April 3, 2017

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

   RE: Florida Power & Light Company’s 2017 Ten Year Power Plant Site Plan

Dear Ms. Stauffer:

   Please find enclosed for electronic filing Florida Power & Light Company’s 2017-2026 Ten Year Power Plant Site Plan. Per Commission Staff’s request, fifteen (15) hard copies also will be provided to your office.

   If there are any questions regarding this transmittal, please contact me at (561)304-5170.

   Sincerely,

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

Enclosure
Ten Year Power Plant Site Plan
2017 – 2026
Ten Year Power Plant Site Plan

2017-2026

Submitted To:

Florida Public Service Commission

April 2017
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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 2016 and that were on-going in the first Quarter of 2017. The forecasted information presented in this plan addresses the years 2017 through 2026.

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 2016 and early 2017. 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 (12) “discussion items” which pertain to additional information that is included in a Site Plan filing.
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<td>Other</td>
<td>ESP</td>
<td>Electrostatic Precipitators</td>
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<td>K Factor</td>
<td>The K factor for the capital costs of a given unit is the cumulative present value of revenue requirements (CPVRR) divided by the total installed cost</td>
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Executive Summary

Florida Power & Light Company’s (FPL’s) 2017 Ten Year Power Plant Site Plan (Site Plan) presents the company’s current plans to augment and enhance its electric generation capability as part of its efforts to meet FPL’s projected incremental resource needs for the 2017 through 2026 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 herein are resources projected to be needed after accounting for FPL’s demand side management (DSM) resource additions and/or that result in significant economic savings for FPL’s customers. FPL’s DSM Goals for the time period 2015 through 2024 were established in November 2014 by the Florida Public Service Commission (FPSC). Consequently, the level of DSM additions that FPL reflects in the 2017 Site Plan is consistent with these DSM Goals through the year 2024 and includes a continuation of the same annual level of DSM during the years 2025 and 2026. DSM is discussed in detail in Chapters I, II, and III.

In addition, FPL’s load forecast accounts for a significant amount of energy efficiency that results from federal and state energy efficiency codes and standards. The projected impacts of these codes and standards are discussed later in this summary and in Chapters II and III.

There are similarities when comparing FPL’s 2016 and 2017 Site Plans as well as meaningful differences between the two plans. In addition, there are a number of factors that either have influenced, or 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 three topics is provided below. Additional information regarding these topics is presented in Chapters II and III.

I. Similarities Between the 2017 and 2016 Site Plans:

There are four important similarities between the 2017 and 2016 Site Plans. These similarities reflect FPL’s continuing effort to utilize cost-effective solar and nuclear energy, move away from coal-fired generation, and further modernize its fleet of generating units. FPL already has one of the cleanest emission profiles of any electric utility in the U.S., but through the actions discussed in this document, FPL is projected to become even cleaner. In 2016, FPL delivered approximately 94% of its energy from a combination of low-emission natural gas, zero-emission nuclear, and zero-emission solar. During the 10-year reporting period of this Site Plan, this clean energy percentage is projected to increase to 97%.
**Similarity # 1: FPL continues to pursue new cost-effective solar generation (and plans to substantially increase its investment in solar)**

In its 2016 Site Plan, FPL announced that it was adding three new photovoltaic (PV) facilities by the end of 2016. Each of the PV facilities is approximately 74.5 MW\(^1\), and they are sited in Manatee, Charlotte, and DeSoto counties. When the three new solar plants were commissioned near the end of 2016, FPL’s solar generation capacity tripled from 110 MW to approximately 333 MW. Of that amount, approximately 258 MW is from PV and 75 MW is from solar thermal.

In its 2017 Site Plan, due in large part to actual and expected declining costs for PV equipment, FPL is projecting an additional 2,086 MW of PV by the end of 2023. This increase will consist of 298 MW of PV each year starting in 2017 through 2023. The cost-effective PV additions for the years 2017 through 2020 are contemplated under the Solar Base Rate Adjustment (SoBRA) mechanism in the settlement of FPL’s 2016 base rate case in Docket No. 160021-EI. Similar PV additions under SoBRA in 2019 and 2020 are also expected. For planning purposes, FPL also currently projects the addition of another 298 MW of PV annually for the next three years (2021 through 2023).\(^2\) Information regarding the siting of the solar additions, particularly for the years 2017 and 2018, is presented in Chapter IV.

The addition of all of this new, projected PV will result in FPL’s total solar capability increasing to approximately 2,420 MW by the end of 2023, consisting of approximately 2,345 MW of PV and 75 MW of solar thermal. In regard to PV, this represents a PV capability that is nine times the amount of PV FPL had at the end of 2016.

With this rapid increase in solar generating capability, FPL projects that it will reach an historic milestone by the year 2020, when it begins – for the first time in its history – to produce more energy (MWh) from solar than from coal and oil combined.

**Similarity # 2: FPL continues to reduce coal-fired generation**

In 2016, subsequent to commercial negotiations and upon approval of the FPSC, FPL acquired the rights to two coal-fired generation units and the related power purchase contracts, under which FPL received firm capacity and energy, with the intention of closing the two facilities. The two units are the Cedar Bay

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\(^1\) Each reference to PV capacity in this Site Plan reflects the nameplate rating, AC, unless noted otherwise.

\(^2\) FPL’s long-term plans for solar extend beyond the 2,086 MW of additional PV presented in this Site Plan. However, only this amount of PV is shown in the 2017 Site Plan for several reasons. One reason is that the firm capacity that is projected to be provided by the 2,086 MW, in combination with other resource changes described in this chapter, results in FPL having no additional resource need through the year 2026, the last year of the 10-year reporting period for this Site Plan as shown in Table ES-1 at the end of this chapter. Another reason is that the solar investment tax credit (ITC) currently applies only to solar projects placed in-service before 12/31/2023.
facility (250 MW) and the Indiantown Cogeneration (ICL) facility (330 MW). FPL has since closed the Cedar Bay facility. In regard to ICL, FPL plans to terminate the power purchase agreement by the 1st quarter of 2019. These two contracts were no longer cost-effective for FPL’s customers. In addition, based on an arrangement with Jacksonville Electric Authority (JEA), FPL projects that by the first quarter of 2019 it will no longer receive 636 MW of coal-fired generation from the St. John’s River Power Park (SJRPP) that it has been receiving from the SJRPP units.3

**Similarity # 3: FPL continues to further modernize its fleet of fossil-fueled generating units**

FPL has an ongoing program to modernize its fossil fuel generating units as analyses have shown it is cost-effective for FPL’s customers. These efforts have benefited FPL customers through substantially improved fuel efficiency and increased capacity – while also significantly reducing system air emissions and fuel costs. FPL will continue its investments to further improve the efficiency and capabilities of its power generation fleet in 2017 and beyond.

In 2016, FPL retired a number of its existing older gas turbine (GTs) peaking units, 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 site. Two of the existing GTs at the Lauderdale site, and two of the existing GTs at the Ft. Myers site, were retained for “black start” capability. FPL replaced the retired peaking units with 7 new, larger and more fuel-efficient combustion turbines (CTs) (including 5 at the Lauderdale site and 2 at the Fort Myers site), to maintain the needed operational capability of fast-starting generating units. Also in 2016, an older generating unit, Turkey Point Unit 1, was converted from generation mode to operate in synchronous condenser mode to provide voltage support for the crucial transmission system in Southeastern Florida. A companion unit, Turkey Point 2, had previously undergone a similar conversion. In addition, the CT components of various combined cycle (CC) units were upgraded.

FPL’s 2017 Site Plan demonstrates the company’s continued commitment to cost-effective improvements to its power generation fleet in two ways. First, FPL plans to modernize its existing Lauderdale power plant site. The site currently contains two 442 MW combined cycle (CC) units (for a total capacity of approximately 884 MW) that resulted from a repowering program approximately 25 years ago -- but which contain certain outdated plant components that date back to the 1950s. FPL plans to retire these existing units in the 4th Quarter of 2018 and replace them with a new, modern 2x1 CC unit by mid-2022. The new, high-efficiency CC unit will be named the Dania Beach Clean Energy Center. This modernization is driven in large part by its projected significant cost savings for FPL’s customers. The modernization project also will result in an improvement in system fuel efficiency. The current units’ 884 MW of capacity has a heat

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3 Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.
rate of approximately 7,800 BTU/kWh. In contrast, the new CC unit is projected to have a capacity of 1,163 MW and a heat rate of approximately 6,119 BTU/kWh. The 279 MW capacity increase is especially important because it occurs in the critical Southeastern Florida region (Miami-Dade and Broward counties) where FPL has an on-going planning concern regarding growing electrical load relative to generation as described later in this chapter.

Second, FPL will continue its fleet modernization program by upgrading CT components in more of its CC units. This planned upgrade is projected to continue through the year 2020. Information regarding the specific years in which these upgrades will occur, and the associated enhanced capacity (MW) impacts of these upgrades, is presented in Schedule 8 in Chapter III. In addition to benefitting FPL customers by cost-effectively increasing capacity, these upgrades are projected to also increase the fuel efficiency of these CC units.

**Similarity # 4: FPL continues to pursue cost-effective new nuclear energy generating capacity**

Since June 2009, FPL has worked to secure federal Combined Operating Licenses (COL) for two new nuclear units, Turkey Point Units 6 & 7, that would be sited at FPL’s Turkey Point site (the location of two existing nuclear generating units). At the time this 2017 Site Plan is being prepared, FPL projects that it will receive a decision on its COL applications in late 2017 or early 2018. In addition, FPL determined in 2016 that once a COL has been issued the company will pause before moving forward with construction of the new nuclear units in order to incorporate the construction experience of two first-wave nuclear projects currently under construction by Georgia Power and SCANA. Construction of those units is expected to be completed in approximately 2021. As a result, the earliest in-service dates for Turkey Point 6 & 7 are beyond the 2017 through 2026 time period addressed in this Site Plan. Additional nuclear capacity remains an important factor in FPL’s resource planning, and this Site Plan continues to present the Turkey Point location as a Preferred Site for the new nuclear units.

**II. Differences Between the 2017 and 2016 Site Plans:**

There are two important resource planning-related differences between the 2017 and 2016 Site Plans:

**Difference # 1: Projected compliance costs for carbon dioxide (CO₂) emissions begin later and are lower.**

Since 2007, FPL has evaluated potential CO₂ regulation and/or legislation and has included projected compliance costs for CO₂ emissions in its resource planning work. However, there has always been an unavoidable level of uncertainty regarding the timing and magnitude of the cost impacts of the potential
regulation/legislation. The result of the 2016 presidential election has increased the uncertainty regarding both the timing and magnitude of potential CO₂-related compliance costs. As a result, the forecast of potential CO₂ compliance costs that FPL is now using in its resource planning work projects a longer timeframe until compliance costs begin, and lower costs thereafter.

**Difference # 2: A biomass-based power purchase agreement is no longer included in FPL’s resource plan.**

FPL’s 2016 Site Plan included three 60 MW biomass-based purchase power agreements with EcoGen that resulted in FPL projecting it would receive 180 MW of firm capacity starting in 2021. However, EcoGen has defaulted on those agreements and, therefore, this capacity is no longer included in the resource plan presented in the 2017 Site Plan.

**III. Factors That Have Impacted, or Could Impact, FPL’s Resource Plan:**

In addition to the important similarities and differences described above, there are a number of factors that have impacted, or may impact, FPL’s resource plan. Six such factors, some of which have been mentioned above, are summarized in the text below (presented in no particular order). These factors, and/or their potential impacts to the resource plan presented in this Site Plan are further discussed in Chapters II and III.

**Factor # 1: The critical need to maintain a balance between load and generating capacity in Southeastern Florida (in Miami-Dade and Broward counties).** This balance has both reliability and economic implications for FPL’s system and customers.

**Factor # 2: The desire to maintain/enhance fuel diversity in the FPL system.** Diversity is sought both in terms of the types of fuel that FPL utilizes and how these fuels are supplied to the company. FPL also seeks to further enhance the efficiency with which it uses fuel to generate electricity.

**Factor # 3: The need to maintain an appropriate balance of DSM and supply resources from the perspectives of both system reliability and operations.** FPL addresses this through the use of a 10% generation-only reserve margin (GRM) reliability criterion to complement its other two reliability criteria: a 20% total reserve margin 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 and operations in a comprehensive manner.
Factor # 4: The significant impact of federal and state energy efficiency codes and standards. The incremental impacts of these energy efficiency codes and standards are projected to reduce both FPL’s forecasted Summer peak load by approximately 2,041 MW, and its annual energy consumption by more than 8,000 GWh, by 2026. In addition, energy efficiency codes and standards significantly reduce the potential for cost-effective energy efficiency that might otherwise have been obtained through FPL’s DSM programs.

Factor # 5: The increasing cost competitiveness of universal (utility-scale) PV facilities. Universal PV facilities are the most efficient and economical way to utilize PV technology. The declining costs of PV modules and the 2016 extension of federal tax credits have made universal PV competitive on FPL’s system. As a result, FPL is planning to dramatically expand its solar generation capability by adding 2,086 MW of additional PV facilities in 2017 through 2023, as discussed above. Similarly, costs for battery storage technology are also projected to decline, and FPL is actively evaluating the potential for cost-effective future uses for energy storage on its system.

Factor # 6: Projected changes in CO₂ regulation and related compliance costs. Projected CO₂-related compliance costs can have a large impact in utility resource planning work. Current projections show that CO₂ compliance costs will be lower, and will begin later, than in previous projections. If the compliance cost projections significantly change in the future, it is possible that the resource plan presented in this 2017 Site Plan may change.

FPL will continue to examine each of these factors in its on-going resource planning work in 2017 and future years.

Table ES-1 presents a current projection of major changes to specific generating units and firm capacity purchases for 2017 through 2026. Although this table does not specifically identify the impacts of projected DSM additions on FPL’s resource needs and resource plan, the company’s projected DSM additions are consistent with its DSM Goals through 2024, and they have been extended at that same level through 2026. Thus, DSM impacts are fully accounted for in the resource plan in this Site Plan.

Table ES-1 shows the addition of an FPL CC in Okeechobee County in 2019. The FPSC issued a determination of need order approving this CC unit on January 19, 2016. The table also shows: the addition of a total of 2,086 MW of additional PV beginning in 2017 through the end of 2023 (with the impact on FPL’s Summer reserve margin accounted for in the year following the installation), the planned end of the 636 MW of coal-fired generation that FPL now receives from the SJRPP plant, the projected end of the 330 MW ICL power purchase agreement also in early 2019, and the planned modernization of the existing Lauderdale power plant site in mid-2022 with the new combined cycle unit to be named the
Dania Beach Clean Energy Center. With these planned capacity changes, FPL does not have any remaining unmet capacity needs through the end of the 10-year reporting period of this Site Plan.
### Table ES-1: Projected Capacity & Firm Purchase Power Changes

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>Cedar Bay</td>
<td>(250)</td>
<td>January 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ft. Myers - 2 CT Upgrade</td>
<td>40</td>
<td>May 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lauderdale - 5 CT Upgrade</td>
<td>100</td>
<td>May 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manatee 3</td>
<td>13</td>
<td>June 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Martin 4</td>
<td>9</td>
<td>March 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Martin 8</td>
<td>7</td>
<td>March 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>(81)</strong></td>
<td></td>
<td><strong>21.3%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Sanford 4</td>
<td>8</td>
<td>August 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sanford 5</td>
<td>8</td>
<td>November 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turkey Point 5</td>
<td>(40)</td>
<td>December 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional PV Sited</td>
<td>322</td>
<td>December 2017 and February 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>299</strong></td>
<td></td>
<td><strong>21.4%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>Okeechobee Energy Center</td>
<td>1,748</td>
<td>June 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turkey Point 3</td>
<td>20</td>
<td>October 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Martin 8</td>
<td>4</td>
<td>November 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fort Myers 2</td>
<td>2</td>
<td>May 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>St. Johns River Power Park 1 Partial Ownership</td>
<td>(127)</td>
<td>First Quarter 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>St. Johns River Power Park 2 Partial Ownership</td>
<td>(127)</td>
<td>First Quarter 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>St. Johns River Power Park PPA</td>
<td>(382)</td>
<td>First Quarter 2020</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indiantown 2 PPA</td>
<td>(330)</td>
<td>First Quarter 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lauderdale 4</td>
<td>(442)</td>
<td>November 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lauderdale 5</td>
<td>(442)</td>
<td>November 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turkey Point 4</td>
<td>20</td>
<td>December 2018</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>(57)</strong></td>
<td></td>
<td><strong>20.3%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>Sanford 4</td>
<td>37</td>
<td>November 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sanford 5</td>
<td>37</td>
<td>January 2020</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fort Myers 2</td>
<td>75</td>
<td>May 2020</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional PV Unsited</td>
<td>161</td>
<td>Fourth Quarter 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>310</strong></td>
<td></td>
<td><strong>21.3%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>Additional PV Unsited</td>
<td>161</td>
<td>Fourth Quarter 2020</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>161</strong></td>
<td></td>
<td><strong>21.7%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>Cape Canaveral Energy Center 3</td>
<td>88</td>
<td>June 2022</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lauderdale Modernization (Dania Beach Clean Energy Center)</td>
<td>1,163</td>
<td>June 2022</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional PV Unsited</td>
<td>161</td>
<td>Fourth Quarter 2021</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>1,412</strong></td>
<td></td>
<td><strong>26.7%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td>Riviera Beach Energy Center 5</td>
<td>86</td>
<td>June 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional PV Unsited</td>
<td>161</td>
<td>Fourth Quarter 2022</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>247</strong></td>
<td></td>
<td><strong>26.0%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2024</td>
<td>Additional PV Unsited</td>
<td>161</td>
<td>Fourth Quarter 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>161</strong></td>
<td></td>
<td><strong>24.7%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2025</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>0</strong></td>
<td></td>
<td><strong>22.9%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Capacity &amp; Firm Purchase Power Changes</th>
<th>Summer MW (Appr.)</th>
<th>Date</th>
<th>Summer Reserve Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2026</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td><strong>Total of MW changes to Summer firm capacity:</strong></td>
<td><strong>0</strong></td>
<td></td>
<td><strong>21.1%</strong></td>
</tr>
</tbody>
</table>

---

1/ Year shown reflects when the MW change begins to be accounted for in Summer reserve margin calculations.
2/ Winter Reserve Margins are typically higher than Summer Reserve Margin. Winter Reserve Margin are shown on Schedule 7.2 in Chapter III.
3/ MW values shown for the PV facilities represent the firm capacity assumptions for the PV facilities and FPL currently assumes 0.3% degradation annually for PV output.
4/ Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.
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 ten million people. FPL served an average of 4,828,066 customer accounts in 35 counties during 2016. 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

FPL owns generating resources located at 17 generating sites distributed geographically around its service territory, plus one site in Georgia (partial FPL ownership of one unit) and another site in Jacksonville, Florida (partial FPL ownership of two units). As of December 31, 2016, FPL’s electrical generating facilities consisted of: four nuclear units, four coal units, 16 combined cycle (CC) units, four fossil steam units, four combustion gas turbines, nine simple cycle combustion turbines, and five photovoltaic facilities. The locations of these 46 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 6,926 circuit miles of transmission lines. Integration of the generation, transmission, and distribution systems is achieved through FPL's 605 substations in Florida.

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

---

4 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.
## Figure I.A.1: Capacity Resources by Location (as of December 31, 2016)

<table>
<thead>
<tr>
<th>Location/Map Key</th>
<th>Plant Name</th>
<th>Number of Units</th>
<th>Summer MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Turkey Point</td>
<td>3</td>
<td>2,819</td>
</tr>
<tr>
<td>B</td>
<td>St. Lucie</td>
<td>2</td>
<td>1,821</td>
</tr>
<tr>
<td>C</td>
<td>Manatee</td>
<td>3</td>
<td>2,759</td>
</tr>
<tr>
<td>D</td>
<td>Fort Myers</td>
<td>5</td>
<td>2,310</td>
</tr>
<tr>
<td>E</td>
<td>Lauderdale</td>
<td>7</td>
<td>1,939</td>
</tr>
<tr>
<td>F</td>
<td>Everglades</td>
<td>1</td>
<td>1,237</td>
</tr>
<tr>
<td>G</td>
<td>Riviera</td>
<td>1</td>
<td>1,121</td>
</tr>
<tr>
<td>H</td>
<td>Martin</td>
<td>5</td>
<td>3,720</td>
</tr>
<tr>
<td>I</td>
<td>Cape Canaveral</td>
<td>1</td>
<td>1,210</td>
</tr>
<tr>
<td>J</td>
<td>Sanford</td>
<td>2</td>
<td>2,010</td>
</tr>
<tr>
<td>K</td>
<td>St. John's River Power Park</td>
<td>2</td>
<td>254</td>
</tr>
<tr>
<td>L</td>
<td>West County</td>
<td>3</td>
<td>3,657</td>
</tr>
<tr>
<td>M</td>
<td>DeSoto</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>N</td>
<td>Space Coast</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>O</td>
<td>Cedar Bay</td>
<td>1</td>
<td>250</td>
</tr>
<tr>
<td>P</td>
<td>Babcock Ranch Solar</td>
<td>1</td>
<td>74.5</td>
</tr>
<tr>
<td>Q</td>
<td>Citrus Solar</td>
<td>1</td>
<td>74.5</td>
</tr>
<tr>
<td>R</td>
<td>Manatee Solar</td>
<td>1</td>
<td>74.5</td>
</tr>
<tr>
<td>S</td>
<td>Scherer Solar</td>
<td>1</td>
<td>63.4</td>
</tr>
<tr>
<td></td>
<td>Gas Turbines</td>
<td>4</td>
<td>177</td>
</tr>
</tbody>
</table>

- **Total System Generation** = 46 units \(= 26,267\) MW
- **System Firm Generation** = 26,139 MW

1/ Represents FPL’s ownership share: 
   - St. Lucie nuclear: 100% Unit 1, 85% Unit 2, St. John’s River: 92% of two units.

2/ Approximate 32% of the 74.5 MW of PV at Babcock Ranch, Citrus, and Manatee, 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.

3/ The Scherer unit is located in Georgia and is not shown on this map.

*Non-FPL Territory*
Table I.A.1: Capacity Resource by Unit Type (as of December 31, 2016)

<table>
<thead>
<tr>
<th>Unit Type/ Plant Name</th>
<th>Location</th>
<th>Number of Units</th>
<th>Fuel</th>
<th>Summer MW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nuclear</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Lucie</td>
<td>Hutchinson Island, FL</td>
<td>2</td>
<td>Nuclear</td>
<td>1,821</td>
</tr>
<tr>
<td>Turkey Point</td>
<td>Florida City, FL</td>
<td>2</td>
<td>Nuclear</td>
<td>1,632</td>
</tr>
<tr>
<td><strong>Total Nuclear:</strong></td>
<td></td>
<td><strong>4</strong></td>
<td></td>
<td><strong>3,453</strong></td>
</tr>
</tbody>
</table>

| **Coal Steam**                        |                                 |                 |        |           |
| Cedar Bay                             | Jacksonville, FL                | 1               | Coal   | 250       |
| Scherer                               | Monroe County, Ga               | 1               | Coal   | 634       |
| St. John’s River Power Park \(^3\)    | Jacksonville, FL                | 2               | Coal   | 254       |
| **Total Coal Steam:**                 |                                 | **4**           |        | **1,138** |

| **Combined-Cycle**                    |                                 |                 |        |           |
| Fort Myers                            | Fort Myers, FL                  | 1               | Gas    | 1,524     |
| Manatee                               | Parrish, FL                     | 1               | Gas    | 1,141     |
| Martin                                | Indiantown, FL                  | 3               | Gas    | 2,094     |
| 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     |
| Port Everglades                       | City of Hollywood, FL           | 1               | Gas/Oil| 1,237     |
| Turkey Point                           | Florida City, FL                | 1               | Gas/Oil| 1,187     |
| West County                           | Palm Beach County, FL           | 3               | Gas/Oil| 3,657     |
| **Total Combined Cycle:**             |                                 | **16**          |        | **16,156**|

| **Oil/Gas Steam**                     |                                 |                 |        |           |
| Manatee                               | Parrish, FL                     | 2               | Oil/Gas| 1,618     |
| Martin                                | Indiantown, FL                  | 2               | Oil/Gas| 1,626     |
| **Total Oil/Gas Steam:**              |                                 | **4**           |        | **3,244** |

| **Gas Turbines(GT)**                  |                                 |                 |        |           |
| Fort Myers (GT)                       | Fort Myers, FL                  | 2               | Oil    | 108       |
| Lauderdale (GT)                       | Dania, FL                       | 2               | Gas/Oil| 69        |
| **Total Gas Turbines/Diesels:**       |                                 | **4**           |        | **177**   |

| **Combustion Turbines**               |                                 |                 |        |           |
| Lauderdale                            | Dania, FL                       | 5               | Gas/Oil| 1,055     |
| Fort Myers                            | Fort Myers, FL                  | 4               | Gas/Oil| 786       |
| **Total Combustion Turbines:**        |                                 | **9**           |        | **1,841** |

| **PV**                                |                                 |                 |        |           |
| DeSoto \(^3\)                         | DeSoto, FL                      | 1               | Solar Energy | 25 |
| Babcock Ranch Solar \(^3\)            | Charlotte County, FL            | 1               | Solar Energy | 74.5 |
| Citrus Solar \(^3\)                   | DeSoto, FL                      | 1               | Solar Energy | 74.5 |
| Manatee Solar \(^3\)                  | Parrish, FL                     | 1               | Solar Energy | 74.5 |
| Space Coast \(^3\)                    | Brevard County, FL              | 1               | Solar Energy | 10 |
| **Total PV:**                         |                                 | **5**           |        | **259**   |

**Total System Generation as of December 31, 2016 = 46 26,267**

**System Firm Generation as of December 31, 2016 = 26,139**

---

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 show 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: SJRRP coal: 20% of 2 units).

3/ Approximately 52% of the 74.5 MW of PV at Babcock Ranch, Citrus, and Manatee, 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.
FPL Bulk Transmission System

NOTES:
• This map is not a complete representation of FPL’s Transmission System.
• The different colors represent four different geographic divisions.

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

FPL currently has four contracts with qualifying facilities (e.g., cogeneration/small power production facilities) to purchase firm capacity and energy during the 10-year reporting period of this Site Plan. The 2016 actual and 2017 projected future contributions from these facilities are shown in Table I.B.1, Table I.B.2, and Table I.B.3. There have been two major changes to these tables from the 2016 Site Plan to this year’s Site Plan. The three biomass-based contracts between FPL and EcoGen, which were projected in the 2016 Site Plan to add a combined total of 180 MW of firm capacity in 2021, have been terminated due to default by EcoGen. In addition, there has been a change to the Indiantown Cogen LP (ICL) PPA. As approved by the FPSC (Order No. PSC-16-0506-FOF-EI), FPL has acquired the rights to the unit and the PPA for the purpose of cancelling the PPA because it is no longer cost-effective for FPL’s customers. FPL currently projects the PPA will end in the 1st quarter of 2019.

Firm Capacity: Purchases from Utilities

FPL has a contract 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. In addition, FPL has partial ownership of SJRPP Units 1 & 2 with FPL’s ownership portion of each unit being 127 MW or 254 MW in total. However, FPL currently projects that by the 1st quarter of 2019\(^5\) FPL will no longer receive the total of 636 MW of coal-fired generation from SJRPP that it formerly received from these units through ownership and purchase power.

The purchase power component is shown in Table I.B.1, Table I.B.2, and Table I.B.3. 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.

\(^5\) Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.
Firm Capacity: Other Purchases
FPL has two other firm capacity purchase contracts with the Palm Beach Solid Waste Authority. Table I.B.2 and I.B.3 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 a number of cogeneration and small power production facilities. The bottom half of Table I.B.1 shows the amount of energy purchased in 2016 from these facilities.
### Table I.B.1: Purchase Power Resources by Contract (as of December 31, 2016)

<table>
<thead>
<tr>
<th>Firm Capacity Purchases (MW)</th>
<th>Location (City or County)</th>
<th>Summer MW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Purchase from QF’s: Cogeneration/Small Power Production Facilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiantown Cogen LP</td>
<td>Martin</td>
<td>Coal (Cogen)</td>
</tr>
<tr>
<td>Broward South</td>
<td>Broward</td>
<td>Solid Waste</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **II. Purchases from Utilities & IPP** | | |
| Palm Beach SWA - extension | Palm Beach | Solid Waste | 40 |
| Palm Beach SWA - New Unit | Palm Beach | Solid Waste | 70 |
| SJRPP | Jacksonville | Coal | 382 |
| **Total:** | | | 492 |

**Total Net Firm Generating Capability:** 826

### Non-Firm Energy Purchases (MWH)

<table>
<thead>
<tr>
<th>Project</th>
<th>County</th>
<th>Fuel</th>
<th>Energy (MWH) Delivered to FPL in 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Okeelanta (known as Florida Crystals and New Hope Power Partners)*</td>
<td>Palm Beach</td>
<td>Bagasse/Wood</td>
<td>81,015</td>
</tr>
<tr>
<td>Miami Dade Resource Recovery*</td>
<td>Dade</td>
<td>Solid Waste</td>
<td>73,017</td>
</tr>
<tr>
<td>Broward South*</td>
<td>Broward</td>
<td>Solid Waste</td>
<td>37,660</td>
</tr>
<tr>
<td>Waste Management - Collier County Landfill*</td>
<td>Collier</td>
<td>Landfill Gas</td>
<td>18,800</td>
</tr>
<tr>
<td>Waste Management Renewable Energy*</td>
<td>Broward</td>
<td>Landfill Gas</td>
<td>8,601</td>
</tr>
<tr>
<td>Tropicana</td>
<td>Manatee</td>
<td>Natural Gas</td>
<td>6,589</td>
</tr>
<tr>
<td>Georgia Pacific</td>
<td>Putnam</td>
<td>Paper by-product</td>
<td>3,438</td>
</tr>
<tr>
<td>Customer Owned PV &amp; Wind</td>
<td>Various</td>
<td>PV/Wind</td>
<td>1,921</td>
</tr>
<tr>
<td>Rothenbach Park (known as MMA Bee Ridge)*</td>
<td>Sarasota</td>
<td>PV</td>
<td>163</td>
</tr>
<tr>
<td>First Solar*</td>
<td>Dade</td>
<td>PV</td>
<td>100</td>
</tr>
<tr>
<td>INEOS Bio*</td>
<td>Indian River</td>
<td>Wood</td>
<td>36</td>
</tr>
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</table>

*These Non-Firm Energy Purchases are renewable and are reflected on Schedule 11.1, row 8, column 6.
### Table I.B.2: FPL’s Firm Purchased Power Summer MW

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

<table>
<thead>
<tr>
<th></th>
<th>Contract Start Date</th>
<th>Contract End Date</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Purchases from QF’s</strong></td>
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<tr>
<td>Cogeneration Small Power Production Facilities (^3)</td>
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<tr>
<td>Broward South</td>
<td>01/01/93</td>
<td>12/31/26</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
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<tr>
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<td>01/01/95</td>
<td>12/31/26</td>
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<tr>
<td>Broward South</td>
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<td>0.6</td>
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<tr>
<td>Indiantown Cogen L.P.</td>
<td>12/22/95</td>
<td>1^st Qtr/2019</td>
<td>330</td>
<td>330</td>
<td>0</td>
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<tr>
<td><strong>II. Purchases from Utilities</strong></td>
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<tr>
<td></td>
<td>Contract Start Date</td>
<td>Contract End Date</td>
<td>2017</td>
<td>2018</td>
<td>2019</td>
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<td>2021</td>
<td>2022</td>
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<td>1^st Qtr/2019</td>
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<td>382</td>
<td>0</td>
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<td><strong>Total of QF and Utility Purchases:</strong></td>
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<td><strong>III. Other Purchases</strong></td>
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<td></td>
<td>Contract Start Date</td>
<td>Contract End Date</td>
<td>2017</td>
<td>2018</td>
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<td>2021</td>
<td>2022</td>
<td>2023</td>
<td>2024</td>
<td>2025</td>
<td>2026</td>
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<tr>
<td>Palm Beach SWA - Extension(^3)</td>
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<td>04/01/34</td>
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<td>40</td>
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<td>40</td>
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<td>40</td>
<td>40</td>
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<tr>
<td>Palm Beach SWA - Additional</td>
<td>01/01/15</td>
<td>04/01/34</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
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<tr>
<td><strong>Other Purchases Subtotal:</strong></td>
<td></td>
<td></td>
<td>110</td>
<td>110</td>
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<tr>
<td><strong>Total &quot;Non-QF&quot; Purchases:</strong></td>
<td></td>
<td></td>
<td>492</td>
<td>492</td>
<td>110</td>
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<tr>
<td><strong>Summer Firm Capacity Purchases Total MW:</strong></td>
<td></td>
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<td>826</td>
<td>826</td>
<td>114</td>
<td>114</td>
<td>114</td>
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<td>114</td>
<td>114</td>
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<td>114</td>
</tr>
</tbody>
</table>

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1/ When the second unit came into commercial service at the Palm Beach SWA, neither unit met the standards to be a small power producer, and it then became accounted for under “Other Purchases”

2/ Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.

