, and the potential new CC unit in 2019 at the Okeechobee site. At the time the 2015 Site Plan was prepared, no site had been selected for the 2023 combined cycle addition in the resource plan presented in this Site Plan. Therefore, no transmission information for this addition 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 to the FPL grid in 2016 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 PV Project at the Existing Manatee Plant Site

The work required to connect the approximate 74.5 MW (nameplate, AC) facility at the existing Manatee site is projected to be:

I. Substation:

1. Build a new 230 kV substation approximately 0.4 miles west of the existing FPL Manatee 230 kV substation.
2. Add one main step-up transformer (80 MVA) to connect solar PV inverter array
3. Construct a new 230 kV breaker bay at the Manatee switchyard.
4. Add relays and other protective equipment.
5. Breaker replacements: None

II. Transmission:

1. Construct 0.4 mile 230 kV line from new substation to Manatee switchyard.
2. No upgrades are expected to be necessary at this time.

III.E.3 Transmission Facilities for the Citrus PV Project in DeSoto County

The work required to connect the approximate 74.5 MW (nameplate, AC) Citrus PV facility in DeSoto County is projected to be:

I. Substation:

1. Construct a new 4-breaker 230 kV ring bus at Sunshine substation.
2. Add one main step-up transformer (80 MVA) to connect solar PV inverter array
3. Construct a string buss to connect the PV array to Sunshine 230 kV Substation
4. Add relays and other protective equipment.
5. Breaker replacements: None

II. Transmission:

1. No upgrades are expected to be necessary at this time.

III.E.3 Transmission Facilities for the Babcock Ranch PV Project in Charlotte County

The work required to connect the approximate 74.5 MW (nameplate, AC) Babcock Ranch PV facility in Citrus County is projected to be:

I. Substation:

1. Build a new 230 kV Tuckers substation approximately 5 miles north of the planned FPL Hercules 230 kV substation.
2. Add one main step-up transformer (80 MVA) to connect solar PV inverter array
3. Add one (1) mid-breaker to complete bay 2 at Hercules
4. Add relays and other protective equipment.
5. Breaker replacements: None

II. Transmission:

1. Construct 5 miles of 230 kV line from new Tuckers substation to Hercules substation.
2. No upgrades are expected to be necessary at this time.

III.E.4 Transmission Facilities for the Potential New Combined Cycle (CC) Unit in Okeechobee County

The work required to connect the potential new CC unit in Okeechobee County by Summer 2019 is projected to be:

I. Substation:

1. Build a new six breaker 500kV Okeechobee Substation switchyard on the Okeechobee generation site with a relay vault for the two generator string buses and the Martin and Poinsett line terminals.
2. Build new collector yard containing two collector busses with 4 breakers to connect the three CTs, and one ST.
3. Construct two string busses to connect the collector busses and main switchyard to Okeechobee 500kV Substation.
4. Add five main step-up transformers (5-450 MVA) one for each CT, and two for the ST.
5. Add relays and other protective equipment.
6. Breaker replacements:
   Poinsett Sub – Replace three (3) 230 kV breakers.

II. Transmission:

1. No upgrades are expected to be necessary at this time.

III.F. Renewable Resources

FPL's Renewable Energy Efforts Through 2014:

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 through 2014, those efforts will be placed into five categories. FPL's plans for new renewable energy facilities during the 2015 through 2024 time period are then discussed in a separate section.

Two of these categories are Supply-Side Efforts – Power Purchases, and Supply-Side Efforts – FPL Facilities. Since 2011, the combined total energy output (MWh) from these renewable energy sources has been greater than that produced from oil-fired generation. The comparable values for energy delivered by renewable and oil-fired sources for the year 2014 are presented in Schedule 11.1 at the end of this chapter.

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

In the late 1970s, FPL assisted the Florida Solar Energy Center (FSEC) in demonstrating the first residential PV system east of the Mississippi River. This PV installation at FSEC's Brevard County location was in operation for more than 15 years and provided valuable information about PV performance capabilities in Florida on both a daily and annual basis. In 1984, FPL installed a second PV system at its Flagami substation in Miami. This 10-kilowatt (kW) system operated for a number of years before it was removed to make room for substation expansion. In addition, FPL maintained a thin-film PV test facility at the FPL Martin Plant Site for a number of years to test new thin-film PV technologies.

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 (because it was no longer 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 that 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, the program received a U.S. Department of Energy award for innovation and also led to a revision of the Florida Model Energy Building Code (Code). The Code was revised to incorporate one of the most significant passive design techniques highlighted in the program: radiant barrier insulation.

FPL has continued to analyze and promote the utilization of PV. These efforts have included PV research such as the 1991 research project to evaluate the feasibility of using small PV systems to directly power residential swimming pool pumps. FPL's PV efforts also included educational efforts such as FPL's Next Generation Solar Station Program. This initiative delivered teacher training and curriculum that is tied to the Sunshine Teacher Standards in Florida. The program provided 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 2014, approximately 3,241 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 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 was approximately $15.5 million per year for five years. In response to this direction, FPL received approval from the FPSC in 2011 to initiate a solar pilot portfolio consisting of three PV-based programs and three solar water heating-based programs, plus Renewable Research and Demonstration projects. FPL's analyses of the results from these programs since their inception have consistently shown that none of these pilot programs is cost-effective using any of the three cost-effectiveness screening tests used by the State of Florida. As a result, consistent with the FPSC's November 2014 DSM Goals Order No. PSC-14-0696-FOF-EU, these pilot programs will expire on December 31, 2015.

FPL also has 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 also has facilitated a number of 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.A.3, I.B.1, and I.B.2 in Chapter I).

FPL issued Renewable Requests for Proposals (RFPs) in 2007 and 2008 which solicited 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 provide non-firm energy service beginning in 2019 and to provide firm energy and capacity to FPL's customers beginning in 2021.

In 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. The new unit is now delivering test energy and will begin delivering firm capacity and energy to FPL beginning in June 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 currently 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 25 MW (nameplate, AC) PV facility began commercial operation in 2009 which made it one of the largest PV facilities in the U.S. at that time. 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, 10 MW (nameplate, AC) PV facility began commercial operation in 2010.

During 2014, FPL conducted analyses designed to develop a methodology with which to determine what firm capacity value at FPL's Summer and Winter peak hours would be appropriate to apply to these existing, and potential future, utility-scale PV facilities. (Note that 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.) Based on the results of these analyses, FPL has concluded that its two existing utility-scale PV facilities can be counted on to contribute certain percentages of their nameplate (AC) ratings

(approximately 46% for DeSoto and 32% for Space Coast) as firm capacity at FPL's Summer peak hour (that typically occurs in the 4 p.m. to 5 p.m. hour), but contribute no firm capacity during FPL's Winter peak hour (that typically occurs in the 7 a.m. to 8 a.m. hour). Future FPL utility-scale PV facilities will be evaluated for potential firm capacity contribution on a case-by-case basis using this methodology. Their potential capacity contribution will be dependent upon a number of factors including (but not necessarily limited to) site location, technology, and design. For example, the three new PV facilities that are planned to be added by the end of 2016 are each projected to provide approximately 52% of their nameplate (AC) rating as firm capacity at FPL's Summer peak hour, but provide no firm capacity during FPL's Winter peak hour.

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

FPL has developed alliances with several Florida universities to promote the development of emerging technologies. For example, FPL supports 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 energy conversion, cold water air conditioning, and hydrogen technologies. FPL has supported FAU in discussions 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. FPL has installed five different PV arrays (using 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.

FPL's Planned Renewable Energy Efforts for 2015 Through 2024:

FPL has concluded from its implementation and analyses of utility-scale PV and PV demand side pilot programs that utility-scale PV applications are the most economical way to utilize solar energy. In fact, FPL's analysis suggests that utility-scale PV is at least twice as economical on an installed $/kw basis compared to distributed PV systems. This conclusion is supported by FPL's recent analyses discussed above regarding the ability to assign firm capacity value at FPL's Summer peak hour to utility-scale PV. Due to the fact that the price of PV modules has declined in recent years, utility-scale PV has become more cost competitive. However, only the most cost-advantaged sites for utility-scale PV are projected to be cost-effective on FPL's system at this time. Other sites may become cost-effective in later years if PV costs continue to decline as expected. Consequently, the resource plan FPL is presenting in this Site Plan includes three utility-scale PV facilities at specific, cost-advantaged sites which also are able to take advantage of the current 30% investment tax credit (which is scheduled to be reduced to 10% in 2017). If/when utility-scale PV projects at other sites are projected to be cost-effective, additional PV generation sources will be discussed in future Site Plans.

1) FPL Utility-Scale PV Facilities:

In the resource plan presented in this Site Plan, FPL projects the addition of three separate utility-scale PV facilities by the end of 2016. Each PV facility is projected to be approximately 74.5 MW (nameplate, AC). The sites of these three proposed PV additions are: FPL's existing Manatee plant site, a site in DeSoto County, and a site in Charlotte County. These locations are expected to have cost advantages to support early development, including:

- Current ownership of land or low cost land purchase agreement in place;
- Proximity to existing transmission lines with sufficient injection capacity;
- Proximity to existing electric substations;
- Previously performed site development and permitting work;
- Proximity to existing FPL generating facilities which allows for lower operating expenses;
- Support from the associated counties and land developers, with the potential for further cost abatements;

As previously mentioned, bringing these three PV facilities in service before the end of 2016 will also allow the facilities to capture the full benefit of the currently available 30% investment tax credit for such PV facilities. The investment tax credit is scheduled to revert back to a 10% credit for PV projects that are placed in service after 2016.

2) **FPL Distributed Generation (DG) PV Pilot Programs:**

In regard to distributed generation (DG) PV, FPL is planning to implement two DG PV pilot programs in 2015. The first is a voluntary, community-based, solar partnership pilot to install new solar-powered generating facilities. The program will be at least partially funded by contributions from customers who volunteer to participate in the pilot and will not rely on subsidies from non-participating customers. The second program will implement approximately 6 MW of combined DG PV and battery storage at large commercial customer sites. The objective of this program is to collect grid integration data for DG PV and develop operational best practices for addressing potential problems that may be identified. A brief description of the two pilot programs follows:

a) **Voluntary, Community-Based Solar Partnership Pilot Program:**

FPL is introducing a Voluntary Solar Pilot Program to provide FPL customers with an additional and flexible opportunity to support development of solar power in Florida. The Commission approved FPL's request for this three-year pilot program in Order No. PSC-14-0468-TRF-EI on August 29, 2014. This 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. Customers can participate in the program through voluntary contributions of $9/month starting in mid-2015.

In this respect, these DG-scale projects differ from FPL's three new utility-scale PV projects proposed for 2016, which are not projected to introduce a net cost to customers over the life of these projects and, therefore, do not require additional contributions from FPL's customers. In contrast, smaller DG-scale projects have a higher cost to construct, operate, and maintain. The cost per MW to construct DG-scale facilities (whether utility-owned and operated or otherwise) is approximately double that of the more cost-efficient utility-scale PV projects. Furthermore, the operations and maintenance costs of DG-scale projects are projected to be three times as much as for utility-scale PV due to the distributed nature of the installations. Thus a voluntary contribution is necessary for this DG-based pilot program so that net costs, and electric rates, do not increase for non-participants.

The first 200 kW of DG-scale PV projects will be built by FPL in the first half of 2015 at locations in the city of West Palm Beach and in Broward County. The first installation is scheduled to be at the Young at Arts Museum in Broward County. Additional PV facilities under this pilot program will be built when the projected voluntary contributions are sufficient to cover on-going program costs without increasing electric

rates for all customers, including non-participating customers. The locations of these additional PV facilities will be determined at a later date. While the ultimate amount of PV that will be installed under this voluntary program cannot be known at this time, it is estimated that the project could result in approximately 2 MW (nameplate, DC) of community-located PV installations supported by over 10,000 customer participants by the end of the three-year pilot.

b) **C&I Solar Partnership Pilot Program:**

This is a research program that will be conducted in partnership with interested commercial and industrial (C&I) customers over an approximate five year period. Limited investments will be made in PV facilities located at customer sites in selected geographic areas of FPL's service territory. The objective of this portion of the pilot program is to examine the effect of high DG PV penetration on FPL's distribution system and to determine how best to address any problems that may be identified. FPL will site approximately 5 MW (nameplate, DC) of PV facilities in areas where DG PV already exists to better study feeder loading impacts. PV installations at Daytona International Speedway, and FIU's Engineering Center campus in West Miami-Dade County have been selected based largely on their interconnection with targeted circuits. In addition, this pilot program will also install a battery storage facility of approximately 1 MW capacity. This facility will be used to investigate the interoperability, and optimization, of multiple DG technologies. A multi-year research partnership agreement has been executed with FIU for the university to assist FPL in the battery storage research and development plan, and in the analyses that will subsequently be conducted.

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 FPL uses to produce electricity due, in part, to the introduction of highly efficient and cost-effective CC generating units and the ready availability of natural gas. 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 has completed the 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 that previously operated at 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 with 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.

In regard to utilizing renewable energy, FPL has 110 MW of solar generating capacity consisting of: 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. As discussed in the preceding section, FPL is planning to add three new approximately 74.5 MW (nameplate, AC) PV facilities by the end of 2016.

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, securing gas 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-fired 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 2024 based on the resource plan presented in this document, is presented in Schedules 5, 6.1, and 6.2 later in this chapter.

2) 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. A November 2014 fuel cost forecast was used in the analyses whose results led to the resource plan presented in this 2015 Site Plan.

Future oil and natural gas prices, and to a lesser extent, coal 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, and coal. These drivers include U.S. and worldwide demand, production capacity, economic growth, environmental requirements, and politics.

The inherent uncertainty and unpredictability of these factors today and in the future clearly underscores the need to develop a set of plausible oil, natural gas, and solid fuel (coal) 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 2014 and early 2015 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 2015 through 2016, the methodology used the November 3, 2014 forward curve for New York Harbor 0.7% sulfur heavy oil, ultra-low sulfur diesel (ULSD) fuel oil, and Henry Hub natural gas commodity prices;

b. For the next two years (2017 and 2018), FPL used a 50/50 blend of the November 3, 2014 forward curve and the most current projections at the time from The PIRA Energy Group;

c. For the 2019 through 2035 period, FPL used the annual projections from The PIRA Energy Group; and,

d. For the period beyond 2035, 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 prices. Coal 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 were provided by JD Energy; and,

b. The coal price forecast for SJRPP and Plant Scherer assumes 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, and coal 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 that 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 August 2014 for 2.5 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. FPL amended the transaction with Bay Gas on September 1, 2014 to increase the capacity to 4.0 Bcf of firm natural gas storage capacity. 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.

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, the on-going Port Everglades modernization project, plus the potential for additional CC capacity, will 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. In addition, FPL plans to add a significant amount of new PV facilities that utilize no fossil fuel. 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, more firm gas transportation capacity, and secure gas reserves 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 benefit 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 were Sabal Trail Transmission, LLC (Sabal Trail) and Florida Southeast Connection, LLC (FSC). The contracts

with Sabal Trail and FSC were reviewed by the FPSC and approved for cost recovery in late 2013. The order approving this cost recovery became final in January 2014. Sabal Trail and FSC are currently in the process of obtaining Federal Energy Regulatory Commission approval for the new pipelines. The planned in-service date for the pipelines is May 2017.

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 2018 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 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 2014 and early 2015 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 current (i.e., power uprated) levels. The costs for each step to fabricate the nuclear fuel 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. DOE notified FPL that, effective May 2014, all high level waste payments would be suspended until further notice. Therefore, FPL is no longer including in its nuclear fuel cost forecast a 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/ 2013	Actual 1/ 2014	Forecasted 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
(1) Nuclear	Trillion BTU	273	298	292	300	297	300	305	302	300	305	301	301
(2) Coal	1,000 TON	3,540	2,649	2,585	2,376	2,131	2,061	2,288	1,984	2,081	2,056	2,097	1,962
(3) Residual (FO6) - Total	1,000 BBL	150	409	239	270	6	23	84	52	67	92	73	57
(4) Steam	1,000 BBL	150	409	239	270	6	23	84	52	67	92	73	57
(5) Distillate (FO2) - Total	1,000 BBL	152	197	33	202	3	14	98	36	43	216	235	123
(6) Steam	1,000 BBL	0	4	0	0	0	0	0	0	0	0	0	0
(7) CC	1,000 BBL	140	123	3	43	3	12	80	29	38	147	157	83
(8) CT	1,000 BBL	12	69	30	158	0	2	17	7	4	69	78	41
(9) Natural Gas - Total	1,000 MCF	550,350	571,451	573,213	607,356	562,114	571,538	636,702	655,209	654,003	661,930	641,918	619,543
(10) Steam	1,000 MCF	30,348	24,488	13,043	12,527	5,516	7,135	11,042	10,599	8,193	9,467	7,885	6,042
(11) CC	1,000 MCF	514,793	542,409	559,815	593,301	552,012	557,972	611,146	636,305	639,200	644,223	624,799	607,913
(12) CT	1,000 MCF	5,208	4,555	355	1,529	4,586	6,432	14,514	8,305	6,611	8,241	9,234	5,587

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] 2013	Actual [1] 2014	Forecasted 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
(1)	Annual Energy Interchange 2/	GWH	4,445	4,908	3,604	1,263	1,114	1,202	308	0	0	0	0	0
(2)	Nuclear	GWH	25,243	26,812	27,800	28,527	28,249	28,500	29,048	28,710	28,553	29,048	28,626	28,637
(3)	Coal	GWH	5,981	4,482	4,159	3,805	3,359	3,272	3,667	3,123	3,303	3,262	3,339	3,087
(4)	Residual(FO6) -Total	GWH	75	231	155	171	4	15	52	33	43	58	46	36
(5)	Steam	GWH	75	231	155	171	4	15	52	33	43	58	46	36
(6)	Distillate(FO2) -Total	GWH	120	128	14	103	3	13	91	32	40	183	194	101
(7)	Steam	GWH	2	2	0	0	0	0	0	0	0	0	0	0
(8)	CC	GWH	114	102	3	41	3	12	83	29	38	144	151	78
(9)	CT	GWH	5	23	11	62	0	1	8	3	2	38	43	22
(10)	Natural Gas -Total	GWH	75,208	79,102	79,906	84,749	79,380	80,416	88,286	92,422	92,707	92,810	94,509	96,618
(11)	Steam	GWH	2,472	1,906	1,279	1,214	537	684	1,077	1,001	790	912	763	577
(12)	CC	GWH	72,308	76,857	78,594	83,405	78,404	79,108	85,809	90,628	91,279	91,100	92,854	95,500
(13)	CT	GWH	428	340	33	130	439	623	1,400	793	638	797	893	540
(14)	Solar [3]	GWH	155	177	192	314	684	700	695	698	695	693	684	691
(15)	PV	GWH	68	68	71	189	577	575	573	573	569	567	565	565
(16)	Solar Thermal	GWH	87	109	121	126	107	125	122	126	125	125	119	126
(17)	Other [4]	GWH	428	127	3,882	3,474	11,152	11,315	4,923	3,833	3,896	4,023	4,097	4,107
	Net Energy For Load [5]	GWH	111,656	115,968	119,712	122,407	123,945	125,433	127,070	128,851	129,237	130,077	131,495	133,276

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 2015- 2024 are also shown in Col. (19) on Schedule 2.3.

Schedule 6.2
Energy Sources % by Fuel Type

Energy Source	Units	Actual [1] 2013	Actual [1] 2014	Forecasted 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
(1) Annual Energy Interchange [2]	%	4.0	4.2	3.0	1.0	0.9	1.0	0.2	0.0	0.0	0.0	0.0	0.0
(2) Nuclear	%	22.6	23.1	23.2	23.3	22.8	22.7	22.9	22.3	22.1	22.3	21.8	21.5
(3) Coal	%	5.4	3.9	3.5	3.1	2.7	2.6	2.9	2.4	2.6	2.5	2.5	2.3
(4) Residual (FO6) -Total	%	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(5) Steam	%	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(6) Distillate (FO2) -Total	%	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	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	%	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1
(9) CT	%	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(10) Natural Gas -Total	%	67.4	68.2	66.7	69.2	64.0	64.1	69.5	71.7	71.7	71.3	71.9	72.5
(11) Steam	%	2.2	1.6	1.1	1.0	0.4	0.5	0.8	0.8	0.6	0.7	0.6	0.4
(12) CC	%	64.8	66.3	65.7	68.1	63.3	63.1	67.5	70.3	70.6	70.0	70.6	71.7
(13) CT	%	0.4	0.3	0.0	0.1	0.4	0.5	1.1	0.6	0.5	0.6	0.7	0.4
(14) Solar [3]	%	0.1	0.2	0.2	0.3	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
(15) PV	%	0.1	0.1	0.1	0.2	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4
(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]	%	0.4	0.1	3.2	2.8	9.0	9.0	3.9	3.0	3.0	3.1	3.1	3.1
		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)
August of Year	Firm Installed Capacity MW	Firm Capacity Import MW	Firm Capacity Export MW	Firm QF MW	Total Firm Capacity Available MW	Total Peak Demand MW	DSM MW	Firm Summer Peak Demand MW	Total Reserve Margin Before Maintenance MW	Total Reserve Margin Before Maintenance % of Peak	Scheduled Maintenance MW	Total Reserve Margin After Maintenance MW	Total Reserve Margin After Maintenance % of Peak	Generation Only Reserve Margin After Maintenance MW	Generation Only Reserve Margin After Maintenance % of Peak
2015	25,008	1,420	0	595	27,022	23,286	1,951	21,335	5,688	26.7	0	5,688	26.7	3,736	16.0
2016	25,585	492	0	345	26,421	23,778	2,000	21,779	4,643	21.3	0	4,643	21.3	2,643	11.1
2017	26,001	492	0	345	26,838	24,252	2,046	22,207	4,631	20.9	0	4,631	20.9	2,585	10.7
2018	26,024	699	0	345	27,067	24,648	2,092	22,555	4,512	20.0	0	4,512	20.0	2,420	9.8
2019	27,665	110	0	345	28,120	25,045	2,140	22,905	5,215	22.8	0	5,215	22.8	3,075	12.3
2020	27,665	110	0	345	28,119	25,369	2,188	23,181	4,938	21.3	0	4,938	21.3	2,750	10.8
2021	27,752	110	0	525	28,387	25,497	2,237	23,260	5,127	22.0	0	5,127	22.0	2,890	11.3
2022	27,838	110	0	525	28,472	25,833	2,287	23,546	4,926	20.9	0	4,926	20.9	2,640	10.2
2023	29,154	110	0	525	29,789	26,286	2,338	23,948	5,841	24.4	0	5,841	24.4	3,503	13.3
2024	29,154	110	0	525	29,789	26,771	2,389	24,381	5,407	22.2	0	5,407	22.2	3,018	11.3

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 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 2014 load forecast without incremental DSM or cumulative load management. 2014 load is an actual load value.
Col.(8) represents cumulative load management capability, plus incremental conservation and load management, from 9/2014-on intended for use with 2014 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.
Col.(13) = Col.(10) - Col.(12)
Col.(14) = Col.(13) / Col.(9)
Col.(15) = Col.(6) - Col.(7) - Col.(12)
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 Capacity 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	Total Reserve Margin Before Maintenance MW	% of Peak	Scheduled Maintenance MW	Total Reserve Margin After Maintenance MW	% of Peak	Generation Only Reserve Margin After Maintenance MW	% of Peak
2015	26,758	1,357	0	595	28,710	21,136	1,452	19,684	9,026	45.9	0	9,026	45.9	7,574	35.8
2016	27,205	499	0	345	28,049	21,369	1,483	19,886	8,163	41.1	0	8,163	41.1	6,680	31.3
2017	27,842	499	0	345	28,686	21,485	1,510	19,976	8,710	43.6	0	8,710	43.6	7,201	33.5
2018	27,958	499	0	345	28,802	21,598	1,537	20,061	8,740	43.6	0	8,740	43.6	7,204	33.4
2019	27,978	499	0	345	28,822	21,792	1,565	20,227	8,595	42.5	0	8,595	42.5	7,030	32.3
2020	29,573	110	0	345	30,028	21,965	1,593	20,372	9,655	47.4	0	9,655	47.4	8,063	36.7
2021	29,573	110	0	525	30,208	22,096	1,622	20,475	9,733	47.5	0	9,733	47.5	8,111	36.7
2022	29,648	110	0	525	30,283	22,026	1,651	20,374	9,908	48.6	0	9,908	48.6	8,257	37.5
2023	29,737	110	0	525	30,372	22,202	1,682	20,520	9,852	48.0	0	9,852	48.0	8,170	36.8
2024	31,210	110	0	525	31,845	22,408	1,713	20,695	11,150	53.9	0	11,150	53.9	9,437	42.1

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 2014 load forecast without incremental DSM or cumulative load management. 2014 load is an actual load value.

Col.(8) represents cumulative load management capability, plus incremental conservation and load management, from 9/2014-on intended for use with the 2014 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.

