Report
04/01/2019

Matthew R. Bernier
ASSOCIATE GENERAL COUNSEL

April 1, 2019

**VIA ELECTRONIC MAIL**

Mr. Adam Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *2019 TYSP Supplemental Data Request #1*

Dear Mr. Teitzman:

Please find attached for filing on behalf of Duke Energy Florida, LLC, its response to question number 1 of the 2019 TYSP Supplemental Data Request #1 issued on February 1, 2019.

Thank you for your assistance in this matter. Please feel free to call me at (850) 521-1428 should you have any questions concerning this matter.

Respectfully,

*/s/ Matthew R. Bernier*

Matthew R. Bernier

MRB/mw
Attachment

cc: Doug Wright

106 East College Avenue, Suite 800 ▪ Tallahassee, Florida 32301
Phone: 850.521.1428 ▪ Fax: 727.820.5041 ▪ Email: matthew.bernier@duke-energy.com

**Duke Energy Florida, LLC's Response to Staff's**
**Supplemental Data Request #1 (No. 1)**
**re. Review of 2019 Ten-Year Site Plans for Florida's Electric Utilities**

## General Items

1. Please provide an electronic copy of the Company's 2019–2028 Ten-Year Site Plan (2019 TYSP) in PDF format and the accompanying Schedules 1−10 in Microsoft Excel format.

   **Response:** Please see the attached 2019 Ten Year Site Plan in pdf format and the accompanying schedules in Excel format.

# Duke Energy Florida, LLC
# Ten-Year Site Plan

April 2019

2019-2028

Submitted to:
Florida Public Service Commission

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# REQUIRED SCHEDULES

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# TABLES AND FIGURES

# CODE IDENTIFICATION SHEET

**Generating Unit Type**

ST - Steam Turbine - Non-Nuclear
NP - Steam Power - Nuclear
GT - Gas Turbine
CT - Combustion Turbine
CC - Combined Cycle
SPP - Small Power Producer
COG - Cogeneration Facility
PV - Photovoltaic

**Fuel Type**

NUC - Nuclear (Uranium)
NG - Natural Gas
RFO - No. 6 Residual Fuel Oil
DFO - No. 2 Distillate Fuel Oil
BIT - Bituminous Coal
MSW - Municipal Solid Waste
WH - Waste Heat
BIO – Biomass
SO – Solar PV

**Fuel Transportation**

WA - Water
TK - Truck
RR - Railroad
PL - Pipeline
UN - Unknown

**Future Generating Unit Status**

A - Generating unit capability increased
D – Generating unit capability decreased
FC - Existing generator planned for conversion to another fuel or energy source
P - Planned for installation but not authorized; not under construction
RP - Proposed for repowering or life extension
RT - Existing generator scheduled for retirement
T - Regulatory approval received but not under construction
U - Under construction, less than or equal to 50% complete
V - Under construction, more than 50% complete

# INTRODUCTION

Section 186.801 of the Florida Statutes requires electric generating utilities to submit a Ten-Year Site Plan (TYSP) to the Florida Public Service Commission (FPSC). The TYSP includes historical and projected data pertaining to the utility's load and resource needs as well as a review of those needs. Duke Energy Florida, LLC's (DEF)'s TYSP is compiled in accordance with FPSC Rules 25-22.070 through 22.072, Florida Administrative Code.

DEF's TYSP is based on the projections of long-term planning requirements that are dynamic in nature and subject to change. These planning documents should be used for general guidance concerning DEF's planning assumptions and projections, and should not be taken as an assurance that particular events discussed in the TYSP will materialize or that particular plans will be implemented. Information and projections pertinent to periods further out in time are inherently subject to greater uncertainty.

This TYSP document contains four chapters as indicated below:

- **CHAPTER 1 - DESCRIPTION OF EXISTING FACILITIES**

  This chapter provides an overview of DEF's generating resources as well as the transmission and distribution system.

- **CHAPTER 2 - FORECAST OF ELECTRICAL POWER DEMAND AND ENERGY CONSUMPTION**

  Chapter 2 presents the history and forecast for load and peak demand as well as the forecast methodology used. Demand-Side Management (DSM) savings and fuel requirement projections are also included.

- **CHAPTER 3 - FORECAST OF FACILITIES REQUIREMENTS**

  The resource planning forecast, transmission planning forecast as well as the proposed generating facilities and bulk transmission line additions status are discussed in Chapter 3.

- **CHAPTER 4 - ENVIRONMENTAL AND LAND USE INFORMATION**

  Preferred and potential site locations along with any environmental and land use information are presented in this chapter.