3/ The Indiantown Cogen L.P. PPA is projected to end, and the generating unit to be retired, in 2019.
Table I.B.3: 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

<table>
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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Broward South</td>
<td>01/01/93</td>
<td>12/31/26</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
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<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
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</tr>
<tr>
<td>Broward South</td>
<td>01/01/95</td>
<td>12/31/26</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
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<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Broward South</td>
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<td>12/31/26</td>
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<td>0.6</td>
<td>0.6</td>
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<td>0.6</td>
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<tr>
<td>Indiantown Cogen L.P.</td>
<td>12/22/95</td>
<td>1st Qtr/2019</td>
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</table>

II. Purchases from Utilities

<table>
<thead>
<tr>
<th>SJRPP ²</th>
<th>Contract Start Date</th>
<th>Contract End Date</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
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<th>2023</th>
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</thead>
<tbody>
<tr>
<td>SJRPP</td>
<td>04/02/82</td>
<td>1st Qtr/2019</td>
<td>389</td>
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<td>0</td>
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<tr>
<td>Utility Purchases Subtotal:</td>
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III. Other Purchases

<table>
<thead>
<tr>
<th>Palm Beach SWA - Extension ¹</th>
<th>Contract Start Date</th>
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<th>2017</th>
<th>2018</th>
<th>2019</th>
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<tbody>
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</tr>
<tr>
<td>Palm Beach SWA - Additional</td>
<td>01/01/15</td>
<td>04/01/34</td>
<td>70</td>
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<td>Total “Non-QF” Purchases =</td>
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</tr>
</tbody>
</table>

1/ When the second unit came into commercial service at the Palm Beach SWA, neither unit met the standards to be a small power producer, and it then became accounted for under “Other Purchases”.
2/ Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.
3/ The Indiantown Cogen L.P. PPA is projected to end, and the generating unit to be retired, in 2019.
I.C  Demand Side Management (DSM)

FPL has thoroughly explored and implemented cost-effective DSM programs since 1978, and has consistently been among the leading utilities nationally in achieving substantial DSM efficiencies. These programs include a number of innovative conservation/energy efficiency and load management initiatives. Importantly, FPL’s DSM efforts through 2016 have resulted in a cumulative Summer peak reduction of approximately 4,843 MW at the generator and an estimated cumulative energy saving 78,400 Gigawatt-Hour (GWh) at the generator. After accounting for the 20% total reserve margin requirements, FPL’s highly effective DSM efforts through 2016 have eliminated the need to construct the equivalent of approximately 15 new 400 MW generating units. Also, it is important to note that FPL has achieved these significant DSM accomplishments while minimizing the DSM-based impact on electric rates for all of its customers. FPL’s DSM Goals for the 2015 through 2024 timeframe were established by the FPSC in December 2014. FPL continues to account for these DSM Goals in its planning process and extends that annual level of DSM beyond the year 2024.
## Schedule 1

### Existing Generating Facilities

**As of December 31, 2016**

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Location</th>
<th>Type</th>
<th>Fuel</th>
<th>Alt.</th>
<th>Tr</th>
<th>Alt.</th>
<th>Alt.</th>
<th>Use</th>
<th>Month/Year</th>
<th>Ret</th>
<th>Nameplate</th>
<th>Winter</th>
<th>Summer</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babcock Ranch Solar</td>
<td>Charlotte County</td>
<td>PV</td>
<td>Solar</td>
<td>N/A</td>
<td>N/A</td>
<td>Unknown</td>
<td>Dec-16</td>
<td>Unknown</td>
<td>74,500</td>
<td>74.5</td>
<td>74.5</td>
<td>74.5</td>
<td>74.5</td>
<td></td>
</tr>
<tr>
<td>Cape Canaveral</td>
<td>Brevard County</td>
<td>CC</td>
<td>NG</td>
<td>FO2</td>
<td>PL</td>
<td>TK</td>
<td>Unknown</td>
<td>Apr-13</td>
<td>Unknown</td>
<td>1,878,500</td>
<td>1,370</td>
<td>1,210</td>
<td>1,210</td>
<td></td>
</tr>
<tr>
<td>Cedar Bay</td>
<td>Duval County</td>
<td>ST</td>
<td>Other</td>
<td>BIT</td>
<td>RR</td>
<td>WA</td>
<td>Unknown</td>
<td>Jan-94</td>
<td>Jan-17</td>
<td>291,550</td>
<td>250</td>
<td>250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citrus Solar</td>
<td>DeSoto County</td>
<td>PV</td>
<td>Solar</td>
<td>N/A</td>
<td>N/A</td>
<td>Unknown</td>
<td>Dec-16</td>
<td>Unknown</td>
<td>74,500</td>
<td>74.5</td>
<td>74.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DeSoto</td>
<td>Duval County</td>
<td>CC</td>
<td>NG</td>
<td>FO2</td>
<td>PL</td>
<td>TK</td>
<td>Unknown</td>
<td>Apr-16</td>
<td>Unknown</td>
<td>1,412,700</td>
<td>1,338</td>
<td>1,237</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fort Myers</td>
<td>Lee County</td>
<td>PV</td>
<td>Solar</td>
<td>N/A</td>
<td>N/A</td>
<td>Unknown</td>
<td>Oct-09</td>
<td>Unknown</td>
<td>22,500</td>
<td>25</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lauderdale</td>
<td>Broward County</td>
<td>CC</td>
<td>NG</td>
<td>No</td>
<td>PL</td>
<td>No</td>
<td>Unknown</td>
<td>May-74</td>
<td>Unknown</td>
<td>2,680,890</td>
<td>2,666</td>
<td>2,418</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manatee Solar</td>
<td>Manatee County</td>
<td>PV</td>
<td>Solar</td>
<td>N/A</td>
<td>N/A</td>
<td>Unknown</td>
<td>Dec-16</td>
<td>Unknown</td>
<td>74,500</td>
<td>74.5</td>
<td>74.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manatee</td>
<td>Manatee County</td>
<td>ST</td>
<td>NG</td>
<td>FO6</td>
<td>PL</td>
<td>WA</td>
<td>Unknown</td>
<td>Dec-80</td>
<td>Unknown</td>
<td>2,951,110</td>
<td>2,885</td>
<td>2,759</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martin</td>
<td>Martin County</td>
<td>ST</td>
<td>NG</td>
<td>FO6</td>
<td>PL</td>
<td>WA</td>
<td>Unknown</td>
<td>Dec-80</td>
<td>Unknown</td>
<td>4,317,510</td>
<td>3,922</td>
<td>3,720</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Everglades</td>
<td>City of Hollywood</td>
<td>CC</td>
<td>NG</td>
<td>FO2</td>
<td>PL</td>
<td>TK</td>
<td>Unknown</td>
<td>Apr-16</td>
<td>Unknown</td>
<td>1,412,700</td>
<td>1,338</td>
<td>1,237</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1/ These ratings are peak capability.

2/ Approximately 52% of the 74.5 MW (Nameplate, AC) PV facility at Babcock Ranch, Citrus, and Manatee and 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, 2016**

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Type</th>
<th>Pr. Alt.</th>
<th>Trans</th>
<th>KW</th>
<th>MW</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riviera Beach</td>
<td>City of Riviera Beach</td>
<td>33/42S/432E</td>
<td>1,295,400</td>
<td>1,350</td>
<td>1,212</td>
<td></td>
</tr>
<tr>
<td>Sanford</td>
<td>Volusia County</td>
<td>16/19S/30E</td>
<td>2,977,720</td>
<td>2,194</td>
<td>2,010</td>
<td></td>
</tr>
<tr>
<td>Scherer</td>
<td>Monroe, GA</td>
<td>680,368</td>
<td>635</td>
<td>634</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Space Coast</td>
<td>Brevard County</td>
<td>13/23S/36E</td>
<td>10,000</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>St. Johns River Power Park</td>
<td>Duval County</td>
<td>12/15S/30E (RPC4)</td>
<td>271,836</td>
<td>260</td>
<td>254</td>
<td></td>
</tr>
<tr>
<td>St. Lucie</td>
<td>St. Lucie County</td>
<td>16/36S/41E</td>
<td>1,846,350</td>
<td>1,863</td>
<td>1,821</td>
<td></td>
</tr>
<tr>
<td>Turkey Point</td>
<td>Miami Dade County</td>
<td>27/57S/40E</td>
<td>2,978,910</td>
<td>2,924</td>
<td>2,819</td>
<td></td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>West County</td>
<td>29/32/43S/40E</td>
<td>4,100,400</td>
<td>4,008</td>
<td>3,657</td>
<td></td>
</tr>
</tbody>
</table>

**Total System Generating Capacity as of December 31, 2016**

- **Net Capability**
  - Winter: 7/28,087 MW
  - Summer: 26,267 MW

**System Firm Generating Capacity as of December 31, 2016**

- **Net Capability**
  - Winter: 8/27,828 MW
  - Summer: 26,139 MW

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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% ownership 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/ Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.
5/ 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%.
6/ 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.
7/ The Total System Generating Capacity value shown includes FPL-owned firm and non-firm generating capacity.
8/ The System Firm Generating Capacity value shown includes only firm generating capacity.
CHAPTER II

Forecast of Electric Power Demand
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 December 2016. These new load forecasts are utilized throughout FPL’s 2017 Site Plan and are a key input to the models used to develop the company’s integrated resource plan.

The following pages describe how FPL develops 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 population growth, economic conditions, electric prices, weather, and energy efficiency codes and standards.

The projections for the national and Florida economies are obtained from IHS Global Insight, a leading economic forecasting firm. Population projections are obtained from IHS Global Insight. This ensures an internal consistency between these key forecast drivers. Using statistical models, these inputs are quantified and qualified 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. FPL develops three sets of weather variables for use in its forecasting models:

1. Cooling degree-hours based on 72°F Fahrenheit (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 two days prior to the peak are used to forecast Summer peaks.
3. The minimum temperature on the peak day and the square of the build-up of heating degree-hours based on 66°F on the day prior to the peak day through the morning of the peak are used to forecast Winter peaks.

FPL uses the cooling degree-hours and Winter heating degree-days 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 completely captured by heating degree-days based on 66°F. FPL creates a composite hourly temperature profile 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. FPL uses the resulting composite temperature to derive projected cooling and heating degree-hours and heating degree-days. Similarly, FPL uses composite temperature and hourly profiles of temperatures to calculate the weather variables used in the Summer and Winter peak models.

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

FPL’s current load forecast reflects long-term growth rates comparable to those presented in its 2016 Site Plan. Four primary factors drive the current load forecast: 1) projected population growth, 2) the performance of Florida’s economy, 3) energy prices, and 4) energy efficiency codes and standards. The combined impact of these factors results in growth rates that are comparable over the forecast horizon to those presented in the 2016 Site Plan.

The customer forecast is based on recent population projections and the actual levels of customer growth experienced historically. Population projections are derived from IHS Global Insight’s August 2016 forecast. The forecasted growth rates are generally consistent with population growth rates utilized in the 2016 Site Plan. On a percentage basis, the projected rates of population growth are expected to be comparable with recent growth rates. The absolute increases in population are projected to be significant. The state’s population surpassed 20 million people in 2015 and is expected to exceed 23 million by the end of 2026. Overall, the state’s population is expected to increase by nearly three million people from the beginning of 2017 through 2026.

The growth in FPL’s customer accounts is expected to mirror the overall level of population growth in the state. From the beginning of 2017 through 2026, the total number of customer accounts is projected to increase at an annual rate of 1.4%, resulting in a cumulative increase of more than 660,000 customer accounts. By 2019, FPL expects that it will serve more than five million customer accounts. By 2026, FPL expects the total to reach approximately 5.5 million.

The economic projections incorporated into FPL’s load forecast are provided by IHS Global Insight. Consistent with FPL’s 2016 Site Plan, IHS Global Insight is projecting moderately positive income growth and positive increases in employment levels over the 10-year forecast horizon. Consistent with past projections, economic growth is expected to moderate somewhat over the longer term.

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). The impact of these savings began in 2005, and their cumulative impact on the Summer peak is expected to reach 4,365 MW by 2026, the equivalent of an approximately 14% reduction in what the forecasted Summer peak load for 2026 would have been without these energy efficiency codes and standards. The cumulative impact on NEL from these savings is expected to reach 15,823 GWh over the same period, while the cumulative impact on the Winter peak is expected to be 2,234 MW by 2026. This represents a decrease of approximately 11% in the forecasted NEL for 2026 and a 9% reduction in forecasted Winter peak load for 2026.

Consistent with the forecast presented in FPL’s 2016 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 26,552 MW by 2026, an increase of 2,694 MW over the 2016 actual Summer peak. Likewise, NEL is projected to reach 126,825 GWh in 2026, an increase of 5,206 GWh from the actual 2016 value.

II.C. Long-Term Sales Forecasts

FPL developed long-term forecasts of electricity sales for the major revenue classes that are adjusted to match the NEL forecast. The results of these sales forecasts for the years 2017 through 2026 are presented in Schedules 2.1 - 2.3, which appear at the end of this chapter. Econometric models are developed 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.

1. Residential Sales

   FPL estimates residential electric usage per customer by using an econometric model. Residential sales are a function of the following variables: cooling degree-hours, heating degree-days, electric prices, and Florida real per capita income weighted by the percentage of the population that is employed. The impact of weather is captured by the cooling degree-hours and winter heating degree-days. Two variables are used to capture the impact of electric prices on energy usage. One variable is based on increases in the price of electricity over time, and another variable is based on decreases in the price of electricity over time. By using two different price terms, the fact that consumers may have proportionately different

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6 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 energy efficiency gains that would otherwise be available through utility DSM programs.
responses to price increases as to price decreases is captured in the model. 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. FPL forecasts residential energy sales by multiplying the projected residential use per customer by the projected number of residential customers.

2. Commercial Sales

FPL also uses econometric models to develop the commercial sales forecast. The commercial class is forecast using four separate models, based on customer size, including: commercial lighting accounts, 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
- An electric price variable based on increases in the real price of electricity over time
- Dummy variables for the specific months of November 2005 and February 2016
- An autoregressive term.

The medium 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, lagged cooling degree-hours, an electric price variable based on increases in the real price of electricity over time, and autoregressive terms.

The large 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
- Lagged cooling degree-hours
- An electric price variable based on increases in the real price of electricity over time
- Electric price variable based on decreases in the real price of electricity over time
- Dummy variables for the month of December and for the specific months of January 2007 and November 2005.
Finally, the commercial lighting sales model uses a lag of commercial lighting sales, dummy variables for August 2004 and September 2004, and autoregressive terms.

3. **Industrial Sales**

FPL forecasts industrial class sales using three separate models that are based on customer size. The industrial class is comprised of three distinct groups: 1) small accounts (less than 20 kW of demand), 2) medium accounts (21 kW to 499 kW of demand), and 3) large accounts (demands of 500 kW or higher).

- The small industrial sales model utilizes the following variables: Florida housing starts, cooling degree-hours, heating degree-hours, a dummy variable for August 2004, and autoregressive terms.
- The medium industrial sales model utilizes the following variables: cooling degree-hours, January heating degree-days, dummy variables for the specific months of February 2005, November 2005, and February 2006, and autoregressive terms.
- The large industrial sales model utilizes an exponential smoothing model. Industrial lighting sales are also included in industrial sales.

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

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

FPL develops the forecast for Street and Highway sales 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**

FPL sums the sales forecasts by revenue class to produce a total sales forecast.

7. **Sales for Resale**

Sales for resale (wholesale) customers are composed of municipalities and/or electric cooperatives. 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. FPL’s load forecast includes wholesale loads served under full and partial
requirements contracts that provide other utilities all, or a portion of, their load requirements at a level of service equivalent to FPL's own native load customers. There are currently nine customers in this class: Florida Keys Electric Cooperative, Lee County Electric Cooperative, New Smyrna Beach, Wauchula, Winter Park, Homestead, Quincy, Moore Haven, and Seminole Electric Cooperative.7

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 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 customer-supplied information and historical usage trends.

FPL sales to New Smyrna Beach began in February 2014. The contract is projected to continue through December 2018.

FPL’s sales to Wauchula began in October 2011. The contract is projected to continue through December 2021.
Sales to Winter Park began in January 2014. The contract is projected to continue through December 2019.

FPL sales to Homestead began in August 2015. The contract is projected to continue through December 2024.

Sales to Quincy began in January 2016. The contract is projected to continue through December 2023.

Sales to Moore Haven began in July 2016. The contract is projected to continue through December 2025.

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7 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.
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)

FPL uses an econometric model to produce a NEL per-customer forecast. The inputs to the model include both Florida real per capita income weighted by the percentage of the population that is employed and electric prices. The model also includes several weather variables, such as cooling degree-hours and heating degree-days by calendar month, and heating degree-days based on 45°F. In addition, the model includes a variable for energy efficiency codes and standards and a variable to account for leap year. There is also an autoregressive term in the model.

FPL uses two variables to capture the impact of electric prices on usage. One variable is based on increases in the real price of electricity over time while another is based on decreases in the real price of electricity over time. The energy efficiency variable is included to capture the impacts from major energy efficiency 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 15,823 GWh by 2026. This represents an approximately 11% reduction in what the forecasted NEL for 2026 would have been absent these codes and standards. From the end of 2016, the incremental reduction through 2026 is expected to be 8,004 GWh.

FPL makes an adjustment for the impact of incremental private solar added after August 2016. The adjustment to the forecast due to private solar is expected to reduce the NEL forecast by 705 GWh by 2026. FPL also adjusted the forecast for the additional load added after August 2016 from new plug-in electric vehicles. This resulted in an increase of approximately 1,040 GWh by the end of the ten-year reporting period. FPL further adjusted the forecast for the incremental load added after August 2016 from FPL’s economic development riders. This incremental load is projected to grow to 483 GWh before leveling off in 2022. A final adjustment is made for wholesale requirements contracts to include load not otherwise reflected in FPL’s historical data as a result of new, modified, or expanded wholesale contracts. This incremental load is projected to add 4,526 GWh in 2026.

FPL develops the NEL forecast 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 private solar, plug-in electric vehicles, FPL’s economic development riders, and
wholesale requirements contracts. Once the NEL forecast is determined, FPL computes total billed sales using a historical ratio of sales to NEL. FPL then adjusts the sales by class forecasts, discussed previously, to match the total billed sales. The forecasted NEL values from the beginning of 2017 through 2026 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, and energy efficiency codes and standards. 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 private solar, the expected number of plug-in electric vehicles, FPL’s economic development riders, and wholesale requirements contracts.

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 4,365 MW by 2026. 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 2026 impact from these energy efficiency codes and standards effectively reduces FPL’s Summer peak for that year by approximately 14%. From the end of 2016, FPL projects the incremental impact on the Summer peak from these energy efficiency codes and standards will be a reduction of 2,041 MW through 2026. Similarly, FPL projects the incremental impact on the Winter peak will reach 1,263 MW in 2026.

FPL also adjusted the forecast for additional load estimated from plug-in electric vehicles and FPL’s economic development riders. The impact from plug-in electric vehicles is projected to be an increase of approximately 308 MW in the Summer and 158 MW in the Winter by the end of 2026. The impact from FPL’s economic development riders is projected to grow to 69 MW in the Summer peak, and 58 MW in the Winter peak, before leveling off in 2022. The incremental impact of private solar results in an expected decrease of approximately 167 MW in the Summer and a negligible reduction in the Winter by the end of the ten-year reporting period. The incremental
impact from private solar is based on forecasted increases in rooftop photovoltaic (PV) installations not otherwise reflected in the load forecast.

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 2017 through 2026 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**
   FPL develops the Summer peak forecast using an econometric model. The variables included in the model are the 3-month average Consumer Price Index (CPI) for Energy, 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 codes and standards, and a dummy variable for the year 2005. The model is based on the Summer peak contribution per customer multiplied by the total number of customers. This product is then adjusted to account for the expected changes in loads resulting from private solar, plug-in electric vehicles, FPL’s economic development riders, and wholesale requirements contracts 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 Winter peaks occurring in February. Also included in the model is a variable for housing starts per capita. FPL adjusts the forecasted results for the impact of energy efficiency codes and standards. The model is based on the Winter peak contribution per customer multiplied by the total number of customers. This product then is adjusted for the expected changes in loads resulting from private solar, plug-in electric vehicles, FPL’s economic development riders, and wholesale requirements contracts.

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

FPL produces forecasted values for system hourly load for the period 2017 through 2026 using a System Load Forecasting “shaper” program. This model uses years of historical FPL hourly system load data to develop load shapes. 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. An extreme 90% probability (P90) cold weather event, however, can add an additional 3,000 MW or more to the Winter peak, and an extreme P90 hot weather event can add an additional 700 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, FPL scrutinizes the relevant statistics (goodness of fit, F-statistic, P-values, mean absolute deviation (MAD), mean absolute percentage error (MAPE), etc.) 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, FPL compares forecasts of aggregate peak demand and NEL with the actual values as they 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, FPL may consider revisions to the econometric model.

FPL addresses the inherent uncertainty in load forecasting in different ways in regard to FPL’s overall resource planning and operational planning work. With respect to FPL’s resource planning work, the company’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 (GRM) 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 NEL may be produced based on an analysis of past forecasting variances. With respect 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

FPL assumes that the effects of its DSM energy efficiency programs through August 2016 are embedded in the actual usage data for forecasting purposes. FPL accounts for the following projected DSM MW and MWh impacts as “line item reductions” to the forecasts as part of the IRP process: 1) the impacts of incremental energy efficiency that FPL has implemented in the September 2016 through December 2016 time period, 2) incremental energy efficiency that FPL plans to implement in the future based on the DSM Goals set for FPL by the FPSC in December 2014, and 3) the cumulative and projected incremental impacts of FPL’s load management programs. FPL’s DSM Goals address the years 2015 through 2024. For the years 2025 and 2026 that are also presented in this Site Plan, FPL assumes that utility DSM impacts will continue at an annual level consistent with the DSM Goals. After making these adjustments to the load forecast values, 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*

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Members per Household</th>
<th>Rural &amp; Residential</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Average GWh</td>
<td>Average kWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No. of Customers</td>
<td>Consumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Per Customer</td>
<td>Per Customer</td>
</tr>
<tr>
<td>2007</td>
<td>8,620,285</td>
<td>2.17</td>
<td>55,138</td>
<td>13,849</td>
</tr>
<tr>
<td>2008</td>
<td>8,679,468</td>
<td>2.17</td>
<td>53,229</td>
<td>13,333</td>
</tr>
<tr>
<td>2009</td>
<td>8,747,848</td>
<td>2.20</td>
<td>53,950</td>
<td>13,540</td>
</tr>
<tr>
<td>2010</td>
<td>8,858,844</td>
<td>2.21</td>
<td>56,343</td>
<td>14,070</td>
</tr>
<tr>
<td>2011</td>
<td>8,994,728</td>
<td>2.23</td>
<td>54,642</td>
<td>13,570</td>
</tr>
<tr>
<td>2012</td>
<td>9,116,827</td>
<td>2.25</td>
<td>53,434</td>
<td>13,187</td>
</tr>
<tr>
<td>2013</td>
<td>9,241,135</td>
<td>2.26</td>
<td>55,202</td>
<td>13,241</td>
</tr>
<tr>
<td>2014</td>
<td>9,384,300</td>
<td>2.25</td>
<td>58,486</td>
<td>13,920</td>
</tr>
<tr>
<td>2015</td>
<td>9,541,386</td>
<td>2.26</td>
<td>57,423</td>
<td>13,732</td>
</tr>
<tr>
<td>2016</td>
<td>9,691,064</td>
<td>2.27</td>
<td>58,867</td>
<td>13,920</td>
</tr>
</tbody>
</table>

| 2017 | 9,838,770  | 2.26                  | 57,423              | 13,214      |
| 2018 | 9,981,708  | 2.26                  | 58,039              | 13,166      |
| 2019 | 10,119,039 | 2.26                  | 58,246              | 13,031      |
| 2020 | 10,252,872 | 2.26                  | 58,865              | 12,996      |
| 2021 | 10,386,048 | 2.26                  | 58,844              | 12,822      |
| 2022 | 10,519,445 | 2.26                  | 59,475              | 12,793      |
| 2023 | 10,652,800 | 2.26                  | 59,781              | 12,696      |
| 2024 | 10,786,515 | 2.26                  | 60,372              | 12,661      |
| 2025 | 10,920,522 | 2.26                  | 60,678              | 12,569      |
| 2026 | 11,055,012 | 2.26                  | 61,222              | 12,527      |

**Historical Values (2007 - 2016):**

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*

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Members per Household</th>
<th>Rural &amp; Residential</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Average GWh</td>
<td>Average kWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No. of Customers</td>
<td>Consumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Per Customer</td>
<td>Per Customer</td>
</tr>
<tr>
<td>2017</td>
<td>9,838,770</td>
<td>2.26</td>
<td>57,423</td>
<td>13,214</td>
</tr>
<tr>
<td>2018</td>
<td>9,981,708</td>
<td>2.26</td>
<td>58,039</td>
<td>13,166</td>
</tr>
<tr>
<td>2019</td>
<td>10,119,039</td>
<td>2.26</td>
<td>58,246</td>
<td>13,031</td>
</tr>
<tr>
<td>2020</td>
<td>10,252,872</td>
<td>2.26</td>
<td>58,865</td>
<td>12,996</td>
</tr>
<tr>
<td>2021</td>
<td>10,386,048</td>
<td>2.26</td>
<td>58,844</td>
<td>12,822</td>
</tr>
<tr>
<td>2022</td>
<td>10,519,445</td>
<td>2.26</td>
<td>59,475</td>
<td>12,793</td>
</tr>
<tr>
<td>2023</td>
<td>10,652,800</td>
<td>2.26</td>
<td>59,781</td>
<td>12,696</td>
</tr>
<tr>
<td>2024</td>
<td>10,786,515</td>
<td>2.26</td>
<td>60,372</td>
<td>12,661</td>
</tr>
<tr>
<td>2025</td>
<td>10,920,522</td>
<td>2.26</td>
<td>60,678</td>
<td>12,569</td>
</tr>
<tr>
<td>2026</td>
<td>11,055,012</td>
<td>2.26</td>
<td>61,222</td>
<td>12,527</td>
</tr>
</tbody>
</table>

**Projected Values (2017 - 2026):**

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial Average No. of Customers</th>
<th>Industrial Average kWh Per Customer</th>
<th>Railroads Street &amp; Highway &amp; Sales to Public Authorities</th>
<th>Ultimate Consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>3,774</td>
<td>18,732</td>
<td>201,499</td>
<td>91</td>
</tr>
<tr>
<td>2008</td>
<td>3,587</td>
<td>13,377</td>
<td>268,168</td>
<td>81</td>
</tr>
<tr>
<td>2009</td>
<td>3,245</td>
<td>10,084</td>
<td>321,796</td>
<td>80</td>
</tr>
<tr>
<td>2010</td>
<td>3,130</td>
<td>8,910</td>
<td>351,318</td>
<td>81</td>
</tr>
<tr>
<td>2011</td>
<td>3,086</td>
<td>8,691</td>
<td>355,104</td>
<td>82</td>
</tr>
<tr>
<td>2012</td>
<td>3,024</td>
<td>8,743</td>
<td>345,871</td>
<td>81</td>
</tr>
<tr>
<td>2013</td>
<td>2,956</td>
<td>9,541</td>
<td>309,772</td>
<td>88</td>
</tr>
<tr>
<td>2014</td>
<td>2,941</td>
<td>10,415</td>
<td>282,398</td>
<td>91</td>
</tr>
<tr>
<td>2015</td>
<td>3,042</td>
<td>11,318</td>
<td>268,799</td>
<td>92</td>
</tr>
<tr>
<td>2016</td>
<td>3,059</td>
<td>11,651</td>
<td>262,505</td>
<td>92</td>
</tr>
</tbody>
</table>

**Historical Values (2007 - 2016):**

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.