Col.(13) = Col.(10) - Col.(12)

Col.(14) = Col.(13) / Col.(9)

Col.(15) = Col.(6) - Col.(7) - Col.(12)

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) Transpor Pri.	(8) Transpor 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														
2015														
Cape Canaveral Energy Center	3	Brevard County	CC	NG	FO2	PL	TK	-	Jan-15	Unknown	1,295,400	77	-	OT
Fort Myers	2	Lee County	CC	NG	No	PL	No	-	Jan-15	Unknown	1,721,490	9	0	OT
Fort Myers	3	Lee County	CT	NG	FO2	PL	TK	-	Jan-15	Unknown	188,190	6	(5)	P
FT. Myers GT	1-12	Lee County	GT	FO2	No	TK	No	-	Jan-15	Unknown	744,120	28	-	OT
Lauderdale	4	Broward County	CC	NG	FO2	PL	PL	-	Jan-15	Unknown	526,250	17	-	OT
Lauderdale	5	Broward County	CC	NG	FO2	PL	PL	-	Jan-15	Unknown	526,250	16	-	OT
Lauderdale GT	1-12	Broward County	GT	NG	FO2	PL	PL	-	Jan-15	Unknown	410,734	(13)	(8)	P
Lauderdale GT	13-24	Broward County	GT	NG	FO2	PL	PL	-	Jan-15	Unknown	410,734	(13)	(8)	P
Manatee	3	Manatee County	CC	NG	No	PL	No	-	Jan-15	Unknown	1,224,510	20	-	OT
Martin	2	Martin County	ST	FO6	NG	PL	PL	-	Jun-15	Unknown	934,500	-	(3)	OT
Martin	3	Martin County	CC	NG	No	PL	No	-	Jan-15	Unknown	612,000	16	-	OT
Martin	4	Martin County	CC	NG	No	PL	No	-	Jan-15	Unknown	612,000	14	-	OT
Port Everglades GT	1-12	City of Hollywood	GT	NG	FO2	PL	PL		Jan-15	Unknown	410,734	(13)	(8)	P
Riviera Beach Energy Center	5	City of Riviera Beach	CC	NG	FO2	PL	WA	-	Jan-15	Unknown	1,295,400	44	-	OT
Sanford	4	Volusia County	CC	NG	No	PL	No	-	Jan-15	Unknown	1,188,860	2	-	OT
Sanford	5	Volusia County	CC	NG	No	PL	No	-	Jan-15	Unknown	1,188,860	2	-	OT
Scherer	4	Monroe, GA	ST	SUB	No	RR	No	-	Jun-15	Unknown	680,368	-	(9)	OT
St. Lucie	1	St. Lucie County	ST	Nuc	No	TK	No	-	Jan-15	Unknown	1,020,000	(22)	-	OT
St. Lucie	2	St. Lucie County	ST	Nuc	No	TK	No	-	Jan-15	Unknown	723,775	(20)	-	OT
Turkey Point	3	Miami Dade County	ST	Nuc	No	TK	No	-	Jan-15	Unknown	877,200	(28)	-	OT
Turkey Point	4	Miami Dade County	ST	Nuc	No	TK	No	-	Jan-15	Unknown	877,200	(27)	-	OT
Turkey Point	5	Miami Dade County	CC	NG	FO2	PL	TK	-	Jan-15	Unknown	1,224,510	(24)	(22)	OT
West County 1	1	Palm Beach County	CC	NG	FO2	PL	TK	-	Jan-15	Unknown	1,366,800	11	-	OT
West County 2	2	Palm Beach County	CC	NG	FO2	PL	TK	-	Jan-15	Unknown	1,366,800	11	-	OT
West County 3	3	Palm Beach County	CC	NG	FO2	PL	TK	-	Jan-15	Unknown	1,366,800	11	-	OT
										2015 Changes/Additions Total:		**125**	**(64)**	
2016														
Cedar Bay (Ownership)	1	Duval County	ST	BIT	No	RR	No	-	Oct-15	-	-	250	250	P
Fort Myers	2	Lee County	CC	NG	No	PL	No	-	Jun-16	Unknown	1,721,490	216	37	P
FT. Myers GT	1-12	Lee County	GT	FO2	No	TK	No	-	-	Jun-16	744,120	-	(540)	P
Lauderdale GT	1-12	Broward County	GT	NG	FO2	PL	PL	-	-	Jun-16	410,734	-	(412)	P
Martin	2	Martin County	ST	FO6	NG	PL	PL	-	-	Unknown	934,500	(3)	-	OT
Martin	8	Martin County	CC	NG	FO2	PL	TK	-	-	Unknown	1,224,510	-	2	OT
Port Everglades	1	City of Hollywood	GT	NG	FO2	PL	PL	-	Jun-16	Unknown	410,734	-	1,237	U
Sanford	4	Volusia County	CC	NG	No	PL	No	-	-	Unknown	1,188,860	-	3	OT
Scherer	4	Monroe, GA	ST	SUB	No	RR	No	-	-	Unknown	680,368	(16)	-	OT
										2016 Changes/Additions Total:		**447**	**577**	
2017														
Babcock Solar Energy Center	1	Charlotte County	PV	Solar	Solar	N/A	N/A	-	Sep-16	Unknown	-	-	38	P
Cedar Bay	1	Duval County	ST	BIT	No	RR	No	-	-	Dec-16	-	(250)	(250)	OT
Citrus Solar Energy Center	1	DeSoto County	PV	Solar	Solar	N/A	N/A	-	Sep-16	Unknown	-	-	38	P
Fort Myers	2	Lee County	CC	NG	No	PL	No	-	Jan-17	Unknown	1,721,490	20	-	P
Fort Myers	3	Lee County	CT	NG	FO2	PL	TK	-	Dec-16	Unknown	188,190	50	50	OT
Ft. Myers - 2 CT	2	Lee County	CC	NG	No	PL	No	-	Dec-16	Unknown	1,721,490	446	462	P
FT. Myers GT	1-12	Lee County	GT	FO2	No	TK	No	-	-	Jun-16	744,120	(615)	-	P
Lauderdale 5CT	5	Broward County	CC	NG	FO2	PL	PL	-	Dec-16	Unknown	526,250	1,115	1,155	P
Lauderdale GT	1-12	Broward County	GT	NG	FO2	PL	PL	-	-	Jun-16	410,734	(446)	-	P
Lauderdale GT	13-22	Broward County	GT	NG	FO2	PL	PL	-	-	Jun-16	410,734	(372)	(343)	P
Manatee	3	Manatee County	CC	NG	No	PL	No	-	Jun-17	Unknown	1,224,510	-	4	OT
Manatee Solar Energy Center	1	Manatee County	PV	Solar	Solar	N/A	N/A	-	Sep-16	Unknown	-	-	38	P
Martin	8	Martin County	CC	NG	FO2	PL	TK	-	Jan-17	Unknown	1,224,510	27	2	OT
Port Everglades	1	City of Hollywood	GT	NG	FO2	PL	PL	-	Jun-16	Unknown	410,734	1,429	-	OT
Port Everglades GT	1-12	City of Hollywood	GT	NG	FO2	PL	PL	-	Dec-16	Unknown	410,734	(446)	(412)	P
Sanford	4	Volusia County	CC	NG	No	PL	No	-	Jan-17	Unknown	1,188,860	52	1	OT
Sanford	5	Volusia County	CC	NG	No	PL	No	-	Jan-17	Unknown	1,188,860	26	4	OT
Turkey Point[3]	1	Miami Dade County	ST	FO6	NG	WA	PL	-	-	Oct-16	402,050	(398)	(396)	OT
Turkey Point	5	Miami Dade County	CC	NG	FO2	PL	TK	-	Jun-17	Unknown	1,224,510	-	23	OT
										2017 Changes/Additions Total:		**637**	**415**	

(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 occurring after August each year will be picked up for reserve margin calculation purposes in the following year.

(3) This generating unit will serve as a synchronous condenser and will not be included in reserve margin calculation.

Schedule 8

Planned And Prospective Generating Facility Additions And Changes [1]

Plant Name	Unit No.	Location	Unit Type	Fuel Pri.	Fuel Alt.	Transport Pri.	Transport Alt.	Const. Start Mo./Yr.	Comm. In-Service Mo./Yr.	Expected Retirement Mo./Yr.	Gen. Max. Nameplate KW	Firm Net Capability [2] Winter MW	Firm Net Capability [2] Summer MW	Status
(2)	(3)	(4)	(5)	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
ADDITIONS/ CHANGES														
2018														
Manatee	3	Manatee County	CC	NG	No	PL	No	-	-	Unknown	1,224,510	40	-	OT
Martin	8	Martin County	CC	NG	FO2	PL	TK	-	-	Unknown	1,224,510	12	-	OT
Sanford	5	Volusia County	CC	NG	No	PL	No	-	-	Unknown	1,188,860	25	-	OT
Turkey Point	3	Miami Dade County	ST	Nuc	No	TK	No	-	-	Unknown	877,200	20	20	OT
Turkey Point	5	Miami Dade County	CC	NG	FO2	PL	TK	-	-	Unknown	1,224,510	19	3	OT
										2018 Changes/Additions Total:		**116**	**23**	
2019														
Okeechobee Energy Center	1	Okeechobee County	CC	NG	FO2	PL	TK	Jun-17	Jun-19	Unknown	-	-	1,622	P
Turkey Point	4	Miami Dade County	ST	Nuc	No	TK	No	-	-	Unknown	877,200	20	20	OT
										2019 Changes/Additions Total:		**20**	**1,642**	
2020														
Okeechobee Energy Center	1	Okeechobee County	CC	NG	FO2	PL	TK	Jun-17	Jun-19	Unknown	-	1,595	-	P
										2020 Changes/Additions Total:		**1,595**	**0**	
2021														
Cape Canaveral Energy Center	3	Brevard County	CC	NG	FO2	PL	TK	-	Jun-21	Unknown	1,295,400	-	88	OT
										2021 Changes/Additions Total:		**0**	**88**	
2022														
Cape Canaveral Energy Center	3	Brevard County	CC	NG	FO2	PL	TK	-	-	Unknown	1,295,400	75	-	OT
Riviera Beach Energy Center	5	City of Riviera Beach	CC	NG	FO2	PL	WA	-	Jun-22	Unknown	1,295,400	-	86	OT
										2022 Changes/Additions Total:		**75**	**86**	
2023														
Riviera Beach Energy Center	5	City of Riviera Beach	CC	NG	FO2	PL	WA	-	-	Unknown	1,295,400	89	-	OT
Unsited CC			CC	NG	FO2	PL	TK	Jun-21	Jun-23	Unknown	-	-	1,317	P
										2023 Changes/Additions Total:		**89**	**1,317**	
2024														
Unsited CC			CC	NG	FO2	PL	TK	Jun-21	Jun-23	Unknown	-	1,473	-	P
										2024 Changes/Additions Total:		**1,473**	**0**	

(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 occurring 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:** 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):		841
AFUDC Amount ($/kW):		87
Escalation ($/kW):		Accounted for in Direct Construction Cost
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:** Fort Myers CT (2 CTs will be added)

(2) **Capacity (for each CT)**
a. Summer 211 MW plus 20 MW of peaking capacity
b. Winter 223 MW

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

(4) **Anticipated Construction Timing**
a. Field construction start-date: 2015
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:** 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):	3.0%
Forced Outage Factor (FOF):	1.0%
Equivalent Availability Factor (EAF):	96.0%
Resulting Capacity Factor (%):	Approx. 3% (First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	10,075 Btu/kWh
Average Net Incremental Heat Rate (ANIHR): Peak Operation 75F,100%	7,644 Btu/kWh

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

Book Life (Years):	30 years
Total Installed Cost (2016 $/kW):	441
Direct Construction Cost ($/kW):	422
AFUDC Amount (2016 $/kW):	19
Escalation ($/kW):	Accounted for in Direct Construction Cost
Fixed O&M ($/kW-Yr):	2.63
Variable O&M (2016 $/MWH):	0.00
K Factor:	1.38

* $/kW values are based on Summer capacity.
** Levelized value includes Fixed O&M and 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:** Lauderdale CT (5 CTs will be added)

(2) **Capacity (for each CT)**
a. Summer 211 MW plus 20 MW of peaking capacity
b. Winter 223 MW

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

(4) **Anticipated Construction Timing**
a. Field construction start-date: 2015
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:** 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):	3.0%
Forced Outage Factor (FOF):	1.0%
Equivalent Availability Factor (EAF):	96.0%
Resulting Capacity Factor (%):	Approx. 3% (First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	10,203 Btu/kWh
Average Net Incremental Heat Rate (ANIHR): Peak Operation 75F,100%	7,528 Btu/kWh

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

Book Life (Years):	30 years
Total Installed Cost (2016 $/kW):	433
Direct Construction Cost ($/kW):	411
AFUDC Amount (2016 $/kW):	22
Escalation ($/kW):	Accounted for in Direct Construction Cost
Fixed O&M ($/kW-Yr):	3.26
Variable O&M (2016 $/MWH):	0.00
K Factor:	1.39

* $/kW values are based on Summer capacity.
** Levelized value includes Fixed O&M and 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:** Citrus Solar Energy Center (DeSoto County)

(2) **Capacity (for each CT)**
- a. Nameplate (AC) 74.5 MW
- b. Summer Firm (AC) 38.7 MW
- c. Winter Firm (AC) -

(3) **Technology Type:** Photovoltaic (PV)

(4) **Anticipated Construction Timing**
- a. Field construction start-date: 2015
- b. Commercial In-service date: 2016

(5) **Fuel**
- a. Primary Fuel: Sun
- b. Alternate Fuel: Sun

(6) **Air Pollution and Control Strategy:** Not applicable

(7) **Cooling Method:** Not applicable

(8) **Total Site Area:** 841 Acres

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

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

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

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

Planned Outage Factor (POF):	Not applicable
Forced Outage Factor (FOF):	Not applicable
Equivalent Availability Factor (EAF):	Not applicable
Resulting Capacity Factor (%):	26% (First Full Year Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	Not applicable
Average Net Incremental Heat Rate (ANIHR): Peak Operation 75F,100%	Not applicable

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

Book Life (Years):	30 years
Total Installed Cost (2016 $/kW):	1,835
Direct Construction Cost ($/kW):	1,835
AFUDC Amount (2016 $/kW):	0
Escalation ($/kW):	Accounted for in Direct Construction Cost
Fixed O&M ($/kW-Yr): (2016 $)	5.39 (First Full Year Operation)
Variable O&M ($/MWH): (2016 $)	0.00
K Factor:	0.96

* $/kW values are based on nameplate capacity.

Note: Total installed cost includes transmission interconnection.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Manatee Solar Energy Center (Manatee County)

(2) **Capacity (for each CT)**
- a. Nameplate (AC) 74.5 MW
- b. Summer Firm (AC) 38.7 MW
- c. Winter Firm (AC) -

(3) **Technology Type:** Photovoltaic (PV)

(4) **Anticipated Construction Timing**
- a. Field construction start-date: 2015
- b. Commercial In-service date: 2016

(5) **Fuel**
- a. Primary Fuel: Sun
- b. Alternate Fuel: Sun

(6) **Air Pollution and Control Strategy:** Not applicable

(7) **Cooling Method:** Not applicable

(8) **Total Site Area:** 762 Acres

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

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

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

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

Planned Outage Factor (POF):	Not applicable	
Forced Outage Factor (FOF):	Not applicable	
Equivalent Availability Factor (EAF):	Not applicable	
Resulting Capacity Factor (%):	26%	(First Full Year Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	Not applicable	Btu/kWh
Average Net Incremental Heat Rate (ANIHR): Peak Operation 75F,100%	Not applicable	Btu/kWh

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

Book Life (Years):		30	years
Total Installed Cost (2016 $/kW):		1,835	
Direct Construction Cost ($/kW):		1,835	
AFUDC Amount (2016 $/kW):		0	
Escalation ($/kW):		Accounted for in Direct Construction Cost	
Fixed O&M ($/kW-Yr):	(2016 $)	5.39	(First Full Year Operation)
Variable O&M ($/MWH):	(2016 $)	0.00	
K Factor:		0.96	

* $/kW values are based on nameplate capacity.

Note: Total installed cost includes transmission interconnection.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Babcock Solar Energy Center (Charlotte County)

(2) **Capacity (for each CT)**
- a. Nameplate (AC) 74.5 MW
- b. Summer Firm (AC) 38.7 MW
- c. Winter Firm (AC) -

(3) **Technology Type:** Photovoltaic (PV)

(4) **Anticipated Construction Timing**
- a. Field construction start-date: 2015
- b. Commercial In-service date: 2016

(5) **Fuel**
- a. Primary Fuel: Sun
- b. Alternate Fuel: Sun

(6) **Air Pollution and Control Strategy:** Not applicable

(7) **Cooling Method:** Not applicable

(8) **Total Site Area:** 443 Acres

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

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

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

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

Planned Outage Factor (POF):	Not applicable	
Forced Outage Factor (FOF):	Not applicable	
Equivalent Availability Factor (EAF):	Not applicable	
Resulting Capacity Factor (%):	26%	(First Full Year Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	Not applicable	Btu/kWh
Average Net Incremental Heat Rate (ANIHR): Peak Operation 75F,100%	Not applicable	Btu/kWh

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

Book Life (Years):	30	years
Total Installed Cost (2016 $/kW):	1,835	
Direct Construction Cost ($/kW):	1,835	
AFUDC Amount (2016 $/kW):	0	
Escalation ($/kW):	Accounted for in Direct Construction Cost	
Fixed O&M ($/kW-Yr): (2016 $)	5.39	(First Full Year Operation)
Variable O&M ($/MWH): (2016 $)	0.00	
K Factor:	0.96	

* $/kW values are based on nameplate capacity.

Note: Total installed cost includes transmission interconnection.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Okeechobee Clean Energy Center

(2) **Capacity**
a. Summer 1,622 MW
b. Winter 1,595 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 Light Distillate

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

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

(8) **Total Site Area:** 2,842 Acres

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

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

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

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

Planned Outage Factor (POF):	2.2%
Forced Outage Factor (FOF):	1.1%
Equivalent Availability Factor (EAF):	96.7%
Resulting Capacity Factor (%):	Approx. 80% (First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR): Base Operation 75F,100%	6,304 Btu/kWh
Average Net Incremental Heat Rate (ANOHR): Peak Operation 75F,100%	7,731 Btu/kWh

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

Book Life (Years):	30 years
Total Installed Cost (2019 $/kW):	737
Direct Construction Cost ($/kW):	668
AFUDC Amount (2019 $/kW):	69
Escalation ($/kW):	Accounted for in Direct Construction Cost
Fixed O&M ($/kW-Yr):	16.89
Variable O&M (2019 $/MWH):	0.28
K Factor:	1.45

* $/kW values are based on Summer capacity.
** Levelized value includes Fixed O&M and Capital Replacement

Note: Total installed cost includes transmission interconnection and integration, and AFUDC.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

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

(2) **Capacity**
a. Summer 1,317 MW
b. Winter 1,473 MW

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

(4) **Anticipated Construction Timing**
a. Field construction start-date: 2021
b. Commercial In-service date: 2023

(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:** Mechanical Draft Cooling Towers

(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):	2.3%
Forced Outage Factor (FOF):	1.1%
Equivalent Availability Factor (EAF):	96.6%
Resulting Capacity Factor (%):	Approx. 80% (First Full Year Base Operation)
Average Net Operating Heat Rate (ANOHR):	6,307 Btu/kWh
Base Operation 75F,100%	

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

Book Life (Years):	30 years
Total Installed Cost (2023 $/kW):	923
Direct Construction Cost ($/kW):	839
AFUDC Amount ($/kW):	84
Escalation ($/kW):	Accounted for in Direct Construction Cost
Fixed O&M ($/kW-Yr):	39.5
Variable O&M (2023 $/MWH):	0.37
K Factor:	1.51

* $/kW values are based on Summer capacity.
** Levelized value includes Fixed O&M and Capital Replacement

Note: **Total installed cost includes transmission interconnection and integration,** and AFUDC. Actual transmission and interconnection costs are unknown for an unsited unit. The transmission interconnection and integration costs for the unsited unit are based on the costs for the Okeechobee Clean Energy Center

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

Fort Myers Plant Gas Turbine Replacement and CT Upgrade

The Fort Myers Plant gas turbine replacement and CT upgrade projects do not require any "new" transmission lines.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Lauderdale Plant Gas Turbine Replacement

The Lauderdale Plant Gas Turbine Replacement project does not require any "new" transmission lines.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Citrus Solar Energy Center (DeSoto)

The Citrus Solar Energy Center (DeSoto) will require one new line to connect the PV inverter array to the expanded Sunshine Substation.

(1)	Point of Origin and Termination:	Skylight – Sunshine Substation
(2)	Number of Lines:	1
(3)	Right-of-way	FPL – Owned
(4)	Line Length:	1.5 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	Start date: 2015 End date: 2016
(7)	Anticipated Capital Investment: (Trans. and Sub.)	Included in total installed cost on schedule 9
(8)	Substations:	Skylight Substation and Sunshine Substation
(9)	Participation with Other Utilities:	None

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Manatee Solar Energy Center (Manatee)

The Manatee Solar Energy Center will require one new line to connect the PV inverter array to the expanded Manatee Switchyard.

(1)	Point of Origin and Termination:	Helios – Manatee Switchyard
(2)	Number of Lines:	1
(3)	Right-of-way	FPL – Owned
(4)	Line Length:	1.5 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	Start date: 2015 End date: 2016
(7)	Anticipated Capital Investment: (Trans. and Sub.)	Included in total installed cost on schedule 9
(8)	Substations:	Helios Substation and Manatee Switchyard
(9)	Participation with Other Utilities:	None

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Babcock Solar Energy Center (Charlotte)

The Babcock Solar Energy Center (Charlotte) will require one new line to connect the PV inverter array to the planned Freeland Substation.

(1)	Point of Origin and Termination:	Webb – Freeland Substation
(2)	Number of Lines:	1
(3)	Right-of-way	FPL – Owned
(4)	Line Length:	5 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	Start date: 2015 End date: 2016
(7)	Anticipated Capital Investment: (Trans. and Sub.)	Included in total installed cost on schedule 9
(8)	Substations:	Webb Substation and Freeland Substation
(9)	Participation with Other Utilities:	None

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Okeechobee Next Generation Clean Energy Center

The Okeechobee Next Generation Clean Energy Center does not require any "new" transmission lines.

Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Unsited 3x1 CC

No site has been determined, therefore no transmission analysis is possible.

Schedule 11.1

Existing FIRM and NON-FIRM Capacity and Energy by Primary Fuel Type
Actuals for the Year 2014

	(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	3.3%	911	3.2%	4,482	3.9%
(2)	Nuclear	3,453	12.8%	3,550	12.4%	26,812	23.1%
(3)	Residual	3,663	13.5%	3,697	12.9%	231	0.2%
(4)	Distillate	648	2.4%	710	2.5%	128	0.1%
(5)	Natural Gas	16,396	60.6%	17,765	62.1%	79,102	68.2%
(6)	Solar (Non-Firm)	35	0.1%	35	0.1%	177	0.2%
(7)	***FPL Existing Units Total [1] :***	***25,092***	***92.8%***	***26,668***	***93.2%***	***110,933***	***95.7%***
(8)	Renewables (Purchases)- Firm	55.0	0.2%	55.0	0.2%	473	0.4%
(9)	Renewables (Purchases)- Non-Firm	Not Applicable	---	Not Applicable	---	445	0.4%
(10)	***Renewable Total:***	55.0	0.2%	55.0	0.2%	918	0.79%
(11)	***Purchases Other :***	1,890.0	7.0%	1,890.0	6.6%	4,117	3.6%
(12)	***Total :***	*27,037.0*	*100.0%*	*28,613.0*	*100.0%*	*115,968*	*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 2014.

Schedule 11.2

Existing NON-FIRM Self-Service Renewable Generation Facilities
Actuals for the Year 2014

(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)	17.25	21,548	191,676	634	212,590
Customer-Owned Renewable Generation (> 10 kW to 100 kW)	8.77	11,087	217,985	661	228,411
Customer-Owned Renewable Generation (> 100 kW - 2 MW)	12.76	36,645	91,007	210	127,442
Totals	39	69,279	500,668	1,505	568,443

Notes:

(1) There were 3241 customers with renewable generation facilities interconnected with FPL on December 31, 2014.

(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 December 31, 2014. Three systems do not have a DC rating. These are 3 non-solar facilities:
Tropicana - Landfill gas reciprocating generator: 1600 kW AC
Manatee Landfill gas: 1600 kW AC
Bio Mass - Palm Beach County: 750 kW AC
These AC values are included in the (> 100 kW < 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 2014.

(5) The Annual Energy Sold to FPL is an actual value from FPL's metered data for 2014.

(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.