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## CHAPTER 1

# DESCRIPTION OF EXISTING FACILITIES

# CHAPTER 1

# DESCRIPTION OF EXISTING FACILITIES

## EXISTING FACILITIES OVERVIEW

### OWNERSHIP

Duke Energy Florida, LLC (DEF or the Company) is a wholly owned subsidiary of Duke Energy Corporation (Duke Energy).

### AREA OF SERVICE

DEF has an obligation to serve approximately 1.8 million customers in Florida. Its service area covers approximately 20,000 square miles in west central Florida and includes the densely populated areas around Orlando, as well as the cities of Saint Petersburg and Clearwater. DEF is interconnected with 21 municipal and nine rural electric cooperative systems who serve additional customers in Florida. DEF is subject to the rules and regulations of the Federal Energy Regulatory Commission (FERC), the Nuclear Regulatory Commission (NRC), and the FPSC. DEF's Service Area is shown in Figure 1.1.

### TRANSMISSION/DISTRIBUTION

The Company is part of a nationwide interconnected power network that enables power to be exchanged between utilities. The DEF transmission system includes approximately 5,200 circuit miles of transmission lines. The distribution system includes approximately 18,000 circuit miles of overhead distribution conductors and approximately 14,000 circuit miles of underground distribution cable.

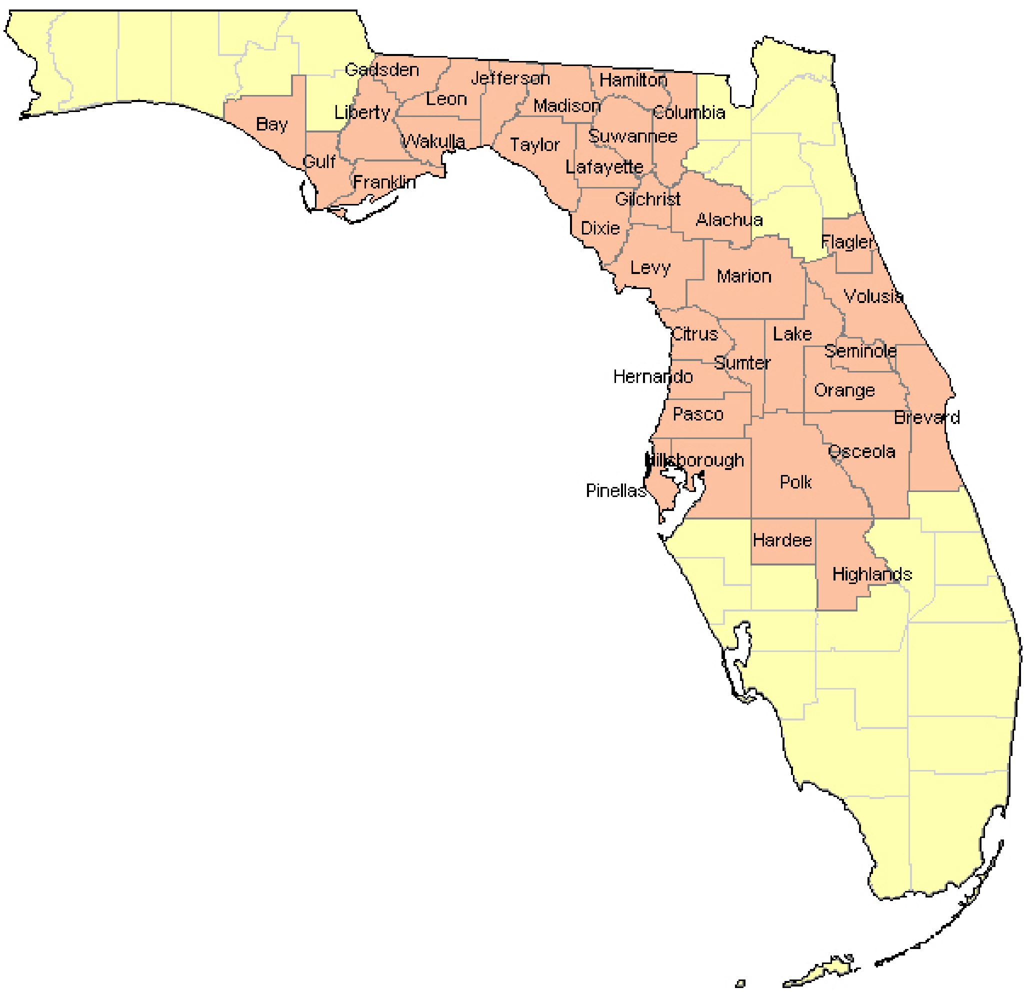
### ENERGY MANAGEMENT and ENERGY EFFICIENCY

The Company's residential Energy Management program represents a demand response type of program where participating customers help manage future growth and costs. Approximately 435,000 customers participated in the residential Energy Management program during 2018, contributing about 699 MW of winter peak-shaving capacity for use during high load periods. DEF's currently approved DSM programs consist of five residential programs, six commercial and industrial programs and one research and development program.