---

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial Average No. of Customers</th>
<th>Industrial Average kWh Per Customer</th>
<th>Railroads Street &amp; Highway &amp; Sales to Public Authorities</th>
<th>Ultimate Consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>3,026</td>
<td>12,500</td>
<td>242,081</td>
<td>92</td>
</tr>
<tr>
<td>2018</td>
<td>3,023</td>
<td>12,839</td>
<td>235,416</td>
<td>92</td>
</tr>
<tr>
<td>2019</td>
<td>3,017</td>
<td>13,045</td>
<td>231,293</td>
<td>92</td>
</tr>
<tr>
<td>2020</td>
<td>3,010</td>
<td>13,169</td>
<td>228,553</td>
<td>92</td>
</tr>
<tr>
<td>2021</td>
<td>3,002</td>
<td>13,245</td>
<td>226,642</td>
<td>92</td>
</tr>
<tr>
<td>2022</td>
<td>2,993</td>
<td>13,291</td>
<td>225,213</td>
<td>92</td>
</tr>
<tr>
<td>2023</td>
<td>2,985</td>
<td>13,320</td>
<td>224,073</td>
<td>92</td>
</tr>
<tr>
<td>2024</td>
<td>2,976</td>
<td>13,338</td>
<td>223,117</td>
<td>92</td>
</tr>
<tr>
<td>2025</td>
<td>2,967</td>
<td>13,349</td>
<td>222,282</td>
<td>92</td>
</tr>
<tr>
<td>2026</td>
<td>2,958</td>
<td>13,355</td>
<td>221,517</td>
<td>92</td>
</tr>
</tbody>
</table>

**Projected Values (2017 - 2026):**

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.

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Utility Sales for Resale GWh</th>
<th>Utility Use &amp; Other Losses GWh</th>
<th>Net Energy For Load GWh</th>
<th>Average No. of Customers</th>
<th>Total Average Number of Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>1,499</td>
<td>7,401</td>
<td>114,315</td>
<td>3,276</td>
<td>4,496,589</td>
</tr>
<tr>
<td>2008</td>
<td>993</td>
<td>7,092</td>
<td>111,004</td>
<td>3,348</td>
<td>4,509,730</td>
</tr>
<tr>
<td>2009</td>
<td>1,155</td>
<td>7,394</td>
<td>111,303</td>
<td>3,439</td>
<td>4,499,067</td>
</tr>
<tr>
<td>2010</td>
<td>2,049</td>
<td>7,870</td>
<td>114,476</td>
<td>3,523</td>
<td>4,520,328</td>
</tr>
<tr>
<td>2011</td>
<td>2,176</td>
<td>6,950</td>
<td>112,454</td>
<td>3,596</td>
<td>4,547,051</td>
</tr>
<tr>
<td>2012</td>
<td>2,237</td>
<td>6,403</td>
<td>110,866</td>
<td>3,645</td>
<td>4,576,449</td>
</tr>
<tr>
<td>2013</td>
<td>2,158</td>
<td>6,713</td>
<td>111,655</td>
<td>3,722</td>
<td>4,626,934</td>
</tr>
<tr>
<td>2014</td>
<td>5,375</td>
<td>6,204</td>
<td>115,968</td>
<td>3,795</td>
<td>4,708,829</td>
</tr>
<tr>
<td>2015</td>
<td>6,610</td>
<td>6,326</td>
<td>122,756</td>
<td>3,907</td>
<td>4,775,382</td>
</tr>
<tr>
<td>2016</td>
<td>6,623</td>
<td>5,334</td>
<td>121,619</td>
<td>3,979</td>
<td>4,828,066</td>
</tr>
</tbody>
</table>

Historical Values (2007 - 2016):

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

Col. (19) = Schedule 2.2 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 2012-2016 values are based on calendar year.

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


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

<table>
<thead>
<tr>
<th>Year</th>
<th>Utility Sales for Resale GWh</th>
<th>Utility Use &amp; Other Losses GWh</th>
<th>Net Energy For Load GWh</th>
<th>Average No. of Customers</th>
<th>Total Average Number of Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>5,973</td>
<td>5,144</td>
<td>119,186</td>
<td>4,069</td>
<td>4,909,904</td>
</tr>
<tr>
<td>2018</td>
<td>5,992</td>
<td>5,332</td>
<td>120,500</td>
<td>4,145</td>
<td>4,979,325</td>
</tr>
<tr>
<td>2019</td>
<td>6,067</td>
<td>5,369</td>
<td>121,122</td>
<td>4,218</td>
<td>5,047,004</td>
</tr>
<tr>
<td>2020</td>
<td>6,143</td>
<td>5,495</td>
<td>122,325</td>
<td>4,291</td>
<td>5,113,137</td>
</tr>
<tr>
<td>2021</td>
<td>5,669</td>
<td>5,465</td>
<td>122,053</td>
<td>4,365</td>
<td>5,178,908</td>
</tr>
<tr>
<td>2022</td>
<td>5,238</td>
<td>5,630</td>
<td>122,806</td>
<td>4,435</td>
<td>5,244,656</td>
</tr>
<tr>
<td>2023</td>
<td>5,317</td>
<td>5,695</td>
<td>123,653</td>
<td>4,506</td>
<td>5,310,238</td>
</tr>
<tr>
<td>2024</td>
<td>5,398</td>
<td>5,827</td>
<td>124,933</td>
<td>4,576</td>
<td>5,375,524</td>
</tr>
<tr>
<td>2025</td>
<td>5,480</td>
<td>5,852</td>
<td>125,680</td>
<td>4,645</td>
<td>5,440,459</td>
</tr>
<tr>
<td>2026</td>
<td>5,564</td>
<td>5,916</td>
<td>126,825</td>
<td>4,712</td>
<td>5,505,072</td>
</tr>
</tbody>
</table>

Projected Values (2017 - 2026):

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) = Schedule 2.2 Col. (16) + Col. (17) + Col. (18). These values are based on calendar year.

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

### Schedule 3.1

#### History of Summer Peak Demand (MW)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Wholesale</th>
<th>Retail</th>
<th>Interruptible</th>
<th>Res. Load Management</th>
<th>Residential Conservation</th>
<th>C/I Load Management</th>
<th>C/I Conservation</th>
<th>Net Firm Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>21,962</td>
<td>261</td>
<td>21,701</td>
<td>0</td>
<td>952</td>
<td>982</td>
<td>716</td>
<td>683</td>
<td>20,295</td>
</tr>
<tr>
<td>2008</td>
<td>21,060</td>
<td>181</td>
<td>20,879</td>
<td>0</td>
<td>966</td>
<td>1,042</td>
<td>760</td>
<td>706</td>
<td>19,334</td>
</tr>
<tr>
<td>2009</td>
<td>22,351</td>
<td>249</td>
<td>22,102</td>
<td>0</td>
<td>981</td>
<td>1,097</td>
<td>811</td>
<td>732</td>
<td>20,558</td>
</tr>
<tr>
<td>2010</td>
<td>22,256</td>
<td>419</td>
<td>21,837</td>
<td>0</td>
<td>990</td>
<td>1,181</td>
<td>815</td>
<td>758</td>
<td>20,451</td>
</tr>
<tr>
<td>2011</td>
<td>21,619</td>
<td>427</td>
<td>21,192</td>
<td>0</td>
<td>1,000</td>
<td>1,281</td>
<td>821</td>
<td>781</td>
<td>19,798</td>
</tr>
<tr>
<td>2012</td>
<td>21,440</td>
<td>431</td>
<td>21,009</td>
<td>0</td>
<td>1,013</td>
<td>1,351</td>
<td>833</td>
<td>810</td>
<td>19,594</td>
</tr>
<tr>
<td>2013</td>
<td>21,576</td>
<td>396</td>
<td>21,180</td>
<td>0</td>
<td>1,025</td>
<td>1,417</td>
<td>833</td>
<td>839</td>
<td>19,718</td>
</tr>
<tr>
<td>2014</td>
<td>22,935</td>
<td>955</td>
<td>21,980</td>
<td>0</td>
<td>1,010</td>
<td>1,494</td>
<td>843</td>
<td>866</td>
<td>21,082</td>
</tr>
<tr>
<td>2015</td>
<td>22,959</td>
<td>1,303</td>
<td>21,656</td>
<td>0</td>
<td>878</td>
<td>1,523</td>
<td>826</td>
<td>873</td>
<td>21,255</td>
</tr>
<tr>
<td>2016</td>
<td>23,858</td>
<td>1,167</td>
<td>22,691</td>
<td>0</td>
<td>882</td>
<td>1,548</td>
<td>836</td>
<td>888</td>
<td>22,140</td>
</tr>
</tbody>
</table>

#### Historical Values (2007 - 2016):

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 those 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 2016 values which are through August.

Col. (6) value for 2015 and 2016 primarily reflect a short-term hardware communications issue that is projected to be resolved by the end of 2017.

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)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Wholesale</th>
<th>Retail</th>
<th>Interruptible</th>
<th>Res. Load Management*</th>
<th>Residential Conservation</th>
<th>C/I Load Management*</th>
<th>C/I Conservation</th>
<th>Net Firm Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>24,009</td>
<td>1,408</td>
<td>22,600</td>
<td>0</td>
<td>952</td>
<td>12</td>
<td>869</td>
<td>18</td>
<td>22,158</td>
</tr>
<tr>
<td>2018</td>
<td>24,297</td>
<td>1,417</td>
<td>22,880</td>
<td>0</td>
<td>970</td>
<td>24</td>
<td>881</td>
<td>32</td>
<td>22,390</td>
</tr>
<tr>
<td>2019</td>
<td>24,496</td>
<td>1,381</td>
<td>23,116</td>
<td>0</td>
<td>977</td>
<td>35</td>
<td>892</td>
<td>45</td>
<td>22,547</td>
</tr>
<tr>
<td>2020</td>
<td>24,605</td>
<td>1,326</td>
<td>23,279</td>
<td>0</td>
<td>984</td>
<td>47</td>
<td>903</td>
<td>60</td>
<td>22,611</td>
</tr>
<tr>
<td>2021</td>
<td>24,717</td>
<td>1,132</td>
<td>23,585</td>
<td>0</td>
<td>990</td>
<td>59</td>
<td>915</td>
<td>74</td>
<td>22,679</td>
</tr>
<tr>
<td>2022</td>
<td>24,967</td>
<td>1,125</td>
<td>23,841</td>
<td>0</td>
<td>996</td>
<td>72</td>
<td>926</td>
<td>89</td>
<td>22,884</td>
</tr>
<tr>
<td>2023</td>
<td>25,338</td>
<td>1,131</td>
<td>24,207</td>
<td>0</td>
<td>1,003</td>
<td>85</td>
<td>937</td>
<td>105</td>
<td>23,208</td>
</tr>
<tr>
<td>2024</td>
<td>25,756</td>
<td>1,118</td>
<td>24,637</td>
<td>0</td>
<td>1,010</td>
<td>99</td>
<td>947</td>
<td>121</td>
<td>23,579</td>
</tr>
<tr>
<td>2025</td>
<td>26,137</td>
<td>1,098</td>
<td>25,040</td>
<td>0</td>
<td>1,016</td>
<td>112</td>
<td>958</td>
<td>137</td>
<td>23,914</td>
</tr>
<tr>
<td>2026</td>
<td>26,552</td>
<td>1,100</td>
<td>25,452</td>
<td>0</td>
<td>1,023</td>
<td>126</td>
<td>969</td>
<td>153</td>
<td>24,281</td>
</tr>
</tbody>
</table>

#### Projected Values (2017 - 2026):

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 whose loads FPL serves.
### Schedule 3.2

**History of Winter Peak Demand (MW)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Firm Wholesale</th>
<th>Retail</th>
<th>Interruptible</th>
<th>Res. Load Management</th>
<th>Residential Conservation</th>
<th>C/I Load Management</th>
<th>C/I Conservation</th>
<th>Net Firm Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>16,815</td>
<td>223</td>
<td>16,592</td>
<td>0</td>
<td>846</td>
<td>620</td>
<td>577</td>
<td>249</td>
<td>15,392</td>
</tr>
<tr>
<td>2008</td>
<td>18,055</td>
<td>163</td>
<td>17,892</td>
<td>0</td>
<td>868</td>
<td>644</td>
<td>636</td>
<td>279</td>
<td>16,551</td>
</tr>
<tr>
<td>2009</td>
<td>20,081</td>
<td>207</td>
<td>19,874</td>
<td>0</td>
<td>881</td>
<td>666</td>
<td>676</td>
<td>285</td>
<td>18,524</td>
</tr>
<tr>
<td>2010</td>
<td>24,346</td>
<td>500</td>
<td>23,846</td>
<td>0</td>
<td>895</td>
<td>687</td>
<td>721</td>
<td>291</td>
<td>22,730</td>
</tr>
<tr>
<td>2011</td>
<td>21,126</td>
<td>383</td>
<td>20,743</td>
<td>0</td>
<td>903</td>
<td>717</td>
<td>723</td>
<td>303</td>
<td>19,501</td>
</tr>
<tr>
<td>2012</td>
<td>17,934</td>
<td>382</td>
<td>17,552</td>
<td>0</td>
<td>856</td>
<td>755</td>
<td>722</td>
<td>314</td>
<td>16,356</td>
</tr>
<tr>
<td>2013</td>
<td>15,931</td>
<td>348</td>
<td>15,583</td>
<td>0</td>
<td>843</td>
<td>781</td>
<td>567</td>
<td>326</td>
<td>14,521</td>
</tr>
<tr>
<td>2014</td>
<td>17,500</td>
<td>890</td>
<td>16,610</td>
<td>0</td>
<td>828</td>
<td>805</td>
<td>590</td>
<td>337</td>
<td>16,083</td>
</tr>
<tr>
<td>2015</td>
<td>19,718</td>
<td>1,329</td>
<td>18,389</td>
<td>0</td>
<td>822</td>
<td>835</td>
<td>551</td>
<td>346</td>
<td>18,345</td>
</tr>
<tr>
<td>2016</td>
<td>16,941</td>
<td>897</td>
<td>16,054</td>
<td>0</td>
<td>742</td>
<td>858</td>
<td>570</td>
<td>352</td>
<td>15,629</td>
</tr>
</tbody>
</table>

**Historical Values (2007 - 2016):**

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 winter peak occurred in December of 2010.

Col. (5) - Col. (9) for 2006 through 2016 represent actual DSM capabilities starting from January 1988 and are annual (12-month) values.

Col. (6) value for 2015 and 2016 primarily reflect a short-term hardware communications issue that is projected to be resolved by the end of 2016.

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)**

<table>
<thead>
<tr>
<th>January of Year</th>
<th>Total</th>
<th>Firm Wholesale</th>
<th>Retail</th>
<th>Interruptible</th>
<th>Res. Load Management</th>
<th>Residential Conservation</th>
<th>C/I Load Management</th>
<th>C/I Conservation</th>
<th>Net Firm Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>20,361</td>
<td>1,211</td>
<td>19,151</td>
<td>0</td>
<td>777</td>
<td>4</td>
<td>599</td>
<td>10</td>
<td>18,971</td>
</tr>
<tr>
<td>2018</td>
<td>20,673</td>
<td>1,216</td>
<td>19,456</td>
<td>0</td>
<td>806</td>
<td>7</td>
<td>605</td>
<td>19</td>
<td>19,236</td>
</tr>
<tr>
<td>2019</td>
<td>20,828</td>
<td>1,177</td>
<td>19,651</td>
<td>0</td>
<td>812</td>
<td>11</td>
<td>610</td>
<td>29</td>
<td>19,366</td>
</tr>
<tr>
<td>2020</td>
<td>20,978</td>
<td>1,120</td>
<td>19,857</td>
<td>0</td>
<td>817</td>
<td>15</td>
<td>615</td>
<td>38</td>
<td>19,493</td>
</tr>
<tr>
<td>2021</td>
<td>21,172</td>
<td>1,123</td>
<td>20,049</td>
<td>0</td>
<td>822</td>
<td>20</td>
<td>621</td>
<td>49</td>
<td>19,660</td>
</tr>
<tr>
<td>2022</td>
<td>21,113</td>
<td>913</td>
<td>20,200</td>
<td>0</td>
<td>827</td>
<td>24</td>
<td>626</td>
<td>59</td>
<td>19,577</td>
</tr>
<tr>
<td>2023</td>
<td>21,289</td>
<td>916</td>
<td>20,373</td>
<td>0</td>
<td>833</td>
<td>29</td>
<td>632</td>
<td>71</td>
<td>19,724</td>
</tr>
<tr>
<td>2024</td>
<td>21,452</td>
<td>900</td>
<td>20,552</td>
<td>0</td>
<td>838</td>
<td>35</td>
<td>637</td>
<td>82</td>
<td>19,860</td>
</tr>
<tr>
<td>2025</td>
<td>21,591</td>
<td>876</td>
<td>20,715</td>
<td>0</td>
<td>844</td>
<td>40</td>
<td>643</td>
<td>94</td>
<td>19,970</td>
</tr>
<tr>
<td>2026</td>
<td>21,773</td>
<td>875</td>
<td>20,898</td>
<td>0</td>
<td>849</td>
<td>46</td>
<td>648</td>
<td>106</td>
<td>20,124</td>
</tr>
</tbody>
</table>

**Projected Values (2017 - 2026):**

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 Jan 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 whose loads belong to Florida Power & Light Company.
### Schedule 3.3

**History of Annual Net Energy for Load (GWh)**

(All values are "at the generator" values except for Col (8))

<table>
<thead>
<tr>
<th>Year</th>
<th>(1) Net Energy For Load GWh</th>
<th>(2) Residential Conservation GWh</th>
<th>(3) C/I Conservation GWh</th>
<th>(4) Actual Net Energy For Load GWh</th>
<th>(5) Sales for Resale &amp; Losses GWh</th>
<th>(6) Utility Use &amp; Losses GWh</th>
<th>(7) Total Billed Retail Energy Sales (GWh)</th>
<th>(8) Load Factor(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>118,518</td>
<td>2,138</td>
<td>2,066</td>
<td>114,315</td>
<td>1,499</td>
<td>7,401</td>
<td>105,415</td>
<td>59.4%</td>
</tr>
<tr>
<td>2008</td>
<td>115,379</td>
<td>2,249</td>
<td>2,126</td>
<td>111,004</td>
<td>993</td>
<td>7,092</td>
<td>102,919</td>
<td>60.2%</td>
</tr>
<tr>
<td>2009</td>
<td>115,844</td>
<td>2,345</td>
<td>2,196</td>
<td>111,303</td>
<td>1,155</td>
<td>7,394</td>
<td>102,755</td>
<td>58.6%</td>
</tr>
<tr>
<td>2010</td>
<td>119,220</td>
<td>2,487</td>
<td>2,259</td>
<td>114,475</td>
<td>2,049</td>
<td>7,870</td>
<td>104,557</td>
<td>58.7%</td>
</tr>
<tr>
<td>2011</td>
<td>117,460</td>
<td>2,683</td>
<td>2,324</td>
<td>112,454</td>
<td>2,176</td>
<td>6,950</td>
<td>103,327</td>
<td>59.4%</td>
</tr>
<tr>
<td>2012</td>
<td>116,083</td>
<td>2,823</td>
<td>2,394</td>
<td>110,866</td>
<td>2,237</td>
<td>6,403</td>
<td>102,226</td>
<td>59.0%</td>
</tr>
<tr>
<td>2013</td>
<td>117,087</td>
<td>2,962</td>
<td>2,469</td>
<td>111,655</td>
<td>2,158</td>
<td>6,713</td>
<td>102,784</td>
<td>59.1%</td>
</tr>
<tr>
<td>2014</td>
<td>121,621</td>
<td>3,125</td>
<td>2,529</td>
<td>115,968</td>
<td>5,375</td>
<td>6,204</td>
<td>104,389</td>
<td>57.7%</td>
</tr>
<tr>
<td>2015</td>
<td>128,556</td>
<td>3,232</td>
<td>2,568</td>
<td>122,756</td>
<td>6,610</td>
<td>6,326</td>
<td>109,820</td>
<td>61.0%</td>
</tr>
<tr>
<td>2016</td>
<td>127,481</td>
<td>3,254</td>
<td>2,608</td>
<td>121,619</td>
<td>6,623</td>
<td>5,334</td>
<td>109,663</td>
<td>58.2%</td>
</tr>
</tbody>
</table>

**Historical Values (2007 - 2016):**

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 2016 are "estimated actuals" and are also annual (12-month) values. The values represent the total GWh reductions experienced each year.

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

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

### Schedule 3.3

**Forecast of Annual Net Energy for Load (GWh)**

(All values are "at the generator" values except for Col (8))

<table>
<thead>
<tr>
<th>Year</th>
<th>(1) Forecasted Net Energy For Load GWh</th>
<th>(2) Residential Conservation GWh</th>
<th>(3) C/I Conservation GWh</th>
<th>(4) Net Energy For Load GWh Adjusted for DSM GWh</th>
<th>(5) Sales for Resale &amp; Losses GWh</th>
<th>(6) Utility Use &amp; Losses GWh</th>
<th>(7) Forecasted Total Billed Retail Energy Sales w/o DSM GWh</th>
<th>(8) Load Factor(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>119,119</td>
<td>22</td>
<td>45</td>
<td>119,119</td>
<td>5,973</td>
<td>5,144</td>
<td>108,069</td>
<td>56.7%</td>
</tr>
<tr>
<td>2018</td>
<td>120,382</td>
<td>46</td>
<td>72</td>
<td>120,382</td>
<td>5,992</td>
<td>5,332</td>
<td>109,176</td>
<td>56.6%</td>
</tr>
<tr>
<td>2019</td>
<td>120,951</td>
<td>71</td>
<td>100</td>
<td>120,951</td>
<td>6,067</td>
<td>5,369</td>
<td>109,686</td>
<td>56.4%</td>
</tr>
<tr>
<td>2020</td>
<td>122,098</td>
<td>97</td>
<td>130</td>
<td>122,098</td>
<td>6,143</td>
<td>5,485</td>
<td>110,688</td>
<td>56.8%</td>
</tr>
<tr>
<td>2021</td>
<td>121,768</td>
<td>124</td>
<td>161</td>
<td>121,768</td>
<td>5,669</td>
<td>5,465</td>
<td>110,919</td>
<td>56.4%</td>
</tr>
<tr>
<td>2022</td>
<td>122,482</td>
<td>151</td>
<td>193</td>
<td>122,482</td>
<td>5,238</td>
<td>5,630</td>
<td>111,938</td>
<td>56.2%</td>
</tr>
<tr>
<td>2023</td>
<td>123,247</td>
<td>179</td>
<td>227</td>
<td>123,247</td>
<td>5,317</td>
<td>5,695</td>
<td>112,641</td>
<td>55.7%</td>
</tr>
<tr>
<td>2024</td>
<td>124,462</td>
<td>208</td>
<td>263</td>
<td>124,462</td>
<td>5,398</td>
<td>5,827</td>
<td>113,708</td>
<td>55.4%</td>
</tr>
<tr>
<td>2025</td>
<td>125,142</td>
<td>238</td>
<td>300</td>
<td>125,142</td>
<td>5,480</td>
<td>5,852</td>
<td>114,348</td>
<td>54.9%</td>
</tr>
<tr>
<td>2026</td>
<td>126,221</td>
<td>268</td>
<td>336</td>
<td>126,221</td>
<td>5,564</td>
<td>5,916</td>
<td>115,345</td>
<td>54.5%</td>
</tr>
</tbody>
</table>

**Projected Values (2017 - 2026):**

Col. (2) represents Forecasted Net Energy For Load and does not include incremental DSM from 2017 - on. The Col. (2) values are extracted from Schedule 2.3, Col(19). The effects of conservation implemented prior to mid 2016 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 2017 - on and are mid-year (6-month) values reflecting DSM signups occurring evenly throughout each year.

Col. (5) is the forecasted Net Energy for Load (NEL) after adjusting for impacts of incremental DSM for years 2017 - 2026 using the formula:

\[
\text{Col. (5)} = \text{Col. (2)} - \text{Col. (3)} - \text{Col. (4)}
\]

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

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

---

Florida Power & Light Company 45
### Schedule 4

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

<table>
<thead>
<tr>
<th>Month</th>
<th>2016 Actual</th>
<th>2017 Forecast</th>
<th>2018 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Peak Demand MW</td>
<td>Total NEL GWh</td>
<td>Total Peak Demand MW</td>
</tr>
<tr>
<td>JAN</td>
<td>16,926</td>
<td>8,464</td>
<td>20,361</td>
</tr>
<tr>
<td>FEB</td>
<td>16,941</td>
<td>7,921</td>
<td>18,132</td>
</tr>
<tr>
<td>MAR</td>
<td>19,117</td>
<td>9,243</td>
<td>18,077</td>
</tr>
<tr>
<td>APR</td>
<td>20,021</td>
<td>9,371</td>
<td>19,630</td>
</tr>
<tr>
<td>MAY</td>
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<td>21,450</td>
</tr>
<tr>
<td>JUN</td>
<td>22,528</td>
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<td>22,890</td>
</tr>
<tr>
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<td>21,156</td>
</tr>
<tr>
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<td>8,507</td>
<td>18,590</td>
</tr>
<tr>
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**Annual Values:**

<table>
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<th></th>
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<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td></td>
<td>121,619</td>
<td>119,186</td>
<td>120,500</td>
</tr>
</tbody>
</table>

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

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

Cols. (5) and Col. (7) annual values shown are consistent with forecasted values shown in Col.(2) of Schedule 3.3.
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: (i) the magnitude and timing of needed resources, and (ii) the type of resources that should be added. 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, which FPL used in developing the resource plan presented in this Site Plan.

Four Fundamental Steps of FPL’s Resource Planning:

The four fundamental steps to FPL’s resource planning are:

1. **Step 1: Determine the magnitude and timing of FPL’s new resource needs;**
2. **Step 2: Identify which resource options and resource plans can meet the determined magnitude and timing of FPL’s resource needs (e.g., identify competing options and resource plans);**
3. **Step 3: Evaluate the competing options and resource plans in regard to system economics and non-economic factors; and,**
4. **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

Fundamental IRP Steps

1. Determine the magnitude and timing of FPL's new resource needs
   - Load forecast update
   - Updating of other forecasts, data, and assumptions
   - System reliability analyses

2. Identify DSM and generation resource options, perform preliminary analyses, and develop resource plans which can meet the determined magnitude and timing of FPL's resource needs
   - Preliminary analyses of individual DSM options
   - Packaging of DSM options
   - Preliminary analyses of generation options
   - Develop resource plans for system analyses

3. Evaluate the competing resource plans in regard to system economics and non-economic factors
   - System economic and non-economic analyses of competing resource plans

4. Finalize FPL's Integrated Resource Plan & commit to near-term options
   - Finalize FPL's Integrated Resource Plan
   - FPL Commitment to near-term options

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 is essentially a determination of the amount and timing of capacity or megawatts (MW) of load reduction, new capacity additions, or a combination of both, which are needed to maintain system reliability. This step is often referred to as a reliability assessment, or resource adequacy analysis, for the utility system.

This analysis 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 throughout other aspects of FPL’s resource planning process. 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 current projections of new generating capacity additions and planned retirements of existing generating units. In FPL’s 2017 Site Plan, there are five (5) such projected capacity changes through the 10-year reporting time frame of this document. These changes are listed below in general chronological order:

1) **Significantly More Solar Energy Generation:**

   In this 2017 Site Plan, due in large part to declining costs for photovoltaic (PV) equipment, FPL is projecting the addition of 1,192 MW of PV that will be added in annual increments of 298 MW each beginning in the year 2017 through 2020. These additions are contemplated under the Solar Base Rate Adjustment (SoBRA) mechanism in the settlement agreement of FPL’s 2016 base rate case. On March 1 of this year, FPL requested FPSC approval to add 298 MW of PV in 2017, and another 298 MW of PV in 2018. FPL believes that PV additions will continue to be cost-effective after 2018, and currently projects that it will continue to add PV installations in 298 MW increments each year from 2019 through 2023. Additional information regarding the siting of the solar additions, particularly for the years 2017 and 2018, is presented in Chapter IV. With these PV additions, FPL’s solar capability is projected to increase to approximately 2,420 MW.
by the end of 2023. This total solar capability will consist of approximately 2,345 MW of PV and 75 MW of solar thermal capability.

2) **CT upgrades at existing CC plant sites:**
   FPL is continuing its efforts to cost-effectively modernize its generation fleet in 2017 and later years by upgrading the CT component of a number of its combined cycle (CC) units. These upgrades are currently underway and are scheduled to be completed by 2020. Specific information regarding the years in which these upgrades will take place and the associated MW impacts is presented in Schedule 8 of this chapter.

3) **New Combined Cycle Capacity at the Okeechobee Site:**
   FPL will be adding a new CC generating unit at its Okeechobee site in mid-2019 to meet resource needs starting that year. This new generating unit was first selected as FPL’s best self-build generating option. A request for proposals (RFP) was then issued to solicit capacity proposals from outside parties that could compete with the Okeechobee CC. However, no proposals were submitted that met the requirements of the RFP. FPL sought a determination of need from the Florida Public Service Commission (FPSC) for approval to build the Okeechobee CC unit. The FPSC issued its approval for the new unit in a final order (Order No.PSC-16-0032-FOF-EI) issued on January 19, 2016. The new CC unit is projected to add approximately 1,750 MW (Summer) of highly fuel-efficient generation capacity.

4) **Modernization of the Existing Lauderdale Plant Site:**
   FPL plans to further modernize its power generation fleet by retiring the two existing CC units at its existing Fort Lauderdale plant site in the 4th Quarter of 2018 and replace them with a new, modern 2x1 CC unit by mid-2022. Although there will be a net increase in system capacity of approximately 279 MW (the existing total of 884 MW at the site will be replaced by a 1,163 MW CC unit), this modernization is being pursued in large part due to the significant economic savings for FPL’s customers that is projected. There will be an improvement in system fuel efficiency with the new unit because the existing 884 MW has a heat rate of approximately 7,880 BTU/kWh and the 1,163 MW new CC unit is projected to have a heat rate of approximately 6,119 BTU/kWh, or 22% lower. The new power plant will be named the Dania Beach Clean Energy Center.
5) **Coal-Fired Capacity from SJRPP:**

For planning purposes, FPL projects that by the first quarter of 2019 it will no longer receive the total of 636 MW of coal-fired generation from SJRPP that it currently receives from these units through a combination of ownership (254 MW) and power purchases (382 MW). The capacity and energy from the SJRPP units are no longer projected to be cost-effective for FPL’s customers.

The second set of assumptions involves other firm capacity power purchases. There have been changes in the projected contribution of these purchases when comparing FPL’s 2017 Site Plan with its 2016 Site Plan.

FPL’s 2016 Site Plan included two power purchase agreements (PPAs), the existing 330 MW coal-based PPA with ICL and the three 60 MW biomass-based PPAs with EcoGen (180 MW total), for which FPL’s projections have changed. In November 2016, with mutual consent of the parties involved and FPSC approval (in Order PSC-16-0506-FOF-EI), FPL took control of the coal-fired ICL PPA and the underlying asset from which it received firm capacity and energy. FPL currently plans to terminate this PPA by the 1st quarter of 2019 because the contract is no longer cost-effective for FPL’s customers. The EcoGen PPAs would have resulted in FPL receiving 180 MW of firm capacity starting in 2021. However, EcoGen has defaulted on those agreements and, therefore, this capacity is no longer included in FPL’s resource plan.