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CHAPTER IV

Environmental and Land Use Information

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IV. Environmental and Land Use Information

IV.A Protection of the Environment

Florida's climate can be described as a combination of humid subtropical and tropical savanna supporting an environment which includes a diverse number of distinct ecosystems with many endangered or threatened plant and animal species. These distinct ecosystems, the residents, and industries of Florida compete for the same resources that are necessary for the generation, transmission, and distribution of electricity. FPL is a corporation which practices strong environmental stewardship evidenced by the creation and management of the Everglades Mitigation Bank and the preservation of the Barley Barber Swamp. FPL desires to meet public expectations of such stewardship and conducts their business in a responsible manner by minimizing impacts to Florida's natural environment.

FPL and its parent company, NextEra Energy, Inc. have continuously been recognized as leaders among electric utilities for their commitment to the environment. That commitment is ingrained in FPL's corporate culture. FPL has one of the lowest emissions profiles among U.S. utilities and in 2014 its carbon dioxide (CO_2) emission rate was 38% lower (better) than the industry national average.

On March 3, 2014 NextEra Energy was named No. 1 in its sector on Fortune Magazine's "Most Admired Companies" list for the eighth year in a row. In determining the industry rankings, approximately 15,000 senior executives, outside directors, and industry analysts are surveyed and companies are rated on the following nine attributes:

1.) Ability to attract and retain talented people
2.) Quality of management
3.) Social responsibility to the community and the environment
4.) Innovativeness
5.) Quality of products or services
6.) Wise use of corporate assets
7.) Financial soundness
8.) Long-term investment value
9.) Effectiveness in doing business globally

Fortune recognized that "*in 2013, the output from NextEra Energy's power plants resulted in emissions rates of sulfur dioxide, nitrogen oxide and carbon dioxide that were 97 percent, 80 percent and 53 percent lower, respectively, than the U.S. electric industry's average. In addition, the company provides grants to teachers of science, technology, engineering and math (STEM)*

classes, partners with community colleges on wind technology training, and protects threatened and endangered species where it has operations, including the Florida manatee, American crocodile, and osprey and desert tortoise."

In March 2014, FPL received the 2014 Florida House Conservation Award in recognition of its extraordinary commitment to the environment. In presenting the award, Bart Hudson, president of the Florida House, declared *"From preserving wildlife and natural resources to bringing the public and private sectors together to support long-term restoration efforts in the Everglades, the southeast Florida marshes and Biscayne Bay, conservation is at the core of FPL's mission".*

Other conservation efforts noted by the Florida House include FPL's focus on reducing greenhouse gas emissions while helping to keep customer bills low through the use of fuel-efficient power generation and other innovative technologies. Since 2001, FPL has reduced its use of foreign oil by 99 percent by modernizing existing power plants into cleaner, more fuel-efficient plants. It is the first utility to bring commercial-scale solar power to Florida, including the world's first solar-natural gas hybrid.

On April 2, 2014, the Environmental Protection Agency presented Florida Power & Light Company with its Clean Air Excellence Award in recognition of the company's "green" vehicle fleet and customer education programs featuring its electric vehicles and their benefits. The awards recognize innovative programs that protect Americans' health and the environment, educate the public, serve their communities and stimulate the economy.

In 2014, FPL supported a broad base of environmental organizations with donations and memberships totaling in excess of $290,000. The organizations included, but were not limited to, the Everglades Foundation, the Conservancy of Southwest Florida, the Busch Wildlife Sanctuary, Inc., the Arthur R. Marshall Foundation and the Loggerhead Marinelife Center, Inc. In addition, part of the charitable giving was the result of an FPL employee 2014 Power to Care Event that raised funds dedicated to the Friends of MacArthur Beach State Park.

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

IV.B FPL's Environmental Policy

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.

FPL's parent company, NextEra Energy, Inc. updated this policy in 2013 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. FPL proactively pursues 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 Policy, 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, which is described in section IV.D below. 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 created an enhanced environmental data management information system (EDMIS) which was fully implemented by the end of 2014. 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 an 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 primary objective of performing an environmental audit is to facilitate management control of environmental practices and assess compliance with existing environmental regulatory requirements and FPL policies. In addition to FPL facility audits, through the Environmental Assurance Program, FPL 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 potential for 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 2014 environmental outreach activities are summarized in Table IV.E.1.

Table IV.E.1: 2014 FPL Environmental Outreach Activities

Activity	Count (#)
Visitors to FPL's Energy Encounter at St. Lucie	2,669
Visitors to Manatee Park, Ft. Myers	216,401
Number of website visits to FPL's Environmental & Corporate Responsibility Websites	580,000
Visitors to Barley Barber Swamp (Treasured Lands Partnership)	8,517
Martin Energy Center Solar Tours	600
Solar Schools Program	• 92 schools and 10 demo sites completed as of 12/31/14 • Installed capacity for the 102 sites is 921 kW and can produce more than one million kWh annually • An additional 24-28 school/demo sites will come online by the end of 2015

IV.F Preferred and Potential Sites

Based upon its projection of future resource needs, FPL has identified eight (8) Preferred Sites and three (3) 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

For the 2015 Ten Year Site Plan, FPL has identified eight (8) Preferred Sites. These include a combination of existing and new sites for the development of natural gas combined cycle, combustion turbines, and/or solar generation facilities.

The Port Everglades site is a location where a modernization project is in progress. This work consists of replacing the former steam generating units and replacing them with new combined cycle (CC) technology. The modernization work is scheduled to be completed in mid-2016. In addition, all of the existing gas turbines (GTs) at the Port Everglades site, and all but two of the existing GTs at the nearby Lauderdale site, are projected to be retired by the end of 2016. The two GTs that will remain will serve to provide black start capability. Five new combustion turbines

(CTs) are projected to be added at the Lauderdale site by the end of 2016 to partially replace the retired peaking capacity at these sites. These actions, taken to lower FPL's long-term costs, will also aid in addressing compliance with new air emissions standards.

Similarly, and as part of this GT replacement effort, all but two of the existing GTs at the Ft. Myers site will be retired and two new CTs will be added. In addition, the two existing CTs at the Ft. Myers site will be upgraded to increase their capacity. All of the Ft. Myers work is scheduled to be completed by the end of 2016.

The Okeechobee County site has been identified as a Preferred Site for new natural gas CC technology. As discussed in the Executive Summary, the new natural gas CC at this site represents FPL's best self-build generation option in 2019, and it will compete with proposals received in response to a capacity request for proposals (RFP) that was issued in March 2015.

The Okeechobee County site is also under consideration for future new photovoltaic (PV) facilities. In regard to PV, Charlotte, DeSoto, and Manatee Counties have been identified as the locations for new PV facilities that are expected to go in-service by the end of 2016.

Finally, the Turkey Point site is the location at which FPL plans to construct two new nuclear units, Turkey Point Units 6 & 7. The Nuclear Regulatory Commission recently announced a several year delay in their schedule to make a decision on FPL's pending Turkey Point Units 6 & 7 Combined Operating License Application (COLA). Due to this delay in the COLA schedule, and to changes in Florida's nuclear cost recovery rule, the earliest practical date for bringing the Turkey Point 6 & 7 units in-service is now beyond the 2015 through 2024 time period addressed in this Site Plan. Despite this change in timing of the two new nuclear units, this Site Plan continues to present the Turkey Point site as a Preferred Site for the new units.

Preferred Site # 1: Port Everglades Plant, Broward County

FPL is in the process of modernizing the Port Everglades Plant located within the City of Hollywood in Broward County with construction anticipated to be completed in 2016. Previously the site consisted of two 200 MW (approximate) and two 400 MW (approximate) steam generating units. The four units were taken out of service, dismantled, and removed from the site as part of the modernization project. The modernized site, named the Port Everglades Next Generation Clean Energy Center (PEEC), will consist of a single new Combined Cycle unit that replaces the original four steam units. The modernized unit will be highly efficient and have a lower-emission rate and will use less water than the original units at the site.

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 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 turbines which were demolished in the Summer of 2013 to make way for the new Port Everglades Next Generation Clean Energy Center. The plant site includes minimal vegetation. Adjacent land uses include port facilities, barge access via port infrastructure, a rail line and associated industrial activities, as well as light commercial and residential development.

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

There are environmental benefits of replacing the former steam units at the Port Everglades Site with a new CC unit including a significant reduction in system air emissions and improved aesthetics at the site such as lower stack heights.

1. **Natural Environment**

The site is located adjacent to the Intracoastal Waterway (ICW) and is comprised of facilities related to electric power generation. It is located within a highly industrialized port that has active material and fuel handling facilities.

2. **Listed Species**

No adverse 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. The plant provides warm water to the ICW pursuant to the facility's Manatee Protection Plan, which is a benefit to the area's manatees.

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

The Port Everglades Next Generation Clean Energy Center is located adjacent to the ICW. 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 the ICW, 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 is to replace the four former units, with one new unit of approximately 1,200 MW Summer capacity. The new unit will be a single CC unit that consists of three new CTs, three new heat recovery steam generators (HRSG), and a new steam turbine.

In addition, all of the existing GTs at the Port Everglades site are projected to be removed by the end of 2016 as part of the gas turbine replacement project discussed in the Lauderdale and Fort Myers Preferred Site discussions.

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 due to consideration of multiple factors including system load, ability to provide generation in the Miami-Dade/Broward region to help balance load and generation in that region, and economics. Environmental issues were considered, but because the site has been previously utilized for power generation facilities, no environmental impacts will result from this modernization.

i. **Water Resources**

Water from the Intracoastal Waterway via Port Everglades Slip No. 3 is currently used for once-through cooling water supply. The new plant will only utilize portions of the existing once-through cooling water intake and discharge structures due to reduced water demand. 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 Next Generation Clean Energy Center site is underlain by the Surficial Aquifer System (SAS). The SAS 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 Broward County where the plant is located are appreciably more permeable than in the west. The SAS is underlain by at least 600 feet of the Hawthorn formation (a confining unit). The Floridan Aquifer System (FAS) underlies the Hawthorn formation.

k. Projected Water Quantities for Various Uses

Approximately 600 million gallons per day (mgd) of cooling water will be cycled through the once-through cooling water system which is a reduction of more than 51% in cooling water when compared to that of the previous steam units. The estimated quantity of process water required is approximately 0.24 mgd for uses such as process water and service water. Potable water demand is expected to average 0.001 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. The combined cycle technology will result in 51% less water used compared to the traditional steam generation units. Recovery and reuse of steam generator blowdown by mixing with cooling water flow also recycles water reducing need for fresh water. Therefore, no additional water resources will be required as a result of the modernization project.

n. Water Discharges and Pollution Control

The modernized plant will utilize portions of the existing once-through cooling water system for heat dissipation prior to discharge to the Intracoastal Waterway. 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, which is used as a backup fuel, 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 % 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 of sulfur dioxide (SO2), particulate matter, and other fuel-bound contaminates from the unit and ensure compliance with applicable emission standards. Combustion controls similarly minimize the formation of nitrogen oxides (NOx), and the combustor design will limit the formation of carbon monoxide and volatile organic compounds. When firing natural gas, NOx emissions will be controlled using dry-low NOx combustion technology and selective catalytic reduction (SCR). Water injection and SCR will be used to reduce NOx emissions during operations when using ultra-low sulfur light fuel oil as backup fuel. Greenhouse gas emissions (GHGs) from combustion of natural gas at PEEC will achieve an emission rate substantially lower than the EPA proposed new source performance standard for GHGs. The CC design is equivalent to the Best Available Control Technology for air emissions, and minimizes such emissions while balancing economic, environmental, and energy impacts. Taken together, the design of PEEC will 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 from unit construction and operation at the site is expected to be below existing noise levels for residents near 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 project's Site Certification Application (SCA) was submitted January 24, 2012 resulting in the issuance, by the Siting Board of the State of Florida, of the Final Order PA 12-57 on October 9, 2012. FPL received a Prevention of Significant Deterioration (PSD) permit on May 1, 2012 and an Industrial Wastewater Facility permit on December 16, 2012. No other permits are required.

Preferred Site #2: Babcock Ranch Solar Energy Center, Charlotte County

The Babcock Ranch Solar Energy Center facility will be sited on approximately 443 acres in Charlotte County. The solar facility will be located approximately 10.5 miles north of the intersection of SR-80 and SR-31 and 0.7 miles east of State Road 31 and north of Tucker's Grade road. The Babcock Ranch Preserve, owned by the State of Florida, borders the facility directly to the north and northwest. The Babcock Ranch Community is located east and south of the facility. The facility is an approximately 74.5 MW (nameplate, AC) photovoltaic (PV) facility.

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

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

b. Proposed Facilities Layout

The proposed facilities layout is currently in development and not available at this time.

c. Map of Site and Adjacent Areas

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

d. Existing Land Uses of Site and Adjacent Areas

The Charlotte Solar site and adjacent lands are predominantly used for agricultural production. Currently, the site includes fallow sod fields, improved and unimproved pasture with a portion in a combination of pine flatwoods and freshwater marsh. The existing land use and zoning designations are Babcock Ranch Overlay and Overlay Zoning District. This land use and zoning allows for solar facilities.

e. General Environmental Features On and In the Site Vicinity

1. Natural Environment

The majority of the site is comprised of lands dedicated to agricultural production. FPL will mitigate for unavoidable wildlife and/or wetland impacts that occur from facility construction as required.

2. Listed Species

Although the site is predominately in agricultural production, results of protected species surveys performed in 2006, 2007 and 2009 reveal the project limits and surrounding landscape are utilized and/or have the potential to be utilized by a number of listed species. The project is located within the US Fish and Wildlife Service (USFWS) Panther Focus Area and is also located within the Core Foraging Area of known wood stork colonies.

Any impacts to the habitat of protected species associated with the PV facility are included within the mitigation plan for the Babcock Ranch Community. To compensate for the loss of habitat, mitigation activities will be performed in an area known as the "Curry Preserve" which is located on a portion of the Babcock Ranch Preserve owned by the State of Florida.

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

The Charlotte Solar site is in the area of the Babcock Preserve and east of the Cecil Webb Wildlife Management Area. Both of these natural areas are managed by the Florida Fish and Wildlife Conservation Commission. However, the construction and operation of a PV 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 on the site.

f. **Design Features and Mitigation Options**

The design includes construction of a PV facility, onsite transmission substation, and site stormwater system to accommodate approximately 74.5 MW (nameplate AC) of power generation.

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

The existing and future land use on this site consists of agriculture and barren land. 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 Charlotte site has been selected as the location of the PV facility based on various factors including system load, transmission interconnection, and economics.

i. **Water Resources**

Minimal amounts of water, if any, would be required for cleaning the PV panels. This water would be trucked to the site or obtained from existing onsite permitted water resources.

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

In general, the soil profile of the Surficial Aquifer System (SAS) consists of loose to medium dense fine sands with occasional thin stratum of slightly clayey fine sand. Groundwater can be encounter at the surface to a depth of a few feet below with fluctuations throughout the year

due to seasonal variations in rainfall and other factors. As is typical of the rest of south Florida this site is underlain by the Intermediate Confining Unit and the Floridan Aquifer System.

k. Projected Water Quantities for Various Uses

Solar requires minimal amounts of water, if any, for cleaning the PV panels and would only be required in the absence of sufficient rainfall.

l. Water Supply Sources by Type

A water source is not required for this site. Any needed water may be brought to the site by truck or obtained from permitted water sources.

m. Water Conservation Strategies Under Consideration

The PV site does not require a permanent water source. Water conservation strategies may include selection and planting of low-to-no irrigation grass or groundcover.

n. Water Discharges and Pollution Control

The facility will employ Best Management Practices (BMP) to prevent and control the inadvertent release of pollutants.

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

Fuel is not required and no waste products will be generated at the site.

p. Air Emissions and Control Systems

This technology does not generate air emissions.

q. Noise Emissions and Control Systems

This technology does not generate noise.

r. Status of Applications

FPL has obtained the required federal USACE 404 permit allowing for impact with mitigation to 9.3 acres of onsite wetlands during construction. The state Environmental Resources Permit (ERP) for the existing on-site facilities will be modified to incorporate revisions to the site layout and stormwater management system. Application will be made to Charlotte County for the local development approval.

Preferred Site #3: Citrus Solar Energy Center, DeSoto County

The Citrus Solar Energy Center site consists of approximately 841 acres and is located at 4051 Northeast Karson Street, approximately 0.3 miles east of U.S. Highway 17 and immediately north of Bobay Road in Arcadia, Florida. The site has been chosen for an approximately 74.5 MW (nameplate, AC) PV facility.

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

A USGS map of the Citrus Solar Energy Center site is found at the end of this chapter.

b. Proposed Facilities Layout

The proposed facilities layout is currently in development and not available at this time.

c. Map of Site and Adjacent Areas

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

d. Existing Land Uses of Site and Adjacent Areas

Existing land use on the site is agricultural. The adjacent areas include agriculture, forested and non-forested uplands.

e. General Environment Features On and In the Site Vicinity

1. Natural Environment

The approximate 841 acre site is comprised of lands dedicated for agricultural production with some wetland areas throughout the property.

2. Listed Species

Burrowing owls and gopher tortoises may be present within the proposed project area. If so, burrows of these species will be relocated to adjacent portions of the FPL property prior to construction under permits from Florida Fish and Wildlife Conservation Commission. Previous wildlife surveys have identified Audubon's Crested caracara foraging within the property, but no nests are located within the project area, and caracara have been rarely seen since the removal of cattle from the project area. Based on this information, no negative impacts to threatened or endangered species are anticipated as a result of the PV project.

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

There are no natural resources of regional significance at, or adjacent to, the site. The construction and operation of a PV generating facility 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 includes construction of a PV facility, onsite transmission substation, and site stormwater system to accommodate approximately 74.5 MW (nameplate, AC) of PV.

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

In 2009, DeSoto County instituted an Ordinance amending the Land Development Regulations by adding Utility Grade Solar Plant as a permitted use within an Agriculture-10 zoning district and an Ordinance amending the Future Land Use Map to change the FPL land from the Rural Agricultural category to the Electrical Generating Facility category. Solar facilities are allowed within this category.

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 site has been selected as the location of a PV facility based on various factors including system load, transmission interconnection, and economics.

i. **Water Resources**

Minimal amounts of water, if any, would be required for cleaning the PV panels and would only be required in the absence of sufficient rainfall. This water would be trucked to the site or obtained from existing onsite permitted water resources.

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

The Surficial Aquifer System soil types found on the Site include Anclote mucky fine sand (depressional), Basinger fine sand, Basinger fine sand (depressional), Eau Gallie fine sand, Immokalee fine sand, Myakka fine sand, Smyrna fine sand, and Valkaria fine sand. As is typical of the rest of south Florida this site is underlain by the Intermediate Confining Unit and the Floridan Aquifer System.

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

Solar requires minimal amounts of water, if any, for cleaning the PV panels in the absence of sufficient rainfall.

l. **Water Supply Sources by Type**

A water source is not required for this site. Any needed water may be brought to the site by truck or obtained from permitted water sources.

m. **Water Conservation Strategies Under Consideration**

The PV site does not require a permanent water source. Water conservation strategies will be implemented through the selection and planting of low to no irrigation grass or groundcover.

n. **Water Discharges and Pollution Control**

The facility will employ Best Management Practices (BMP) to prevent and control the inadvertent release of pollutants.

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

Fuel is not required and no waste products will be generated at the site.

p. **Air Emissions and Control Systems**

Solar technology does not generate air emissions.

q. **Noise Emissions and Control Systems**

Solar technology does not generate noise.

r. **Status of Applications**

Application will be made to FDEP for state Environmental Resources Permit (ERP), USACE for federal wetlands permit, and Desoto County for local development approval.

Preferred Site #4: Manatee Solar Energy Center, Manatee County

The Manatee Solar Energy Center site consists of approximately 762 acres and is located in unincorporated north-central Manatee County. The PV site lies approximately 5 miles east of Parrish, Florida, approximately 5 miles east of U.S. Highway 301 and 9.5 miles east of Interstate Highway 75 (I-75). This site has been chosen for the addition of an approximately 74.5 MW (nameplate, AC) PV facility.

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

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

b. **Proposed Facilities Layout**

The proposed facilities layout is currently in development and not available at this time.

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

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

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

Existing land use on the site is agricultural. A portion of the site is zoned Planned Development / Public Interest (PD-PI), which will allow for electrical generation. The remainder of the site will be zoned from agriculture to PD-PI. The adjacent areas include agricultural, upland non-forested, forests, transportation, communication, and utilities.

e. **Environmental Features**

1. **Natural Environment**

FPL will mitigate for unavoidable wildlife and/or wetland impacts as needed as a result of a PV project constructed at this site.

2. **Listed Species**

The site is predominately agriculture and minimal impacts to federal- or state-listed terrestrial plants or animals are expected in association with construction at the site, due to the existing disturbed nature of the site and lack of suitable onsite habitat for listed species. In accordance with Florida Fish and Wildlife Conservation Commission, the project will be designed to maintain an adequate buffer from the active bald eagle nest located west of the site.

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

There are no natural resources of regional significance at, or adjacent to, the site. The construction and operation of a PV 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**

The design includes construction of a PV facility, onsite transmission substation, and site stormwater system to accommodate approximately 74.5 MW (nameplate, AC) of power generation.

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

Existing land use on the site is agricultural. In 2009, Manatee County instituted an ordinance amending the Manatee County Official Zoning Atlas to rezone approximately 620 acres from General Agriculture (A) to Planned Development Public Interest (PD-PI), as well as approve a General Development Plan to allow solar development. The project area has since been expanded north (approx. 383 acres) and new approvals will be sought to change the Official Zoning Atlas to allow solar development within the additional area.

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 site has been selected as the location of the PV facility based on various factors including system load, transmission interconnection, and economics.

i. **Water Resources**

Minimal amounts of water, if any, would be required for cleaning the PV panels. This water would be trucked to the site or obtained from existing onsite permitted water resources and would only be required in the absence of sufficient rainfall.

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

The soil types found on the site include Anclote mucky fine sand (depressional), Basinger fine sand, Basinger fine sand (depressional), Eau Gallie fine sand, Immokalee fine sand, Myakka fine sand, Smyrna fine sand, and Valkaria fine sand.

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

Solar requires minimal amounts of water, if any, for cleaning the PV panels in the absence of sufficient rainfall.

l. **Water Supply Sources by Type**

The PV site does not require a permanent water source. Any needed water may be brought to the site by truck or obtained from permitted water sources.

m. **Water Conservation Strategies Under Consideration**

Water conservation strategies may include the selection and planting of low-to-no irrigation grass or groundcover.

n. **Water Discharges and Pollution Control**

The facility will employ Best Management Practices (BMP) to prevent and control the inadvertent release of pollutants.

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

Fuel is not required and no waste products will be generated by site.

p. **Air Emissions and Control Systems**

This technology does not generate air emissions.

q. **Noise Emissions and Control Systems**

This technology does not generate noise.

r. **Status of Applications**

Applications will be submitted to rezone the northern extent of the site, to obtain County site plan approval, to modify an Environmental Resources Permit (ERP) to include the expanded project area, and to modify the USACE 404 permit to include the expanded project area.

Preferred Site # 5: Lauderdale Plant Peaking Facilities, Broward County

This site is located at the existing Lauderdale Plant property and consists of approximately 392 acres, within the Cities of Dania Beach and Hollywood in Broward County, Florida, east of U.S. Highway 441, north of Griffin Road, west of SW 30th Avenue, and south of Interstate 595.

The Lauderdale Plant currently includes two combined cycle units and two banks of 12 first generation simple cycle gas turbines (GTs) that began operation in the early 1970s. These GTs are used to serve peak and emergency demands in a quick-start manner. Each bank of GTs has a net capacity of 420 megawatts (MWs) and are authorized to operate on natural gas and distillate oil. FPL plans to retire 22 of the 24 existing GTs and partially replace this peaking capacity with 5 new combustion turbines (CTs). This GT removal with CT replacement is assumed to occur by the end of 2016.

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

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

b. **Proposed Facilities Layout**

A facilities plot plan of the Lauderdale generating facilities is found at the end of this chapter.

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

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

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

The existing land use at the site is commercial and the adjacent areas are a mixture of low to high density urban, transportation, communication, utilities, commercial, water, and some open land. The site is zoned general industrial by the City of Dania Beach.

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

1. **Natural Environment**

The majority of the project site is comprised of facilities related to electric power generation. The project site also includes approximately 14 acres of surrounding forested wetlands and upland spoil piles.

2. **Listed Species**

Based upon field assessments 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, the lack of suitable habitat, and the land use of the surrounding areas, federally listed species are not anticipated to utilize the CT Project area.

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

There are no natural resources of regional significance adjacent to the site. 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.

4. **Other Significant Features**

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

f. **Design Features and Mitigation Options**

The project is to retire 22 of the 24 gas turbines (GTs) at the existing Lauderdale Plant (plus retire an additional 12 simple cycle GTs at the nearby Port Everglades Plant) and partially replace this capacity with 5 new highly efficient simple cycle CTs. The CTs operate in simple

cycle mode 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, see Section r.