## TOTAL CAPACITY RESOURCE

As of December 31, 2018, DEF had total summer capacity resources of 11,789 MW consisting of installed capacity of 9,794 MW and 1,995 MW of firm purchased power. Additional information on DEF's existing generating resources can be found in Schedule 1 and Table 3.1 (Chapter 3).

**FIGURE 1.1**
**DUKE ENERGY FLORIDA**
**County Service Area Map**



**DUKE ENERGY FLORIDA**

SCHEDULE 1
EXISTING GENERATING FACILITIES

AS OF DECEMBER 31, 2018

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | COM'L IN- | EXPECTED | GEN. MAX. | NET CAPABILITY | |
| | UNIT | LOCATION | UNIT | FUEL | | FUEL TRANSPORT | | ALT. FUEL | SERVICE | RETIREMENT | NAMEPLATE | SUMMER | WINTER |
| PLANT NAME | NO. | (COUNTY) | TYPE | PRI. | ALT. | PRI. | ALT. | DAYS USE | MO./YEAR | MO./YEAR | KW | MW | MW |
| STEAM | | | | | | | | | | | | | |
| ANCLOTE | 1 | PASCO | ST | NG | | PL | | | 10/74 | | 556,200 | 498 | 511 |
| ANCLOTE | 2 | PASCO | ST | NG | | PL | | | 10/78 | | 556,200 | 505 | 514 |
| CRYSTAL RIVER | 4 | CITRUS | ST | BIT | | WA | RR | | 12/82 | | 739,260 | 712 | 721 |
| CRYSTAL RIVER | 5 | CITRUS | ST | BIT | | WA | RR | | 10/84 | | 739,260 | 710 | 721 |
| | | | | | | | | | | | **Steam Total** | **2,425** | **2,467** |
| COMBINED-CYCLE | | | | | | | | | | | | | |
| P L BARTOW | 4 | PINELLAS | CC | NG | DFO | PL | TK | * | 6/09 | | 1,254,200 | 1,104 | 1,187 |
| CITRUS COUNTY COMBINED CYCLE | PB1 | CITRUS | CC | NG | | PL | | | 10/18 | | 985,150 | 816 | 931 |
| CITRUS COUNTY COMBINED CYCLE | PB2 | CITRUS | CC | NG | | PL | | | 11/18 | | 985,150 | 816 | 931 |
| HINES ENERGY COMPLEX | 1 | POLK | CC | NG | | PL | | | 4/99 | | 546,500 | 490 | 528 |
| HINES ENERGY COMPLEX | 2 | POLK | CC | NG | DFO | PL | TK | * | 12/03 | | 548,250 | 524 | 563 |
| HINES ENERGY COMPLEX | 3 | POLK | CC | NG | DFO | PL | TK | * | 11/05 | | 561,000 | 515 | 564 |
| HINES ENERGY COMPLEX | 4 | POLK | CC | NG | DFO | PL | TK | * | 12/07 | | 610,500 | 516 | 544 |
| OSPREY ENERGY CENTER POWER PI | 1 | POLK | CC | NG | | PL | | | 5/04 | | 644,300 | 245 | 245 |
| TIGER BAY | 1 | POLK | CC | NG | | PL | | | 8/97 | | 278,100 | 200 | 231 |
| | | | | | | | | | | | **CC Total** | **5,226** | **5,724** |
| COMBUSTION TURBINE | | | | | | | | | | | | | |
| AVON PARK | P1 | HIGHLANDS | GT | NG | DFO | PL | TK | * | 12/68 | 6/2020 ** | 33,750 | 24 | 25 |
| AVON PARK | P2 | HIGHLANDS | GT | DFO | | TK | | * | 12/68 | 6/2020 ** | 33,750 | 24 | 25 |
| BARTOW | P1 | PINELLAS | GT | DFO | | WA | | * | 5/72 | 6/2027 ** | 55,400 | 41 | 52 |
| BARTOW | P2 | PINELLAS | GT | NG | DFO | PL | WA | * | 6/72 | | 55,400 | 41 | 57 |
| BARTOW | P3 | PINELLAS | GT | DFO | | WA | | * | 6/72 | 6/2027 ** | 55,400 | 41 | 53 |
| BARTOW | P4 | PINELLAS | GT | NG | DFO | PL | WA | * | 6/72 | | 55,400 | 45 | 61 |
| BAYBORO | P1 | PINELLAS | GT | DFO | | WA | | * | 4/73 | 12/2025 ** | 56,700 | 44 | 61 |
| BAYBORO | P2 | PINELLAS | GT | DFO | | WA | | * | 4/73 | 12/2025 ** | 56,700 | 41 | 58 |
| BAYBORO | P3 | PINELLAS | GT | DFO | | WA | | * | 4/73 | 12/2025 ** | 56,700 | 43 | 60 |
| BAYBORO | P4 | PINELLAS | GT | DFO | | WA | | * | 4/73 | 12/2025 ** | 56,700 | 43 | 59 |
| DEBARY | P2 | VOLUSIA | GT | DFO | | TK | | * | 12/75-4/76 | 6/2027 ** | 73,440 | 48 | 64 |
| DEBARY | P3 | VOLUSIA | GT | DFO | | TK | | * | 12/75-4/76 | 6/2027 ** | 73,440 | 50 | 65 |