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

The third set of assumptions involves a projection of the amount of additional DSM that FPL anticipates it will implement annually over the ten-year reporting period of 2017 through 2026. Because the current DSM Goals address the 10-year period of 2015 through 2024, FPL has assumed that the annual DSM contributions during this period are extended through 2025 and 2026. FPL’s DSM efforts are further discussed in section III.D of this chapter.

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

FPL applies these key assumptions, plus the other updated information described above, in the first fundamental step: determining the magnitude and timing of FPL’s future resource needs. This

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8 Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.
determination is accomplished through system reliability analyses. Up until 2014, FPL’s reliability analyses were based on dual planning criteria, including 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 criteria are commonly used throughout the utility industry. Beginning in 2014, FPL began utilizing a third reliability criterion: a 10% generation-only reserve margin (GRM).

Until several years ago, two types of methodologies, deterministic and probabilistic, were utilized by FPL in system reliability analysis. The calculation of excess firm capacity at the annual system peaks (reserve margin) is a 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, and a number of them are used to perform system reliability analyses. Among the most widely used is loss-of-load probability (LOLP), which FPL utilizes. Simply stated, LOLP is an index of how well a generating system may be able to meet its firm demand (i.e., a measure of how often load may exceed available resources). In contrast to reserve margin, the calculation of LOLP looks at the daily peak demands for each year, while taking into consideration such probabilistic events as the unavailability of individual generators due to scheduled maintenance or forced outages.

LOLP is expressed in terms of the projected probability that a utility will be unable to meet its entire firm load at some point during a year. The probability of not being able to meet the entire firm load is calculated for each day of the year using the daily peak hourly load. These daily probabilities are then summed to develop an annual probability value. This annual probability value is commonly expressed as “the number of days per year” that the entire system firm load could not be met. FPL’s standard for LOLP, which is commonly accepted throughout the industry, is a maximum of 0.1 day per year. This analysis requires a more complicated calculation methodology than 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.
In 2010, FPL’s integrated resource planning work examined a then-projected fundamental change in FPL’s resource plans. This change was a significant shift in the mix of generation and DSM resources that resulted in FPL becoming increasingly reliant on DSM resources, rather than generation resources, to maintain system reliability. As discussed in several subsequent FPL Site Plans, extensive analyses examined this shift from a system reliability perspective.

In these analyses, FPL developed a key 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, to derive another useful version of a reserve margin calculation. The resulting GRM value provides an indication of the 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 value. Therefore, in 2014 FPL implemented a minimum GRM criterion of 10% as a third reliability criterion in its resource planning process. This key criterion has to be met in all years beginning with the year 2019.

The 10% minimum Summer and Winter GRM criterion augments the other two reliability criteria that FPL uses: the 20% total reserve margin criterion for Summer and Winter and the 0.1 day/year LOLP criterion. All three reliability criteria are useful to identify the timing and magnitude of the resource need because of the different perspectives the three criteria provide. In addition, the GRM criterion is particularly useful in providing direction regarding the mix of generation (combined cycle, solar, etc.) 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 certain key characteristics may be conducted to determine what type of new capacity option appears to be the most competitive on FPL’s system. Preliminary analyses also can 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, a Fixed Cost Spreadsheet, and/or an optimization model 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. A years-to-payback screening test based on a two-year payback 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 is FPL’s non-linear programming (NLP) model that is used to analyze 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 (LP) model, which the company uses to develop DSM portfolios.

FPL then typically “packages” the individual new resource options, both Supply options and DSM portfolios, emerging from these preliminary economic screening analyses into different resource plans that 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 and 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 2016 and early 2017 resource planning work, after 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. FPL may also use other spreadsheet models 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 general objective of minimizing 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 both electricity rates and 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.

FPL also includes other factors in its 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. FPL often refers to these factors as “system concerns,” which include (but are not limited to) maintaining/enhancing fuel diversity in the FPL system 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 2017 through 2026 are depicted in Table ES-1 in the Executive Summary. This table presents four significant generation additions/changes: (i) the addition of a total of 2,086 MW of PV in the 2017 through 2023 time frame, (ii) an addition of 1,750 MW CC at the Okeechobee site in 2019, (iii) the removal of approximately 636 MW of coal-fired capacity from SJRPP by early 2019, (iv) the end of 330 MW of coal-fired purchased power from ICL by early 2019, and (v) the retirement of 884 MW of older CC capacity at FPL’s existing Lauderdale site in late 2018, followed by the addition of a 1,163 MW new, modern CC at that site by mid-2022.

Although FPL’s projected DSM additions are not explicitly presented in Table ES-1, they 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 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 in section III.D.

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

The combination of the additional generation to be provided by the new PV facilities in 2017 through 2023, the new Okeechobee 2019 CC unit, the planned modernization of the Lauderdale site in 2022, and the forecasted peak load growth result in FPL fully meeting its projected resource needs through the 10-year reporting period of this Site Plan (i.e., through 2026).

In considering the resource plan presented in this Site Plan, it is also useful to note that there are at least six (6) significant factors that either influenced the current resource plan or which may result in future changes. These factors are discussed below (in no particular order of importance).

1. Maintaining/Enhancing System Fuel Diversity:

FPL currently uses natural gas to generate approximately 70% of the total electricity it delivers to its customers. In the future, the percentage of FPL’s electricity generated by natural gas is projected to remain at a comparable 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, both in regard to type of fuel and fuel delivery.
In 2007, following express direction by the FPSC, FPL sought approval from the FPSC to add two new advanced technology coal units to its system. These two 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 considerations now result in new coal units being unfavorable when compared to new natural gas-fired CC units. The first of these is a significant reduction in the fuel cost difference between coal and natural gas; i.e., the projected fuel cost advantage of coal versus natural gas has been significantly reduced since 2007. 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 that are unfavorable to new coal units when compared to new CC units. Consequently, FPL does not believe that new advanced technology coal units are currently viable fuel diversity enhancement options in Florida at this time.

Therefore, FPL has focused on: (i) adding cost-effective solar energy and nuclear energy facilities to enhance fuel diversity, (ii) diversifying the sources of natural gas, (iii) diversifying the gas transportation paths used to deliver natural gas to FPL’s generating units, and (iv) using natural gas more efficiently.

**Solar Energy:** This Site Plan shows that FPL plans to add 2,086 MW of cost-effective PV capability by the end of 2023. These substantial additions will result in FPL having approximately 2,345 MW of PV, plus 75 MW of solar thermal capability, on its system by the end of 2023. This amount (MW) of PV generation is nine times the amount of PV that FPL had at the end of 2016. The total amount of solar equates to an approximate 10% increase to FPL’s current system of approximately 25,000 MW of generation.

However, the impact of PV’s contribution in terms of actual energy produced (MWh) is smaller. FPL delivers energy to its customers continuously on a 24-hour basis. Because solar energy can only be generated during daylight hours, and is impacted by clouds, rain, etc., it has a relatively low capacity factor (approximately 27% for PV). As a result, this significant amount of PV generation (MW) that FPL is adding will result in solar supplying approximately 4% of the total energy (MWh) that FPL delivers (as shown in Schedule 6.2 later in this chapter).\(^9\)

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\(^9\) As a rule of thumb for FPL’s system, each 500 MW of PV added to FPL’s system will account for slightly less than 1% of FPL’s total energy delivery.
Nevertheless, solar’s contribution to FPL’s total energy mix is projected to reach a noteworthy milestone beginning in the year 2020, when solar-produced energy is projected to be greater than that produced by coal and oil combined. In addition, solar’s increased contribution to FPL’s energy mix results in a projection that the cleanest energy sources -- low-emission natural gas, zero-emission nuclear, and zero-emission solar -- will provide at least 97% of all energy produced by FPL beginning in 2020.

**Nuclear Energy:** In 2008 the FPSC approved the need to increase capacity at FPL’s four existing nuclear units and authorized the company to recover project-related expenditures that were approved as a result of annual nuclear cost recovery filings. FPL successfully completed this nuclear capacity uprate project. Approximately 520 MW of additional nuclear capacity was 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 benefitting from lower fuel costs and reduced system emissions provided by this additional nuclear capacity.

Since June 2009, FPL has worked 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 for as long as 20 years from the time the licenses and permits are granted, and then to operate the units for at least 40 years thereafter. At the time this document is being prepared, FPL projects that it will receive a decision on its Combined Operating License (COL) Application in late 2017 or early 2018. In addition, FPL determined in 2016 that, once a COL has been issued, it will pause before moving into constructing the new nuclear units in order to understand the first-wave construction experience of two nuclear projects currently underway by Georgia Power and SCANA. Construction of these projects is expected to be completed in approximately 2021.

As a result, the earliest projected in-service dates for Turkey Point 6 & 7 are beyond the 2017 through 2026 time period addressed in this Site Plan. Additional nuclear capacity remains an important consideration in FPL’s resource planning, and this Site Plan continues to present the Turkey Point site as a Preferred Site for the new units.

**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 third natural gas pipeline system into Florida. The process by the pipeline companies to obtain approval from the Federal Energy Regulatory Commission (FERC) for the new pipeline system, consisting of the Sabal Trail and Florida
Southeast Connection pipelines, culminated in receiving a FERC certificate of approval on February 2, 2016. The pipeline entities subsequently accepted the certificate in early March 2016. At the time this Site Plan is being developed, the new pipeline system is projected to be completed in mid-2017. The new pipeline system is necessary to fuel the FPSC-approved Okeechobee CC unit, which will address capacity needs that begin in 2019. The new pipeline system utilizes an independent route that will result in a more reliable, economic, and diverse natural gas supply for FPL customers and the State of Florida.

**Using natural gas more efficiently:** In 2008, FPL received approval from the FPSC to modernize the existing Cape Canaveral and Riviera Beach plant sites with new, highly efficient CC units, which replaced the former steam generating units on each of those sites. The Cape Canaveral modernization went into service in April 2013, and the Riviera Beach modernization entered service in April 2014. On April 9, 2012, FPL received FPSC approval to proceed with a similar modernization project at the Port Everglades site. The new generating unit went into service on April 1, 2016. All three of these modernized sites have the capability to receive 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 also is maintaining the ability to utilize heavy oil and/or ULSD oil at existing units that have that capability. For this purpose, FPL has 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 installed at its existing Lauderdale and Fort Myers sites in 2016, which replaced older GT units that were retired, have the capability to burn either natural gas or ULSD oil.

2. **Maintaining a Balance Between Load and Generation in Southeastern Florida:**

An imbalance exists between regionally installed generation and regional peak load in Southeastern Florida (Miami-Dade and Broward counties). 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, additional installed generating capacity and/or load reduction 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 or adjacent to Southeastern Florida, four capacity addition decisions in the last decade (Turkey Point Unit 5 and WCEC Units 1, 2, and 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 recently completed Port Everglades modernization project also assisted in addressing this imbalance. The planned modernization of the existing Lauderdale plant site, which will result in an additional 279 MW of generation capacity in Southeastern Florida, will further help to maintain a balance between load and generation in this region.

3. Maintaining a Balance Between Generation and DSM Resources for System Reliability:
As mentioned earlier in Section III.A, FPL utilizes a 10% Generation-Only Reserve Margin (GRM) to ensure that system reliability is not negatively affected by an overreliance on non-generation resources. This GRM reliability criterion was developed as a result of extensive analyses – which have been described in detail in prior FPL Site Plans - of FPL’s system from both resource planning and system operations perspectives.

The potential overreliance upon non-generating resources for system reliability remains an important resource planning issue for FPL and is one the company will continue to examine in its ongoing resource planning work.

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 FPL currently projects to deliver to its customers through these codes and standards is significant.

FPL currently projects a cumulative Summer peak reduction impact of 4,365 MW from these codes and standards beginning in 2005 (the year the National Energy Policy Act was enacted) and extending through 2026 (i.e., the last year in the 2017 through 2026 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 2017 through 2026 reporting period of this Site Plan is a reduction of 2,041 MW compared to what the projected load would have been without the codes and standards. In regard to energy, the impact of the codes and standards has resulted in a projected reduction of 15,823 GWh since 2005. Included in this 2005 through 2026 projection
is a reduction of more than 8,000 GWh from year-end 2016 through 2026. All 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: it lowers the potential for utility DSM programs to cost-effectively deliver energy efficiency. This effect was taken into account by the FPSC when FPL’s current DSM Goals were set in December 2014.

5. **The Economic Competitiveness of Universal Photovoltaics (PV):**
   Another important factor in FPL’s resource planning is the increasing cost competitiveness of utility-scale (or “universal”) PV facilities due to the projected continued decline in the cost of PV modules, the recent extension of federal tax credits, and the likely future exemption from ad valorem taxes that may be legislated in 2017 based on the approval of Florida Constitutional Amendment 4 by voters in 2016. Universal solar facilities are the most economical way to utilize PV technology, and the declining costs of PV modules have resulted in these projects becoming competitive on FPL’s system. As a result, FPL is planning to add 1,192 MW of additional PV facilities, in increments of 298 MW per year, during the 2017 through 2020 time period pursuant to the terms and conditions of the solar base rate adjustment (SoBRA) portion of the FPSC-approved Settlement Agreement from FPL’s 2016 base rate case. In addition, FPL projects that it will continue adding PV installations in 298 MW increments each year from 2021 through 2023. The projected future installed costs of PV, and various impacts from PV installed on FPL’s system, will be of significant interest to FPL’s on-going resource planning efforts.

6. **Projected changes in CO2 regulation and associated compliance costs:**
   Projected CO2-related compliance costs can have a large impact in utility resource planning work. Current projections show that compliance costs for CO2 will start later and be lower than in previous projections. If the compliance cost projections significantly change in the future, it is possible that the resource plan presented in the 2017 Site Plan may change.

### 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 the company’s resource planning work for decades. During that time, FPL’s DSM programs have included many energy efficiency and load management programs and initiatives.
FPL’s current DSM Goals were established by the FPSC in December 2014. These DSM Goals address the years 2015 through 2024. The FPSC’s DSM Goals Order No. PSC-14-0696-FOF-EU recognized that two important market forces 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 first in Chapter II, and earlier in Section III.C above, the projected incremental impacts of these energy efficiency codes and standards during the 2017 through 2026 time period has significantly lowered FPL’s projected load and resource needs. As a result, these energy efficiency codes and standards significantly reduce the potential for cost-effective utility DSM programs.

The second market force was FPL’s lower generating costs with which DSM must compete. There are two reasons for these lower generating costs. As fuel costs are lowered, the benefit that is realized by each kWh of energy reduced by DSM is also lowered. In other words, the benefit from DSM’s kWh reductions has been reduced from what it had been when Florida previously established DSM Goals. For example, FPL last set DSM Goals in 2014, and prior to that, DSM Goals were set in 2009. Current projections for natural gas costs for the 10-year period addressed in this Site Plan are approximately 70% lower than natural gas cost forecasts were in 2009. And the current forecasts are approximately 33% lower than the natural gas cost forecasts used in the most recent 2014 DSM Goals docket. These 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 than it was in the past.

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 23% less fossil fuel to generate a MWh in 2016 than it did in 2001. This is very good 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 as lower forecasted fuel costs: 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.

Although the two reasons discussed above – lower forecasted fuel costs and greater efficiency in FPL’s electricity generation – 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 must be lowered, thus reducing the attractiveness of these programs to potential participants.

Although FPL’s DSM Goals are appropriately lower due to these market forces, the projected cumulative effect of FPL’s DSM programs is truly significant. After accounting for the 20% total reserve margin requirements, the Summer MW reductions from FPL’s DSM programs from their inception through the beginning of 2015 represent the equivalent of avoiding the need to build approximately fifteen (15) 400 MW power plants. In addition, FPL’s Summer MW Goals for the 2015 – 2024 time period are 526 MW. After accounting for this additional amount of DSM, FPL’s DSM efforts are projected to have avoided the need to build approximately sixteen (16) 400 MW power plants. The resource plan presented in this 2017 Site Plan accounts for the DSM MW and GWh reductions set forth in FPL’s DSM Goals. In addition, FPL also assumes that additional DSM will be added in the years 2025 and 2026 at the same annual level projected in the 2015 – 2024 DSM Goals. The MW reductions from the new DSM Goals and the projected extension of these annual levels through 2026 are accounted for in Schedules 7.1 and 7.2, which appear later in this chapter.

In August 2015, the FPSC approved FPL’s DSM Plan (Order No. PSC-15-0331-PAA-EG, consummated by Order No. PSC-15-0384-CO-EG), which describes the approach FPL will take to meet its DSM Goals. The DSM Plan consists of fourteen (14) DSM programs and research and development efforts that are described below:

**FPL DSM Programs and Research & Development Efforts**

1. **Residential Home Energy Survey (HES)**
   This program educates customers on energy efficiency and encourages implementation of recommended practices and measures, even if these are not included in FPL’s DSM programs. The HES is also used to identify potential candidates for other FPL DSM programs.

2. **Residential Load Management (On Call)**
   This program allows FPL to turn off certain customer-selected appliances using FPL-installed equipment during periods of extreme demand, capacity shortages or system emergencies.
3. **Residential Air Conditioning**
   This program encourages customers to install high-efficiency central air-conditioning systems.

4. **Residential Ceiling Insulation**
   This program encourages customers to improve the home’s thermal efficiency.

5. **Residential New Construction (BuildSmart®)**
   This program encourages builders and developers to design and construct new homes that achieve BuildSmart® certification and move towards ENERGY STAR® qualifications.

6. **Residential Low Income**
   This program assists low income customers through state Weatherization Assistance Provider (WAP) agencies and FPL-conducted Energy Retrofits.

7. **Business Energy Evaluation (BEE)**
   This program educates customers on energy efficiency and encourages implementation of recommended practices and measures, even if these are not included in FPL's DSM programs. The BEE is also used to identify potential candidates for other FPL DSM programs.

8. **Commercial/Industrial Demand Reduction (CDR)**
   This program allows FPL to control customer loads of 200 kW or greater during periods of extreme demand, capacity shortages, or system emergencies.

9. **Commercial/Industrial Load Control (CILC)**
   This program allows FPL to control customer loads of 200 kW or greater during periods of extreme demand, capacity shortages, or system emergencies. It was closed to new participants as of December 31, 2000. It is available to existing participants who had entered into a CILC agreement as of March 19, 1996.

10. **Business On Call**
    This program allows FPL to turn off customers’ direct expansion central electric air-conditioning units using FPL-installed equipment during periods of extreme demand, capacity shortages or system emergencies.
11. **Business Heating, Ventilating and Air Conditioning (HVAC)**
   This program encourages customers to install high-efficiency HVAC systems.

12. **Business Lighting**
   This program encourages customers to install high-efficiency lighting systems.

13. **Business Custom Incentive (BCI)**
   This program encourages customers to install unique high-efficiency technologies not covered by other FPL DSM programs.

14. **Conservation Research & Development (CRD) Project**
   This project consists of research studies designed to: identify new energy efficient technologies; evaluate and quantify their impacts on energy, demand, and customers; and, where appropriate and cost-effective, incorporate an emerging technology into a DSM program.

### 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 and above bulk transmission lines that must be certified under the Transmission Line Siting Act.
Table III.E.1: List of Proposed Power Lines

<table>
<thead>
<tr>
<th>Line Ownership</th>
<th>Terminals (To)</th>
<th>Terminals (From)</th>
<th>Line Length CKT. Miles</th>
<th>Commercial In-Service Date (Mo/Yr)</th>
<th>Nominal Voltage (KV)</th>
<th>Capacity (MVA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPL St. Johns 1/</td>
<td>Pringle</td>
<td></td>
<td>25</td>
<td>Dec/2018</td>
<td>230</td>
<td>759</td>
</tr>
<tr>
<td>FPL Levee 2/</td>
<td>Midway</td>
<td></td>
<td>150</td>
<td>June/2019</td>
<td>500</td>
<td>2598</td>
</tr>
<tr>
<td>FPL Raven 3/</td>
<td>Duval</td>
<td></td>
<td>45</td>
<td>Dec/2018</td>
<td>230</td>
<td>759</td>
</tr>
</tbody>
</table>

1/ Final order certifying the corridor was issued in April 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 December 2018.

2/ Final order certifying the corridor was issued in April 1990. Construction of 114 miles is complete and in-service. An additional 25 miles of the Levee-Midway project is scheduled to be completed by June 2019.

3/ Final order certifying the corridor for the Raven to Duval project was issued in June 2016. The project is scheduled to be completed by December 2018.

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 PV additions that FPL plans to add beginning in 2017 and 2018, the new CC unit in 2019 at the Okeechobee site, and the modernization of the existing Lauderdale site by mid-2022. Sites for the planned PV additions in 2019 through 2023 have not yet been determined so no transmission analyses for these planned additions have been performed.
III.E.1 Transmission Facilities for the Horizon Solar Energy Center in Putnam and Alachua Counties

The work required to connect the approximate 74.5 MW Horizon Solar Energy Center in Putnam and Alachua Counties by December 2017 is projected to be:

I. Substation:

1. Construct a new single bus, two (2) breaker 115 kV substation (“Horizon”) adjacent to the FPL Bradford-Putnam 115 kV line corridor.
2. Add one 115/34.5 kV main step-up transformer (85 MVA) with a 115 kV breaker to connect PV inverter array.
3. Construct 34.5 kV buss to connect the PV array to Horizon 115 kV Substation.
4. Add relays and other protective equipment.
5. Breaker replacements: None

II. Transmission:

1. Loop the Melrose Tap-Hawthorne Tap section of the Bradford-Putnam 115 kV line into Horizon substation (approximately 1 mile).
2. No additional upgrades are expected to be necessary at this time.
III.E.2 Transmission Facilities for the Wildflower Solar Energy Center in Desoto County

The work required to connect the approximate 74.5 MW Wildflower Solar Energy Center in Desoto County by December 2017 is projected to be:

I. Substation:

1. Construct a new 230 kV motor operated line switch at FPL’s existing Skylight substation.
2. Construct a new single breaker 230 kV substation (“Solaris”) at the project site.
3. Add one 230/34.5 kV main step-up transformer (85 MVA) to connect PV inverter array.
4. Construct 34.5 kV buss to connect the PV array to Solaris 230 kV Substation.
5. Add relays and other protective equipment.
6. Breaker replacements: None

II. Transmission:

1. Construct approximately 0.5 mile 230 kV line between Skylight and Solaris substations.
2. No additional upgrades are expected to be necessary at this time.
III.E.3 Transmission Facilities for the Indian River Solar Energy Center in Indian River County

The work required to connect the approximate 74.5 MW Indian River Solar Energy Center in Indian River County by December 2017 is projected to be:

I. **Substation:**

1. Construct a new three (3) breaker 230 kV substation ("Heritage") adjacent to the FPL Malabar-Midway 230 kV line corridor.
2. Construct a new single bus, one (1) breaker 230 kV substation ("Eldora") at the solar PV project site.
3. Add one 230/34.5 kV main step-up transformer (85 MVA) to connect PV inverter array.
4. Construct 34.5 kV buss to connect the PV array to Eldora 230 kV Substation.
5. Add relays and other protective equipment.
6. Breaker replacements: None

II. **Transmission:**

1. Loop the adjacent Malabar-Midway 230 kV line into Heritage substation
2. Construct a new 4.5 mile 230 kV line from Heritage substation to Eldora substation.
3. No additional upgrades are expected to be necessary at this time.
III.E.4 Transmission Facilities for the Coral Farms Solar Energy Center in Putnam County

The work required to connect the approximate 74.5 MW Coral Farms Solar Energy Center in Putnam County by December 2017 is projected to be:

II. Substation:

1. Construct a new single bus, two (2) breaker 230 kV substation (“Quasar”) adjacent to the FPL Bradford-Rice 230 kV line corridor.
2. Add one 230/34.5 kV main step-up transformer (85 MVA) to connect PV inverter array.
3. Construct 34.5 kV buss to connect the PV array to Quasar 230 kV Substation.
4. Add relays and other protective equipment.
5. Breaker replacements: None.

III. Transmission:

1. Loop the adjacent Bradford-Rice 230 kV line into Quasar substation.
III.E.5 Transmission Facilities for the Hammock Solar Energy Center in Hendry County

The work required to connect the approximate 74.5 MW Hammock Solar Energy Center in Hendry County by February 2018 is projected to be:

I. Substation:

1. Construct a new single bus, two (2) breaker 138 kV substation (“Athens”) adjacent to the FPL Fort Myers-McCarthy 138 kV line corridor.
2. Add one 138/34.5 kV main step-up transformer (85 MVA) with a 138 kV breaker to connect PV inverter array.
3. Construct 34.5 kV buss to connect the PV array to Athens 138 kV Substation.
4. Add relays and other protective equipment.
5. Breaker replacements: None

II. Transmission:

1. Loop the Labelle-Montura section of the Fort Myers-McCarthy 138 kV line into Athens substation (approximately 0.1 mile).
2. No additional upgrades are expected to be necessary at this time.
III.E.6 Transmission Facilities for the Barefoot Bay Solar Energy Center in Brevard County

The work required to connect the approximate 74.5 MW Barefoot Bay Solar Energy Center in Brevard County by February 2018 is projected to be:

I. Substation:

1. Install a new two breaker 230kV bay at Barefoot substation to interconnect with the new 74.5 MW solar PV site.
2. Construct Cyrus substation on the solar PV site.
3. Add one 230/34.5 kV main step-up transformer (85 MVA) to connect solar PV inverter array.
4. Construct 34.5 kV buss to connect the PV array to Cyrus 230 kV Substation.
5. Add relays and other protective equipment.
6. Breaker replacements: None

II. Transmission:

1. Construct approximately 0.25 mile 230 kV line between Cyrus and Barefoot substations.
2. No additional upgrades are expected to be necessary at this time.
III.E.7 Transmission Facilities for the Blue Cypress Solar Energy Center in Indian River County

The work required to connect the approximate 74.5 MW Blue Cypress Solar Energy Center in Indian River County by February 2018 is projected to be:

I. Substation:

1. Construct a new one (1) breaker 230 kV bay at Heritage substation.
2. Add one 230/34.5 kV main step-up transformer (85 MVA) to connect PV inverter array.
3. Construct 34.5 kV buss to connect the PV array to Heritage 230 kV Substation.
4. Add relays and other protective equipment.
5. Breaker replacements: None

II. Transmission:

1. No additional upgrades are expected to be necessary at this time.
III.E.8 Transmission Facilities for the Loggerhead Solar Energy Center in St. Lucie County

The work required to connect the approximate 74.5 MW Loggerhead Solar Energy Center in St. Lucie County by February 2018 is projected to be:

I. Substation:

1. Construct a new single bus, two (2) breaker 230 kV substation (“Heru”) adjacent to the FPL Sherman-Treasure 230 kV line corridor.
2. Add one 230/34.5 kV main step-up transformer (85 MVA) with a 230 kV breaker to connect PV inverter array.
3. Construct 34.5 kV buss to connect the PV array to Heru 230 kV Substation.
4. Add relays and other protective equipment.
5. Breaker replacements: None.

II. Transmission:

1. Loop the adjacent Sherman-Treasure 230 kV line into Heru substation.
2. No additional upgrades are expected to be necessary at this time.
III.E. 9 Transmission Facilities for the New Combined Cycle (CC) Unit in Okeechobee County

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

I. Substation:

1. Build a new twelve breaker 500kV Fort Drum substation switchyard on the Okeechobee generation site with a relay vault for the generator string buses and the transmission line terminals.
2. Add six main step-up transformers (3-615 MVA) one for each combustion turbine, and three single-phase (3-250 MVA units in parallel) for the steam turbine.
3. Add relays and other protective equipment.
4. Breaker replacements:
   Poinsett Sub – Replace three 230 kV breakers.

II. Transmission:

1. Loop the existing Martin-Poinsett and Midway Poinsett #2 500 kV lines into the new Fort Drum substation approximately 0.5 miles south.
2. No other upgrades are expected to be necessary at this time.
III.E.10 Transmission Facilities for the Lauderdale Plant Modernization (CC) Unit (Dania Beach Clean Energy Center) in Broward County

The Lauderdale Modernization project that is projected to be completed by mid-2022 does not require any new offsite transmission lines.
III.F. Renewable Resources

Overview:

FPL has actively been involved in renewable energy resource development since the mid-1970s. In 2009, FPL implemented 110 MW of solar energy facilities including two PV facilities totaling 35 MW and one 75 MW solar thermal facility. Solar energy costs, especially the cost of PV, have continued to drop to the point where universal PV facilities have become competitive with more conventional generation options. Consequently, FPL announced in its 2016 Site Plan that it would construct three new PV facilities of approximately 74.5 MW each by the end of 2016. Those facilities are now in operation.

In this Site Plan, FPL is projecting a dramatic increase by planning to add a total of 2,086 MW of new PV beginning this year and concluding in the year 2023. FPL will continue to evaluate the economic and non-economic attributes of additional solar through its resource planning work on an on-going basis.

FPL’s Renewable Energy Efforts Through 2016:

FPL has been the leading Florida utility in examining ways to effectively utilize renewable energy technologies to serve its customers. Since 1976, FPL has been an industry leader in renewable energy research and development and in facilitating the implementation of various renewable energy technologies. FPL’s renewable energy efforts through 2016 are briefly discussed in five categories of solar/renewable activities. FPL’s plans for new renewable energy facilities from 2017 through 2026 are then discussed in a separate section.

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-ever 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 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 PV utilization. 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 was 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 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 2016, approximately 5,280 customer systems (predominantly residential) have been interconnected.

In 2009, as part of its DSM Goals decision, the FPSC imposed a requirement for Florida’s investor-owned utilities to spend up to a certain capped amount annually to facilitate demand-side solar water heater and PV applications. FPL’s cap 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 consistently showed that none of these pilot programs was cost-effective for FPL’s customers using any of the three cost-effectiveness screening tests used by the State of Florida. As a result, consistent with the FPSC’s December 2014 DSM Goals Order No. PSC-14-0696-FOF-EU, these pilot programs expired on December 31, 2015.

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

3) Supply Side Efforts – Power Purchases:
FPL has facilitated a number of renewable energy projects (facilities which burn bagasse, waste wood, municipal waste, etc.). FPL has purchased firm capacity and energy, and as-available energy, from these types of facilities. (Please refer to Tables I.B.1, I.B.2, and I.B.3 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.