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 for the location of new CTs based on various factors including maximizing opportunities to utilize existing utility infrastructure, system load, transmission interconnection, and economics.

i. Water Resources

The CT 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

The geological layers beneath the site include the Surficial Aquifer System (SAS), the Intermediate Confining Unit (ICU), and the Floridan Aquifer System (FAS). According to the Natural Resource Conservation Service (NRCS) Soil Survey of Broward County, the SAS in the proposed facilities area is dominated by Okeelanta series muck.

The Okeelanta series consists of very deep, very poorly drained, rapidly permeable soils in large fresh water marshes and small depressional areas. 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.

k. Projected Water Quantities for Various Uses

The CT Project consists of installing new CTs that are operated in simple cycle mode and do not require a heat dissipation system. Raw water from the Broward County will continue to be used for process water treatment system influent and fire protection. Water used for CT inlet air cooling and water injection for NOx control when using ULSD oil will be demineralized water from the existing process water treatment system.

l. **Water Supply Sources by Type**

The CTs do not require a heat dissipation system, therefore there are no associated cooling water uses. The proposed facility would continue to acquire water from existing water contracts with Broward County and would continue to use potable water from the City of Hollywood to provide drinking water for employees.

m. **Water Conservation Strategies Under Consideration**

No additional water resources would be required as a result of the CT Project.

n. **Water Discharges and Pollution Control**

There would be no surface water discharges required for the operation of the proposed facility. The stormwater management system has been designed to prevent direct discharge to surface waters.

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 associated with the operation of the new CTs would be approximately 90 percent lower than the existing GT emission rates, resulting in significantly lower air quality impacts per hour of operation. In addition to lower air emissions, the maximum total air quality impacts for the site facility are predicted to be well below and in compliance with the National Ambient Air Quality Standards (NAAQS). For pollutants such as NO_2, the new CTs' 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**

The construction and operation of the new CTs will not exceed the maximum permissible sound levels in Section 17-86 of the City of Dania Beach.

r. **Status of Applications**

A 404 dredge and fill permit has been issued by the U. S. Army Corps of Engineers (USACE) to allow for wetland impacts with mitigation associated with the project and a Prevention of Significant Deterioration (PSD) air permit has been issued by the Florida Department of Environmental Protection (FDEP). A modification of the PSD permit to include GHG emissions has been prepared by FPL for submittal to the FDEP. No other licenses or permits have been issued for the CT Project. FPL will submit applications to Broward County for a special exception use permitted within a General Industrial zoning designation and to the U.S. Environmental Protection Agency (EPA) for the Greenhouse Gas air permit.

Preferred Site # 6: Ft Myers Plant Peaking Facilities, Lee County

Florida Power & Light Company (FPL) plans to retire, replace, and upgrade components of the peaking facilities at the Fort Myers Power Plant. This site consists of approximately 460 acres located in the City of Tice (Fort Myers) in Lee County, Florida. The Plant property is located north of State Road 80 (Palm Beach Boulevard), south of the Caloosahatchee River, east of the Caloosahatchee Shores Community, and west of State Road 31.

The existing Fort Myers Plant consists of one natural gas Combined Cycle (CC) units, two natural gas and oil fired Combustion Turbine (CT) units, and one bank of 12 oil fired Gas Turbines (GTs) (peaking facilities) that have a combined capacity of 2,403 summer megawatts.

Presently, the bank of 12 first generation GTs (which started operation in the early 1970s) provide power during periods of peak demand and black start capability in the event of a power outage. FPL plans to add two new CTs and retire ten of the existing GTs by the end of 2016.The two new CTs will be more efficient with cleaner air emissions than the existing GTs. In addition, the two existing CTs will be upgraded to produce additional generation capacity.

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

A USGS map of the Fort Myers site and adjacent areas is found at the end of this chapter.

b. **Proposed Facilities Layout**

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

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

A USGS map of the Fort Myers site and adjacent areas is found at the end of this chapter.

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

The existing land-use at the site is transportation, communication, utilities, barren land, and agricultural. Adjacent properties include low density urban, commercial, rangeland, open land, transportation, communication, and utilities. A Land Use / Land Cover Map is also found at the end of this chapter.

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.

2. **Listed Species**

Based on the results of a 2013 biological assessment, which included a field evaluation and review of data obtained from the Florida Natural Areas Inventory (FNAI), the U.S. Fish and Wildlife Service (USFWS), and the Florida Fish and Wildlife Conservation Commission (FWC), no threatened or endangered species are expected to be affected by the proposed Project.

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

The Caloosahatchee and Orange Rivers are adjacent to the site. 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 the Caloosahatchee River, the Orange River, 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**

FPL will retire 10 of 12 GTs at the existing Fort Myers Plant, and replace them with two new highly efficient simple cycle CTs. In addition, the two existing CTs will be upgraded to produce additional capacity and enhanced performance. 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. Two GTs may be retained for peaking and black start capabilities.

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

The site is zoned Industrial Light (IL) by Lee County, a designation intended to provide for areas devoted to various light industrial and quasi-industrial commercial uses. Electrical power plants are permitted within an IL designation. 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 Fort Myers Plant site has been selected for the location of the new and upgraded peaking units based on various factors including maximizing opportunities to utilize existing utility infrastructure, system load, transmission interconnection, and economics.

i. **Water Resources**

The proposed facility will require a marginal increase in demineralized water that will be supplied by treating potable water obtained from Lee County.

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

According to the Natural Resource Conservation Service Soil (NRCS) Soil Survey of Lee County, Florida (1991), two soil types have been mapped within the proposed Project site: Caloosa fine sand and Urban Land. Notably, the soils within the Project site have been previously excavated to the depth of several meters and refilled, effectively eliminating the natural soil profile.

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

The project consists of CTs that are operated in simple cycle mode and do not require a heat dissipation system. Water used for CT inlet air cooling and water injection for NOx control when using ULSD oil will be demineralized water. Demineralized water will be obtained by treating potable water provided from Lee County.

l. **Water Supply Sources by Type**

As stated in the previous section the CTs do not require a heat dissipation system, therefore there are no associated cooling water uses. For all other water supply requirements, the proposed facility would acquire potable water from Lee County.

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 proposed facility. The stormwater management system has been designed to prevent direct discharge to surface waters.

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 barged to the facility and stored in existing ULSD oil tanks.

p. **Air Emissions and Control Systems**

Air emission rates for NOx with the new and upgraded CTs would be approximately 90 percent lower than the existing GT emission rates, resulting in significantly lower air quality impacts during operating hours. 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 NO2, 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 SO2, 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**

Noise from the new and upgraded CTs will not exceed the maximum permissible sound levels in Lee County noise control ordinance No. 93-15. The design of these new and upgraded CTs includes components and an enclosure which mitigate the emission of noise to the surrounding environment. 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 will apply for FDEP ERP for stormwater impacts and a PSD permit for air emissions. A Development Order Approval will be obtained from Lee County.

Preferred Site # 7: Okeechobee Site, Okeechobee County

FPL owns 2,800 acres of land in Northeast Okeechobee County. FPL plans to use approximately 200 acres of this land for development of a combined cycle (CC) unit at this site. A CC unit at this site has been determined to be FPL's best self-build generation option for meeting its capacity needs beginning in 2019. In March 2015, FPL issued a capacity request for proposals (RFP) to solicit proposals from outside parties for meeting this capacity need. FPL's CC unit at the Okeechobee site, and the proposals received in response to the RFP, will be evaluated by FPL and an Independent Evaluator to determine which option(s) is the best selection for FPL's customers.

Natural gas-fired CC generation at the site is possible due to the proximity to existing and planned natural gas pipelines. In addition, FPL currently views the Okeechobee site as one of the most likely sites to be used for future large-scale solar using photovoltaic (PV) generation facilities.

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

A USGS map of the Okeechobee site and adjacent areas is found at the end of this chapter.

b. **Proposed Facilities Layout**

The proposed facilities layout is currently in development and not available at this time.

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

A USGS map of the Okeechobee site and adjacent areas is found at the end of this chapter.

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

The Okeechobee site is predominantly used for agricultural production (cattle and citrus). Adjacent land uses include agriculture and conservation. The site is in an unincorporated, rural area of the county. FPL's Poinsett-Martin transmission line corridor abuts the property along the northern boundary.

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

1. **Natural Environment**

The majority of the 2,800 acre site is comprised of lands dedicated to agricultural production (unimproved pasture and fallow citrus). Approximately 400 acres consist of pine flatwoods, mixed forested wetlands, saw palmetto prairie, and freshwater marsh.

2. **Listed Species**

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

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

The Okeechobee site abuts the western boundary of the Ft Drum Marsh, a water conservation area managed by the Saint Johns River Water Management District. The construction and operation of a power generating facility at this location is not expected to have any adverse impacts on that area or any other 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 PV technologies. Mitigation for unavoidable impacts, if required, could 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 Okeechobee County site was selected as Preferred based on various factors including system load, transmission interconnection, proximity of the proposed Florida Southeast Connection and other natural gas pipelines, and economics. Expected environmental issues are minimal because the site has been previously disturbed and contains few wetlands that will be impacted by the construction and operation of the planned facilities.

i. Water Resources

Groundwater from the Surficial and Floridan Aquifers is anticipated to supply water to the Northeast Okeechobee County site for the combined cycle unit. Minimal amounts of water, if any, will be required for cleaning the PV panels. This water will be obtained from onsite water resources permitted for the CC unit.

j. Geological Features of Site and Adjacent Areas

The geological features of the Northeast Okeechobee County site are similar to that of most of South Florida. In general, the groundwater system underlying Okeechobee County consists of the SAS, the Intermediate Confining Unit (ICU), and the FAS. In this area, 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

Approximately 9 mgd of cooling water will be used in cooling towers, which reduces water use by 95 to 98% compared to once through cooling, for a CC unit at the Okeechobee site. 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 0.001 mgd. Only minimal amounts of water, if any, would be required for cleaning the PV panels, and would only be required in the absence of sufficient rainfall. This water would be obtained from onsite water resources permitted for the CC unit.

l. Water Supply Sources by Type

The potential water supply source is groundwater from the SAS and the FAS. Additional evaluations are necessary to determine the exact source. Process and potable water for the new plant are also not determined and may come from the surficial aquifer.

m. Water Conservation Strategies Under Consideration

Combined cycle technology utilizes less water by design than traditional steam generation units. PV facilities are expected to have no 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

The 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. A deep injection well system known as an Underground Injection Control system (UIC) is proposed for disposal of non-hazardous industrial wastewater from the power generation process and non-hazardous construction-related water. 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 will minimize regulated air emissions of sulfur dioxide, particulate matter, and other fuel-bound contaminates from a CC unit and ensure compliance with applicable emission standards. 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. The 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 from unit construction is expected to be minimal. Noise from unit operation will not exceed Okeechobee County maximum permissible sound levels in an agricultural area.

r. **Status of Applications**

FPL has filed an UIC Exploratory Well and associated Dual Zone Monitoring Well for the Northeast Okeechobee County site. The application has been deemed complete and the Public Notice for the Draft Permit was published in early February 2015. A permit for the construction of the Exploratory Well and Dual Zone Monitoring Well is expected in Summer 2015. FPL will submit applications to the State of Florida for Site Certification as well as other permits needed to support the construction and operation of the project. The applications will be prepared as the planning and development of the project proceeds.

Preferred Site # 8: 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 acres, FPL-maintained natural wildlife and wetlands area that has been set aside, is located to the south and west of the site.

On May 14, 2014, the Florida Power Plant Siting Board authorized the site certification, with conditions, of Turkey Point 6 & 7. Each of these two units would provide 1,100 MW of nuclear generating capacity. Due to a delay in the Nuclear Regulatory Commission's (NRC) schedule to reach a decision in the Combined Operating License Application (COLA) submittal by FPL until late 2016, and to changes in Florida's nuclear cost recovery rule, the projected earliest practical in-service dates for the two new units are June 2027 (for Turkey Point Unit 6) and June 2028 (for Turkey Point Unit 7). These in-service dates are outside of the current ten-year time period (2015 through 2024) addressed in this Site Plan. However, because these two new nuclear units remain in FPL's resource plans, the Turkey Point site is again presented as a Preferred Site in this year's Site Plan.

In addition to the two new 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.

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 combined total of approximately 1,632 (Summer) MW 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. Mitigation plans for Turkey Point Units 6 & 7 include restoration areas as well as credits purchased from the Everglades Mitigation Bank.

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 supplied by the Miami-Dade Water and Sewer Department, a saltwater supply, and a potable water supply from the Miami-Dade Water and Sewer Department. 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 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. Stormwater 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.

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 permitted spent fuel pool while short half-life isotopes decay.

After a sufficient decay period, the fuel would be transferred to a permitted on-site independent spent fuel storage installation facility or a permitted 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**

Regarding Turkey Point Units 6 & 7, the units will 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 Need Determination for this additional nuclear capacity was issued by the Florida Public Service Commission in April 2008. The Site Certification Application (SCA), under the Florida Electrical Power Plant Siting Act, was filed in June 2009 and on May 14, 2014, the Florida Power Plant Siting Board authorized the site certification, with conditions. In its final order, the Florida Power Plant Siting Board identified the West Consensus Corridor as the primary western corridor (comprising an alternate corridor proposed by the Miami-Dade Limestone Products Association and a portion of FPL's West Preferred Corridor) and FPL's West Preferred Corridor as a back-up western transmission line corridor. The use of the back-up western transmission line corridor will be necessary in the event the pending land exchange with the National Park Service and other agencies is not consummated on a timely basis.

A Combined Operating 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. In 2014 the US Nuclear Regulatory Commission informed FPL that their decision on the COLA was going to be delayed several years until late 2016. As a result of this delay, and changes in Florida's nuclear cost recovery rules, the earliest practical in-service dates of Turkey Point Units 6 & 7 (June 2017 and June 2028, respectively) have moved beyond the 10-year reporting window (2015 through 2024) of this Site Plan.

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.

IV.F.2 Potential Sites for Generating Options

Three (3) sites are currently identified as Potential Sites for future generation additions to meet FPL's projected capacity and energy needs.[5] 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.

Potential Site #1: 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 map of the property owned FPL and an overview map of the site and adjacent areas is found at the end of this chapter.

a. Geological Survey (USGS) Map

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

[5] 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.

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

The existing and future land uses on the site are Agricultural and Upland Forest. The existing land uses adjacent to the site are predominately agricultural. The property to the south is the Seminole Big Cypress Reservation.

c. **Environmental Features**

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 include upland scrub, pine, and hardwoods.

FPL strives to have no adverse impacts on federal- or state-listed terrestrial plants and animals. Much of southwest Florida, including this area 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.

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.

d. **Water Quantities Required**

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 0.001 mgd. Approximately 7.5 mgd of cooling water would be used in cooling towers for one CC unit. Minimal amounts of water would be required for a PV facility.

e. **Supply Sources**

A Potential water supply source is groundwater, but 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. Specific water conservation strategies will be evaluated and selected during the detailed design phase of any development project.

Potential Site # 2: 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 Required**

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, trucked in, may be needed to occasionally clean the PV panels in the absence of sufficient rainfall.

Potential Site # 3: Putnam Plant Site, Putnam County

FPL is currently evaluating the existing Putnam Plant site for future natural gas-fired generation. 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. **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 Mixed Hardwood-Coniferous.

c. **Environmental Features**

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. It is anticipated that there will be minimal impacts (if any) to federal- or state-listed terrestrial plants and animals 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 construction and operation of a power generating facility at this location is not expected to have any adverse impacts on natural

resources of regional significance and FPL is not aware of any other significant features of the site.

d. Water Quantities Required

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

e. Supply Sources

A potential water supply source is the St. John's River, but additional evaluation is necessary to determine the exact source. Process and potable water for the new plant will come from the existing potable water supply. 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.

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Environmental and Land Use Information: Supplemental Information

Preferred Site #1: Port Everglades Plant, Broward County

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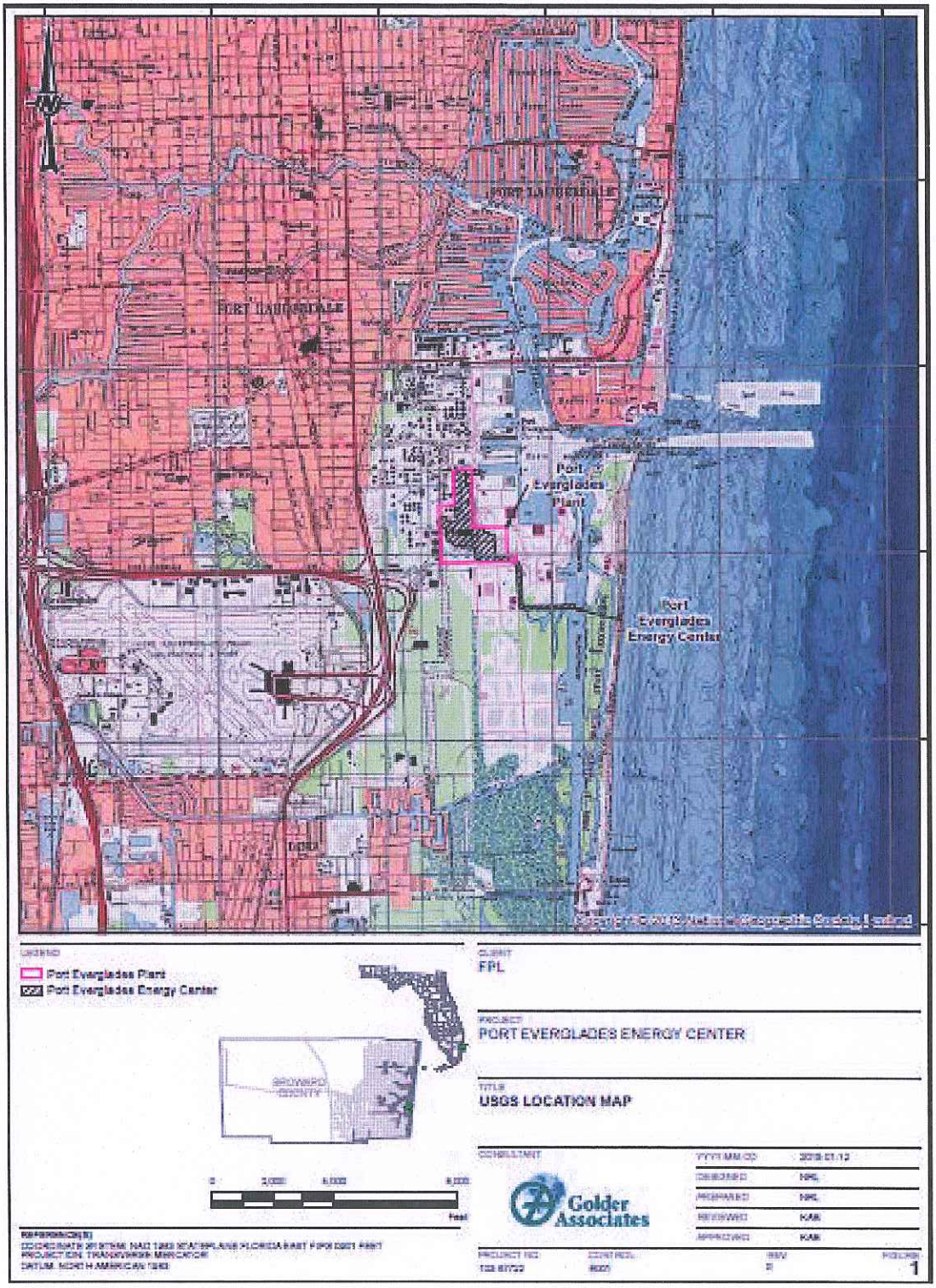
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Port Everglades Plant
Port Everglades Energy Center
Port Everglades Plant
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CLIENT
FPL
PROJECT
PORT EVERGLADES ENERGY CENTER
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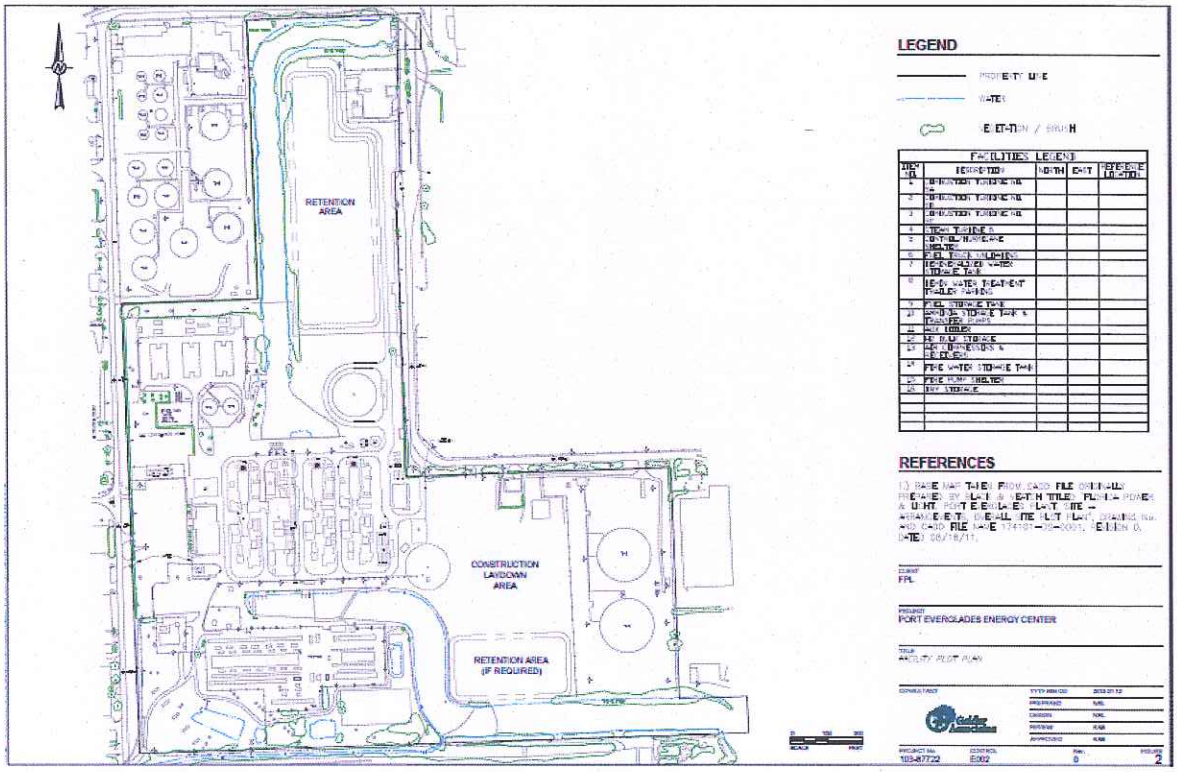
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CONSTRUCTION LAYDOWN AREA
RETENTION AREA (IF REQUIRED)
LEGEND
PROPERTY LINE
WATER
RETENTION / BERM
FACILITIES LEGEND
ITEM NO.
DESCRIPTION
NORTH
EAST
REFERENCE LOCATION
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PORT EVERGLADES ENERGY CENTER
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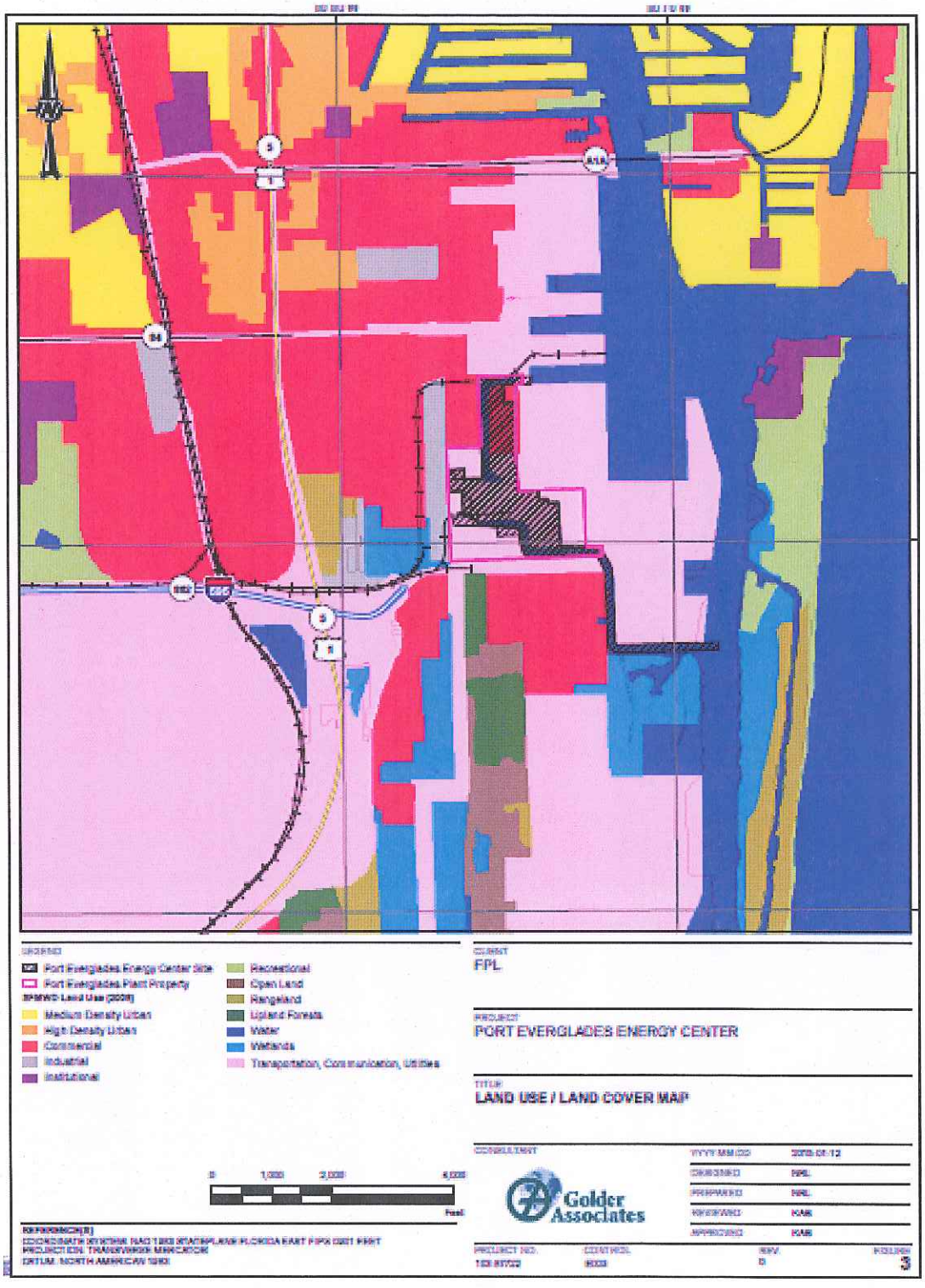
Port Everglades Energy Center Site
Port Everglades Plant Property
SFWMD Land Use (2009)
Medium Density Urban
High Density Urban
Commercial
Industrial
Institutional
Recreational
Open Land
Rangeland
Upland Forests
Water
Wetlands
Transportation, Communication, Utilities
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Feet
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PROJECT
PORT EVERGLADES ENERGY CENTER
TITLE
LAND USE / LAND COVER MAP
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Environmental and Land Use Information:

Supplemental Information

Preferred Site #2: Babcock Ranch Solar Energy Center,

Charlotte County

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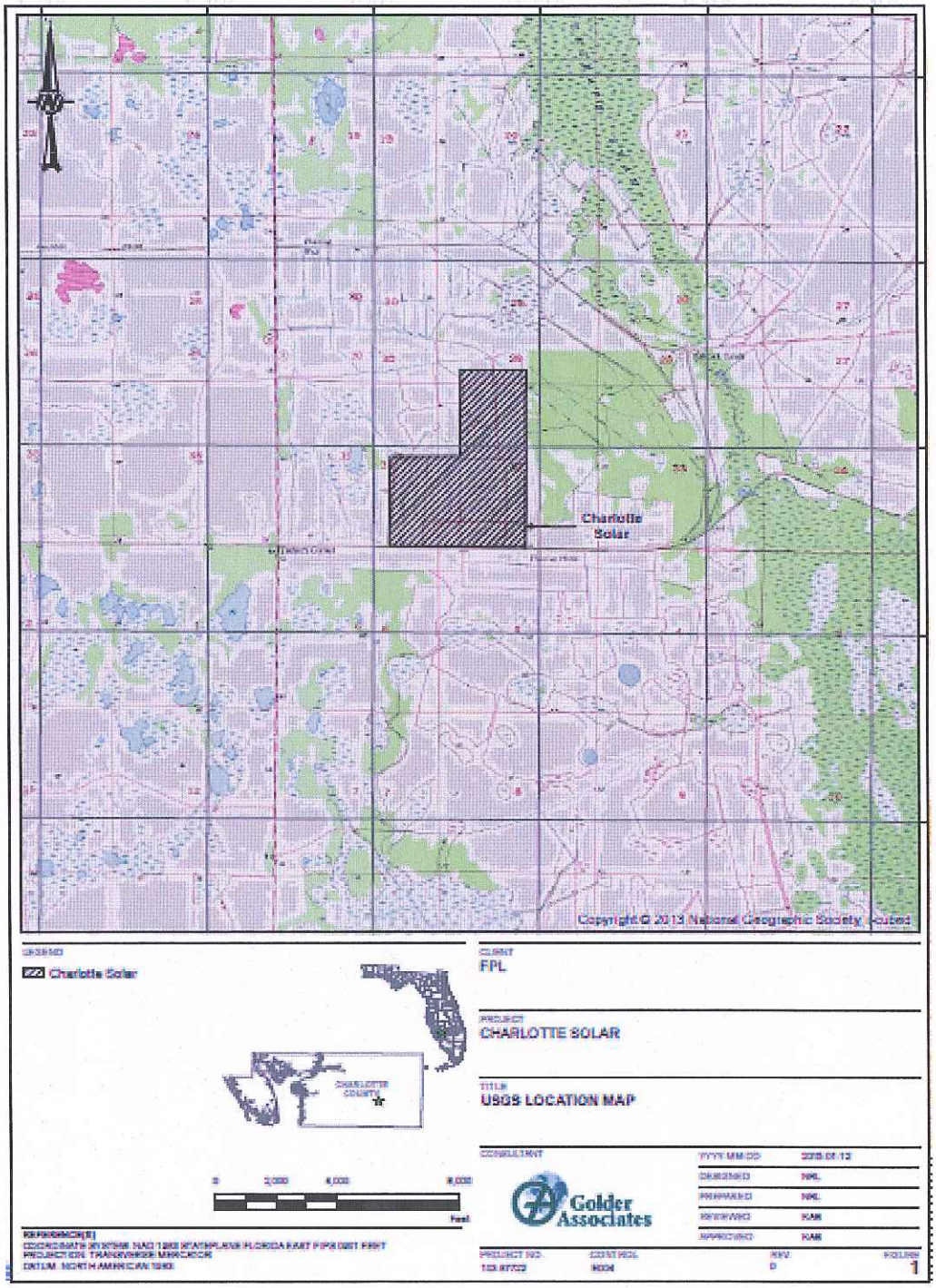
Charlotte Solar
Copyright © 2013 National Geographic Society, i-cubed
Charlotte Solar
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PROJECT
CHARLOTTE SOLAR
TITLE
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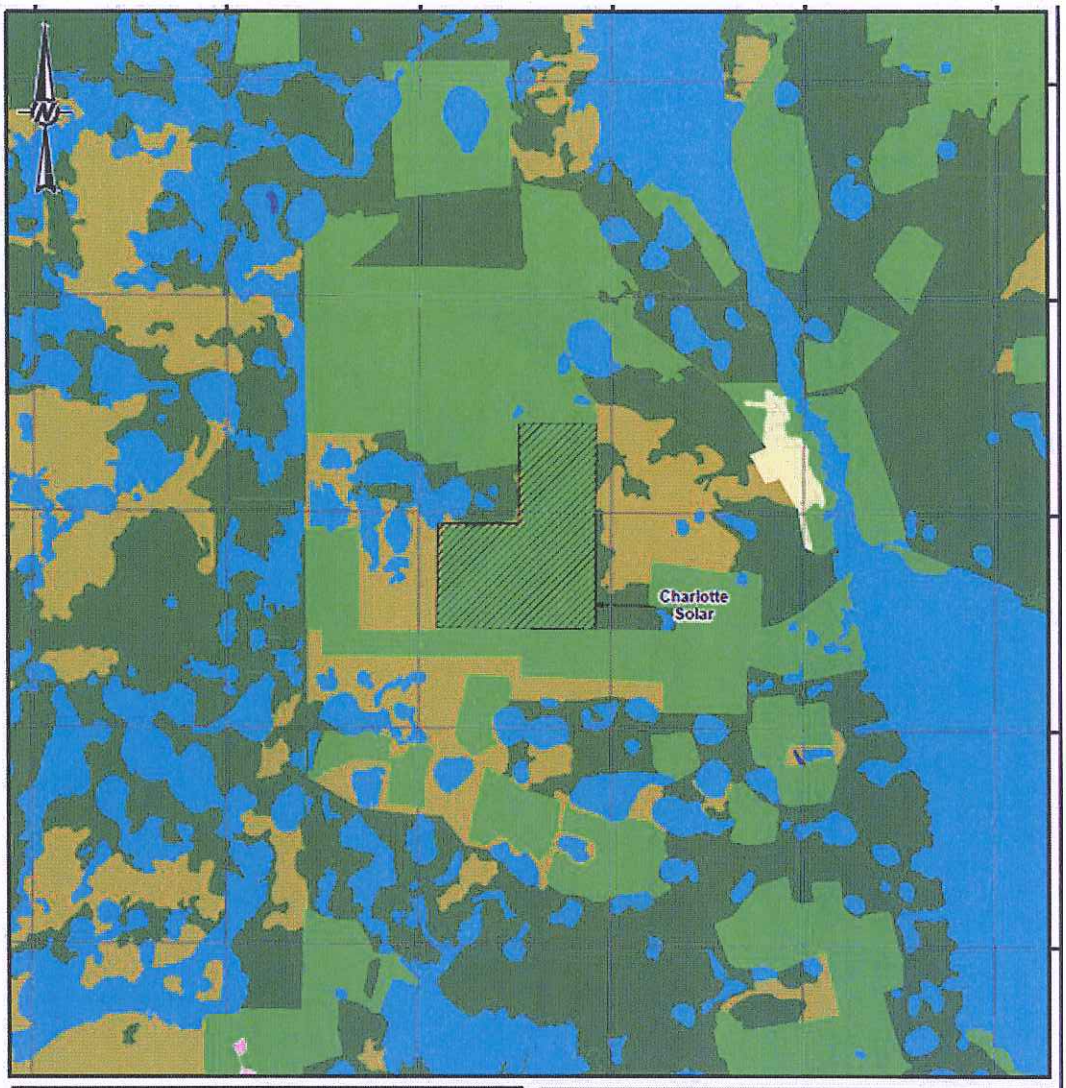

LEGEND

- Charlotte Solar
- SFWMD Land Use (2008)
- 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

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DATUM: NORTH AMERICAN 1983

CLIENT
FPL

PROJECT
CHARLOTTE SOLAR

TITLE
LAND USE / LAND COVER MAP

CONSULTANT
Golder Associates

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PREPARED	NRL
REVIEWED	KAB
APPROVED	KAB

PROJECT NO.	CONTROL	REV.	FIGURE
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Environmental and Land Use Information:

Supplemental Information

Preferred Site #3: Citrus Solar Energy Center,

DeSoto County

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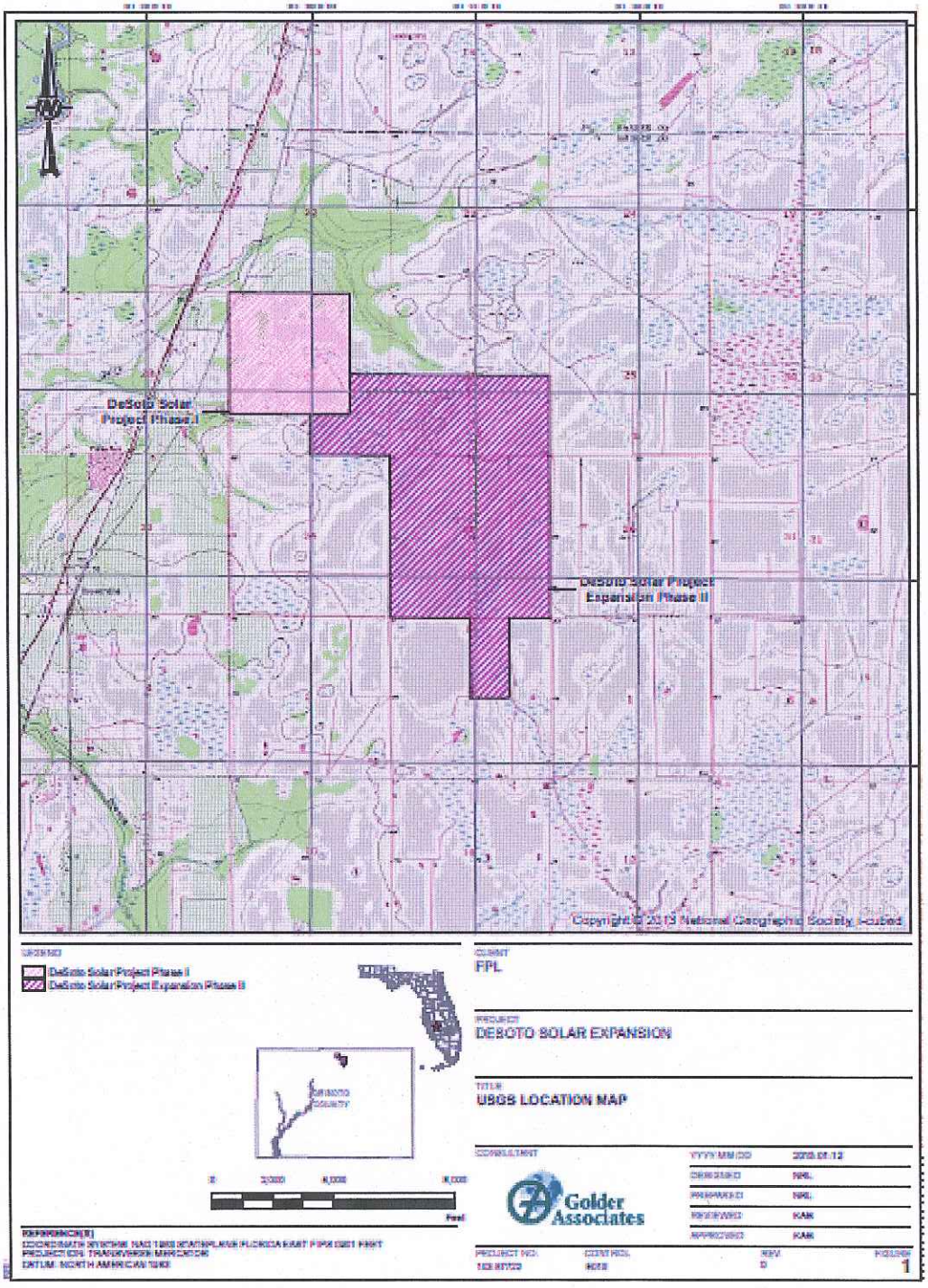
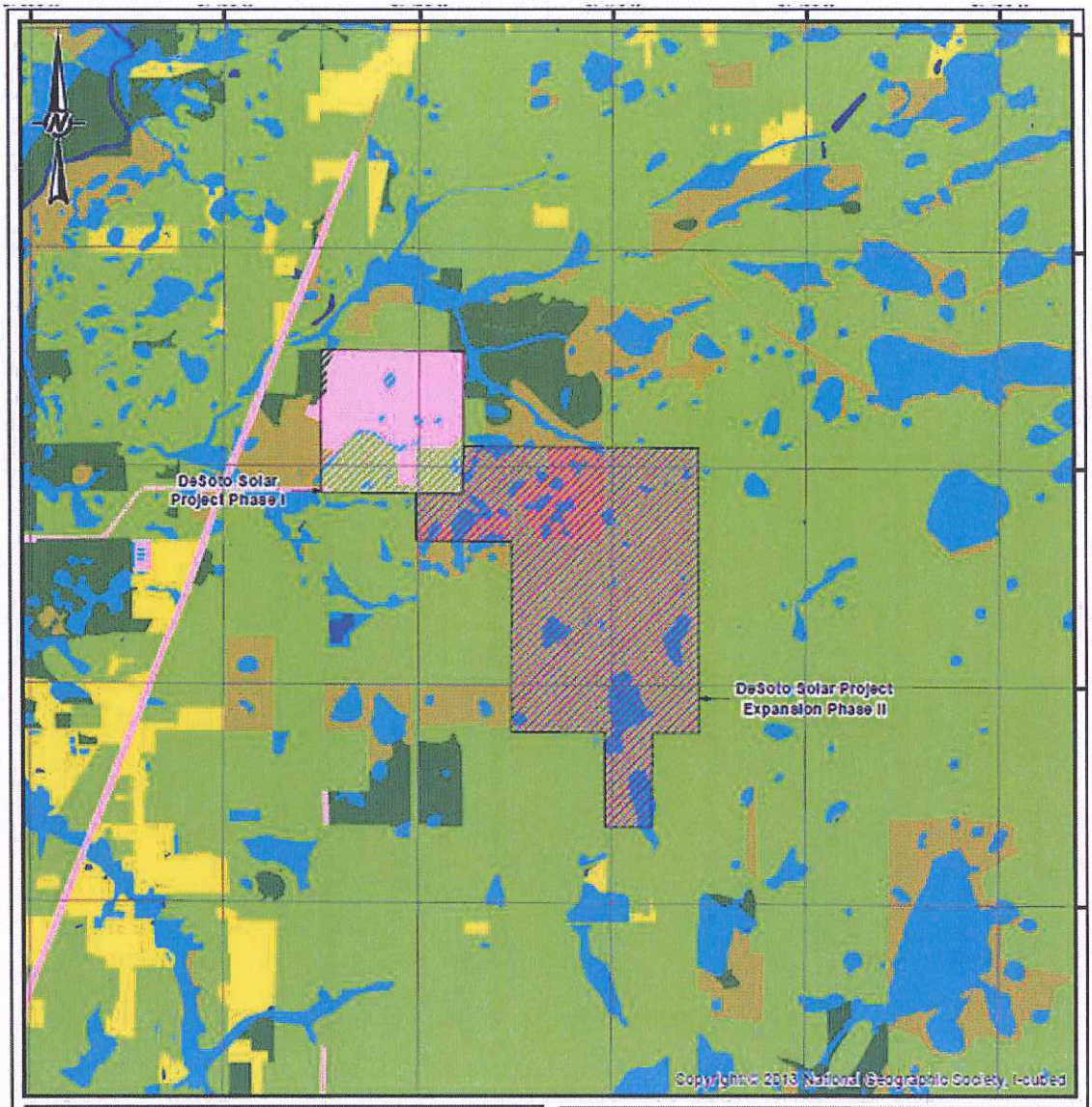

DeSoto Solar Project (Phase I)
DeSoto Solar Project Expansion (Phase II)
Copyright © 2013 National Geographic Society, i-cubed
DeSoto Solar Project Phase II
DeSoto Solar Project Expansion Phase II
FPL
DESOTO SOLAR EXPANSION
USGS LOCATION MAP
Golder Associates



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- DeSoto Solar Project Phase I
- DeSoto Solar Project Expansion Phase II

SWFWMD Land Use (2011)

- Urban
- Agriculture
- Upland Non-Forested
- Forests
- Water
- Wetlands
- Transportation, Communication, Utilities

0 2,000 4,000 8,000

Feet

REFERENCE(S)
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PROJECTION: TRANSVERSE MERCATOR
DATUM: NORTH AMERICAN 1983

CLIENT
FPL

PROJECT
DESOTO SOLAR EXPANSION

TITLE
LAND USE / LAND COVER MAP

CONSULTANT
Golder Associates

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DESIGNED	NRL
PREPARED	NRL
REVIEWED	KAB
APPROVED	KAB

PROJECT NO.	CONTROL	REV.	FIGURE
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Environmental and Land Use Information: Supplemental Information

Preferred Site #4: Manatee Solar Energy Center, Manatee County

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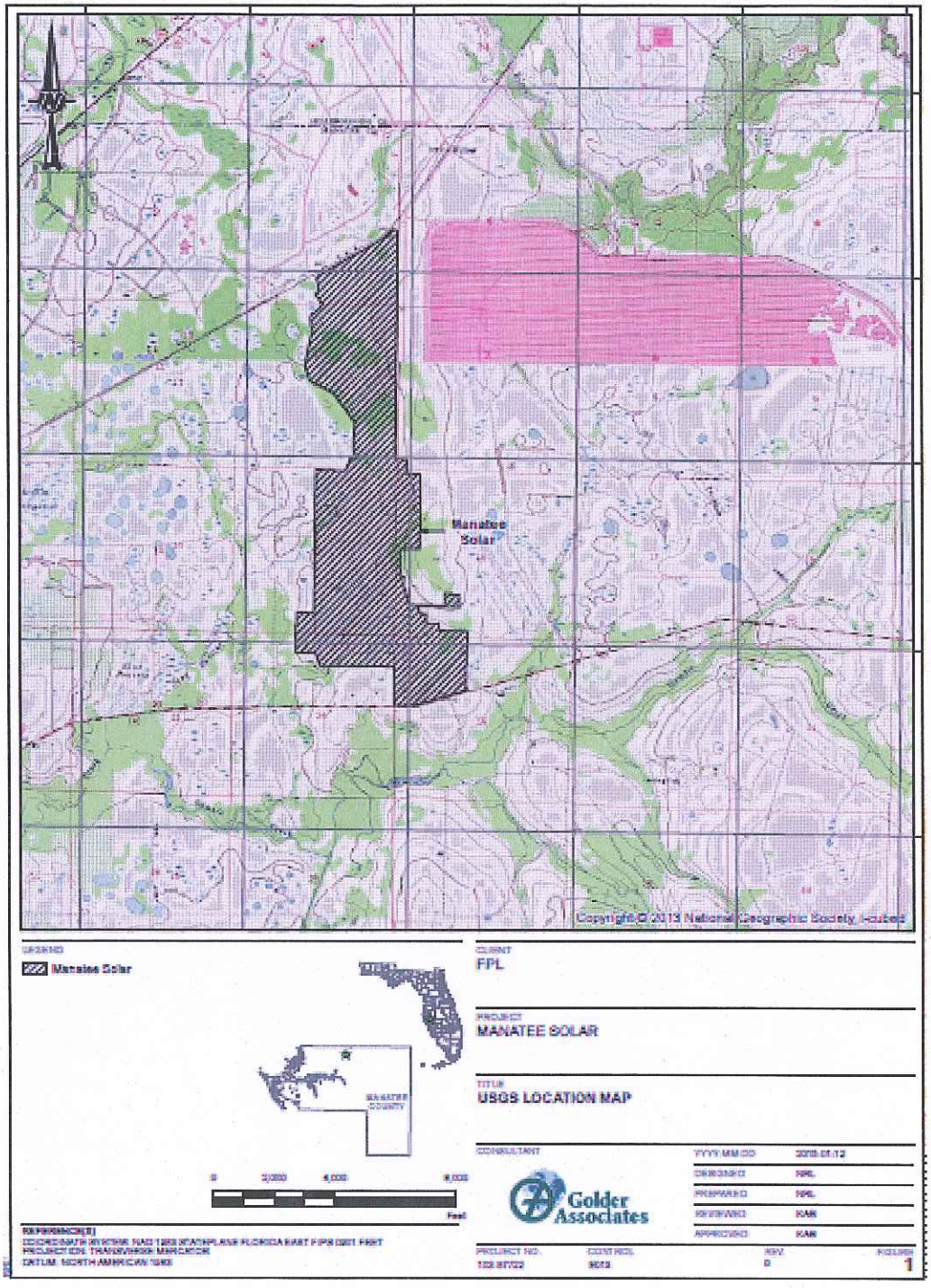
Manatee Solar
Copyright © 2013 National Geographic Society, i-cubed
Manatee Solar
FPL
MANATEE SOLAR
USGS LOCATION MAP
Golder Associates
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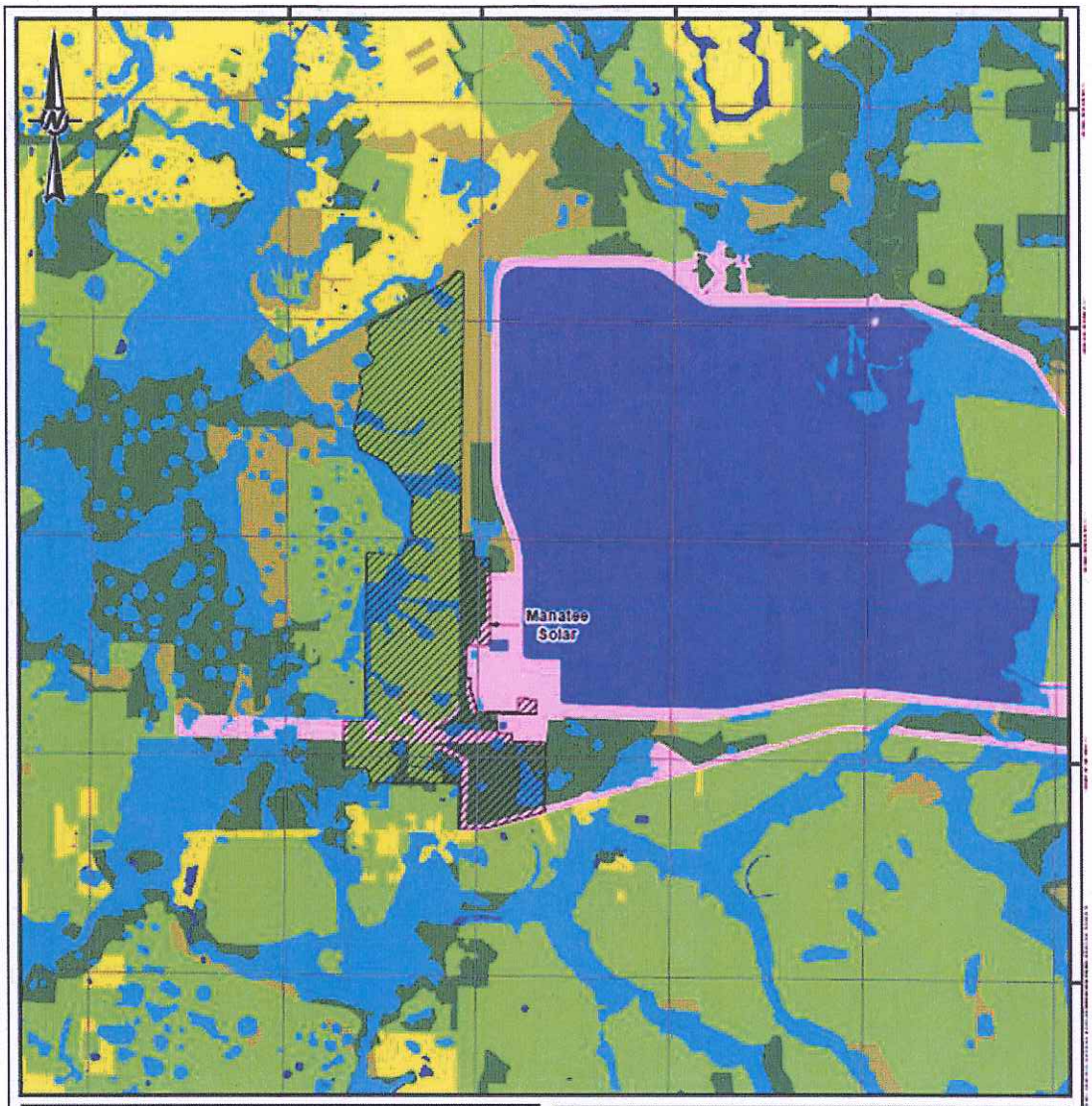