| DEBARY | P4 | VOLUSIA | GT | DFO | | TK | | * | 12/75-4/76 | 6/2027 ** | 73,440 | 50 | 65 |
| DEBARY | P5 | VOLUSIA | GT | DFO | | TK | | * | 12/75-4/76 | 6/2027 ** | 73,440 | 50 | 65 |
| DEBARY | P6 | VOLUSIA | GT | DFO | | TK | | * | 12/75-4/76 | 6/2027 ** | 73,440 | 51 | 65 |
| DEBARY | P7 | VOLUSIA | GT | NG | DFO | PL | TK | * | 10/92 | | 103,500 | 79 | 99 |
| DEBARY | P8 | VOLUSIA | GT | NG | DFO | PL | TK | * | 10/92 | | 103,500 | 78 | 96 |
| DEBARY | P9 | VOLUSIA | GT | NG | DFO | PL | TK | * | 10/92 | | 103,500 | 80 | 98 |
| DEBARY | P10 | VOLUSIA | GT | DFO | | TK | | * | 10/92 | | 103,500 | 75 | 95 |
| HIGGINS *** | P1 | PINELLAS | GT | NG | | PL | | | 3/69 | 6/2020 ** | 33,750 | 0 | 0 |
| HIGGINS *** | P2 | PINELLAS | GT | NG | | PL | | | 4/69 | 6/2020 ** | 33,750 | 0 | 0 |
| HIGGINS *** | P3 | PINELLAS | GT | NG | | PL | | | 12/70 | 6/2020 ** | 42,925 | 0 | 0 |
| HIGGINS *** | P4 | PINELLAS | GT | NG | | PL | | | 1/71 | 6/2020 ** | 42,925 | 0 | 0 |
| INTERCESSION CITY | P1 | OSCEOLA | GT | DFO | | PL,TK | | * | 5/74 | | 56,700 | 47 | 64 |
| INTERCESSION CITY | P2 | OSCEOLA | GT | DFO | | PL,TK | | * | 5/74 | | 56,700 | 46 | 63 |
| INTERCESSION CITY | P3 | OSCEOLA | GT | DFO | | PL,TK | | * | 5/74 | | 56,700 | 46 | 63 |
| INTERCESSION CITY | P4 | OSCEOLA | GT | DFO | | PL,TK | | * | 5/74 | | 56,700 | 46 | 63 |
| INTERCESSION CITY | P5 | OSCEOLA | GT | DFO | | PL,TK | | * | 5/74 | | 56,700 | 45 | 62 |
| INTERCESSION CITY | P6 | OSCEOLA | GT | DFO | | PL,TK | | * | 5/74 | | 56,700 | 47 | 64 |
| INTERCESSION CITY | P7 | OSCEOLA | GT | NG | DFO | PL | PL,TK | * | 10/93 | | 103,500 | 78 | 95 |
| INTERCESSION CITY | P8 | OSCEOLA | GT | NG | DFO | PL | PL,TK | * | 10/93 | | 103,500 | 79 | 96 |
| INTERCESSION CITY | P9 | OSCEOLA | GT | NG | DFO | PL | PL,TK | * | 10/93 | | 103,500 | 79 | 96 |
| INTERCESSION CITY | P10 | OSCEOLA | GT | NG | DFO | PL | PL,TK | * | 10/93 | | 103,500 | 78 | 96 |
| INTERCESSION CITY | P11 | OSCEOLA | GT | DFO | | PL,TK | | * | 1/97 | | 148,500 | 140 | 161 |
| INTERCESSION CITY | P12 | OSCEOLA | GT | NG | DFO | PL | PL,TK | * | 12/00 | | 98,260 | 73 | 94 |
| INTERCESSION CITY | P13 | OSCEOLA | GT | NG | DFO | PL | PL,TK | * | 12/00 | | 98,260 | 75 | 93 |
| INTERCESSION CITY | P14 | OSCEOLA | GT | NG | DFO | PL | PL,TK | * | 12/00 | | 98,260 | 72 | 92 |
| SUWANNEE RIVER | P1 | SUWANNEE | GT | NG | DFO | PL | TK | * | 10/80 | | 65,999 | 49 | 68 |
| SUWANNEE RIVER | P2 | SUWANNEE | GT | DFO | | TK | | * | 10/80 | | 65,999 | 50 | 67 |
| SUWANNEE RIVER | P3 | SUWANNEE | GT | NG | DFO | PL | TK | * | 11/80 | | 65,999 | 50 | 68 |
| UNIVERSITY OF FLORIDA | P1 | ALACHUA | GT | NG | | PL | | | 1/94 | | 65,999 | 44 | 46 |
| | | | | | | | | | | | **CT Total** | **2,092** | **2,674** |
| SOLAR | | | | | | | | | | | | | |
| OSCEOLA SOLAR FACILITY | PV1 | OSCEOLA | PV | SO | | | | | 5/16 | | 3,800 | 2 | 0 |
| PERRY SOLAR FACILITY | PV1 | TAYLOR | PV | SO | | | | | 8/16 | | 5,000 | 2 | 0 |
| SUWANNEE RIVER SOLAR FACILITY | PV1 | SUWANNEE | PV | SO | | | | | 11/16 | | 8,800 | 4 | 0 |
| HAMILTON SOLAR FACILITY | PV1 | HAMILTON | PV | SO | | | | | 12/18 | | 74,900 | 43 | 0 |
| | | | | | | | | | | | **SOLAR Total** | **51** | **0** |
| | | | | | | | | | | | **TOTAL RESOURCES (MW)** | **9,794** | **10,865** |