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 were expected to provide non-firm energy service beginning in 2019 as well as firm energy and capacity to FPL’s customers beginning in 2021. However, EcoGen has defaulted on its agreements, and FPL no longer projects that it will receive energy or capacity from these facilities.
FPL and the Solid Waste Authority of Palm Beach (SWA) agreed to extend its contract that expired March 31, 2010, for a 20-year term beginning in April 1, 2012 through April 1, 2032. However, the SWA refurbished its 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 from a new unit. The new unit is now delivering firm capacity and energy to FPL. 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:**

As of the end of 2016 FPL had six solar generating facilities operating: (i) 75 MW steam generation solar thermal facility in Martin County (the Martin Next Generation Solar Energy Center); (ii) 25 MW PV electric generation facility in DeSoto County (the DeSoto Next Generation Solar Energy Center); (iii) 10 MW PV electric generation facility in Brevard County at NASA’s Kennedy Space Center (the Space Coast Next Generation Solar Energy Center); (iv) 74.5 MW PV electric generating facility at the existing Manatee site (the Manatee Solar Energy Center); (v) 74.5 MW PV electric generating facility in Desoto County (the Citrus Solar Energy Center); and (vi) a 74.5 MW PV electric generating facility in Charlotte County (the Babcock Solar Energy Center). The DeSoto project was completed in 2009, the Martin and Space Coast projects were completed in 2010, and the Manatee, Citrus and Babcock projects were completed in 2016. Each of the six PV electric generating 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 PV facility began commercial operation in 2009 and it was 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 PV facility began commercial operation in 2010.

d. **The Manatee Solar Energy Center:**
   This 74.5 MW PV facility at FPL’s existing Manatee plant site began commercial operation in late 2016.

e. **The Citrus Solar Energy Center:**
   This 74.5 MW PV facility in DeSoto County began commercial operation in late 2016. This site, along with the previously built DeSoto Next Generation Solar Energy Center discussed above, brings the total PV MW capability in DeSoto County to approximately 100 MW, making DeSoto County the top solar energy-producing county in Florida.

f. **The Babcock Solar Energy Center:**
   This 74.5 MW PV facility in Charlotte County began commercial operation in late 2016.

5) **Ongoing Research & Development Efforts:**
FPL has developed a “Living Lab” to demonstrate FPL’s solar energy commitment to employees and visitors at its Juno Beach office facility. FPL had previously installed five different PV arrays (using different technologies) of rooftop PV totaling 24 kW, as well as two PV-covered parking structures, resulting in a total of approximately 90 kW of PV. In addition, in 2016, FPL added another 10.5 kW solar project to test various new support structures, bringing the cumulative capacity to 124.5 kW installed PV. 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 technologies 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.

In regard to PV’s impact on the FPL system, FPL began in 2014 to develop a methodology to determine what firm capacity value at FPL’s Summer and Winter peak hours would be appropriate to apply to existing, and potential 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 two of its earliest 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). FPL continues to evaluate and refine its methodology for assigning firm capacity.

The potential capacity contribution of PV facilities is dependent upon a number of factors including (but not necessarily limited to): site location, technology, and design, and the methodology itself. The three new PV facilities that began operation in late 2016 are currently assumed to provide approximately 52% of their nameplate (AC) rating as firm capacity at FPL’s Summer peak hour, but no firm capacity during FPL’s Winter peak hour. For the additional 2,086 MW of PV that is planned beginning in 2017 through 2023, the Summer firm capacity assumption is slightly greater at 54%, but the assumption remains that this PV will provide no firm capacity at the time of FPL’s Winter peak hour.

**FPL’s Planned Renewable Energy Efforts for 2017 Through 2026:**

FPL efforts to implement cost-effective renewable energy, particularly PV, have significantly increased. Several factors are driving these efforts and/or focusing them. First, the price of PV modules has declined in recent years, thus making PV more cost competitive. Second, as previously discussed, FPL has developed a methodology to meaningfully assign a firm capacity benefit for meeting FPL’s Summer peak load to PV. Third, FPL has concluded from its implementation and analyses of universal PV and PV demand-side pilot programs that universal PV applications are the most economical way to utilize solar energy. In addition, although the specifics are not yet finalized, ad valorem tax exemptions that are expected to be enacted in 2017-2018 as a result of Amendment 4, are likely to further improve the economics of this technology choice.

FPL’s efforts to increasingly use cost-effective renewable energy in the 2017 – 2026 time period are summarized below.
1) **FPL Utility-Scale PV Facilities:**
FPL is now projecting to add 298 MW of PV per year beginning in 2017 through the end of 2023. Sites for the PV facilities for the years 2017 and 2018 have been determined. A description of those sites is provided in Chapter IV of this document. Sites for the PV facilities to be added in 2019 through 2023 have not yet been determined, but counties in which future solar projects are likely to be developed are provided in Chapter IV as Potential Sites.

2) **FPL Distributed Generation (DG) PV Pilot Programs:**
FPL began implementation of two DG PV pilot programs and a battery storage pilot program in 2015. The first is a voluntary, community-based, solar partnership pilot to install new solar-powered generating facilities. The program is 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 5 MW of DG PV. 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. The third program entails installing approximately 3 MW of battery storage systems with the objective of demonstrating the operational capabilities of batteries and learning how to integrate them into FPL’s system. This battery storage pilot program was expanded as a result of the settlement agreement in FPL’s 2016 base rate case resulting in an additional 50 MW of storage projects being implemented in the 2017 through 2020 time frame. A brief description of these pilot programs follows.

a) **Voluntary, Community-Based Solar Partnership Pilot Program:**
The Voluntary Solar Pilot Program provides FPL customers with an additional and flexible opportunity to support development of solar power in Florida. The FPSC 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 provides 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. As of the end of February 2017, there were 19,853 participants enrolled in the Voluntary Solar Pilot Program. The tariff became effective in January 2015 and the pilot program is currently scheduled to conclude at the end of 2017.

b) **C&I Solar Partnership Pilot Program:**
This pilot program is conducted in partnership with interested commercial and industrial (C&I) customers over an approximate 5 year period. Limited investments will be made in
PV facilities located at customer sites on selected distribution circuits within FPL’s service territory.

The primary objective 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 has installed approximately 3 MW of PV facilities on circuits that experience specific loading conditions to better study feeder loading impacts. Up to an additional 2 MW may be built in 2017 to further expand the understanding of integrating large PV facilities on the FPL system.

c) **Battery Storage Pilot Program:**

The purpose of the Battery Storage Pilot Program is to demonstrate and test a wide variety of battery storage grid applications including peak shaving, frequency response, and backup power for FPL’s system. In addition, the pilot program is designed to help FPL learn how to integrate battery storage into the grid and optimize control of these flexible resources. Under the pilot program, FPL has installed a 1.5 MW battery storage system in Miami-Dade County primarily for peak shaving and frequency response, a battery storage system of 1.5 MW in Monroe County for backup power and voltage support, and several smaller kilowatt-scale systems at other locations to study distributed storage reliability applications.

As part of the settlement agreement in FPL’s 2016 base rate case, FPL has been authorized to pursue an additional 50 MW in grid-tied battery energy storage demonstration projects by 2020. At the time this Site Plan is being readied for filing, FPL is in the midst of planning the details of this 50 MW expansion of the pilot program. It is anticipated that FPL will target individual project sizes ranging from 1 to 10 MW each with various durations, which will enable FPL to test a wide range of applications. The majority of projects are intended to be distribution-interconnected and will test a mix of reliability applications (i.e. localized outage and momentary mitigation) together with generation-related applications (i.e. peak shaving). Several battery projects will be co-located and paired with solar plants to explore ways to improve the integration of intermittent resources into FPL’s grid. Specific project sites are in the process of being identified and future Site Plans will provide additional information as plans are finalized.
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, which 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 abundant, U.S.-produced natural gas. FPL placed into commercial operation two new gas-fired CC units at the West County Energy Center (WCEC) site in 2009. FPL added a third new CC unit to the WCEC site in 2011. In addition, FPL has completed the modernization of its Cape Canaveral, Riviera Beach, and Port Everglades plant sites. These new CC units have dramatically improved 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 currently has a 75 MW solar thermal steam generating facility at the company’s existing Martin site and a total of approximately 260 MW of PV generating capability with facilities at five sites. FPL is also adding a total of 2,086 MW of additional PV capability in 2017 through 2023. However, as previously discussed in this chapter, the contribution to fuel diversity of this additional PV capability will be lower on a MWh basis than the large 2,086 MW addition of PV might suggest.

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.) 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 2026 based on the resource plan presented in this document, is presented in
Schedules 5, 6.1, and 6.2 that appear 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 to evaluate alternatives for meeting future resource needs. FPL’s forecasts
are generally consistent with other published contemporary forecasts. A November 2016 fuel
cost forecast was used in analyses, the results of which led to the resource plan presented in
this 2017 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
underscore 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 Low, Medium, and High price forecasts for fossil fuels in anticipation of its 2017
resource planning 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 2017 through 2019, the methodology used the November 2016 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 (2020 and 2021), FPL used a 50/50 blend of the November 2016 forward curve and the most current projections at the time from The PIRA Energy Group;

c. For the 2022 through 2035 period, FPL used the annual projections from The PIRA Energy Group; and,

d. For the period beyond 2036, 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. Forecasted 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.

In cases where multiple fuel cost forecasts are used, a Medium fuel cost forecast is developed first. FPL’s approach has been to then adjust the Medium fuel cost forecast upward (for the High fuel cost forecast) or downward (for the Low fuel cost forecast) by multiplying the annual cost values from the Medium fuel cost forecast by a factor of \((1 + \text{the historical volatility of the 12-month forward price, one year ahead})\) for the High fuel cost forecast, or by a factor of \((1 – \text{the historical volatility of the 12-month forward price, one year ahead})\) for the Low fuel cost forecast. Given the current environment of low fuel prices which highlights the asymmetry that exists between upside and downside price risk, FPL is currently considering another approach for determining the High and Low band sensitivities around the Medium fuel cost forecast.
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. The amended contract is set to expire March 31, 2018 but will automatically renew for up to four more successive one-year terms unless otherwise terminated by either party on or before December 31 of the previous year. 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 over the long-term due to FPL’s growing load. The addition of highly fuel-efficient CC units at Cape Canaveral, Riviera Beach, and Port Everglades due to completed modernization projects, plus the additional CC capacity at the Okeechobee and Lauderdale sites that will come in-service in 2019 and 2022, respectively, 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, as discussed above, 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 will 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 have sought Federal Energy Regulatory Commission (FERC) approval for the new pipelines. FERC granted certificates of approval for the new pipelines on February 2, 2016. The certificates were accepted by the pipeline companies in early March 2016. The planned in-service date for the pipelines is mid-2017. The Sabal Trail and FSC pipelines will provide the primary fuel for the FPSC-approved Okeechobee CC unit, which will come in-service in 2019 and will also allow needed support for gas-fired FPL generation facilities in several counties.

5. Nuclear Fuel Cost Forecast

This section reviews: the various steps needed to fabricate nuclear fuel for delivery to 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:** 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 a 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 the 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: Since the Fukushima events in March 2011, the near-term price of enrichment services has declined. However, plans for construction of several new facilities that were expected to come on-line after 2011 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 likely result in the price of enrichment services remaining stable for the next few years, then 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 2016 and early 2017 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 calculate 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.
# Fuel Requirements

## Fuel Requirements (for FPL only)

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<tr>
<th>Fuel Requirements</th>
<th>Units</th>
<th>Actual</th>
<th>Forecasted</th>
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</thead>
<tbody>
<tr>
<td>Nuclear</td>
<td>Trillion BTU</td>
<td>300</td>
<td>310</td>
</tr>
<tr>
<td>Coal</td>
<td>1,000 TON</td>
<td>3,168</td>
<td>2,474</td>
</tr>
<tr>
<td>Residual (FO6) - Total</td>
<td>1,000 BBL</td>
<td>556</td>
<td>764</td>
</tr>
<tr>
<td>Steam</td>
<td>1,000 BBL</td>
<td>558</td>
<td>764</td>
</tr>
<tr>
<td>Distillate (FO2) - Total</td>
<td>1,000 BBL</td>
<td>240</td>
<td>403</td>
</tr>
<tr>
<td>Steam</td>
<td>1,000 BBL</td>
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<td>116</td>
</tr>
<tr>
<td>CC</td>
<td>1,000 BBL</td>
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<td>79</td>
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<tr>
<td>CT</td>
<td>1,000 BBL</td>
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<td>208</td>
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<td>Natural Gas - Total</td>
<td>1,000 MCF</td>
<td>636,277</td>
<td>624,092</td>
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<td>Steam</td>
<td>1,000 MCF</td>
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<td>28,743</td>
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<td>CT</td>
<td>1,000 MCF</td>
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1/ Source: A Schedules.

Note: Solar contributions are provided on Schedules 6.1 and 6.2.
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<tr>
<td>(1) Annual Energy</td>
<td>GWH</td>
<td>4,730</td>
<td>1,748</td>
<td>759</td>
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<td>213</td>
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<td>(3) Coal</td>
<td>GWH</td>
<td>5,275</td>
<td>4,165</td>
<td>2,703</td>
<td>1,956</td>
<td>2,167</td>
<td>1,355</td>
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<td>773</td>
<td>990</td>
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<td>964</td>
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<td>(4) Residual(FO6) -Total</td>
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<td>323</td>
<td>430</td>
<td>154</td>
<td>34</td>
<td>92</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
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<tr>
<td>(5) Steam</td>
<td>GWH</td>
<td>323</td>
<td>430</td>
<td>154</td>
<td>34</td>
<td>92</td>
<td>10</td>
<td>3</td>
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<td>1</td>
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<tr>
<td>(6) Distillate(FO2) -Total</td>
<td>GWH</td>
<td>139</td>
<td>230</td>
<td>325</td>
<td>49</td>
<td>81</td>
<td>29</td>
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<td>26</td>
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<tr>
<td>(7) Steam</td>
<td>GWH</td>
<td>91</td>
<td>94</td>
<td>251</td>
<td>34</td>
<td>58</td>
<td>11</td>
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<td>(8) CC</td>
<td>GWH</td>
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<td>(9) CT</td>
<td>GWH</td>
<td>498</td>
<td>313</td>
<td>535</td>
<td>102</td>
<td>344</td>
<td>201</td>
<td>120</td>
<td>26</td>
<td>24</td>
<td>25</td>
<td>53</td>
<td>50</td>
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<tr>
<td>(10) Natural Gas -Total</td>
<td>GWH</td>
<td>85,797</td>
<td>86,161</td>
<td>84,869</td>
<td>85,936</td>
<td>85,913</td>
<td>87,601</td>
<td>86,860</td>
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<td>(11) Steam</td>
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<td>4,297</td>
<td>2,135</td>
<td>1,818</td>
<td>1,062</td>
<td>1,377</td>
<td>897</td>
<td>653</td>
<td>381</td>
<td>314</td>
<td>307</td>
<td>516</td>
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<tr>
<td>(12) CC</td>
<td>GWH</td>
<td>81,001</td>
<td>83,713</td>
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<td>84,773</td>
<td>84,192</td>
<td>86,502</td>
<td>86,987</td>
<td>86,316</td>
<td>86,726</td>
<td>87,552</td>
<td>87,435</td>
<td>89,167</td>
</tr>
<tr>
<td>(13) CT</td>
<td>GWH</td>
<td>498</td>
<td>313</td>
<td>535</td>
<td>102</td>
<td>344</td>
<td>201</td>
<td>120</td>
<td>26</td>
<td>24</td>
<td>25</td>
<td>53</td>
<td>50</td>
</tr>
<tr>
<td>(14) Solar 3</td>
<td>GWH</td>
<td>157</td>
<td>237</td>
<td>707</td>
<td>1,995</td>
<td>2,246</td>
<td>2,948</td>
<td>3,634</td>
<td>4,324</td>
<td>5,013</td>
<td>5,558</td>
<td>5,529</td>
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<tr>
<td>(15) PV</td>
<td>GWH</td>
<td>68</td>
<td>161</td>
<td>582</td>
<td>1,869</td>
<td>2,121</td>
<td>2,822</td>
<td>3,508</td>
<td>4,199</td>
<td>4,888</td>
<td>5,432</td>
<td>5,403</td>
<td>5,388</td>
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<tr>
<td>(16) Solar Thermal</td>
<td>GWH</td>
<td>90</td>
<td>75</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>(17) Other 4</td>
<td>GWH</td>
<td>-710</td>
<td>616</td>
<td>1,704</td>
<td>1,742</td>
<td>1,809</td>
<td>1,855</td>
<td>1,907</td>
<td>1,966</td>
<td>2,029</td>
<td>2,100</td>
<td>2,159</td>
<td>2,225</td>
</tr>
<tr>
<td>Net Energy For Load 5</td>
<td>GWH</td>
<td>122,756</td>
<td>121,619</td>
<td>119,186</td>
<td>120,500</td>
<td>121,122</td>
<td>122,325</td>
<td>122,053</td>
<td>122,806</td>
<td>123,653</td>
<td>124,933</td>
<td>125,680</td>
<td>126,825</td>
</tr>
</tbody>
</table>

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.
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, etc., net of Economy and other Power Sales.
5/ Net Energy For Load values for the years 2017 - 2026 are also shown in Col. (19) on Schedule 2.3.
### Schedule 6.2
Energy Sources % by Fuel Type

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Actual</th>
<th>Forecasted</th>
</tr>
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<tbody>
<tr>
<td>(1) Annual Energy Interchange</td>
<td>%</td>
<td>3.9</td>
</tr>
<tr>
<td>(2) Nuclear</td>
<td>%</td>
<td>22.0</td>
</tr>
<tr>
<td>(3) Coal</td>
<td>%</td>
<td>4.3</td>
</tr>
<tr>
<td>(4) Residual (FO6) -Total</td>
<td>%</td>
<td>0.3</td>
</tr>
<tr>
<td>(5) Steam</td>
<td>%</td>
<td>0.3</td>
</tr>
<tr>
<td>(6) Distillate (FO2) -Total</td>
<td>%</td>
<td>0.1</td>
</tr>
<tr>
<td>(7) Steam</td>
<td>%</td>
<td>0.0</td>
</tr>
<tr>
<td>(8) CC</td>
<td>%</td>
<td>0.1</td>
</tr>
<tr>
<td>(9) CT</td>
<td>%</td>
<td>0.0</td>
</tr>
<tr>
<td>(10) Natural Gas -Total</td>
<td>%</td>
<td>69.9</td>
</tr>
<tr>
<td>(11) Steam</td>
<td>%</td>
<td>3.5</td>
</tr>
<tr>
<td>(12) CC</td>
<td>%</td>
<td>66.0</td>
</tr>
<tr>
<td>(13) CT</td>
<td>%</td>
<td>0.4</td>
</tr>
<tr>
<td>(14) Solar</td>
<td>%</td>
<td>0.1</td>
</tr>
<tr>
<td>(15) PV</td>
<td>%</td>
<td>0.1</td>
</tr>
<tr>
<td>(16) Solar Thermal</td>
<td>%</td>
<td>0.1</td>
</tr>
<tr>
<td>(17) Other</td>
<td>%</td>
<td>-0.6</td>
</tr>
</tbody>
</table>

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.
3/ Represents output from FPL's PV and solar thermal facilities.
4/ Represents a forecast of energy expected to be purchased from Qualifying Facilities, etc., 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

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Firm Installed Capacity</th>
<th>Firm Installed Capacity Available</th>
<th>QF</th>
<th>Total Firm Capacity</th>
<th>DSM Demand</th>
<th>Total Firm Peak Demand</th>
<th>Summer Reserve</th>
<th>Summer Reserve % of Peak</th>
<th>Total Maintenance</th>
<th>Maintenance Margin After Maintenance</th>
<th>Maintenance Margin After Maintenance % of Peak</th>
<th>Total Maintenance % of Peak</th>
<th>Total Maintenance % of Peak</th>
<th>Col. (12)</th>
<th>Col. (13)</th>
<th>Col. (14)</th>
<th>Col. (15)</th>
<th>Col. (16)</th>
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<tbody>
<tr>
<td>2017</td>
<td>26,058</td>
<td>492</td>
<td>0</td>
<td>334</td>
<td>26,884</td>
<td>24,009</td>
<td>1,851</td>
<td>22,157</td>
<td>4,727</td>
<td>21.3</td>
<td>2,875</td>
<td>12.0</td>
<td>2,875</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
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<td>26,357</td>
<td>492</td>
<td>0</td>
<td>334</td>
<td>27,182</td>
<td>24,297</td>
<td>1,906</td>
<td>22,391</td>
<td>4,791</td>
<td>21.4</td>
<td>2,885</td>
<td>11.9</td>
<td>2,885</td>
<td>11.9</td>
<td>11.9</td>
<td>11.9</td>
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<td>11.9</td>
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<tr>
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<td>0</td>
<td>4</td>
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<td>24,496</td>
<td>1,950</td>
<td>22,547</td>
<td>4,578</td>
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<td>2,629</td>
<td>10.7</td>
<td>2,629</td>
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<td>10.7</td>
<td>10.7</td>
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<td>10.7</td>
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<tr>
<td>2020</td>
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<td>110</td>
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<td>4</td>
<td>27,433</td>
<td>24,605</td>
<td>1,994</td>
<td>22,612</td>
<td>4,822</td>
<td>21.3</td>
<td>2,828</td>
<td>11.5</td>
<td>2,828</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
<td>11.5</td>
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<tr>
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<td>0</td>
<td>4</td>
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<td>24,717</td>
<td>2,038</td>
<td>22,679</td>
<td>4,914</td>
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<td>2,876</td>
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<td>11.6</td>
<td>11.6</td>
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<td>11.6</td>
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<tr>
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<td>110</td>
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<td>6,119</td>
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<td>4,035</td>
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<td>16.2</td>
<td>16.2</td>
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<td>16.2</td>
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<td>23,209</td>
<td>6,037</td>
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<tr>
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<td>5,825</td>
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<td>14.2</td>
<td>3,648</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
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<td>29,400</td>
<td>26,137</td>
<td>2,224</td>
<td>23,914</td>
<td>5,486</td>
<td>22.9</td>
<td>3,263</td>
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<td>3,263</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
<td>12.5</td>
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<tr>
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<td>10.7</td>
<td>10.7</td>
<td>10.7</td>
</tr>
</tbody>
</table>

Col. (2) represents capacity additions and changes projected to be in-service by June 1st. These MW are generally considered to be available to meet summer peak loads which are forecasted to occur during August of the year indicated.

Col. (6) = Col.(2) + Col.(3) - Col.(4) + Col.(5).

Col.(7) reflects the 2017 load forecast without incremental energy efficiency or cumulative load management.

Col.(8) represents cumulative load management capability, plus incremental energy efficiency and load management, from 9/2016-on intended for use with the 2017 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)
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<th>Year</th>
<th>Total Installed Capacity</th>
<th>Firm Capacity</th>
<th>Winter Reserve</th>
<th>% of Peak</th>
<th>Total Winter Reserve</th>
<th>% of Peak</th>
<th>Total Maintenance</th>
<th>% of Peak</th>
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</thead>
<tbody>
<tr>
<td>2017</td>
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<td>499</td>
<td>0</td>
<td>334</td>
<td>28,411</td>
<td>20,361</td>
<td>1,390</td>
<td>8,440</td>
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<td>20,673</td>
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<td>20,978</td>
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<td>9,119</td>
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<td>21,172</td>
<td>1,512</td>
<td>9,011</td>
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<td>28,672</td>
<td>21,113</td>
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<td>9,096</td>
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<td>29,988</td>
<td>21,452</td>
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<td>2025</td>
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<td>29,988</td>
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<td>21,773</td>
<td>1,649</td>
<td>10,215</td>
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</tbody>
</table>

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 2017 load forecast without incremental energy efficiency or cumulative load management. The 2017 load is an actual load value.

Col.(8) represents cumulative load management capability, plus incremental energy efficiency and load management, from 9/2016-on intended for use with the 2017 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)

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Unit No.</th>
<th>Location</th>
<th>Type</th>
<th>Fuel</th>
<th>Firm Alt.</th>
<th>Start Mo./Yr.</th>
<th>Const. Alt.</th>
<th>In-Service Mo./Yr.</th>
<th>Expected Nameplate Winter Total MW</th>
<th>Expected Nameplate Summer Total MW</th>
<th>Status</th>
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<td></td>
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</tr>
<tr>
<td>Cedar Bay</td>
<td>1</td>
<td>Duval County</td>
<td>ST</td>
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<td>Jan-17</td>
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<td>250 (250)</td>
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<td>Lee County</td>
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<td>NG</td>
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<td>CT</td>
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<td>CC</td>
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<td>Jun-17</td>
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<td>1,224,510 (13)</td>
<td>- 13 OT</td>
<td></td>
</tr>
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<td>Martin County</td>
<td>CC</td>
<td>NG</td>
<td>No PL</td>
<td>No</td>
<td>Mar-17</td>
<td>Unknown</td>
<td>612,000 (9)</td>
<td>- 9 OT</td>
<td></td>
</tr>
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<td>Martin</td>
<td>8</td>
<td>Martin County</td>
<td>CC</td>
<td>NG</td>
<td>FO2 PL</td>
<td>TK</td>
<td>Mar-17</td>
<td>Unknown</td>
<td>1,224,510 (100)</td>
<td>- 100 OT</td>
<td></td>
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<td><strong>2017 Changes/Additions</strong></td>
<td></td>
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<td></td>
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<td>(250) (81)</td>
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</tr>
<tr>
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<td>CC</td>
<td>NG</td>
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<td>No</td>
<td>Jun-17</td>
<td>Unknown</td>
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<td>NG</td>
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<td>Unknown</td>
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(1) Schedule 8 shows only planned and prospective changes to FPL generating facilities and does not reflect changes to purchases. Changes to purchases 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 accounted for in reserve margin calculations in the following year. MW Difference in Changes/Additions Total due to rounding.

(3) Solar MW values reflect firm capacity only values, not nameplate ratings and FPL currently assumes 0.3% degradation annually for PV output.

(4) Subject to JEA Board and ultimately FPSC approval, SJRPP may cease operation as early as January 1, 2018.
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<td>Solar Degradation(4)</td>
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<td><strong>2026 Changes/Additions Total:</strong></td>
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</tbody>
</table>

(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, IB.1 and IB.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 accounted for in reserve margin calculations in the following year. MW Difference in Changes/Additions Total due to rounding.
(3) Subject to JEA Board and ultimately FPSC approval. SJRPP may cease operation as early as January 1, 2018.
(4) Solar values reflect firm capacity only values, not nameplate ratings and FPL currently assumes 0.3% degradation annually for PV output.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) Plant Name and Unit Number: Horizon Solar Energy Center (Putnam and Alachua Counties)

(2) Capacity
a. Nameplate (AC) 74.5 MW
b. Summer Firm (AC) 40.2 MW
c. Winter Firm (AC) -

(3) Technology Type: Photovoltaic (PV)

(4) Anticipated Construction Timing
a. Field construction start-date: 2017
b. Commercial In-service date: 2017

(5) Fuel
a. Primary Fuel Solar
b. Alternate Fuel Not applicable

(6) Air Pollution and Control Strategy: Not applicable

(7) Cooling Method: Not applicable

(8) Total Site Area: 760 Acres (for PV facility)

(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 (%): 27% (First Full Year Operation)
Average Net Operating Heat Rate (ANOHR): Not applicable
Base Operation 75F,100%
Average Net Incremental Heat Rate (ANIHR): Not applicable
Peak Operation 75F,100%

(13) Projected Unit Financial Data *
Book Life (Years): 30 years
Total Installed Cost (2017 $/kW): 1,470
Direct Construction Cost ($/kW): 1,417
AFUDC Amount (2017 $/kW): 53
Escalation ($/kW): Accounted for in Direct Construction Cost
Fixed O&M ($/kW-Yr): (2017 $) 4.64 (First Full Year Operation)
Variable O&M ($/MWH): (2017 $) 0.00
K Factor: 1.12

* $/kW values are based on nameplate capacity.