LEGEND

- Manatee Solar
- SWFWMD Land Use (2011)
  - Urban
  - Agriculture
  - Upland Non-Forested
  - Forests
  - Water
  - Wetlands
  - Barren Land
  - Transportation, Communication, Utilities

0 2,000 4,000 8,000
Feet

REFERENCE(S)
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DATUM: NORTH AMERICAN 1983

CLIENT
FPL

PROJECT
MANATEE SOLAR

TITLE
LAND USE / LAND COVER MAP

CONSULTANT
Golder Associates

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PREPARED	NRL
REVIEWED	KAB
APPROVED	KAB

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Environmental and Land Use Information: Supplemental Information

Preferred Site #5: Lauderdale Plant Peaking Facilities, Broward County

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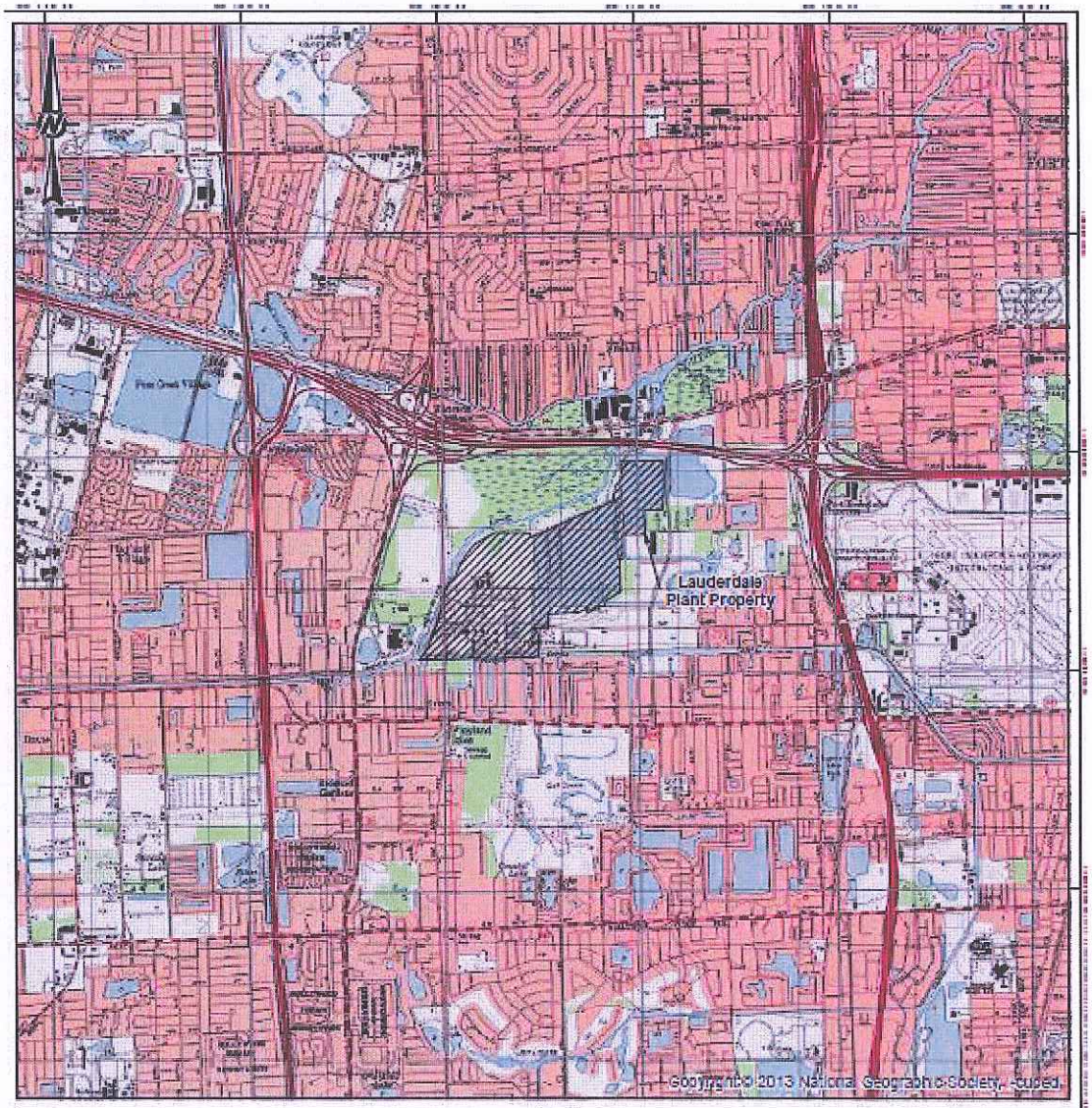

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Lauderdale Plant Property

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CLIENT
FPL

PROJECT
LAUDERDALE PLANT

TITLE
USGS LOCATION MAP

CONSULTANT
Golder Associates

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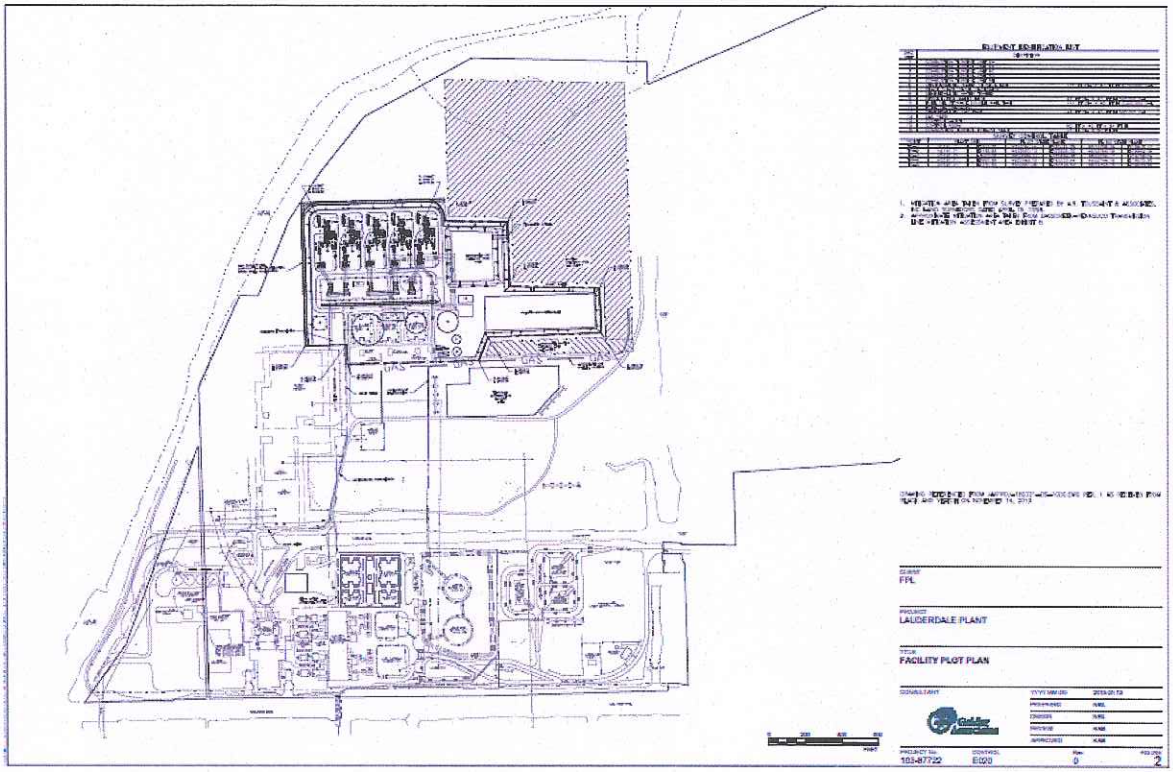
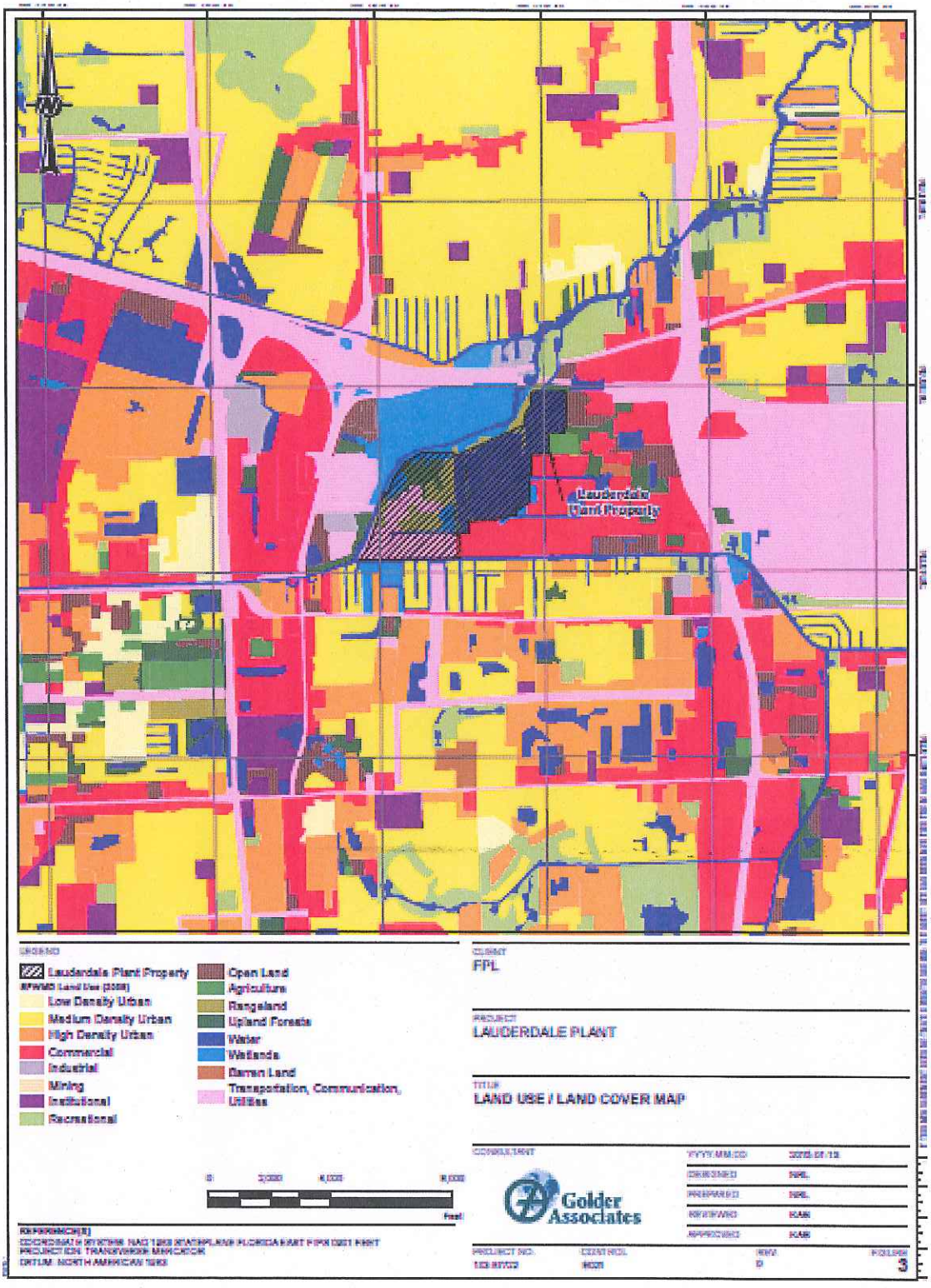

FPL
LAUDERDALE PLANT
FACILITY PLOT PLAN


Lauderdale Plant Property
LEGEND
Lauderdale Plant Property
SFWMD Land Use (2008)
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
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REFERENCE(S)
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DATUM: NORTH AMERICAN 1983
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PROJECT
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CONTROL
8001
REV.
0
FIGURE
3

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Environmental and Land Use Information:
Supplemental Information

Preferred Site #6: Ft. Myers Plant Peaking Facilities,
Lee County

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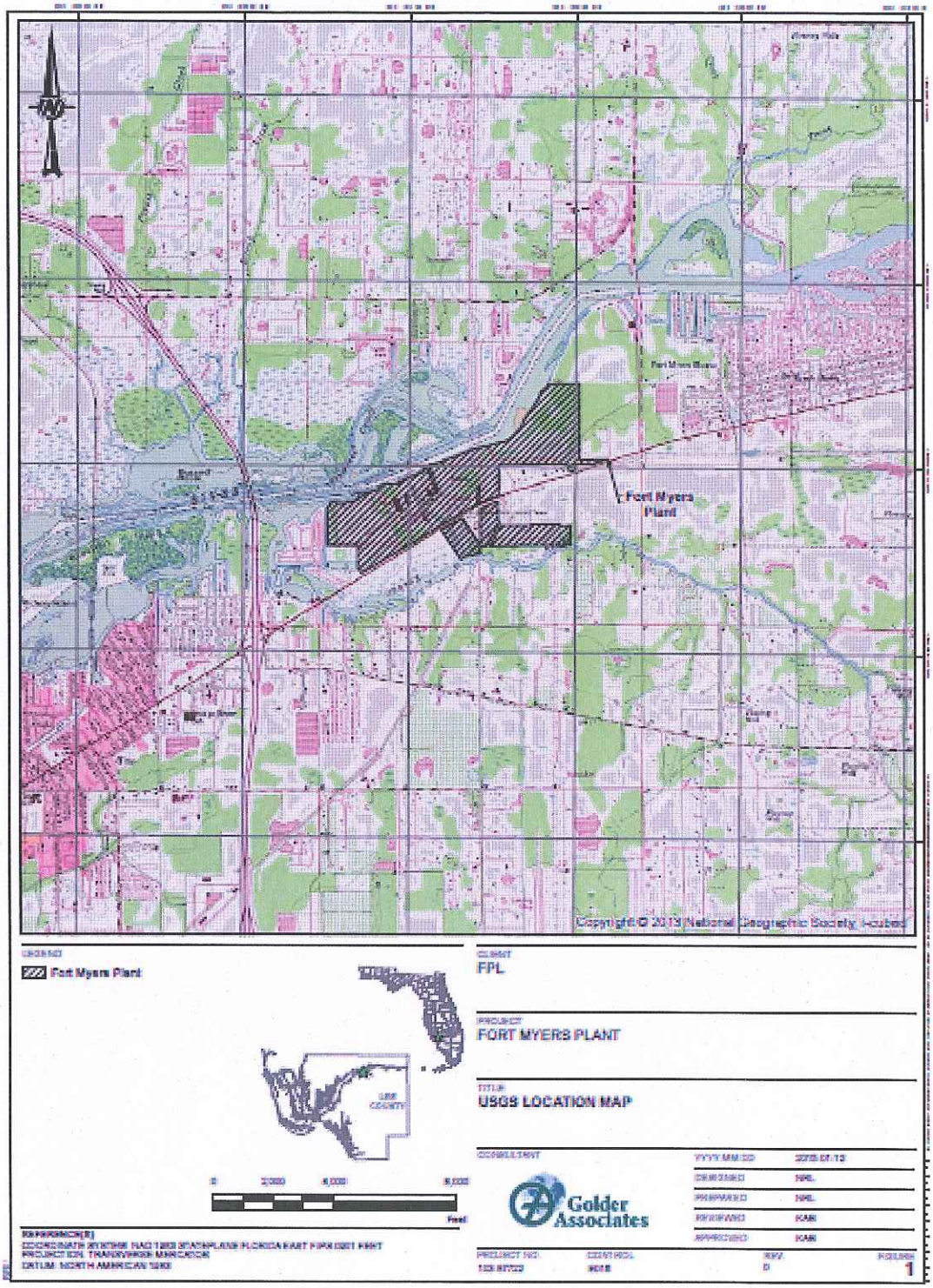
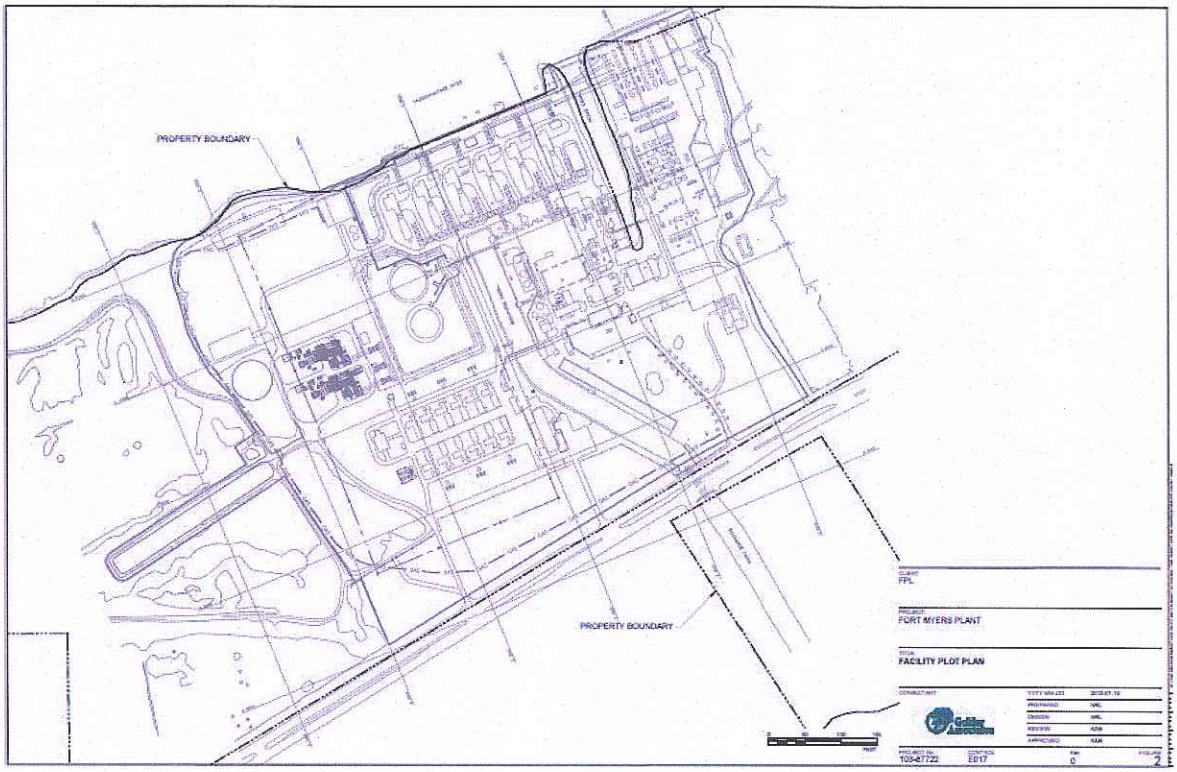
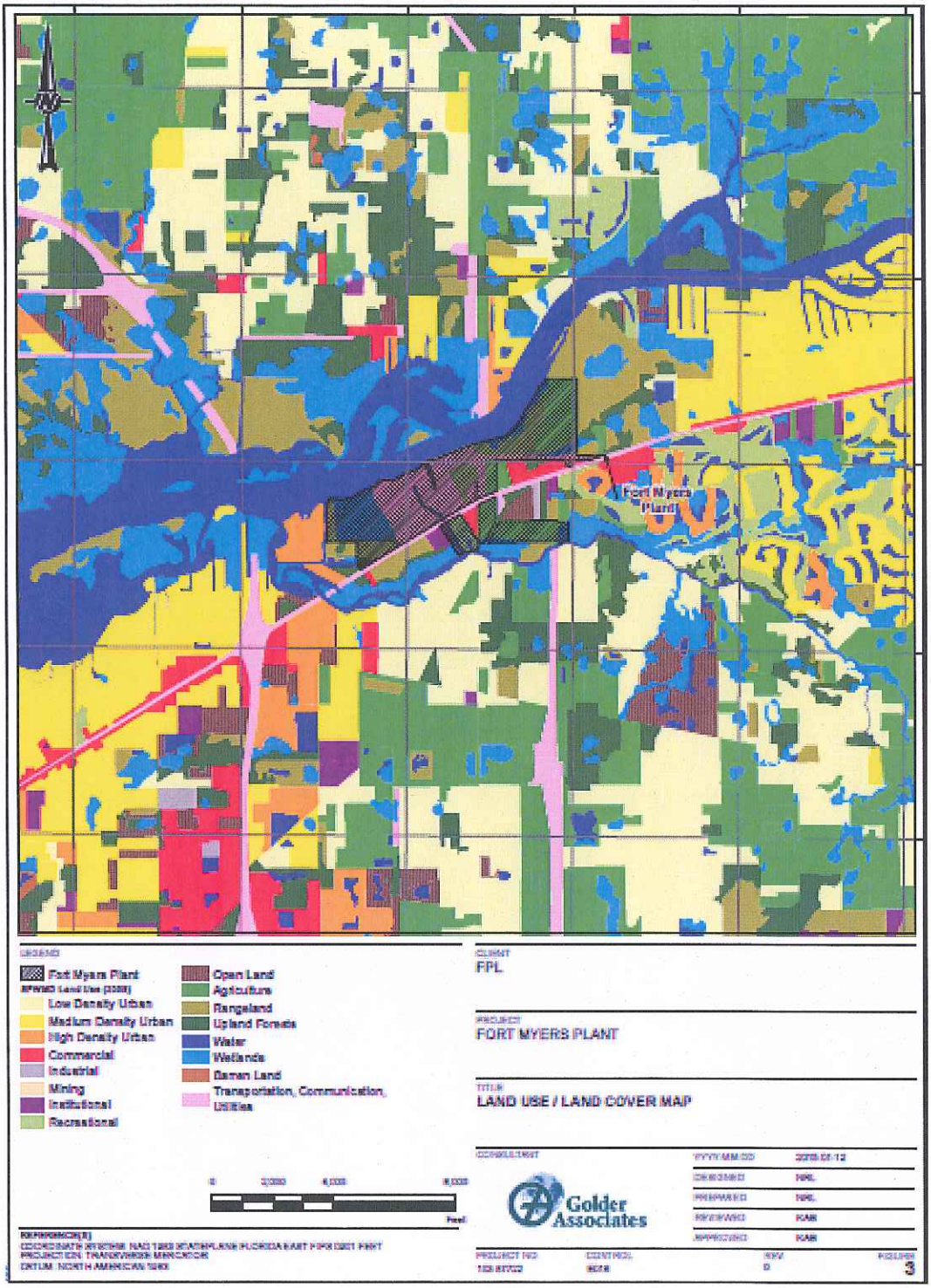

Fort Myers Plant
Copyright © 2013 National Geographic Society, i-cubed
Fort Myers Plant
FPL
FORT MYERS PLANT
USGS LOCATION MAP
Golder Associates
1
187