Note: Total installed cost includes transmission interconnection and AFUDC.
### Schedule 9

**Status Report and Specifications of Proposed Generating Facilities**

<table>
<thead>
<tr>
<th>(1)</th>
<th>Plant Name and Unit Number:</th>
<th>Wildflower Solar Energy Center (Desoto County)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2)</td>
<td><strong>Capacity</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Nameplate (AC)</td>
<td>74.5 MW</td>
</tr>
<tr>
<td></td>
<td>b. Summer Firm (AC)</td>
<td>40.2 MW</td>
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<td></td>
<td>c. Winter Firm (AC)</td>
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<td><strong>Technology Type:</strong></td>
<td>Photovoltaic (PV)</td>
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<td>(4)</td>
<td><strong>Anticipated Construction Timing</strong></td>
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<tr>
<td></td>
<td>a. Field construction start-date:</td>
<td>2017</td>
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<td></td>
<td>b. Commercial In-service date:</td>
<td>2017</td>
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<td>(5)</td>
<td><strong>Fuel</strong></td>
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<tr>
<td></td>
<td>a. Primary Fuel</td>
<td>Solar</td>
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<td></td>
<td>b. Alternate Fuel</td>
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<td>(6)</td>
<td><strong>Air Pollution and Control Strategy:</strong></td>
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<td>(7)</td>
<td><strong>Cooling Method:</strong></td>
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<td>(8)</td>
<td><strong>Total Site Area:</strong></td>
<td>474 Acres (for PV facility)</td>
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<td><strong>Construction Status:</strong></td>
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<td>(11)</td>
<td><strong>Status with Federal Agencies:</strong></td>
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<td>(12)</td>
<td><strong>Projected Unit Performance Data:</strong></td>
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<td>Planned Outage Factor (POF):</td>
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<td>Forced Outage Factor (FOF):</td>
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<td>Equivalent Availability Factor (EAF):</td>
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<td>Resulting Capacity Factor (%):</td>
<td>27% (First Full Year Operation)</td>
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<td></td>
<td>Average Net Operating Heat Rate (ANOHR):</td>
<td>Not applicable Btu/kWh</td>
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<td>Base Operation 75F,100%:</td>
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<td></td>
<td>Average Net Incremental Heat Rate (ANIHR):</td>
<td>Not applicable Btu/kWh</td>
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<td></td>
<td>Peak Operation 75F,100%:</td>
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<td>(13)</td>
<td><strong>Projected Unit Financial Data:</strong></td>
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</tr>
<tr>
<td></td>
<td>Book Life (Years):</td>
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<td>Total Installed Cost (2017 $/kW):</td>
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<td>Direct Construction Cost ($/kW):</td>
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<td>AFUDC Amount (2017 $/kW):</td>
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<td>Escalation ($/kW):</td>
<td>Accounted for in Direct Construction Cost</td>
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<td>Fixed O&amp;M ($/kW-Yr) (2017 $)</td>
<td>4.64 (First Full Year Operation)</td>
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<tr>
<td></td>
<td>Variable O&amp;M ($/MW (2017 $)</td>
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<tr>
<td></td>
<td>K Factor:</td>
<td>1.06</td>
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</tbody>
</table>

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

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

(2) **Capacity**
   a. Nameplate (AC) 74.5 MW
   b. Summer Firm (AC) 40.2 MW
   c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2017
   b. Commercial In-service date: 2017

(5) **Fuel**
   a. Primary Fuel Solar
   b. Alternate Fuel Not applicable

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

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

(8) **Total Site Area:** 350 Acres (for PV facility)

(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): Not applicable Btu/kWh
   - Base Operation 75F,100%
   - Average Net Incremental Heat Rate (ANIHR): Not applicable Btu/kWh
   - Peak Operation 75F,100%

(13) **Projected Unit Financial Data** *
   - Book Life (Years): 30 years
   - Total Installed Cost (2017 $/kW): 1,541
   - Direct Construction Cost ($/kW): 1,485
   - AFUDC Amount (2017 $/kW): 56
   - Escalation ($/kW): Accounted for in Direct Construction Cost
   - Fixed O&M ($/kW-Yr) (2017 $): 4.64 (First Full Year Operation)
   - Variable O&M ($/MW) (2017 $): 0.00
   - K Factor: 1.07

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Coral Farms Solar Energy Center (Putnam County)

(2) **Capacity**
   a. Nameplate (AC) 74.5 MW
   b. Summer Firm (AC) 40.2 MW
   c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2017
   b. Commercial in-service date: 2017

(5) **Fuel**
   a. Primary Fuel: Solar
   b. Alternate Fuel: Not applicable

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

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

(8) **Total Site Area:** 311 Acres (for PV facility)

(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 (%): 27% (First Full Year Operation)
    Average Net Operating Heat Rate (ANOHR): Not applicable Btu/kWh
    Base Operation 75F,100%
    Average Net Incremental Heat Rate (ANIHR): Not applicable Btu/kWh
    Peak Operation 75F,100%

(13) **Projected Unit Financial Data** *
    Book Life (Years): 30 years
    Total Installed Cost (2017 $/kW): 1,438
    Direct Construction Cost ($/kW): 1,385
    AFUDC Amount (2017 $/kW): 53
    Escalation ($/kW): Accounted for in Direct Construction Cost
    Fixed O&M ($/kW-Yr)(2017 $): 4.64 (First Full Year Operation)
    Variable O&M ($/MWht(2017 $): 0.00
    K Factor: 1.06

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
<table>
<thead>
<tr>
<th>Schedule 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Report and Specifications of Proposed Generating Facilities</td>
</tr>
</tbody>
</table>

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

(2) **Capacity**
   - a. Nameplate (AC) 74.5 MW
   - b. Summer Firm (AC) 40.2 MW
   - c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   - a. Field construction start-date: 2017
   - b. Commercial in-service date: 2018

(5) **Fuel**
   - a. Primary Fuel Solar
   - b. Alternate Fuel Not applicable

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

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

(8) **Total Site Area:** 456 Acres (for PV facility)

(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 (%): 27% (First Full Year Operation)
   - Average Net Operating Heat Rate (ANOHR): Not applicable Btu/kWh
   - Average Net Incremental Heat Rate (ANIHR): Not applicable Btu/kWh
   - Base Operation 75F, 100%
   - Peak Operation 75F, 100%

(13) **Projected Unit Financial Data** *
   - Book Life (Years): 30 years
   - Total Installed Cost (2018 $/kW): 1.521
   - Direct Construction Cost ($/kW): 1.466
   - AFUDC Amount (2018 $/kW): 55
   - Escalation ($/kW): Accounted for in Direct Construction Cost
   - Fixed O&M ($/kW-Yr)(2018 $): 4.75 (First Full Year Operation)
   - Variable O&M ($/MW)(2018 $): 0.00
   - K Factor: 1.11

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Barefoot Bay Solar Energy Center (Brevard County)

(2) **Capacity**
   a. Nameplate (AC) 74.5 MW
   b. Summer Firm (AC) 40.2 MW
   c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2017
   b. Commercial In-service date: 2018

(5) **Fuel**
   a. Primary Fuel Solar
   b. Alternate Fuel Not applicable

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

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

(8) **Total Site Area:** 462 Acres (for PV facility)

(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 (%): 27% (First Full Year Operation)
   Average Net Operating Heat Rate (ANOHR): Not applicable Btu/kWh
   Base Operation 75F,100%
   Average Net Incremental Heat Rate (ANIHR): Not applicable Btu/kWh
   Peak Operation 75F,100%

(13) **Projected Unit Financial Data** *
   Book Life (Years): 30 years
   Total Installed Cost (2018 $/kW): 1,551
   Direct Construction Cost ($/kW): 1,496
   AFUDC Amount (2018 $/kW): 55
   Escalation ($/kW): Accounted for in Direct Construction Cost
   Fixed O&M ($/kW-Yr)(2018 $) 4.75 (First Full Year Operation)
   Variable O&M ($/MW (2018 $) 0.00
   K Factor: 1.09

   * $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9  
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Blue Cypress Solar Energy Center (Indian River County)

(2) **Capacity**
   a. Nameplate (AC) 74.5 MW
   b. Summer Firm (AC) 40.2 MW
   c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2017
   b. Commercial In-service date: 2018

(5) **Fuel**
   a. Primary Fuel Solar
   b. Alternate Fuel Not applicable

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

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

(8) **Total Site Area:** 416 Acres (for PV facility)

(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): Not applicable Btu/kWh
   Average Net Incremental Heat Rate (ANIHR): Not applicable Btu/kWh
   Peak Operation 75F, 100%

(13) **Projected Unit Financial Data** *
   Book Life (Years): 30 years
   Total Installed Cost (2018 $/kW): 1,549
   Direct Construction Cost ($/kW): 1,494
   AFUDC Amount (2018 $/kW): 55
   Escalation ($/kW): Accounted for in Direct Construction Cost
   Fixed O&M ($/kW-Yr) (2018 $): 4.75 (First Full Year Operation)
   Variable O&M ($/MWh) (2018 $): 0.00
   K Factor: 1.07

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

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

(2) **Capacity**
   a. Nameplate (AC) 74.5 MW
   b. Summer Firm (AC) 40.2 MW
   c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2017
   b. Commercial In-service date: 2018

(5) **Fuel**
   a. Primary Fuel Solar
   b. Alternate Fuel Not applicable

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

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

(8) **Total Site Area:** 450 Acres (for PV facility)

(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 (%): 27% (First Full Year Operation)
   Average Net Operating Heat Rate (ANOHR): Not applicable Btu/kWh
   Base Operation 75F,100%
   Average Net Incremental Heat Rate (ANIHR): Not applicable Btu/kWh
   Peak Operation 75F,100%

(13) **Projected Unit Financial Data **
   * $/kW values are based on nameplate capacity.

   Book Life (Years): 30 years
   Total Installed Cost (2018 $/kW): 1,513
   Direct Construction Cost ($/kW): 1,458
   AFUDC Amount (2018 $/kW): 55
   Escalation ($/kW): Accounted for in Direct Construction Cost
   Fixed O&M ($/kW-Yr)(2018 $) 4.75 (First Full Year Operation)
   Variable O&M ($/MW (2018 $) 0.00
   K Factor: 1.11

   * $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

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

(2) Capacity
   a. Summer  1,748 MW
   b. Winter  1,754 MW

(3) Technology Type: Combined Cycle

(4) Anticipated Construction Timing
   a. Field construction start-date: 2017
   b. Commercial In-service date: June, 2019

(5) Fuel
   a. Primary Fuel Natural Gas
   b. Alternate Fuel Ultra Low Sulfur Distillate

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

(7) Cooling Method: Mechanical Draft Cooling Towers

(8) Total Site Area: 2,842 Acres

(9) Construction Status: U (Under Construction)

(10) Certification Status: ---

(11) Status with Federal Agencies: ---

(12) Projected Unit Performance Data:
   Planned Outage Factor (POF): 3.5%
   Forced Outage Factor (FOF): 1.0%
   Equivalent Availability Factor (EAF): 95.5%
   Resulting Capacity Factor (%): Approx. 80% (First Full Year Base Operation)
   Average Net Operating Heat Rate (ANOHR): 6,133 Btu/kWh
   Base Operation 75F, 100%
   Average Net Incremental Heat Rate (ANOHR): 7,688 Btu/kWh
   Peak Operation 75F, 100%

(13) Projected Unit Financial Data *,**
   Book Life (Years): 40 years
   Total Installed Cost (2019 $/kW): 705
   Direct Construction Cost (2019 $/kW): 630
   AFUDC Amount (2019 $/kW): 74
   Escalation ($/kW): Accounted for in Direct Construction Cost
   Fixed O&M ($/kW-Yr): 16.78
   Variable O&M (2019 $/MWh): 0.26
   K Factor: 1.41

   * $/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 Solar

2. **Capacity**
   - a. Nameplate (AC): 298 MW (in four 74.5 MW increments)
   - b. Summer Firm (AC): 161 MW
   - c. Winter Firm (AC): -

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

4. **Anticipated Construction Timing**
   - a. Field construction start-date: 2018
   - b. Commercial In-service date: 4th Q, 2019

5. **Fuel**
   - a. Primary Fuel: Solar
   - b. Alternate Fuel: Not applicable

6. **Air Pollution and Control Strategy:** Not applicable

7. **Cooling Method:** Not applicable

8. **Total Site Area:** Not applicable 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 (%): 27% (First Full Year Operation)
    - Average Net Operating Heat Rate (ANOHR): Not applicable
    - Base Operation 75F, 100%
    - Average Net Incremental Heat Rate (ANIHR): Not applicable
    - Peak Operation 75F, 100%

13. **Projected Unit Financial Data** *
    - Book Life (Years): 30 years
    - Total Installed Cost (2019 $/kW): Less than $1,750/kW
    - Direct Construction Cost ($/kW): --
    - AFUDC Amount (2019 $/kW): --
    - Escalation ($/kW): --
    - Fixed O&M ($/kW-Yr) (2019 $): --
    - K Factor: --

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) Plant Name and Unit Number: Unsited Solar

(2) Capacity
   a. Nameplate (AC) 298 MW (in four 74.5 MW increments)
   b. Summer Firm (AC) 161 MW
   c. Winter Firm (AC) -

(3) Technology Type: Photovoltaic (PV)

(4) Anticipated Construction Timing
   a. Field construction start-date: 2019
   b. Commercial In-service date: 4th Q, 2020

(5) Fuel
   a. Primary Fuel Solar
   b. Alternate Fuel Not applicable

(6) Air Pollution and Control Strategy: Not applicable

(7) Cooling Method: Not applicable

(8) Total Site Area: Not applicable 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 (%): 27% (First Full Year Operation)
   Average Net Operating Heat Rate (ANOHR): Not applicable
   Base Operation 75F,100%
   Average Net Incremental Heat Rate (ANIHR): Not applicable
   Peak Operation 75F,100%

(13) Projected Unit Financial Data *
   Book Life (Years): 30 years
   Total Installed Cost (2020 $/kW): Less than $1,750/kW
   Direct Construction Cost ($/kW): ---
   AFUDC Amount (2020 $/kW): ---
   Escalation ($/kW): ---
   Fixed O&M ($/kW-Yr) (2020 $) ---
   Variable O&M ($/MW (2020 $) ---
   K Factor: ---

* $/kW values are based on nameplate capacity.

Note: Total installed cost includes transmission interconnection and AFUDC.
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Unsited Solar

(2) **Capacity**
   a. Nameplate (AC) 298 MW (in four 74.5 MW increments)
   b. Summer Firm (AC) 161 MW
   c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2020
   b. Commercial in-service date: 4th Q, 2021

(5) **Fuel**
   a. Primary Fuel Solar
   b. Alternate Fuel Not applicable

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

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

(8) **Total Site Area:** Not applicable 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 (%): 27% (First Full Year Operation)
    Average Net Operating Heat Rate (ANOHR): Not applicable
    Base Operation 75F, 100%
    Average Net Incremental Heat Rate (ANIHR): Not applicable
    Peak Operation 75F, 100%

(13) **Projected Unit Financial Data ***
    Book Life (Years): 30 years
    Total Installed Cost (2021 $/kW): ---
    Direct Construction Cost ($/kW): ---
    AFUDC Amount (2021 $/kW): ---
    Escalation ($/kW): ---
    Fixed O&M ($/kW-Yr) (2021 $): ---
    Variable O&M ($/MWht (2021 $): ---
    K Factor: ---

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.

Florida Power & Light Company

---
Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Lauderdale Modernization (Dania Beach Clean Energy Center)

(2) **Capacity**
   a. Summer 1,163 MW
   b. Winter 1,176 MW

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2020
   b. Commercial in-service date: June, 2022

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

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

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

(8) **Total Site Area:** Existing Site 392 Acres

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

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

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

(12) **Projected Unit Performance Data:**
   - Planned Outage Factor (POF): 3.5%
   - Forced Outage Factor (FOF): 1.0%
   - Equivalent Availability Factor (EAF): 95.5%
   - Resulting Capacity Factor (%): 90.0% (First Full Year Base Operation)
   - Average Net Operating Heat Rate (ANOHR): 6,119 Btu/kWh on Gas Base Operation 75F, 100%
   - Average Net Incremental Heat Rate (ANIHR): 7,592 Btu/kWh on Gas Peak Operation 75F, 100%

(13) **Projected Unit Financial Data *,**, Book Life (Years): 40 years
   - Total Installed Cost (2022 $/kW): 764
   - Direct Construction Cost (2022 $/kW): 675
   - AFUDC Amount (2022 $/kW): 89
   - Escalation ($/kW): Accounted for in Direct Construction Cost
   - Fixed O&M ($/kW-Yr): 19.73
   - Variable O&M (2022 $/MWH): 0.23
   - K Factor: 1.55

   * $/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.
### Schedule 9

**Status Report and Specifications of Proposed Generating Facilities**

1. **Plant Name and Unit Number:** Unsited Solar
2. **Capacity**
   - Nameplate (AC): 298 MW (in four 74.5 MW increments)
   - Summer Firm (AC): 161 MW
   - Winter Firm (AC): -
3. **Technology Type:** Photovoltaic (PV)
4. **Anticipated Construction Timing**
   - Field construction start-date: 2021
   - Commercial in-service date: 4th Q, 2022
5. **Fuel**
   - Primary Fuel: Solar
   - Alternate Fuel: Not applicable
6. **Air Pollution and Control Strategy:** Not applicable
7. **Cooling Method:** Not applicable
8. **Total Site Area:** Not applicable 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 (%): 27% (First Full Year Operation)
    - Average Net Operating Heat Rate (ANOHR): Not applicable
    - Base Operation 75F, 100%
    - Average Net Incremental Heat Rate (ANIHR): Not applicable
    - Peak Operation 75F, 100%
13. **Projected Unit Financial Data** *
    - Book Life (Years): 30 years
    - Total Installed Cost (2022 $/kW): ---
    - Direct Construction Cost ($/kW): ---
    - AFUDC Amount (2022 $/kW): ---
    - Escalation ($/kW): ---
    - Fixed O&M ($/kW-Yr) (2022 $): ---
    - Variable O&M ($/MW-H) (2022 $): ---
    - K Factor: ---

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
Schedule 9  
Status Report and Specifications of Proposed Generating Facilities

(1) **Plant Name and Unit Number:** Unsited Solar

(2) **Capacity**
   a. Nameplate (AC) 298 MW (in four 74.5 MW increments)
   b. Summer Firm (AC) 161 MW
   c. Winter Firm (AC) -

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

(4) **Anticipated Construction Timing**
   a. Field construction start-date: 2022
   b. Commercial In-service date: 4th Q, 2023

(5) **Fuel**
   a. Primary Fuel Solar
   b. Alternate Fuel Not applicable

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

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

(8) **Total Site Area:** Not applicable 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 (%): 27% (First Full Year Operation)
   Average Net Operating Heat Rate (ANOHR): Not applicable
   Base Operation 75F,100%
   Average Net Incremental Heat Rate (ANIHR): Not applicable
   Peak Operation 75F,100%

(13) **Projected Unit Financial Data *
   Book Life (Years): 30 years
   Total Installed Cost (2023 $/kW): ---
   Direct Construction Cost ($/kW): ---
   AFUDC Amount (2023 $/kW): ---
   Escalation ($/kW): ---
   Fixed O&M ($/kW-Yr)(2023 $) ---
   Variable O&M ($/MW-H)(2023 $) ---
   K Factor: ---

* $/kW values are based on nameplate capacity.

**Note:** Total installed cost includes transmission interconnection and AFUDC.
### Schedule 10
#### Status Report and Specifications of Proposed Transmission Lines

**Horizon Solar Energy Center (Alachua and Putnam)**

The Horizon Solar Energy Center will require bifurcating the existing FPL Bradford-Putnam 115 kV line and extending two parallel sections approximately 1 mile to loop the new Horizon Substation and connect the solar PV inverter array.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(1) Point of Origin and Termination:</strong></td>
<td>Bradford-Putnam 115 kV line to Horizon Substation</td>
</tr>
<tr>
<td><strong>(2) Number of Lines:</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>(3) Right-of-way</strong></td>
<td>FPL – Owned</td>
</tr>
<tr>
<td><strong>(4) Line Length:</strong></td>
<td>1 mile (double-circuit)</td>
</tr>
<tr>
<td><strong>(5) Voltage:</strong></td>
<td>115 kV</td>
</tr>
</tbody>
</table>
| **(6) Anticipated Construction Timing:** | Start date: 2017  
End date: 2017 |
| **(7) Anticipated Capital Investment:** | Included in total installed cost on Schedule 9  
(Trans. and Sub.) |
| **(8) Substations:** | Horizon Substation |
| **(9) Participation with Other Utilities:** | None |
Wildflower Solar Energy Center (Desoto)

The Wildflower Solar Energy Center will require one new line to connect the PV inverter array at a new Solaris Substation to the existing Skylight Substation.

(1) Point of Origin and Termination: Skylight Substation– Solaris Substation

(2) Number of Lines: 1

(3) Right-of-way: FPL – Owned

(4) Line Length: 0.5 miles

(5) Voltage: 230 kV

(6) Anticipated Construction Timing: Start date: 2017
End date: 2017

(7) Anticipated Capital Investment: Included in total installed cost on Schedule 9 (Trans. and Sub.)

(8) Substations: Solaris Substation and Skylight Substation

(9) Participation with Other Utilities: None
Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Indian River Solar Energy Center (Indian River)

The Indian River Solar Energy Center will require bifurcating the FPL Malabar - Midway 230 kV line and extending two parallel sections approximately 0.5 miles west to loop the new Heritage Substation. The Indian River solar PV inverter will connect to Heritage Substation by constructing approximately 4.5 miles of new 230 kV transmission line from Heritage Substation to the new FPL Eldora Substation.

(1) Point of Origin and Termination: Heritage Substation – Eldora Substation

(2) Number of Lines: 2

(3) Right-of-way: FPL – Owned

(4) Line Length: 0.5 miles (double-circuit) and 4.5 miles

(5) Voltage: 230 kV

(6) Anticipated Construction Timing:
   Start date: 2017
   End date: 2017

(7) Anticipated Capital Investment: Included in total installed cost on Schedule 9 (Trans. and Sub.)

(8) Substations: Heritage Substation and Eldora Substation

(9) Participation with Other Utilities: None
### Coral Farms Solar Energy Center (Putnam)

The Coral Farms Solar Energy Center (Putnam) will require bifurcating the existing FPL Bradford-Rice 230 kV transmission line and extending two parallel sections approximately 0.1 mile to loop the new Quasar substation and connect the solar PV inverter array.

| (1) Point of Origin and Termination: | Bradford – Rice 230 kV to Quasar Substation |
| (2) Number of Lines: | 1 |
| (3) Right-of-way | FPL – Owned |
| (4) Line Length: | 0.1 mile |
| (5) Voltage: | 230 kV |
| (6) Anticipated Construction Timing: | Start date: 2017  
End date: 2017 |
| (7) Anticipated Capital Investment: (Trans. and Sub.) | Included in total installed cost on Schedule 9 |
| (8) Substations: | Quasar Substation |
| (9) Participation with Other Utilities: | None |
Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Hammock Solar Energy Center (Hendry)

The Hammock Solar Energy Center (Putnam) will require bifurcating the existing FPL Ft. Myers - McCarthy 138 kV line and extending two parallel sections approximately 0.1 mile to loop the new Athens substation and connect the solar PV inverter array.

(1) Point of Origin and Termination: Ft. Myers – McCarthy 138 kV Line

(2) Number of Lines: 1

(3) Right-of-way: FPL – Owned

(4) Line Length: 0.1 mile

(5) Voltage: 138 kV

(6) Anticipated Construction Timing:
Start date: 2017
End date: 2017

(7) Anticipated Capital Investment:
Included in total installed cost on Schedule 9
(Trans. and Sub.)

(8) Substations:
Athens Substation

(9) Participation with Other Utilities: None
## Schedule 10
### Status Report and Specifications of Proposed Transmission Lines

**Barefoot Bay Solar Energy Center (Brevard)**

The Barefoot Bay Solar Energy Center will require the construction of 0.25 miles of new 230 kV transmission line to connect the PV inverter array at a new Cyrus Substation to the existing Barefoot Substation.

<table>
<thead>
<tr>
<th>(1) Point of Origin and Termination:</th>
<th>Barefoot Substation–Cyrus Substation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Number of Lines:</td>
<td>1</td>
</tr>
<tr>
<td>(3) Right-of-way</td>
<td>FPL – Owned</td>
</tr>
<tr>
<td>(4) Line Length:</td>
<td>0.25 mile</td>
</tr>
<tr>
<td>(5) Voltage:</td>
<td>230 kV</td>
</tr>
</tbody>
</table>
| (6) Anticipated Construction Timing:| Start date: 2017
End date: 2017                     |
| (7) Anticipated Capital Investment: | Included in total installed cost on Schedule 9 (Trans. and Sub.) |
| (8) Substations:                    | Barefoot Substation and Cyrus Substation |
| (9) Participation with Other Utilities: | None                               |
### Schedule 10

**Status Report and Specifications of Proposed Transmission Lines**

**Blue Cypress Solar Energy Center (Indian River)**

The Blue Cypress Solar Energy Center will connect to the Heritage Substation constructed for the Indian River Solar Energy Center and does not require any “new” transmission lines.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Point of Origin and Termination</td>
<td>Heritage Substation</td>
</tr>
<tr>
<td>(2) Number of Lines</td>
<td>N/A</td>
</tr>
<tr>
<td>(3) Right-of-way</td>
<td>N/A</td>
</tr>
<tr>
<td>(4) Line Length</td>
<td>N/A</td>
</tr>
<tr>
<td>(5) Voltage</td>
<td>230 kV</td>
</tr>
<tr>
<td>(6) Anticipated Construction Timing</td>
<td>Start date: 2017</td>
</tr>
<tr>
<td></td>
<td>End date: 2017</td>
</tr>
<tr>
<td>(7) Anticipated Capital Investment</td>
<td>Included in total installed cost on Schedule 9</td>
</tr>
<tr>
<td>(Trans. and Sub.)</td>
<td></td>
</tr>
<tr>
<td>(8) Substations</td>
<td>Heritage Substation</td>
</tr>
<tr>
<td>(9) Participation with Other Utilities</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>(1)</strong> Point of Origin and Termination:</td>
<td>Sherman-Treasure 230 kV Line</td>
</tr>
<tr>
<td><strong>(2)</strong> Number of Lines:</td>
<td>1</td>
</tr>
<tr>
<td><strong>(3)</strong> Right-of-way:</td>
<td>FPL - Owned</td>
</tr>
<tr>
<td><strong>(4)</strong> Line Length:</td>
<td>0.5 mile</td>
</tr>
<tr>
<td><strong>(5)</strong> Voltage:</td>
<td>230 kV</td>
</tr>
</tbody>
</table>
| **(6)** Anticipated Construction Timing: | Start date: 2017  
End date: 2017 |
| **(7)** Anticipated Capital Investment: | Included in total installed cost on Schedule 9 (Trans. and Sub.) |
| **(8)** Substations: | Heru Substation |
| **(9)** Participation with Other Utilities: | None |

The Loggerhead Solar Energy Center will require bifurcating the existing FPL Sherman - Treasure 230 kV transmission line and extending two parallel sections approximately 0.5 miles to loop the new Heru Substation and connect the solar PV inverter array.
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 298 MW of PV

No site(s) has been determined for this projected generation addition which is assumed for planning purposes to be in service by fourth quarter 2019. Therefore no projection of transmission lines that might be needed is possible at this time.
Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Unsited 298 MW of PV

No site(s) has been determined for this projected generation addition which is assumed for planning purposes to be in service by fourth quarter 2020. Therefore no projection of transmission lines that might be needed is possible at this time.
Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Unsited 298 MW of PV

No site(s) has been determined for this projected generation addition which is assumed for planning purposes to be in service by fourth quarter 2021. Therefore no projection of transmission lines that might be needed is possible at this time.
Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Lauderdale Modernization (Dania Beach Clean Energy Center)

The Lauderdale Modernization (Dania Beach Clean Energy Center) does not require any new transmission lines.
Unsited 298 MW of PV

No site(s) has been determined for this projected generation addition which is assumed for planning purposes to be in service by fourth quarter 2022. Therefore no projection of transmission lines that might be needed is possible at this time.
Schedule 10
Status Report and Specifications of Proposed Transmission Lines

Unsited 298 MW of PV

No site(s) has been determined for this projected generation addition which is assumed for planning purposes to be in service by fourth quarter 2023. Therefore no projection of transmission lines that might be needed is possible at this time.
### Schedule 11.1

Existing Firm and Non-Firm Capacity and Energy by Primary Fuel Type

**Actuals for the Year 2016**

<table>
<thead>
<tr>
<th>(1) Generation by Primary Fuel</th>
<th>(2) Net (MW) Capability</th>
<th>(3) Summer (%)</th>
<th>(4) Winter (%)</th>
<th>(5) GWh (2)</th>
<th>(6) Fuel Mix %</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Coal</td>
<td>888</td>
<td>3.3%</td>
<td>3.1%</td>
<td>4,165</td>
<td>3.4%</td>
</tr>
<tr>
<td>(2) Nuclear</td>
<td>3,453</td>
<td>12.9%</td>
<td>12.4%</td>
<td>28,033</td>
<td>23.1%</td>
</tr>
<tr>
<td>(3) Residual</td>
<td>0</td>
<td>0.0%</td>
<td>0.0%</td>
<td>430</td>
<td>0.4%</td>
</tr>
<tr>
<td>(4) Distillate</td>
<td>108</td>
<td>0.4%</td>
<td>0.4%</td>
<td>230</td>
<td>0.2%</td>
</tr>
<tr>
<td>(5) Natural Gas</td>
<td>21,310</td>
<td>79.4%</td>
<td>80.3%</td>
<td>86,161</td>
<td>70.8%</td>
</tr>
<tr>
<td>(6) Solar (Firm &amp; Non-Firm)</td>
<td>259</td>
<td>1.0%</td>
<td>0.9%</td>
<td>237</td>
<td>0.2%</td>
</tr>
<tr>
<td><strong>FPL Existing Units Total (1):</strong></td>
<td><strong>26,017</strong></td>
<td><strong>96.9%</strong></td>
<td><strong>97.1%</strong></td>
<td><strong>119,255</strong></td>
<td><strong>98.1%</strong></td>
</tr>
<tr>
<td>(8) Renewables (Purchases)- Firm</td>
<td>114.0</td>
<td>0.4%</td>
<td>0.4%</td>
<td>818</td>
<td>0.7%</td>
</tr>
<tr>
<td>(9) Renewables (Purchases)- Non-Firm</td>
<td>Not Applicable</td>
<td>—</td>
<td>Not Applicable</td>
<td>219</td>
<td>0.2%</td>
</tr>
<tr>
<td><strong>Renewable Total:</strong></td>
<td><strong>114.0</strong></td>
<td><strong>0.4%</strong></td>
<td><strong>0.4%</strong></td>
<td><strong>1,037</strong></td>
<td><strong>0.85%</strong></td>
</tr>
<tr>
<td>(11) Purchases Other</td>
<td>712.0</td>
<td>2.7%</td>
<td>2.5%</td>
<td>1,327</td>
<td>1.1%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>26,843.1</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>121,619</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Note:
1. FPL Existing Units Total values on row (7), columns (2) and (4), match the System Total 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 2016.
## Schedule 11.2

### Existing Non-Firm Self-Service Renewable Generation Facilities

**Actuals for the Year 2016**

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Installed Capacity DC (MW)</th>
<th>Renewable Projected Annual Output (MWh)</th>
<th>Annual Energy Purchased from FPL (MWh)</th>
<th>Annual Energy Sold to FPL (MWh)</th>
<th>Projected Annual Energy Used by Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer-Owned Renewable Generation (0 kW to 10 kW)</td>
<td>31.66</td>
<td>36,920</td>
<td>308,707</td>
<td>1,148</td>
<td>344,479</td>
</tr>
<tr>
<td>Customer-Owned Renewable Generation (&gt; 10 kW to 100 kW)</td>
<td>12.34</td>
<td>15,459</td>
<td>256,302</td>
<td>496</td>
<td>271,265</td>
</tr>
<tr>
<td>Customer-Owned Renewable Generation (&gt; 100 kW - 2 MW)</td>
<td>19.66</td>
<td>67,811</td>
<td>205,707</td>
<td>277</td>
<td>273,241</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>63.66</strong></td>
<td><strong>120,190</strong></td>
<td><strong>770,716</strong></td>
<td><strong>1,921</strong></td>
<td><strong>888,985</strong></td>
</tr>
</tbody>
</table>

**Notes:**

1. There were 5418 customers with renewable generation facilities interconnected with FPL on December 31, 2016.
2. The Projected Annual Output value is based on NREL's PV Watts 1 program and uses the Installed Capacity value in column (2), adjusted for the date when each facility was installed and assuming each facility operated as planned.
3. The Annual Energy Purchased from FPL is an actual value from FPL's metered data for 2016.
4. The Annual Energy Sold to FPL is an actual value from FPL's metered data for 2016.
5. 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

Clean, affordable energy is the lifeblood of Florida’s growing population, expanding economy, and environmental resource restoration and management. Through FPL’s commitment to environmental excellence, FPL is helping to solve Florida’s energy challenges sustainably and responsibly. With one of the cleanest, most efficient power-generation fleets in the nation, FPL has reduced its use of oil, including foreign oil, by approximately 99 percent – from 40 million barrels annually in 2001 to 0.4 million barrels in 2016. FPL is also the largest producer of solar energy in Florida. In 2016, FPL tripled its solar energy-based generating capacity from 110 MW to approximately 333 MW. In this 2017 Site Plan, FPL is also projecting to significantly increase its solar generating capacity by another 2,086 MW by the year 2023, as discussed previously in this Site Plan.

FPL maintains its commitment to environmental stewardship through proactive collaboration with communities and organizations working to preserve Florida’s unique habitat and natural resources. The many projects and programs in which FPL actively participates include the creation and management of the Manatee Lagoon – An FPL Eco-Discovery Center, Everglades Mitigation Bank, Crocodile Management Program and the preservation of the Barley Barber Swamp.

FPL and its parent company, NextEra Energy, Inc., have continuously been recognized as leaders among electric utilities for their commitment to the environment – a commitment that is ingrained in FPL’s corporate culture. FPL has one of the lowest emissions profiles among U.S. utilities, and in 2016, its carbon dioxide (CO₂) emission rate was approximately 30% lower (better) than the industry national average.

NextEra Energy in 2016 was ranked as the top "green utility" in the United States and No. 4 in the world based on carbon emissions and renewable energy capacity, according to the latest annual report from EI Energy Intelligence, an independent provider of global energy and geopolitical news, analysis, data, and research. In the world rankings, NextEra Energy trailed only Acciona (Spain), China General Nuclear (China), and Iberdrola (Spain). In the evaluation process, utilities were awarded points based on three criteria: direct carbon dioxide emissions per megawatt hour of electricity produced; renewable energy capacity in volume; and renewable energy capacity in proportion to total capacity.
NextEra Energy’s Juno Beach, Florida campus, which includes FPL headquarters, has achieved the prestigious Leadership in Energy and Environmental Design (LEED) Gold certification for existing buildings. LEED is the U.S. Green Building Council’s leading rating system for designating the world’s greenest, most energy-efficient, and high-performing buildings. Key achievements that led to the certification include heating, ventilation and air conditioning improvements, lighting upgrades, water management and recycling programs, and changes to specifications for paper, carpet, and other materials.

In 2016, FPL supported a broad base of environmental organizations with donations, event sponsorships, and memberships. The organizations that were supported include, but were not limited to: the Everglades Foundation, the Nature Conservancy, the Conservancy of Southwest Florida, the Busch Wildlife Sanctuary, Inc., the Loggerhead Marinelife Center, Inc., and Audubon state and local chapters.

FPL and NextEra, Inc., employees serve as board members for many organizations that focus on environmental restoration, preservation, and stewardship. A partial list of these organizations includes: Marine Resources Council, Grassy Waters Conservancy, Sustainable Florida, Palm Beach County Loggerhead Marinelife Center, and Audubon of Florida.

IV.B FPL’s Environmental Policy

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

In accordance with 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 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
• 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
• Communicate this policy to all employees and publish it on the corporate website

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, and it designs, constructs, and operates its facilities in an environmentally sound and responsible manner. FPL also responds immediately and effectively to any known environmental hazards or non-compliance situations. The company’s commitment to the environment does not end there. FPL proactively pursues opportunities to perform better than current environmental standards require, 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 comply 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 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 system components include: executive management support and commitment, 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, FPL created an enhanced Environmental Data Management Information System (EDMIS). Environmental data management software systems are increasingly viewed as an industry best-management practice to ensure environmental compliance. FPL’s top goals for this system are to improve: 1) the flow of environmental data between site operations and corporate services to ensure compliance, and 2) operating efficiencies. In addition, the EDMIS helps to 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 is defined as a management tool comprised of a systematic, documented, periodic, and objective evaluation of the performance of the organization and its specific management systems and equipment designed to protect the environment. An environmental audit’s primary objective 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, the company 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 candidate 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 exposure. 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.

In addition to periodic environmental audits, FPL’s Environmental Construction Compliance Assurance Program provides routine onsite inspections during construction and site specific environmental training to everyone anticipated to be onsite during construction. Similar to an environmental audit, these inspections are performed to ensure compliance with the requirements of environmental permits, licenses, and FPL policies.

IV.E Environmental Communication and Facilitation

FPL is involved in many efforts to enhance environmental protection through the facilitation of energy efficiency, environmental awareness, and through public education. Some of FPL’s 2016 environmental outreach activities are summarized in Table IV.E.1.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Count (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitors to Manatee Lagoon - An FPL Eco-Discovery Center</td>
<td>82,995</td>
</tr>
<tr>
<td>Number of website visits to the Manatee Lagoon website</td>
<td>573,759</td>
</tr>
<tr>
<td>Visitors to FPL’s Energy Encounter at St. Lucie</td>
<td>1,100</td>
</tr>
<tr>
<td>Visitors to Manatee Park, Ft. Myers</td>
<td>410,231</td>
</tr>
<tr>
<td>Number of website visits to FPL’s Environmental &amp; Corporate Responsibility Websites</td>
<td>&gt;33,300</td>
</tr>
<tr>
<td>Visitors to Barley Barber Swamp (Treasured Lands Partnership)</td>
<td>662</td>
</tr>
<tr>
<td>Visitors to Martin Energy Center Solar &amp; DeSoto Solar Tours</td>
<td>418</td>
</tr>
<tr>
<td>Environmental Brochures Distributed</td>
<td>&gt;39,300</td>
</tr>
</tbody>
</table>
| Home Energy Surveys                                     | Field Visits: 22,417  
|                                                        | Phone: 26,762      
|                                                        | Online: 64,596     
|                                                        | Total: 113,775    |
IV.F  Preferred and Potential Sites

Based upon its projection of future resource needs, FPL has identified eleven (11) Preferred Sites and twelve (12) Potential Sites for adding future generation. Some of these sites currently have existing generation. Preferred Sites are those locations where FPL has conducted significant reviews, and has either taken action, is committed to take action, or is likely to take action, to site new generation. Potential Sites are those that have attributes that would support the siting of generation and are under consideration as a location for future generation. The identification of a Potential Site does not necessarily indicate that FPL has made a definitive decision to pursue new 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 generating resource has been determined. The Preferred Sites and Potential Sites are discussed in separate sections below.

IV.F.1 Preferred Sites

For the 2017 Ten Year Site Plan, FPL has identified eleven (11) Preferred Sites. These include a combination of existing and new sites for the development of solar generation facilities, natural gas combined cycle units, and nuclear units. The new solar facilities are being added in accordance with the Solar Base Rate Adjustment (SoBRA) portion of the stipulated agreement of FPL’s 2016 base rate case. Sites for solar additions in 2017 and 2018 have been selected, and these sites are described in this section. Potential sites for post-2018 solar additions are discussed in the Potential Site section later in this chapter.

The 11 Preferred Sites include the following, which are presented in general chronological order of when resources are projected to be added to the FPL system:

**2017 SoBRA Project:** Horizon Solar Energy Center (Putnam and Alachua Counties), Wildflower Solar Energy Center (Desoto County), Indian River Solar Energy Center (Indian River County), and Coral Farms Solar Energy Center (Putnam County);

**2018 SoBRA Project:** Hammock Solar Energy Center (Hendry County), Barefoot Bay Solar Energy Center (Brevard County), Blue Cypress Solar Energy Center (Indian River County), and Loggerhead Solar Energy Center (St. Lucie County)

**Other Generation Projects:** Okeechobee Clean Energy Center Unit 1 (Okeechobee County) in 2019; the modernization of the existing Lauderdale plant site, which will result in the creation of the Dania Beach Clean Energy Center (Broward County) in 2022; and Turkey Point Units 6 & 7
Florida Power & Light Company

In regard to the Turkey Point 6 & 7 nuclear units, FPL’s Combined Operating License Application (COLA) for the new nuclear units is still pending with the Nuclear Regulatory Commission at the time this Site Plan is being prepared. The in-service dates for these units are beyond the 2017 through 2026 time period addressed in this Site Plan.

The geological features of site and adjacent area maps for the 12 Preferred Sites are provided as the first two Figures at the end of this chapter. These two Figures are titled Relationship of Regional Hydrogeologic Units to Major Stratigraphic units, and Florida Regions, respectively.

**Preferred Site # 1: Horizon Solar Energy Center**

The Horizon Solar Energy Center, consisting of a PV facility of approximately 74.5 MW, will be located in Putnam and Alachua Counties on approximately 1,310 acres. Commercial Operation is projected to begin in December 2017.

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

See Figures at the end of this chapter.

**b. Proposed Facilities Layout**

See Figures at the end of this chapter.

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

See Figures at the end of this chapter.

**d. Land Use Map of site and Adjacent Areas**

See Figures at the end of this chapter.

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

1. **Site**
   
   Improved pasture

2. **Adjacent Areas**

   Agricultural Production, forested and non-forested uplands

**f. General Environmental Features On and In the Site Vicinity**

1. **Natural Environment**

   Site is predominately agricultural with forested, herbaceous, and shrub marsh wetland areas present onsite.
2. **Listed Species**
   Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.

3. **Natural Resources of Regional Significance Status**
   No natural resources of regional significance status exist at or adjacent to the site.

4. **Other Significant Features**
   FPL is not aware of any other significant features of the site.

g. **Design Features and Mitigation Options**
   The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.

h. **Local Government Future Land Use Designations**
   Local government future land use on this site is Rural Agricultural.

i. **Site Selection Criteria Process**
   The site selection criteria included system load, transmission interconnection, economics, and environmental compatibility (e.g. wetlands, wildlife, threatened and endangered species, etc.).

j. **Water Resources**
   Existing onsite water resources will be used to meet water requirements.

k. **Geological Features of Site and Adjacent Areas**
   See Figure at the end of this Chapter. The site is located in the North Florida region.

l. **Projected Water Quantities for Various Uses**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable: Minimal, existing permitted supply.
   Panel Cleaning: Minimal and only in absence of sufficient rainfall.

m. **Water Supply Sources by Type**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable and Panel Cleaning: Delivered to the site by truck or via existing permitted supply.
n. **Water Conservation Strategies Under Consideration**
   PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.

o. **Water Discharges and Pollution Control**
   Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**
   PV does not require fuel and no waste products will be generated at the site.

q. **Air Emissions and Control Systems**
   Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.
   Combustion Control: Not Applicable
   Combustor Design: Not Applicable

r. **Noise Emissions and Control Systems**
   PV energy generation does not emit noise, and therefore, there will be no need for noise control systems.

s. **Status of Applications**
   Florida Environmental Resources Permit (ERP) application submitted: July 22, 2016
   Florida Environmental Resources Permit (ERP) issued: October 31, 2016
   USACE Section 404 Permit: Not Applicable

**Preferred Site # 2: Wildflower Solar Energy Center**

The Wildflower Solar Energy Center, consisting of a PV facility of approximately 74.5 MW, will be located in Desoto County on approximately 431 acres. Commercial Operation is projected to begin in December 2017.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Proposed Facilities Layout**
   See Figures at the end of this chapter.
c. **Map of the Site and Adjacent Areas**  
See Figures at the end of this chapter.

d. **Land Use Map of Site and Adjacent Areas**  
See Figures at the end of this chapter.

e. **Existing Land Uses of Site and Adjacent Areas**
   1. **Site**  
      Agricultural production
   
   2. **Adjacent Areas**  
      Agricultural production, upland forested, forested uplands, power plant, transportation, communication, and utilities.

f. **General Environmental Features On and In the Site Vicinity**
   1. **Natural Environment**  
      Site is predominately agricultural with drainage ditches. Some marsh wetland areas present onsite.
   
   2. **Listed Species**  
      Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.
   
   3. **Natural Resources of Regional Significance Status**  
      No natural resources of regional significance status at or adjacent to the site.
   
   4. **Other Significant Features**  
      FPL is not aware of any other significant features of the site.

g. **Design Features and Mitigation Options**  
   The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.

h. **Local Government Future Land Use Designations**  
   Local government future land use designation is Agricultural.
i. **Site Selection Criteria Process**  
The site selection criteria used were system load, transmission interconnection, economics, and environmental compatibility (e.g. wetlands, wildlife, threatened and endangered species, etc.).

j. **Water Resources**  
Existing onsite water resources will be used to meet water requirements.

k. **Geological Features of the Site and Adjacent Areas**  
See Figure at the end of this Chapter.

l. **Projected Water Quantities for Various Uses**  
Cooling: Not Applicable for PV  
Process: Not Applicable for PV  
Potable: Minimal, existing permitted supply.  
Panel Cleaning: Minimal and only in absence of sufficient rainfall.

m. **Water Supply Sources by Type**  
Cooling: Not Applicable for PV  
Process: Not Applicable for PV  
Potable and Panel Cleaning: Delivered to the site by truck or via existing permitted supply.

n. **Water Conservation Strategies Under Consideration**  
PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.

o. **Water Discharges and Pollution Control**  
Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**  
Solar does not require fuel and no waste products will be generated at the site.

q. **Air Emissions and Control Systems**  
Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.
Combustion Control: Not Applicable
Combustor Design: Not Applicable

r. Noise Emissions and Control Systems
PV energy generation does not emit noise and, therefore, there will be no need for noise control systems.

s. Status of Applications
USACE Section 404 Permit application submitted: October 19, 2016
USACE Section 404 Permit issued: January 30, 2017
Florida Environmental Resources Permit (ERP) application submitted: October 19, 2016
Florida Environmental Resources Permit (ERP) issued: December 13, 2016

Preferred Site # 3: Indian River Solar Energy Center

The Indian River Solar Energy Center, consisting of a PV facility of approximately 74.5 MW, will be located in Indian River County on approximately 695 acres. Commercial Operation is projected to begin in December 2017.

a. U.S. Geological Survey (USGS) Map
See Figures at the end of this chapter.

b. Proposed Facilities Layout
See Figures at the end of this chapter.

c. Map of Site and Adjacent Areas
See Figures at the end of this chapter.

d. Land Use Map of site and Adjacent Areas
See Figures at the end of this chapter.

e. Existing Land Uses of Site and Adjacent Areas
1. Site
   Agricultural Production (Citrus)
2. Adjacent Areas
   Agricultural Production
f. **General Environmental Features On and In the Site Vicinity**

1. **Natural Environment**
   Site is predominately agricultural with drainage ditches.

2. **Listed Species**
   Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.

3. **Natural Resources of Regional Significance Status**
   No natural resources of regional significance status exist at or adjacent to the site.

4. **Other Significant Features**
   FPL is not aware of any other significant features of the site.

g. **Design Features and Mitigation Options**
   The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.

h. **Local Government Future Land Use Designations**
   Local government future land use on this site is Agricultural - 2.

i. **Site Selection Criteria Process**
   The site selection criteria included system load, transmission interconnection, economics, and environmental compatibility (e.g., wetlands, wildlife, threatened and endangered species, etc.).

j. **Water Resources**
   Existing onsite water resources will be used to meet water requirements.

k. **Geological Features of Site and Adjacent Areas**
   See Figure at the end of this Chapter. The site is located in the South Florida region.

l. **Projected Water Quantities for Various Uses**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable: Minimal, existing permitted supply.
   Panel Cleaning: Minimal and only in absence of sufficient rainfall.
m. **Water Supply Sources by Type**  
  Cooling: Not Applicable for PV  
  Process: Not Applicable for PV  
  Potable and Panel Cleaning: Delivered to the site by truck or via existing permitted supply.

n. **Water Conservation Strategies Under Consideration**  
PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.

o. **Water Discharges and Pollution Control**  
Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**  
PV does not require fuel and no waste products will be generated at the site.

q. **Air Emissions and Control Systems**  
Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.  
Combustion Control: Not Applicable  
Combustor Design: Not Applicable

r. **Noise Emissions and Control Systems**  
PV energy generation does not emit noise, and therefore, there will be no need for noise control systems.

s. **Status of Applications**  
Florida Environmental Resources Permit (ERP) application submitted: December 14, 2016  
Florida Environmental Resources Permit (ERP) issued: February 13, 2016  
USACE Section 404 Permit: Not Applicable

**Preferred Site # 4: Coral Farms Solar Energy Center**

The Coral Farms Solar Energy Center, with a PV facility of approximately 74.5 MW, will be located in Putnam County on approximately 598 acres. Commercial Operation is projected to begin in December 2017.
a. U.S. Geological Survey (USGS) Map
See Figures at the end of this chapter.

b. Proposed Facilities Layout
See Figures at the end of this chapter.

c. Map of Site and Adjacent Areas
See Figures at the end of this chapter.

d. Land Use Map of Site and Adjacent Areas
See Figures at the end of this chapter.

e. Existing Land Uses of Site and Adjacent Areas
   1. Site
      Agricultural Production
   2. Adjacent Areas
      Agricultural Production, Forested And Non-Forested Uplands

f. General Environmental Features On and In the Site Vicinity
   1. Natural Environment
      Site is predominately agricultural with some herbaceous wetland areas.
   2. Listed Species
      Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.
   3. Natural Resources of Regional Significance Status
      No natural resources of regional significance status exist at or adjacent to the site.
   4. Other Significant Features
      FPL is not aware of any other significant features on the site.

g. Design Features and Mitigation Options
   The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.
h. Local Government Future Land Use Designations
Local government designation regarding land use on this site is Agricultural – 1 and Agricultural - 2.

i. Site Selection Criteria Process
The site selection criteria included system load, transmission interconnection, economics and environmental compatibility (e.g. wetlands, wildlife, threatened and endangered species, etc.).

j. Water Resources
Existing onsite water resources will be used to meet water requirements.

k. Geological Features of Site and Adjacent Areas
See Figure at the end of this Chapter. The site is located in the North Florida region.

l. Projected Water Quantities for Various Uses
- Cooling: Not Applicable for PV
- Process: Not Applicable for PV
- Potable: Minimal
- Panel Cleaning: Minimal and only in absence of sufficient rainfall.

m. Water Supply Sources by Type
- Cooling: Not Applicable for PV
- Process: Not Applicable for PV
- Potable and Panel Cleaning: Delivered to the site by truck.

n. Water Conservation Strategies Under Consideration
PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.

o. Water Discharges and Pollution Control
Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. Fuel Delivery, Storage, Waste Disposal, and Pollution Control
PV does not require fuel and no waste products will be generated at the site.
q. **Air Emissions and Control Systems**
   Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.
   Combustion Control: Not Applicable
   Combustor Design: Not Applicable

r. **Noise Emissions and Control Systems**
   PV energy generation does not emit noise and, therefore, there will be no need for noise control systems.

s. **Status of Applications**
   Florida Environmental Resources Permit (ERP) application submitted: August 17, 2016
   Florida Environmental Resources Permit (ERP) issued: December 5, 2016
   USACE Section 404 Permit application: Not Applicable

**Preferred Site # 5: Hammock Solar Energy Center**

The Hammock Solar Energy Center, consisting of a PV facility of approximately 74.5 MW, will be located in Hendry County on approximately 970 acres. Commercial Operation is projected to begin in February 2018.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Proposed Facilities Layout**
   See Figures at the end of this chapter.

c. **Map of Site and Adjacent Areas**
   See Figures at the end of this chapter.

d. **Land Use Map of site and Adjacent Areas**
   See Figures at the end of this chapter.

e. **Existing Land Uses of Site and Adjacent Areas**
   1. **Site**
      Agricultural Production (Citrus)
   2. **Adjacent Areas**
      Agricultural Production
f. **General Environmental Features On and In the Site Vicinity**

1. **Natural Environment**
   Site is predominately agricultural with drainage ditches. Forested, herbaceous, and shrub marsh wetland areas present onsite.

2. **Listed Species**
   The site is located in the USFW Secondary Panther Focus Zone. Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.

3. **Natural Resources of Regional Significance Status**
   No natural resources of regional significance status exist at or adjacent to the site.

4. **Other Significant Features**
   FPL is not aware of any other significant features of the site.

g. **Design Features and Mitigation Options**
   The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.

h. **Local Government Future Land Use Designations**
   Local government future land use on this site is Agricultural.

i. **Site Selection Criteria Process**
   The site selection criteria included system load, transmission interconnection, economics, and environmental compatibility (e.g. wetlands, wildlife, threatened and endangered species, etc.).

j. **Water Resources**
   Existing onsite water resources will be used to meet water requirements.

k. **Geological Features of Site and Adjacent Areas**
   See Figure at the end of this Chapter. The site is located in the South Florida region.

l. **Projected Water Quantities for Various Uses**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
Potable: Minimal, existing permitted supply.
Panel Cleaning: Minimal and only in absence of sufficient rainfall.

m. **Water Supply Sources by Type**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   Potable and Panel Cleaning: Delivered to the site by truck or via existing permitted supply.

n. **Water Conservation Strategies Under Consideration**
   PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.

o. **Water Discharges and Pollution Control**
   Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**
   PV does not require fuel, and no waste products will be generated at the site.

q. **Air Emissions and Control Systems**
   - Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.
   - Combustion Control: Not Applicable
   - Combustor Design: Not Applicable

r. **Noise Emissions and Control Systems**
   PV energy generation does not emit noise, and therefore, there will be no need for noise control systems.

s. **Status of Applications**
   Florida Environmental Resources Permit (ERP) application submitted: December 14, 2016
   Florida Environmental Resources Permit (ERP) issued: February 6, 2017
   USACE Section 404 Permit: Not Applicable
Preferred Site # 6: Barefoot Bay Solar Energy Center

The Barefoot Bay Solar Energy Center, consisting of a PV facility of approximately 74.5 MW, will be located in Brevard County on approximately 455 acres. Commercial Operation is projected to begin in February 2018.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Proposed Facilities Layout**
   See Figures at the end of this chapter.

c. **Map of Site and Adjacent Areas**
   See Figures at the end of this chapter.

d. **Land Use Map of site and Adjacent Areas**
   See Figures at the end of this chapter.

e. **Existing Land Uses of Site and Adjacent Areas**
   1. **Site**
      Agricultural Production (Citrus)
   2. **Adjacent Areas**
      Residential

f. **General Environmental Features On and In the Site Vicinity**
   1. **Natural Environment**
      Site is predominately agricultural with drainage ditches.

   2. **Listed Species**
      Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.

   3. **Natural Resources of Regional Significance Status**
      No natural resources of regional significance status exist at or adjacent to the site.

   4. **Other Significant Features**
      FPL is not aware of any other significant features of the site.
g. **Design Features and Mitigation Options**
The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.

h. **Local Government Future Land Use Designations**
Local government future land use on this site is Residential 1.

i. **Site Selection Criteria Process**
The site selection criteria included system load, transmission interconnection, economics, and environmental compatibility (e.g., wetlands, wildlife, threatened and endangered species, etc.).

j. **Water Resources**
Existing onsite water resources will be used to meet water requirements.

k. **Geological Features of Site and Adjacent Areas**
See Figure at the end of this Chapter. The site is located in the South Florida region.

l. **Projected Water Quantities for Various Uses**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal, existing permitted supply.
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall.

m. **Water Supply Sources by Type**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable and Panel Cleaning: Delivered to the site by truck or via existing permitted supply.

n. **Water Conservation Strategies Under Consideration**
   PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.

o. **Water Discharges and Pollution Control**
   Best Management Practices will be employed to prevent and control inadvertent release of pollutants.
p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**
   PV does not require fuel and no waste products will be generated at the site.

q. **Air Emissions and Control Systems**
   Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.
   Combustion Control: Not Applicable
   Combustor Design: Not Applicable

r. **Noise Emissions and Control Systems**
   PV energy generation does not emit noise, and therefore, there will be no need for noise control systems.

s. **Status of Applications**
   Florida Environmental Resources Permit (ERP) application submitted: December 14, 2016
   Florida Environmental Resources Permit (ERP) issued: January 12, 2017
   USACE Section 404 Permit: Not Applicable

**Preferred Site # 7: Blue Cypress Solar Energy Center**

The Blue Cypress Solar Energy Center, consisting of a PV facility of approximately 74.5 MW, will be located in Indian River County on approximately 605 acres. Commercial Operation is projected to begin in February 2018.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Proposed Facilities Layout**
   See Figures at the end of this chapter.

c. **Map of Site and Adjacent Areas**
   See Figures at the end of this chapter.

d. **Land Use Map of site and Adjacent Areas**
   See Figures at the end of this chapter.
e. **Existing Land Uses of Site and Adjacent Areas**
   1. **Site**
      Agricultural Production (Citrus)
   2. **Adjacent Areas**
      Agricultural Production

g. **General Environmental Features On and In the Site Vicinity**
   1. **Natural Environment**
      Site is predominately agricultural with drainage ditches.
   2. **Listed Species**
      Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.
   3. **Natural Resources of Regional Significance Status**
      No natural resources of regional significance status exist at or adjacent to the site.
   4. **Other Significant Features**
      FPL is not aware of any other significant features of the site.

h. **Design Features and Mitigation Options**
   The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.

i. **Local Government Future Land Use Designations**
   Local government future land use on this site is Agricultural - 2.

j. **Site Selection Criteria Process**
   The site selection criteria included system load, transmission interconnection, economics, and environmental compatibility (e.g., wetlands, wildlife, threatened and endangered species, etc.).

k. **Water Resources**
   Existing onsite water resources will be used to meet water requirements.

l. **Geological Features of Site and Adjacent Areas**
   See Figure at the end of this Chapter. The site is located in the South Florida region.
I. **Projected Water Quantities for Various Uses**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal, existing permitted supply.
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall.

m. **Water Supply Sources by Type**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable and Panel Cleaning: Delivered to the site by truck or via existing permitted supply.

n. **Water Conservation Strategies Under Consideration**
   PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.

o. **Water Discharges and Pollution Control**
   Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**
   PV does not require fuel, and no waste products will be generated at the site.

q. **Air Emissions and Control Systems**
   Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.
   - Combustion Control: Not Applicable
   - Combustor Design: Not Applicable

r. **Noise Emissions and Control Systems**
   PV energy generation does not emit noise and, therefore, there will be no need for noise control systems.

s. **Status of Applications**
   - Florida Environmental Resources Permit (ERP) application submitted: January 27, 2017
   - Florida Environmental Resources Permit (ERP) issued: March 9, 2017
   - USACE Section 404 Permit: Not Applicable
Preferred Site # 8: Loggerhead Solar Energy Center

The Loggerhead Solar Energy Center, consisting of a PV facility of approximately 74.5 MW, will be located in St. Lucie County on approximately 570 acres. Commercial Operation is projected to begin in February 2018.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Proposed Facilities Layout**
   See Figures at the end of this chapter.

c. **Map of Site and Adjacent Areas**
   See Figures at the end of this chapter.

d. **Land Use Map of site and Adjacent Areas**
   See Figures at the end of this chapter.

e. **Existing Land Uses of Site and Adjacent Areas**
   1. **Site**
      Improved Pasture
   2. **Adjacent Areas**
      Agricultural Production With Forested, Herbaceous, And Shrub Marsh Wetland Areas.

f. **General Environmental Features On and In the Site Vicinity**
   1. **Natural Environment**
      Site is predominately agricultural with drainage ditches.

   2. **Listed Species**
      Due to the existing disturbed nature of the site and lack of suitable onsite habitat, no adverse impacts to listed species are expected to occur.

   3. **Natural Resources of Regional Significance Status**
      No natural resources of regional significance status exist at or adjacent to the site.
4. **Other Significant Features**

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

g. **Design Features and Mitigation Options**

   The design includes an approximately 74.5 MW PV facility, on-site transmission substation, and site storm water system.

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

   Local government future land use on this site is Agricultural - 5.

i. **Site Selection Criteria Process**

   The site selection criteria included system load, transmission interconnection, economics, and environmental compatibility (e.g., wetlands, wildlife, threatened and endangered species, etc.).

j. **Water Resources**

   Existing onsite water resources will be used to meet water requirements.

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

   See Figure at the end of this Chapter. The site is located in the South Florida region.