PROPERTY BOUNDARY
PROPERTY BOUNDARY
FPL
FORT MYERS PLANT
FACILITY PLOT PLAN


Fort Myers Plant
LEGEND
Fort Myers Plant
SFWMD Land Use (2009)
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
0
2,000
4,000
8,000
Feet
REFERENCE(S)
COORDINATE SYSTEM: NAD 1983 STATEPLANE FLORIDA EAST FIPS 0901 FEET
PROJECTION: TRANSVERSE MERCATOR
DATUM: NORTH AMERICAN 1983
CLIENT
FPL
PROJECT
FORT MYERS PLANT
TITLE
LAND USE / LAND COVER MAP
CONSULTANT
Golder Associates
YYYY-MM-DD
2009-05-12
DESIGNED
NML
PREPARED
NML
REVIEWED
KAR
APPROVED
KAR
PROJECT NO.
093-81702
CONTROL
8018
REV.
0
FIGURE
3

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Environmental and Land Use Information:

Supplemental Information

Preferred Site #7: Okeechobee Site

Okeechobee County

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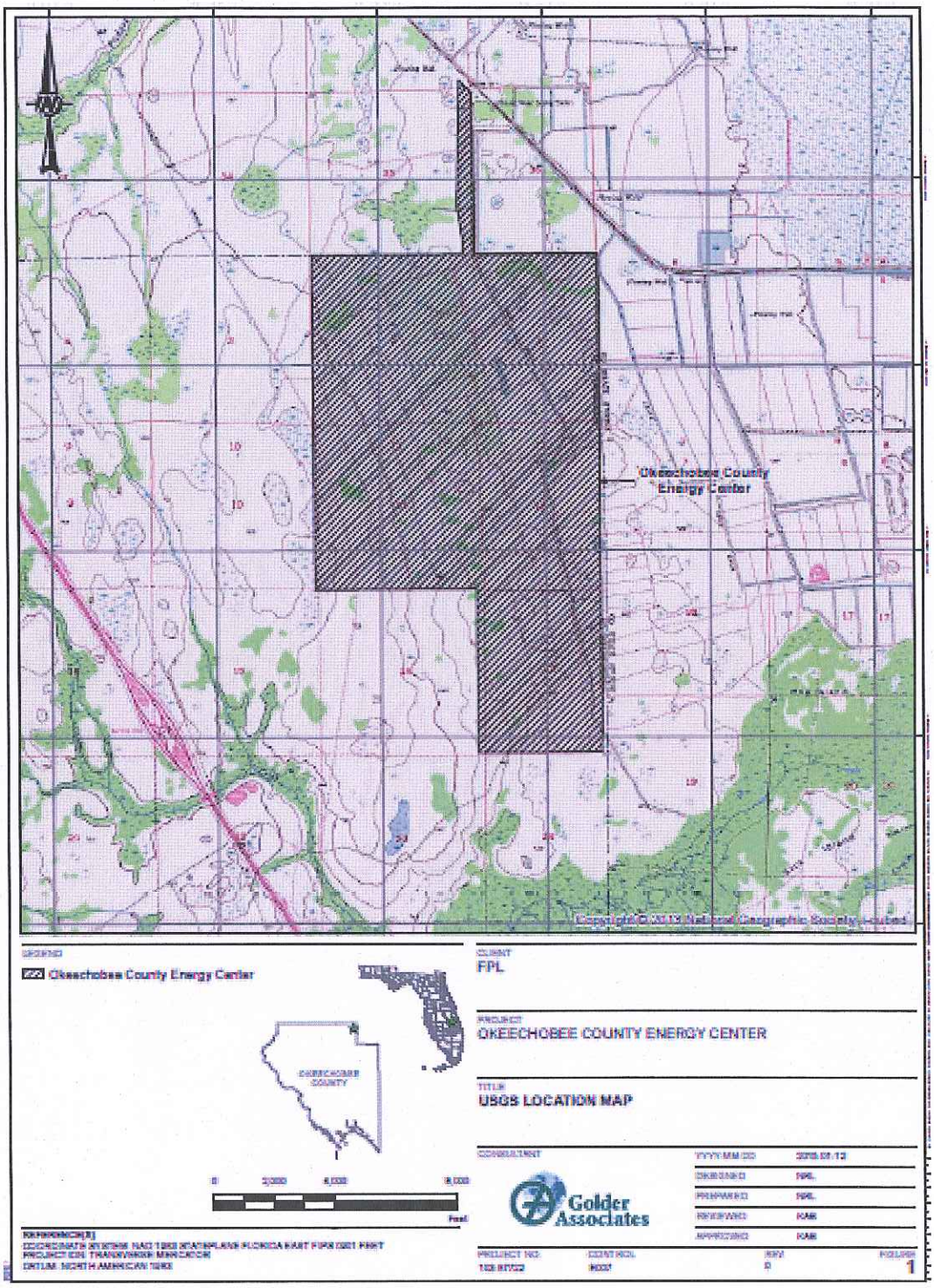
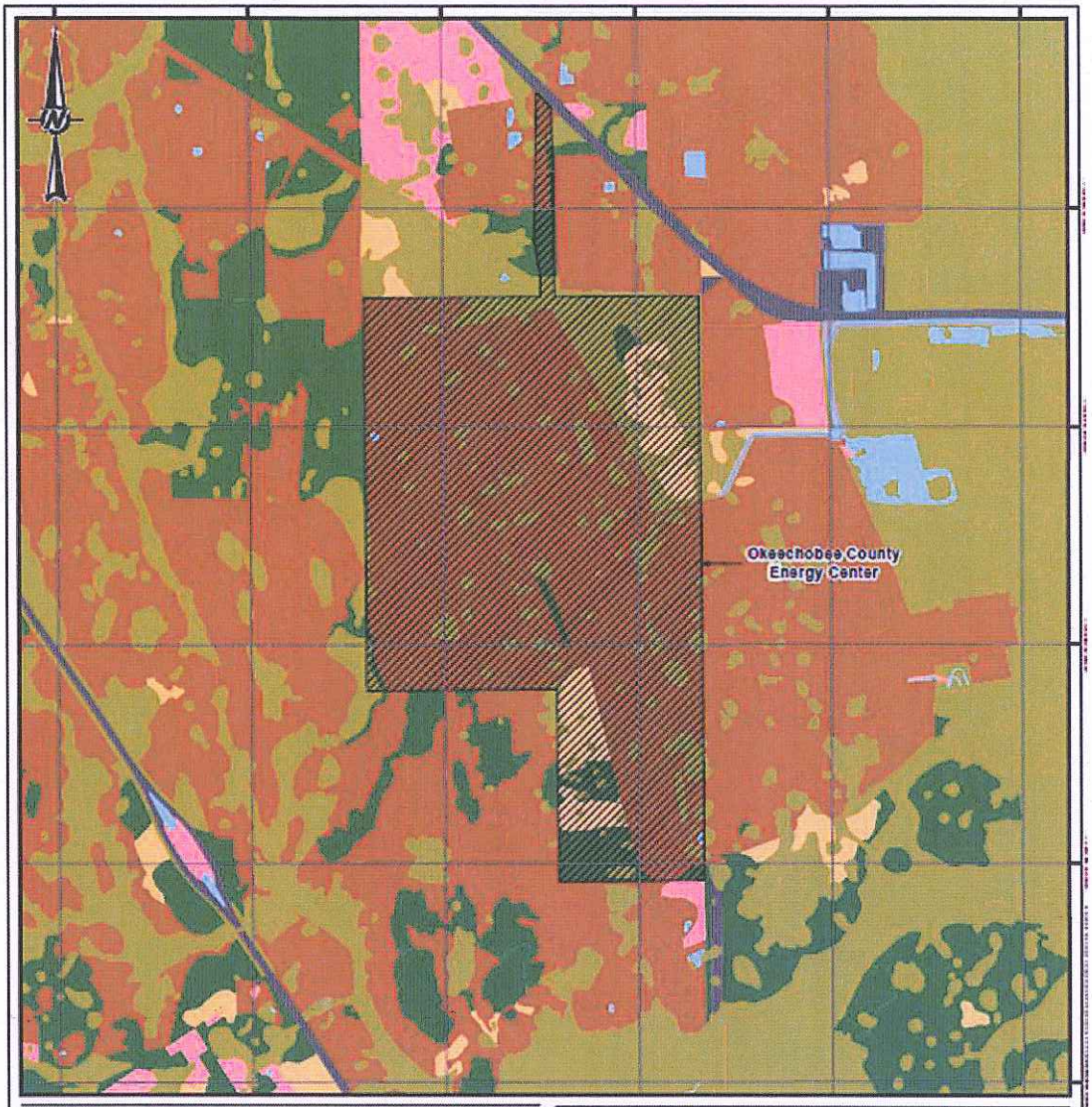

Okeechobee County
Energy Center
Okeechobee County Energy Center
OKEECHOBEE COUNTY
FPL
OKEECHOBEE COUNTY ENERGY CENTER
USGS LOCATION MAP
Golder Associates



LEGEND

Okeechobee County Energy Center

SJRWMD Land Use (2009)

- Urban
- Agriculture
- Upland nonforested
- Forest
- Water
- Wetland
- Barren land
- Transportation, Communication, Utilities

0 2,000 4,000 8,000

Feet

REFERENCE(S)
COORDINATE SYSTEM: NAD 1983 STATEPLANE FLORIDA EAST FIPS 0901 FEET
PROJECTION: TRANSVERSE MERCATOR
DATUM: NORTH AMERICAN 1983

CLIENT
FPL

PROJECT
OKEECHOBEE COUNTY ENERGY CENTER

TITLE
LAND USE / LAND COVER MAP

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-01-12
DESIGNED	NRL
PREPARED	NRL
REVIEWED	KAB
APPROVED	KAB

PROJECT NO.	CONTROL	REV.	FIGURE
103-87722	E009	0	2

Environmental and Land Use Information:

Supplemental Information

Preferred Site #8: Turkey Point Plant

Miami-Dade County

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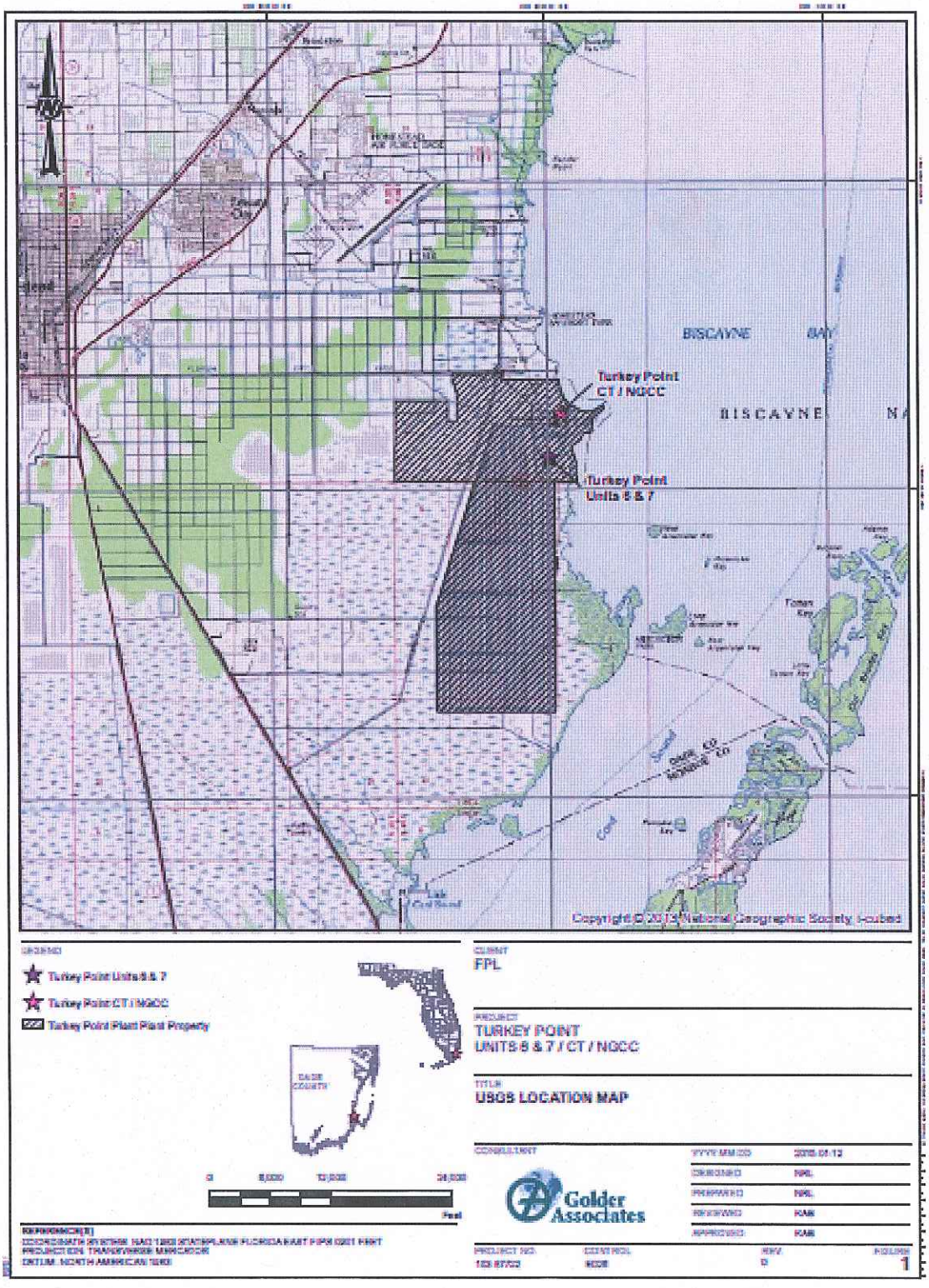
BISCAYNE BAY
BISCAYNE
Turkey Point
CT / NGCC
Turkey Point
Units 6 & 7
Copyright © 2013 National Geographic Society, i-cubed
Turkey Point Units 6 & 7
Turkey Point CT / NGCC
Turkey Point Plant Plant Property
DADE COUNTY
0
8,000
16,000
Feet
CLIENT
FPL
PROJECT
TURKEY POINT
UNITS 6 & 7 / CT / NGCC
TITLE
USGS LOCATION MAP
CONSULTANT
Golder Associates
YYYY-MM-DD
2013-01-13
DESIGNED
NRL
PREPARED
NRL
REVIEWED
KAR
APPROVED
KAR
PROJECT NO.
CONTROL
REV.
FIGURE
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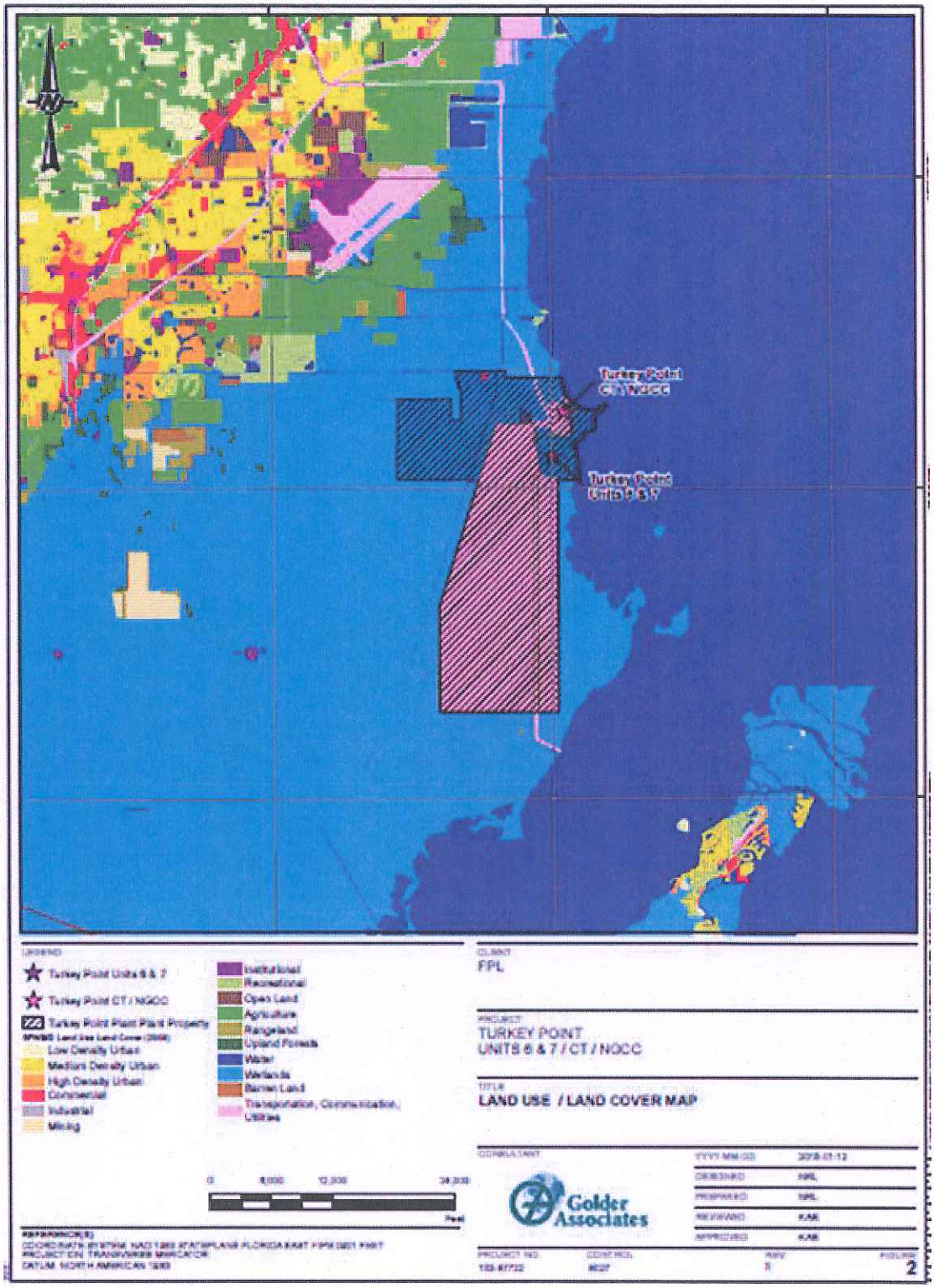
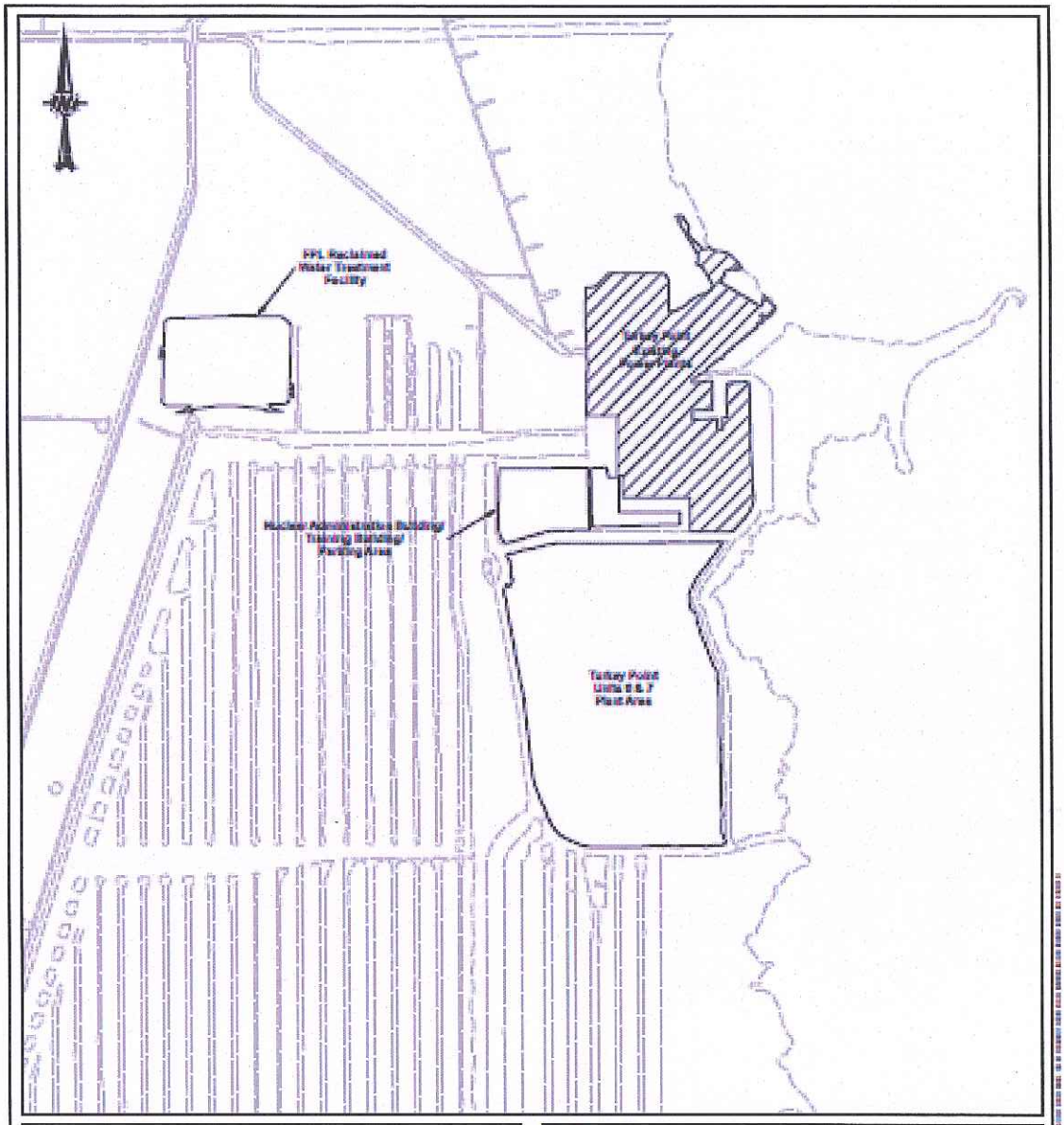

Turkey Point CT / NGCC
Turkey Point Units 6 & 7
Turkey Point Units 6 & 7
Turkey Point CT / NGCC
Turkey Point Plant Property
Low Density Urban
Medium Density Urban
High Density Urban
Commercial
Industrial
Mining
Institutional
Recreational
Open Land
Agriculture
Rangeland
Upland Forests
Water
Wetlands
Barren Land
Transportation, Communication, Utilities
FPL
TURKEY POINT
UNITS 6 & 7 / CT / NGCC
LAND USE / LAND COVER MAP
Golder Associates
2



CLIENT
FPL

PROJECT
TURKEY POINT
UNITS 6 & 7 / CT / NGCC

TITLE
FACILITY PLOT PLAN

Golder Associates

DESIGNED	NRL
PREPARED	NRL
REVIEWED	KAR
APPROVED	RPK

PROJECT NO. 123-87722 | CONTROL 0020 | REV 0 | FIGURE 3

REFERENCE(S)
FACILITY FEATURES, EXISTING TURKEY POINT PLANT AREAS, FPL; GOLDER ASSOCIATES INC., 2008-2010

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Environmental and Land Use Information: Supplemental Information