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

   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable: Minimal, existing permitted supply.
   Panel Cleaning: Minimal and only in absence of sufficient rainfall.

m. **Water Supply Sources by Type**

   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable and Panel Cleaning: Delivered to the site by truck or via existing permitted supply.

n. **Water Conservation Strategies Under Consideration**

   PV does not require a permanent water source. Additional water conservation strategies include selection and planting of low-to-no irrigation grass or groundcover.
o. **Water Discharges and Pollution Control**
   Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**
   PV does not require fuel and no waste products will be generated at the site.

q. **Air Emissions and Control Systems**
   Fuel: PV energy generation does not use any type of combustion fuel. Therefore, there will be no air emissions or need for Control Systems.
   Combustion Control: Not Applicable
   Combustor Design: Not Applicable

r. **Noise Emissions and Control Systems**
   PV energy generation does not emit noise, and therefore, there will be no need for noise control systems.

s. **Status of Applications**
   Florida Environmental Resources Permit (ERP) application submitted: December 14, 2016
   Florida Environmental Resources Permit (ERP) issued: February 13, 2017
   USACE Section 404 Permit: Not Applicable

**Preferred Site # 9: Okeechobee Site, Okeechobee County**

FPL chose clean and efficient natural gas-fired combined cycle (CC) generation at the site to meet a need for new resources (beginning in 2019) to maintain reliable electric service. Construction has commenced and Commercial Operation is projected to begin by June 2019. In addition, FPL currently views the Okeechobee site as a potential location for future universal PV and gas-fired generation facilities.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Proposed Facilities Layout**
   See Figures at the end of this chapter.
c. **Map of Site and Adjacent Areas**
   See Figures at the end of this chapter.

d. **Land Use Map of site and Adjacent Areas**
   See Figures at the end of this chapter.

e. **Existing Land Uses of Site and Adjacent Areas**
   1. **Site**
      Agricultural production (cattle and citrus)
   2. **Adjacent Areas**
      Agricultural production, conservation, and existing electrical transmission

f. **General Environmental Features On and In the Site Vicinity**
   1. **Natural Environment**
      The site is comprised of unimproved pasture, fallow citrus, pine flatwoods, mixed forested wetlands, saw palmetto prairie, and freshwater marsh.
   2. **Listed Species**
      No adverse impacts are expected due to previous development and lack of suitable onsite habitat for listed species.
   3. **Natural Resources of Regional Significance Status**
      The Okeechobee site is adjacent to the Ft. Drum Marsh Conservation Area.
   4. **Other Significant Features**
      FPL is not aware of any other significant features of the site.

g. **Design Features and Mitigation Options**
   The design includes one new approximately 1,750 MW CC unit consisting of three combustion turbines (CTs), three heat recovery steam generators (HRSGs), and a steam turbine. Future options at the site include solar and/or gas-fired generation technology. Mitigation for unavoidable impacts, if required, would occur through a combination of on- and off-site mitigation.

h. **Local Government Future Land Use Designations**
   Local government future land use designation includes agricultural production and power generation.
i. **Site Selection Criteria Process**
   The site selection criteria included system load, transmission interconnection, proximity of the natural gas pipelines, economics, and environmental compatibility (e.g., wetlands, wildlife, threatened and endangered species, etc.).

j. **Water Resources**
   Water resources include groundwater from the Surficial Aquifer System and the Floridian Aquifer System.

k. **Geological Features of Site and Adjacent Areas**
   See Figure at the end of this Chapter. The site is located in the South Florida region.

l. **Projected Water Quantities for Various Uses**
   - Cooling: 9 million gallons per day (mgd) daily average, 11 mgd maximum
   - Process: 0.08 mgd
   - Potable: 0.001 mgd
   - Panel Cleaning: Not Applicable

m. **Water Supply Sources by Type**
   - Cooling: Floridan Aquifer System
   - Process: Surficial Aquifer System
   - Potable: Surficial Aquifer System

n. **Water Conservation Strategies Under Consideration**
   Cooling will utilize a closed system that will cycle cooling water approximately five times prior to disposal. The heat recovery steam generator blowdown will be reused to the maximum extent practicable. Additional water conservation strategies will be identified during the project's detailed design phase.

o. **Water Discharges and Pollution Control**
   The site will utilize a closed-cycle cooling (towers) system for heat dissipation. Heat recovery steam generator blowdown will be reused to the maximum extent practicable or mixed with the cooling water flow before discharge to an Underground Injection Control system. Reverse osmosis reject water will be mixed with the plant's cooling water flow prior to discharge to the UIC. Storm water runoff will be collected and routed to storm water ponds. The facility will employ Best Management Practices and Spill Prevention, Control, and Countermeasure plans to prevent and control the inadvertent release of pollutants.
p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**

Natural gas will be delivered via the new Sabal Trail/Florida Southeast Connection natural gas pipeline. Ultra-low Sulfur Diesel fuel will be delivered via truck and stored in a new above-ground storage tank.

q. **Air Emissions and Control Systems**

Fuel: Use of cleaner natural gas and Ultra-Low Sulfur Distillate

- Natural Gas - Dry-low NOx combustion technology and Selective Catalytic Reduction will control NOx emissions, Greenhouse gas emissions will be substantially lower than the Environmental Protection Agency’s proposed new source performance standard.
- ULSD - Water injection and selective catalytic reduction will be used to reduce NOx emissions

Combustion Control - will minimize formation of sulfur dioxide, particulate matter, nitrogen oxides (NOx), and other fuel-bound contaminates

Combustor Design - will limit formation of carbon monoxide and volatile organic compounds

r. **Noise Emissions and Control Systems**

Offsite noise impacts from construction and operation are expected to be limited.

s. **Status of Applications**

Underground Injection Control Exploratory Well and associated Dual Zone Monitoring Well

- Permit received: April 14, 2015
- Need Determination Request Filed: September 3, 2015
- Need Determination Granted: January 19, 2016
- Fl. Site Certification Application Submitted: September 25, 2015
- Fl. Site Certification Received: June 29, 2016
- Prevention of Significant Deterioration (PSD) Application Submitted: September 25, 2015
- PSD Permit Received: March 9, 2016
- USACE Section 404 Permit Application Filed: July 30, 2015, Deemed Complete August 12, 2015
- USACE Section 404 Permit Received: January 24, 2017
Preferred Site # 10: Lauderdale Plant Modernization (Dania Beach Clean Energy Center), Broward County

This site is located on the existing FPL Lauderdale Plant property within the City of Dania Beach and the City of Hollywood. The proposed Lauderdale modernization project will replace the two, older existing combined cycle (CC) units (Units 4 and 5) with a modern, highly efficient, lower-emission next generation clean energy center using advanced CC technology. The existing two outdated CC units will first be demolished and a new single combined cycle unit will be erected on the site. The name of the new combined cycle unit and site will be the Dania Beach Clean Energy Center.

a. U.S. Geological Survey (USGS) Map
   See Figures at the end of this chapter.

b. Proposed Facilities Layout
   See Figures at the end of this chapter.

c. Map of Site and Adjacent Areas
   See Figures at the end of this chapter.

d. Land Use Map of site and Adjacent Areas
   See Figures at the end of this chapter.

e. Existing Land Uses of Site and Adjacent Areas
   1. Site
      Electric power generation and transmission.

   2. Adjacent Areas
      Low to high density urban, transportation, communication, utilities, commercial, water and some open land.

f. General Environmental Features On and In the Site Vicinity
   1. Natural Environment
      Site is comprised of facilities related to power generation.

   2. Listed Species
      Listed species known to occur within the cooling pond at the site include the West Indian
manatee. No adverse impacts are anticipated to other listed species due to previous
development.

3. **Natural Resources of Regional Significance Status**
   No natural resources of regional significance status exist at, or are adjacent to, the site.

4. **Other Significant Features**
   FPL is not aware of any other significant features of the site.

g. **Design Features and Mitigation Options**
   The project includes dismantlement of existing Units 4 & 5 and replacement with one new
   approximately 1,163 MW combined cycle unit consisting of two combustion turbines (CTs), two
   heat recovery steam generators (HRSGs), and a steam turbine. The CTs will operate using
   natural gas and Ultra-Low Sulfur Distillate.

h. **Local Government Future Land Use Designations**
   The site is zoned General Industrial.

i. **Site Selection Criteria Process**
   The Lauderdale Plant has been selected as a preferred site for a site modernization due to
   consideration of various factors including system load and economics. Environmental issues were
   not a deciding factor since this site does not exhibit significant environmental sensitivity or other
   environmental issues. However, there are environmental benefits of replacing the existing,
   outdated combined cycle units with a new highly efficient combined cycle unit, including a
   significant reduction in system air emissions. In addition, the modernization project at this existing
   site will not require a new gas pipeline and will make use of the existing transmission facilities and
   water supply.

j. **Water Resources**
   Condenser cooling for the steam cycle portion of the new combined cycle unit and auxiliary
   cooling will come from the existing cooling water intake system. Process and potable water for the
   new unit will come from the existing water supply sources (Broward County and City of
   Hollywood).

k. **Geological Features of Site and Adjacent Areas**
   See Figure at the end of this Chapter. The site is located in the South Florida region.
l. **Projected Water Quantities for Various Uses**
   Cooling: No additional water required.
   Process: No additional water required.
   Potable: No additional water required.

m. **Water Supply Sources by Type**
   Cooling: As existing, Dania Cut-Off Canal
   Process: As existing, Broward County Utilities
   Potable: As existing, City of Hollywood

n. **Water Conservation Strategies Under Consideration**
   No additional water resources are required beyond current usage.

o. **Water Discharges and Pollution Control**
   Continued discharge to the existing cooling pond is anticipated. No increase in water discharge is expected. Best Management Practices will be employed to prevent and control inadvertent release of pollutants.

p. **Fuel Delivery, Storage, Waste Disposal, and Pollution Control**
   Natural gas will be transported via an existing pipeline. ULSD will be trucked to the facility and stored in existing ULSD tanks.

q. **Air Emissions and Control Systems**
   Fuel: Use of cleaner Natural Gas and ULSD will minimize SO2, sulfuric acid mist (SAM), particulates, and other fuel-bound contaminants, factors that will ensure compliance with applicable emission-limiting standards.
   Combustion Control / Combustor Design: Will limit formation of NOx, CO, and VOCs.
   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 ULSD.

r. **Noise Emissions and Control Systems**
   Noise from the operation of the new unit will be within allowable levels.

s. **Status of Applications**
   Need Determination Request Filed: To Be Determined (TBD)
   FL Site Certification Application Submitted: TBD
Preferred Site # 11: Turkey Point Plant, Miami-Dade County

Since June 2009, FPL has been pursuing a federal Combined Operating License (COL) for two new nuclear units, Turkey Point Units 6 & 7, which would be located at FPL’s Turkey Point site (where two other nuclear generating units exist). At the time this document is being prepared, FPL projects that it will receive a decision on its COLA in late 2017 or early 2018. In addition, during 2016, FPL determined that once a COL has been issued, it would pause before moving forward into construction of the new nuclear units in order to incorporate the construction experience of two first wave nuclear projects currently under construction by Georgia Power and SCANA. Construction of those projects is expected to be completed in approximately 2021. As a result of the COLA review schedule and FPL’s decision to pause to better understand the results of the first wave construction experience for new nuclear units, the earliest in-service dates for Turkey Point 6 & 7 are beyond the 2017 through 2026 time period addressed in this Site Plan. Nonetheless, the opportunity for additional nuclear capacity remains an important factor in FPL’s resource planning and this Site Plan continues to present the Turkey Point site as a Preferred Site for the new nuclear units.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Proposed Facilities Layout**
   See Figures at the end of this chapter.

c. **Map of Site and Adjacent Areas**
   See Figures at the end of this chapter.

d. **Land Use Map of site and Adjacent Areas**
   See Figures at the end of this chapter.

e. **Existing Land Uses of Site and Adjacent Areas**
   1. **Site**
      Electoral generating facilities
2. **Adjacent Areas**

   Undeveloped, the Everglades Mitigation Bank,
   South Florida Water Management District
   Canal L-31E, Biscayne Bay, and state-owned
   land on Card Sound

f. **General Environmental Features On and In the Site Vicinity**

1. **Natural Environment**
   The site includes hypersaline mud flats, man-made active cooling canals and 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**
   Listed species known to occur at the site or associated linear features include the
   peregrine falcon, wood stork, American crocodile, roseate spoonbill, little blue heron,
   snowy egret, American oystercatcher, least tern, white ibis, Florida manatee, eastern
   indigo snake, snail kite, white-crowned pigeon, and bald eagle. Some listed flora species
   likely to occur include pine pink, Florida brickell-bush, Florida lantana, mullien nightshade,
   and Lamarck’s trema. The construction and operation of Turkey Point Units 6 & 7 are not
   expected to adversely affect any listed species.

3. **Natural Resources of Regional Significance Status**
   Significant features in the vicinity of the site include Biscayne Bay, Biscayne National Park
   (BNP), Biscayne Bay Aquatic Preserve, Miami-Dade County Homestead Bayfront Park,
   and Everglades National Park.

4. **Other Significant Features**
   FPL is not aware of any other significant features of the site.

g. **Design Features and Mitigation Options**
   The technology proposed is the Westinghouse AP1000 pressurized water reactor. This design
   is certified by the Nuclear Regulatory Commission under 10 CFR 52. The Westinghouse
   AP1000 consists of the reactor, steam generators, pressurizer, and steam turbine / electric
   generator. The projected generating capacity from each unit is 1,100 MW. Condenser cooling
   will use six circulating water cooling towers. The structures to be constructed include the
   containment building, shield building, 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 to FPL's transmission system.

h. **Local Government future Land Use Designations**
   Current future land use designations include Industrial, Utilities, Communications, and Unlimited Manufacturing with a dual designation of Mangrove Protection Area. There are also areas of the site designated Interim District.

i. **Site Selection Criteria Process**
   Site selection included the following criteria: existing transmission and transportation infrastructure to support new generation, the size and seclusion of the site while being relatively close to the load center, economics, and the long-standing record of safe and secure operation of nuclear generation at the site since the early 1970s.

j. **Water Resources**
   Water requirements will be met by reclaimed water from Miami-Dade County and a back-up supply of saline groundwater from below the marine environment of Biscayne Bay.

k. **Geological Features of Site and Adjacent Areas**
   See Figure at the end of this Chapter. The site is located in the South Florida region.

l. **Projected Water Quantities for Various Uses**
   - Cooling: 55.3 million gallons per day (mgd)
   - Process: 1.3 mgd
   - Potable: .05 mgd
   - Panel Cleaning: Not Applicable

m. **Water Supply Sources and Type**
   - Cooling: Miami-Dade reclaimed water and saline groundwater from Biscayne Bay via radial collector wells
   - Process: Miami-Dade Water and Sewer Department
   - Potable: Miami-Dade Water and Sewer Department

n. **Water Conservation Strategies**
   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.
o. **Water Discharges and Pollution Control**

   Blowdown water or discharge from the cooling towers, along with other waste streams, will be injected into the boulder zone of the Floridan Aquifer. Non-point source discharges are not an issue since there will be none at this facility. Storm water runoff will be released to the closed-loop cooling canal system.

   Turkey Point Units 6 & 7 will employ Best Management Practices plans and Spill Prevention, Control, and Countermeasure plans to prevent and control the inadvertent release of pollutants.

p. **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.

q. **Air Emissions and Control Systems**

   Fuel: The units will minimize FPL system air pollutant emissions by using nuclear fuel to generate electric power.

   Combustion Control / Combustor Design: Not Applicable.

   Note: 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 Subpart III emission limits.
r. **Noise Emissions and Control Systems**
   Predicted noise levels associated with these projects are not expected to result in adverse noise impacts in the vicinity of the site.

s. **Status of Applications**
   - Need Determination Issued: April 2008
   - FL Site Certification Received: May 14, 2014
   - USACE Section 404 Permit Expected: 2017
   - A COLA Application for Units 6 & 7: Submitted to the NRC in June 2009. At the time this Site Plan is being prepared, FPL expects to receive the COL decision in late 2017 or early 2018.
   - Underground Injection Control exploratory well: issued in 2010, and a permit to convert the exploratory well, to an injection well and to operationally test the system: issued in 2013.

### IV.F.2 Potential Sites

Twelve (12) counties are currently identified as Potential Sites for future generation additions to meet FPL’s projected capacity and energy needs. Each of these Potential Sites offers 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 would require further definition and attention. Unless otherwise noted, the water quantities discussed below are in reference to universal solar generation rather than for gas-fired generation.

Permits are presently considered to be obtainable for each of these sites. No significant environmental constraints are currently known for any of these sites. At this time, FPL considers each site to be equally viable. The Potential Sites briefly discussed below are presented in alphabetical order.

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1 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. Specific greenfield sites may not be specifically identified as Potential Sites in order to protect the economic interests of FPL and its customers.
Potential Site # 1: Alachua County

FPL is currently evaluating potential sites in Alachua County for a future PV facility. No specific locations have been selected at this time.

a. U.S. Geological Survey (USGS) Map
See Figures at the end of this chapter.

b. Existing Land Uses of Site and Adjacent Areas
This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. Environmental Features
This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. Water Quantities Required
Cooling: Not Applicable for PV
Process: Not Applicable for PV
Potable: Minimal
Panel Cleaning: Minimal and only in absence of sufficient rainfall

e. Supply Sources
Cooling: Not Applicable for PV
Process: Not Applicable for PV
Potable: Minimal
Panel Cleaning: Minimal, trucked in if and when needed

Potential Sites # 2: Baker County

FPL is currently evaluating potential sites in Baker County for future PV facilities. No specific locations have been selected at this time.

a. U.S. Geological Survey (USGS) Map
See Figures at the end of this chapter.
b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. **Water Quantities Required**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall

e. **Supply Sources**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal, trucked in if and when needed

**Potential Site # 3: Clay County**

FPL is currently evaluating potential sites in Clay County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter

b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.
d. **Water Quantities Required**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall

e. **Supply Sources**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal, trucked in if and when needed

**Potential Site # 4: Collier County**

FPL is currently evaluating potential sites in Collier County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   - See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   - This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   - This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. **Water Quantities Required**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall

e. **Supply Sources**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
Potential Site # 5: Columbia County

FPL is currently evaluating potential sites in Columbia County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. **Water Quantities Required**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal, trucked in if and when needed.

Potential Site # 6: Hendry County

FPL currently views Hendry County as a region likely to be used for future large-scale generation including gas-fired and/or PV generation. This includes existing FPL-owned sites as well as other potential future sites.
a. **Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   The existing FPL-owned sites and adjacent areas consist of agricultural and upland forest as well as the Seminole Big Cypress Reservation. Land use information on an additional location is not available because a specific additional location has not been selected at the time of publication of this report.

c. **Environmental Features**
   The existing FPL-owned sites include woodland pasture that includes wetlands, upland scrub, pine and hardwoods. Environmental feature information is not available at the time of publication of this report on an additional location as a specific site has not been selected.

d. **Water Quantities Required (assuming CC generation)**
   Cooling: 9 - 12 million gallons per day (mgd) daily average
   Process: 0.24 mgd
   Potable: 0.001 mgd
   Panel Cleaning (if the site is selected for PV generation): Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**
   Cooling: Groundwater
   Process: Groundwater
   Potable: Existing Supply

**Potential Site # 7: Miami-Dade County**

FPL is currently evaluating potential sites in Miami-Dade County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.
c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. **Water Quantities Required**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal, trucked in if and when needed.

**Potential Site # 8: Putnam County**

FPL currently views Putnam County as a region likely to be used for future large-scale generation including gas-fired and/or PV generation. This includes existing FPL-owned sites as well as other potential future sites.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   The existing FPL-owned sites and adjacent areas consist of industrial, power generation and associated facilities, mixed wetland hardwoods, residential, and hardwood. Land use information is not available at the time of publication of this report on an additional location as a specific site has not been selected.

c. **Environmental Features (assuming CC generation)**
   FPL is not aware of any other significant features on or adjacent to the site.

d. **Water Quantities Required**
   - Cooling: 9 – 12 million gallons per day (mgd) daily average
   - Process: 0.24 mgd
Potable: 0.001 mgd
Panel Cleaning: Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**
   - Cooling: St. John's River
   - Process: Groundwater
   - Potable: Putnam County Municipal Water Supply

**Potential Sites # 9: St. Lucie County**

FPL is currently evaluating potential sites in St. Lucie County for future PV facilities. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. **Water Quantities Required**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**
   - Cooling: Not Applicable for PV
   - Process: Not Applicable for PV
   - Potable: Minimal
   - Panel Cleaning: Minimal, trucked in if and when needed.
Potential Site # 10: Suwannee County

FPL is currently evaluating potential sites in Suwannee County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. **Water Quantities Required**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable: Minimal
   Panel Cleaning: Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable: Minimal
   Panel Cleaning: Minimal, trucked in if and when needed.

Potential Site # 11: Union County

FPL is currently evaluating potential sites in Union County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.
b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

d. **Water Quantities Required**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable: Minimal
   Panel Cleaning: Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**
   Cooling: Not Applicable for PV
   Process: Not Applicable for PV
   Potable: Minimal
   Panel Cleaning: Minimal, trucked in if and when needed.

**Potential Site # 12: Volusia County**

FPL is currently evaluating potential sites in Volusia County for a future PV facility. No specific locations have been selected at this time.

a. **U.S. Geological Survey (USGS) Map**
   See Figures at the end of this chapter.

b. **Existing Land Uses of Site and Adjacent Areas**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.

c. **Environmental Features**
   This information is not available at the time of publication of this report because a specific site has not been definitively selected.
d. **Water Quantities Required**

- Cooling: Not Applicable for PV
- Process: Not Applicable for PV
- Potable: Minimal
- Panel Cleaning: Minimal and only in absence of sufficient rainfall.

e. **Supply Sources**

- Cooling: Not Applicable for PV
- Process: Not Applicable for PV
- Potable: Minimal
- Panel Cleaning: Minimal, trucked in if and when needed.


Environmental and Land Use Information:
Supplemental Information

Relationship of Regional Hydrogeologic Units
to Major Stratigraphic Units

Florida Regions
### Relationship of Regional Hydrogeologic Units to Major Stratigraphic Units

<table>
<thead>
<tr>
<th>System</th>
<th>Panhandle Florida</th>
<th>North Florida</th>
<th>South Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stratigraphic Unit</td>
<td>Hydrogeologic Unit</td>
<td>Stratigraphic Unit</td>
</tr>
<tr>
<td>Quaternary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holocene</td>
<td></td>
<td>Surficial aquifer system</td>
<td>Surficial aquifer system</td>
</tr>
<tr>
<td>Pleistocene</td>
<td></td>
<td>Surficial terrace marine and fluvial deposits</td>
<td>Surficial terrace marine and fluvial deposits</td>
</tr>
<tr>
<td>Tertiary</td>
<td></td>
<td>Cretaceous and older</td>
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</tr>
<tr>
<td>Eocene</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Oligocene</td>
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<td>Miocene</td>
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<td>Pliocene</td>
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<tr>
<td>Cretaceous</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note: This information is referred to in subsection k, Geological Features of Site and Adjacent Areas, for each of the 11 Preferred Sites.
Note: This information is referred to in subsection k, Geological Features of Site and Adjacent Areas, for each of the 11 Preferred Sites.
Environmental and Land Use Information:
Supplemental Information

Preferred Site # 1: Horizon Solar Energy Center,
Putnam and Alachua County
Environmental and Land Use Information:

Supplemental Information

Preferred Site # 2: Wildflower Solar Energy Center, Desoto County
Environmental and Land Use Information:
Supplemental Information

Preferred Site # 3: Indian River Solar Energy Center,
Indian River County
Environmental and Land Use Information:

Supplemental Information

Preferred Site # 4: Coral Farms Solar Energy Center,
Putnam County
Environmental and Land Use Information:

Supplemental Information

Preferred Site # 5: Hammock Solar Energy Center, Hendry County
Environmental and Land Use Information:

Supplemental Information

Preferred Site # 6: Barefoot Bay Solar Energy Center,
Brevard County
Environmental and Land Use Information:

Supplemental Information

Preferred Site # 7: Blue Cypress Solar Energy Center, Indian River County
Environmental and Land Use Information:

Supplemental Information

Preferred Site # 8: Loggerhead Solar Energy Center,
St. Lucie County
Environmental and Land Use Information:

Supplemental Information

Preferred Site # 9: Okeechobee Clean Energy Center,
Okeechobee County
Environmental and Land Use Information:
Supplemental Information

Preferred Site # 10: Lauderdale Modernization
(Dania Beach Clean Energy Center),
Broward County
Environmental and Land Use Information:
Supplemental Information

Preferred Site # 11: Turkey Point Plant,
Miami-Dade County
Environmental and Land Use Information:
Supplemental Information

Potential Site #1: Alachua County
Environmental and Land Use Information:
Supplemental Information

Potential Site #2: Baker County
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Environmental and Land Use Information:
Supplemental Information

Potential Site #3: Clay County
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Environmental and Land Use Information:
Supplemental Information

Potential Site #4: Collier County
Environmental and Land Use Information:
Supplemental Information

Potential Site #5: Columbia County
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Environmental and Land Use Information:
Supplemental Information

Potential Site #6: Hendry County
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Environmental and Land Use Information:
Supplemental Information

Potential Site #7: Miami-Dade County
(This page is left intentionally blank.)
Environmental and Land Use Information:
Supplemental Information

Potential Site #8: Putnam County
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Environmental and Land Use Information:
Supplemental Information

Potential Site #9: St. Lucie County
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Environmental and Land Use Information:
Supplemental Information

Potential Site #10: Suwanee County
Environmental and Land Use Information:
Supplemental Information

Potential Site #11: Union County
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Environmental and Land Use Information:
Supplemental Information

Potential Site #12: Volusia County
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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 to be included in an electric utility’s Ten Year Power Plant Site Plan filing. This specified information includes 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.

FPL addresses internal transmission limitations 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: 1) developing the direct costs for siting potential new units at different locations, 2) evaluating the cost impacts created by the new unit/unit location combination on the operation of existing units in the FPL system, 3) 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 the Southeastern Florida region by lowering electrical load in that area. 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, as applicable, 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 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 and only supply options are being analyzed, FPL uses the equivalent criterion of the cumulative present value of revenue requirements (CPVRR) for its system.11

FPL developed the load forecast that is presented in this 2017 Site Plan in late 2016. The only load forecast sensitivities analyzed during 2016/early 2017 were extreme weather sensitivities developed to analyze potential near-term operational scenarios and a higher load-forecast scenario that was used to examine the projected future need for natural gas for the FPL system. These load forecast sensitivities and scenario did not result in a change in the resource plan.

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11 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 (CPVRR) 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 CPVRR basis.
Discussion Item # 3: Explain and discuss the assumptions used to derive the base case fuel forecast. Explain the extent to which the utility tested the sensitivity of the base case plan to high and low fuel price scenarios. If high and low fuel price sensitivities were performed, explain the changes made to the base case fuel price forecast to generate the sensitivities. If high and low fuel price scenarios were performed as part of the planning process, discuss the resulting changes, if any, in the generation expansion plan under the high and low fuel price scenario. If high and low fuel price sensitivities were not evaluated, describe how the base case plan is tested for sensitivity to varying fuel prices.

The basic assumptions FPL used in deriving its fuel price forecasts are discussed in Chapter III of this document. FPL may use a single fuel cost forecast, or multiple fuel cost forecasts (Low, Medium, and High), in its analyses as appropriate.

In cases where multiple fuel cost forecasts are used, a Medium fuel cost forecast is developed first. Then FPL’s approach has been to adjust the Medium fuel cost forecast upward (for the High fuel cost forecast) or downward (for the Low fuel cost forecast) by multiplying the annual cost values from the Medium fuel cost forecast by a factor of $(1 + \text{the historical volatility of the 12-month forward price, one year ahead})$ for the High fuel cost forecast, or by a factor of $(1 – \text{the historical volatility of the 12-month forward price, one year ahead})$ for the Low fuel cost forecast. Given the current environment of low fuel prices which highlights the asymmetry that exists between upside and downside price risk, FPL is currently considering another approach for determining the High and Low band sensitivities around the Medium fuel cost forecast.

The resource plan presented in this Site Plan is based on an updated fuel cost forecast that was developed in November of 2016.

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.

In its 2016 and early 2017 resource planning work, FPL did not utilize a forecast scenario in which the differential between oil/gas and coal was held constant. This is, in part, because FPL is currently using, and is projected to use, very little oil (as shown on Schedules 5, 6.1, and 6.2 in Chapter III). In addition, the projected price of natural gas no longer shows the significant difference compared to the projected price of coal that was common in fuel cost forecasts a number of years ago.
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.

At the start of 2016, FPL used the following financial assumptions: (i) an incremental capital structure of 40.38% debt and 59.62% equity; (ii) a 5.05% cost of debt; (iii) a 10.5% return on equity; and (iv) an after-tax discount rate of 7.51%. In late 2016, the cost of debt changed to 5.17%, the cost of capital changed to 10.55% and the after-tax discount rate changed to 7.57%. These updated financial assumptions remain valid at the time the 2017 Site Plan is being prepared. No sensitivities of these financial assumptions were used in FPL’s late 2016/early 2017 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 revenue requirement (CPVRR) perspective for the system 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 CPVRR 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 various resource options including: utility generation, purchase power, 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 Corporation (NERC). The NERC Reliability Standards are available on the internet site [http://www.nerc.com/](http://www.nerc.com/).

In addition, FPL has developed a Facility Interconnection Requirements (FIR) document that is available on the internet under the “Interconnection Request Information” directory at the following internet address: [https://www.oatoasis.com/FPL/index.html](https://www.oatoasis.com/FPL/index.html).

Generally, FPL limits its transmission facilities to operate at no more than 100% of the applicable thermal rating. The normal and contingency voltage criteria for FPL stations are provided below:
### Normal/Contingency

<table>
<thead>
<tr>
<th>Voltage Level (kV)</th>
<th>Vmin (p.u.)</th>
<th>Vmax (p.u.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>69, 115, 138</td>
<td>0.95/0.95</td>
<td>1.05/1.07</td>
</tr>
<tr>
<td>230</td>
<td>0.95/0.95</td>
<td>1.06/1.07</td>
</tr>
<tr>
<td>500</td>
<td>0.95/0.95</td>
<td>1.07/1.10</td>
</tr>
<tr>
<td>Turkey Point (*)</td>
<td>1.013/1.013</td>
<td>1.06/1.06</td>
</tr>
<tr>
<td>St. Lucie (*)</td>
<td>1.00/1.00</td>
<td>1.06/1.06</td>
</tr>
</tbody>
</table>

(*) 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.**

FPL periodically revises the projected impacts of its DSM programs on demand and energy consumption. 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 management 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. Based on testing during 2015, FPL temporarily reduced its estimated residential load management MW reduction capabilities due to customer-premise equipment communications issues that FPL projects will be resolved by the end of 2017.

**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 among 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 that 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, and generating technologies that do not utilize fossil fuels (such as nuclear and solar).

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 2017 Site Plan, FPL’s resource plan currently reflects the following major supply-side or generation resource additions: on-going upgrading of the combustion turbine (CT) components at various existing CCs throughout FPL’s system, projected addition of new PV facilities, projected addition of new CC capacity at the Okeechobee site, and additional new CC capacity through the modernization of FPL’s existing Lauderdale plant site.
CT upgrades are currently taking place at various 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, FPL made the decision to proceed with the CT upgrades and supporting balance of plant modifications. FPL completed the first series of upgrades in 2015. Additional upgrades are in progress and are projected to be completed by 2020.

For new PV facilities, the selection of equipment and installation contractors has been, and will continue to be, done via competitive bidding. FPL seeks bids from multiple suppliers for major components such as PV panels, inverters, and transformers. Where possible, FPL aggregates and executes component purchases as a portfolio to achieve cost synergies. However, this must be balanced against rapid technology change and potential future cost declines. Therefore, FPL strategically manages the bundling of purchases over the planned construction horizon.

The remaining balance-of-system (BOS) purchases such as racking and cabling are typically bid out, along with engineering and construction services, to several suppliers to determine the best value. Based on its experience in building universal scale solar facilities, if FPL believes it can self-manage the engineering, procurement, and construction (EPC) of the solar project execution at a lower cost than the bids received, it may elect to self-perform this work from time to time. These decisions are all coordinated to realize the lowest installed costs possible for the sites identified.

FPL selected the Okeechobee CC, which will begin commercial operation in 2019, after analyses of other potential FPL self-build generation options and after issuing a capacity Request for Proposals (RFP) in accordance with the FPSC’s Bid Rule. At the time this Site Plan is being prepared, FPL is evaluating whether the planned modernization of the Lauderdale plant site also will require an RFP under the Bid Rule or if, due to the special characteristics of the project (e.g., the planned use of existing plant land, water, gas pipeline, and transmission infrastructure), it may potentially qualify for an exemption from the Bid Rule based on lower cost supply of electricity, increased system reliability, and public welfare benefits. Whether an RFP is required or not, 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 three new transmission lines that require certification under the Transmission Line Siting Act (as shown on Table III.E.1 in Chapter III). The first is a 230 kV line that was certified in April 2006. The new line will connect FPL’s St. Johns Substation to its Pringle Substation. 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.

The second is a 500 kV line corridor that was certified in April 1990. The line(s), when fully constructed, will provide an additional connection between FPL’s Midway substation and its Levee substation in Miami-Dade County. A portion of this corridor was utilized in 1994 to connect FPL’s Corbett substation (located along the corridor) in Palm Beach County to its Conservation substation in western Broward County. The next phase, which is currently scheduled to be in service by June 2019, will utilize the remaining portion of the corridor from Corbett to Levee. The line is needed to increase transmission import capability into the Southeastern Florida region.

The third is another 230 kV line which will connect FPL’s Duval Substation to a new Raven 230/115 KV Substation. A determination of need for the line was granted by the Florida Public Service Commission on March 4, 2016, and a Final order certifying the corridor for the project was issued on June 29, 2016. The project is scheduled to be completed by December 2018. The construction of this line and substation is necessary to serve existing and future FPL customers in the north Florida areas in and around Columbia County in a reliable and effective manner.