Potential Site #1: Hendry County

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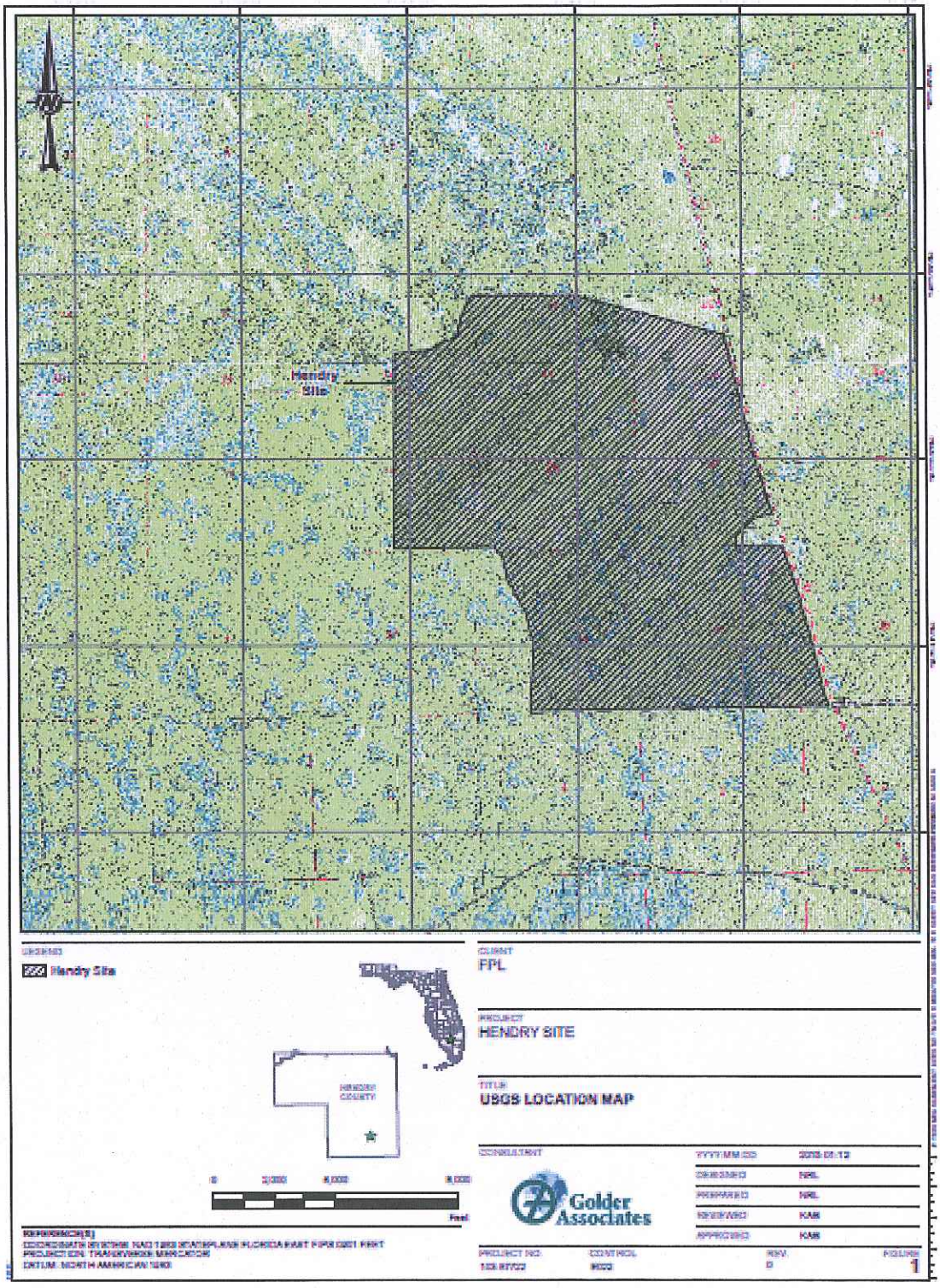
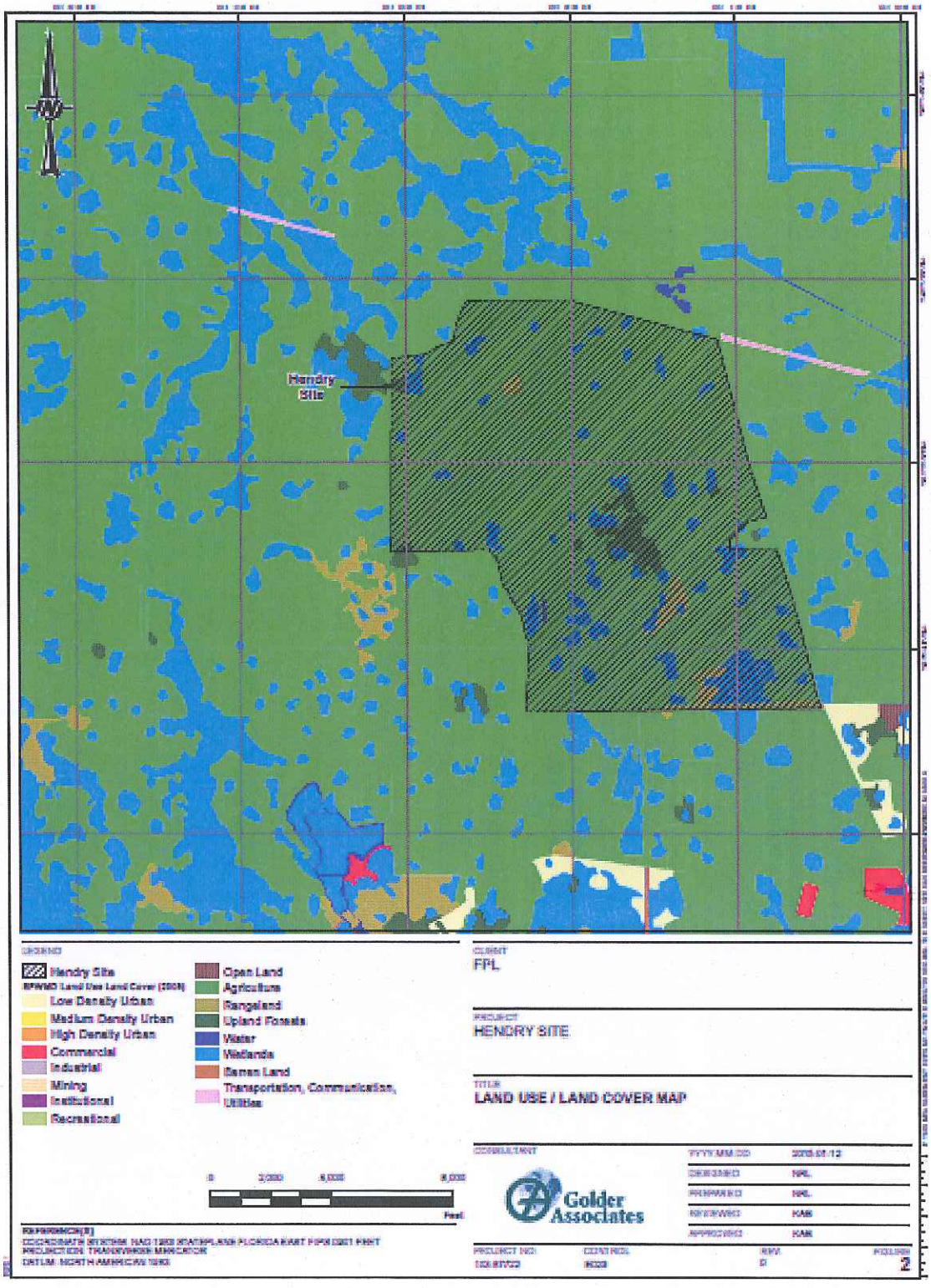

Hendry Site
Hendry Site
FPL
HENDRY SITE
USGS LOCATION MAP
Golder Associates
1


Hendry Site
Hendry Site
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
FPL
HENDRY SITE
LAND USE / LAND COVER MAP
Golder Associates

Environmental and Land Use Information: Supplemental Information

Potential Site #2: Martin County

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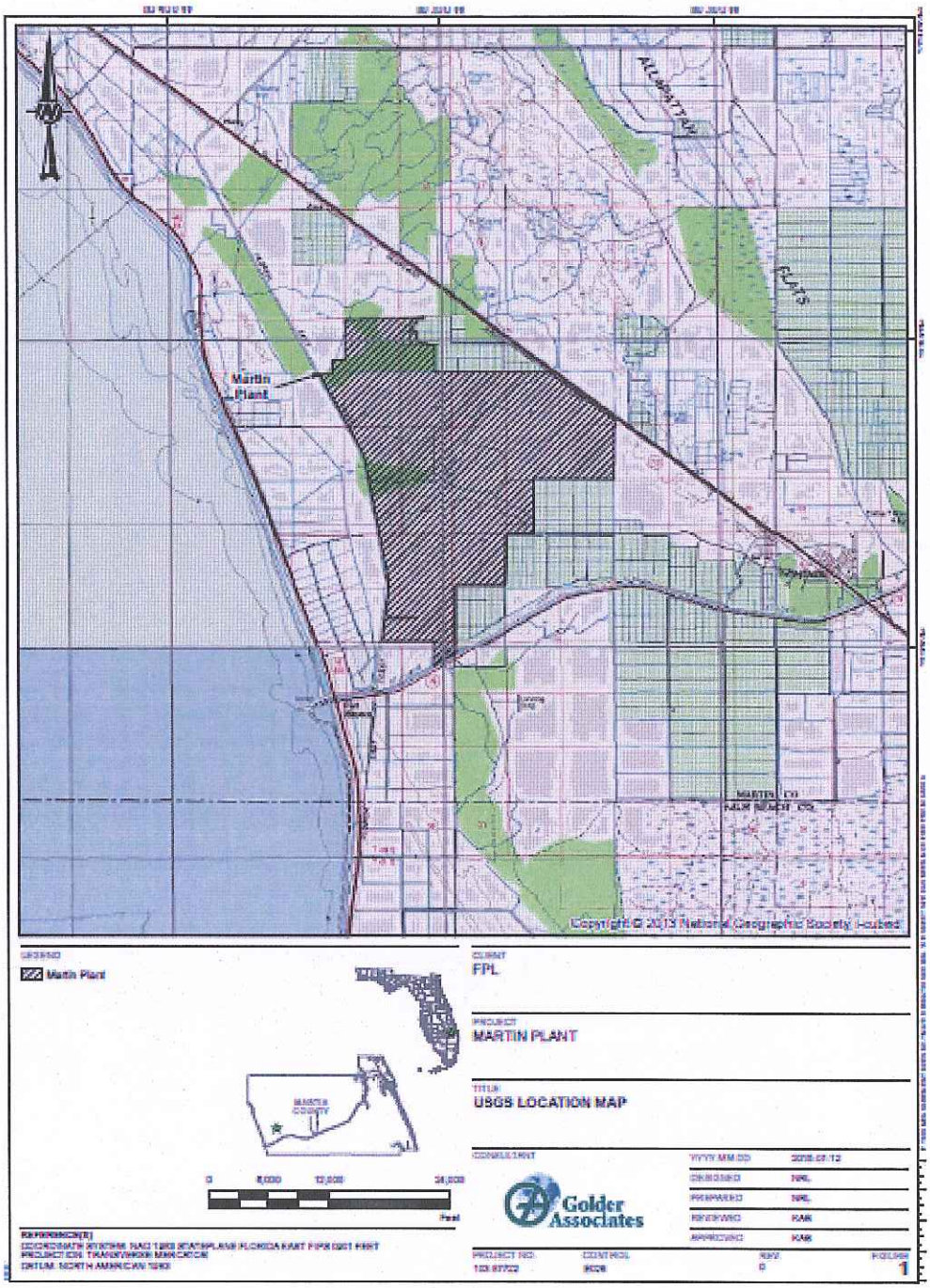
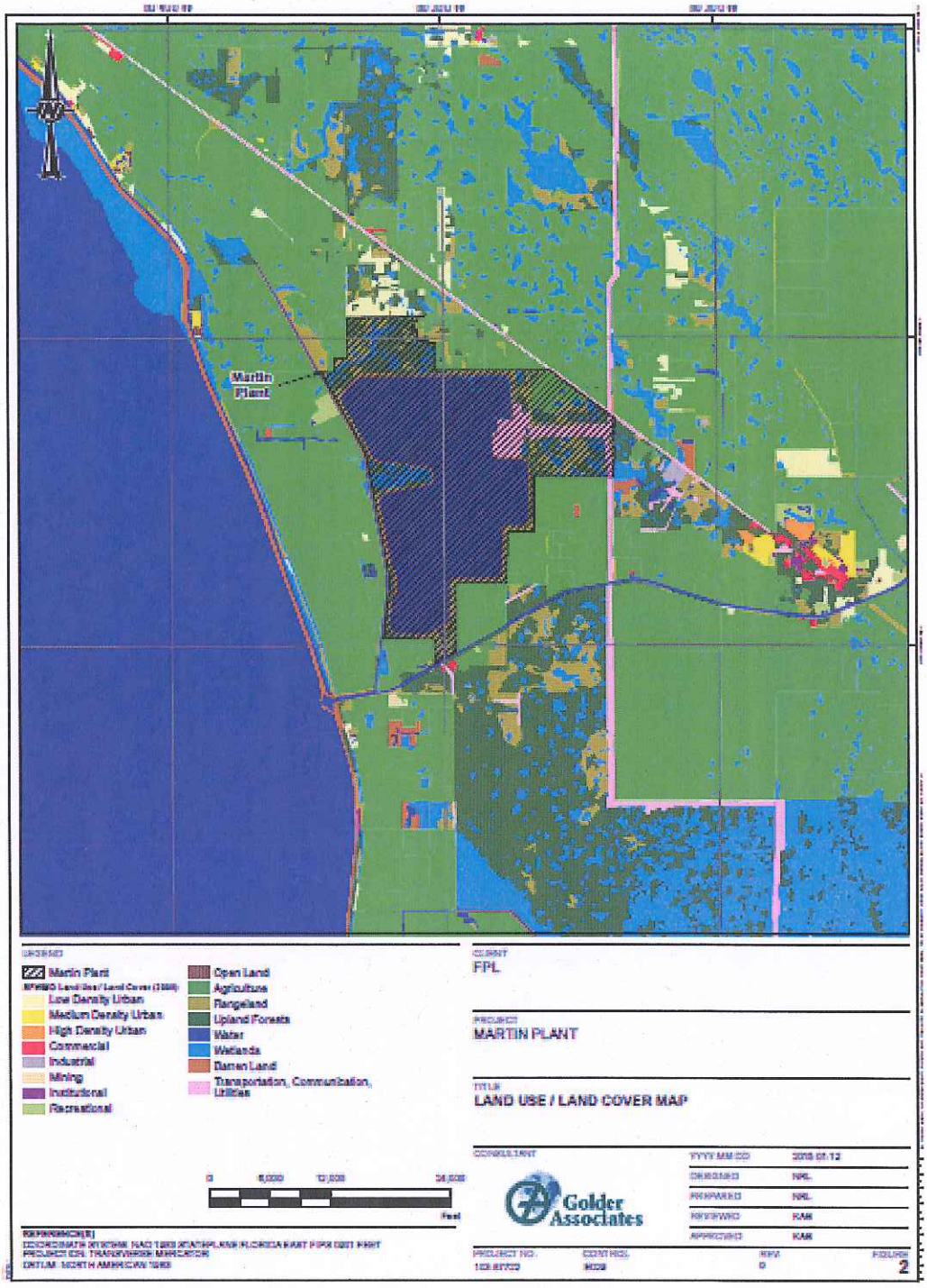

Martin Plant
Copyright © 2013 National Geographic Society, i-cubed
Martin Plant
FPL
MARTIN PLANT
USGS LOCATION MAP
Golder Associates
Feet


Martin Plant
Martin Plant
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
Feet
FPL
MARTIN PLANT
LAND USE / LAND COVER MAP
Golder Associates
2016.01.12
NRL
NRL
KAK
KAK
2

Environmental and Land Use Information:
Supplemental Information

Potential Site #3: Putnam Plant Site, Putnam County

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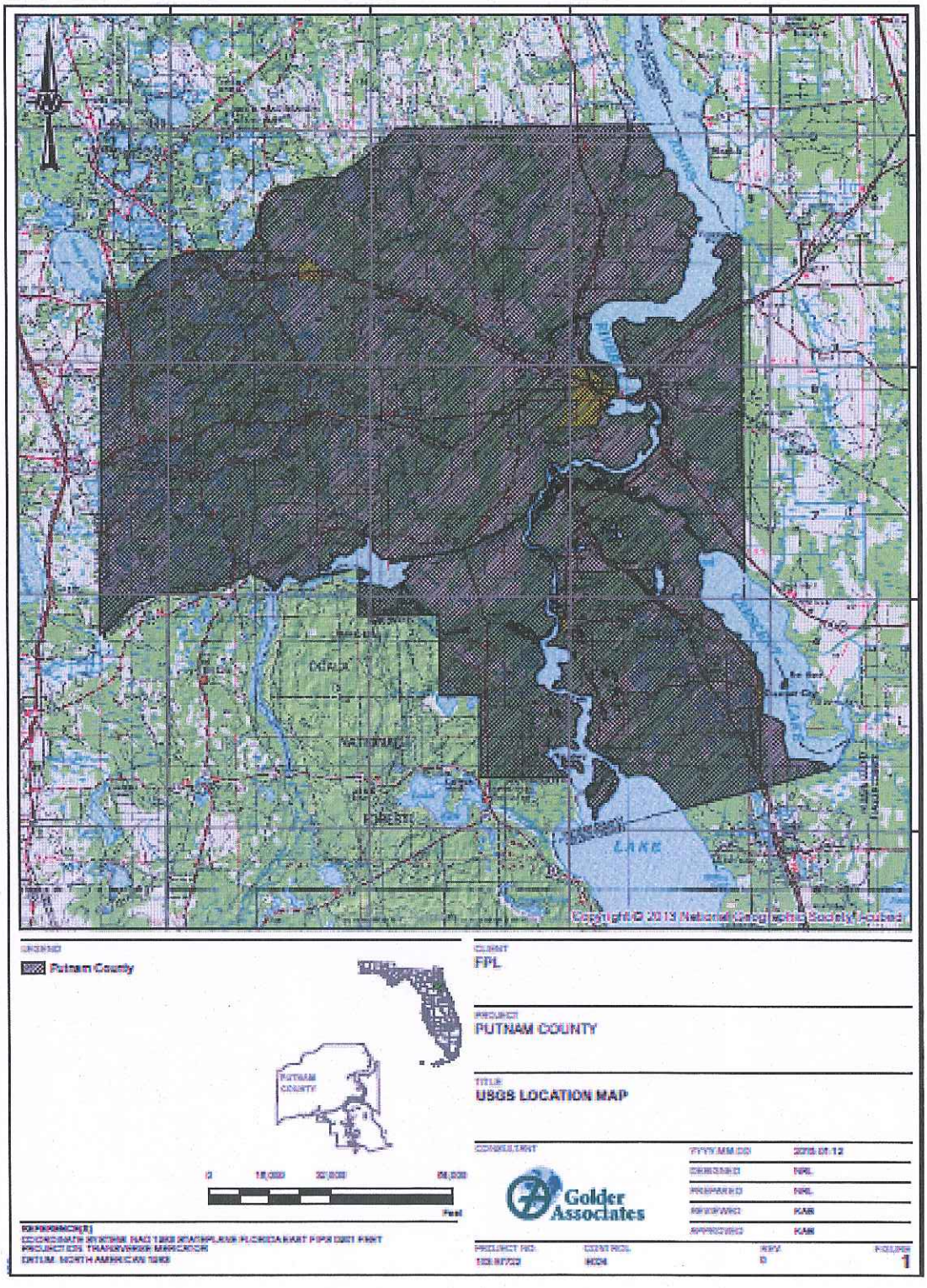
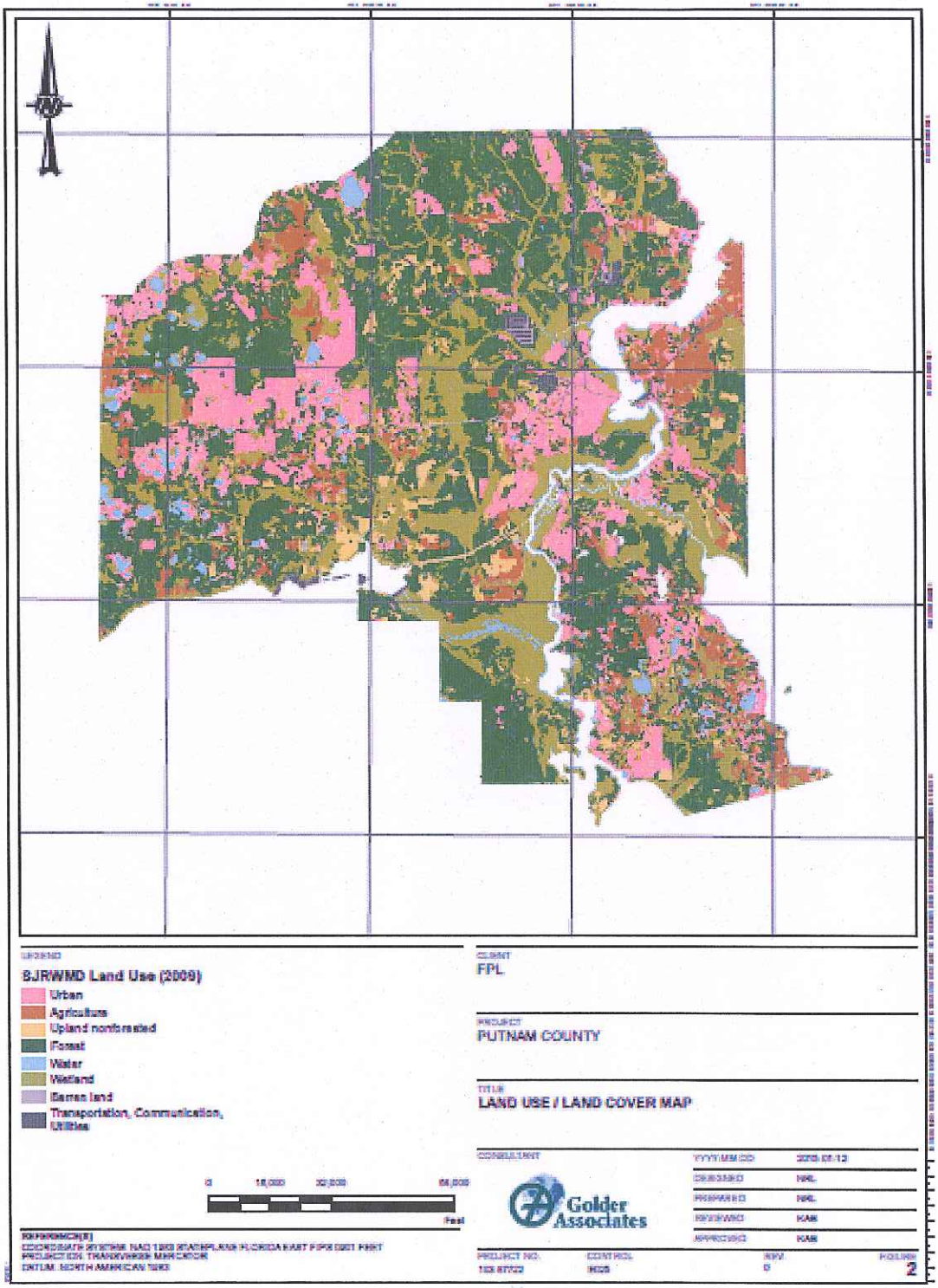

Putnam County
FPL
PUTNAM COUNTY
USGS LOCATION MAP
Golder Associates
NRL
NRL
KAR
KAR
1


SJRWMD Land Use (2009)
Urban
Agriculture
Upland nonforested
Forest
Water
Wetland
Barren land
Transportation, Communication, Utilities
Feet
FPL
PUTNAM COUNTY
LAND USE / LAND COVER MAP
Golder Associates
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 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 because 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 that 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 that 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 potential new units at different locations, evaluating the cost impacts created by the new unit/unit location combination on the operation of existing units in the FPL system, and/or 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 for 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 its system [6].

The load forecast that is presented in FPL's 2015 Site Plan was developed in November 2014. The only load forecast sensitivities analyzed during 2014/early 2015 were high load forecast sensitivities developed to analyze the quality of FPL's future reserves.

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.

[6] 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.

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 2014 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 2014/early 2015 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 that 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 2014, FPL used the following financial assumptions: i) an incremental capital structure of 40.38% debt and 59.62% equity; (ii) a 5.14% cost of debt; (iii) a 10.5% return on equity; and (iv) an after-tax discount rate of 7.54%. In February 2015, the cost of debt changed to 5.05% and the after-tax discount rate changed to 7.51%. No sensitivities of these financial assumptions were used in FPL's 2014/early 2015 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 economical 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, and transmission system performance.

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 allow 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 that FPL typically considers when choosing between resource options. These include: (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 is 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 that 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 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 2015 Site Plan, FPL's resource plan currently reflects the following major supply-side or generation resource additions: the on-going modernization at Port Everglades, the replacement of existing GT capacity with new CT capacity, the on-going upgrading of CTs in several existing CCs throughout

FPL's system, the implementation of the previously executed EcoGen PPA, the projected addition of new PV facilities, and the addition of new CC units.

In regard to the modernization project at Port Everglades, the project received a Florida Public Service 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 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.

The EcoGen PPAs, which were approved by the Commission in Order No. PSC-13-0205-CO-EQ dated 5/21/13, were the result of negotiations between U.S. EcoGen and FPL.

In regard to the planned PV facilities, the selection of equipment and installation contractors for these facilities will be done via competitive bidding.

Identification of projected self-build generation resources beyond those units already approved by the FPSC and Governor and Siting Board or units, such as the 2019 and 2023 CC units and the PV projects presented in this Site Plan, is required of FPL in its Site Plan filings. FPL's identification of these resources represents FPL's current view of alternatives that appear to be the 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 may not require an RFP. If an RFP is issued for generation resources, FPL will choose the best alternative for its customers, regardless of whether it is a third party proposal to an RFP or an FPL self-build option. If an RFP for generation resources is not required, FPL will utilize a competitive bidding process to select equipment suppliers and installation contractors based on its assessment of price and supplier capability to realize the best generation option for its customers.

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.

FPL has identified the need for a new 230 kV transmission line that required certification under the Transmission Line Siting Act that was issued in April 2006. The new line will connect FPL's St. Johns Substation to its Pringle Substation (shown on Table III.E.1 in Chapter III). The line will be constructed in two phases. Phase 1 was completed in May 2009 and consisted of a new line connecting Pringle to a new Pellicer Substation. Phase 2 will connect St. Johns to Pellicer and it 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.