* APPROXIMATELY 2 TO 8 DAYS OF OIL USE TYPICALLY TARGETED FOR ENTIRE PLANT.
** DATES FOR RETIREMENT ARE APPROXIMATE AND SUBJECT TO CHANGE
*** HIGGINS P1 20 MW, P2 25 MW, P3 31 MW & P4 31 MW (SUMMER MW) IS NON-FIRM CAPACITY AND SHOWN AS 0 MW EACH DUE TO SINGLE NON-FIRM FUEL SOURCE.

# CHAPTER 2

## FORECAST OF ELECTRIC POWER DEMAND AND ENERGY CONSUMPTION

# CHAPTER 2

# FORECAST OF ELECTRIC POWER DEMAND AND ENERGY CONSUMPTION

## OVERVIEW

The information presented in Schedules 2, 3, and 4 represents DEF's history and forecast of customers, energy sales (GWh), and peak demand (MW). In general, this discussion refers to DEF's base forecast. Economic data from 2018 showed a continuation and expansion of the ongoing economic recovery that began in approximately 2012 and has continued to strengthen since. 2018 Economic growth stepped into higher gear fueled by the 2017 Tax Cut & Jobs Act. The U.S. unemployment rate dropped to a fifty year low with the Florida rate even lower. The 2019 outlook calls for slower U.S. economic growth as the boost from the tax cuts wear off. Looking ahead, the projections incorporated in this site plan forecast a moderation of growth rates in population and economic activity within the U.S and DEF service territory as assumed in the Moody's Analytics July 2018 projection. DEF continues to provide alternate "high" and "low" forecasts for energy and demand growth, recognizing that the current economic expansion may continue to accelerate as it has in the last year or could unwind just as it becomes the longest expansions on record.

Over the course of the ten years of history in this Site Plan (2009-2018), the nation and the State of Florida have endured the worst economic downturn in eighty years and have emerged to signs of a strong, sustainable recovery. Nearly all economic measures appear to have returned to normal post-crisis levels for both the U.S and Florida economies. A strong recovery has taken place in the past few years and the Florida economy can be expected to experience more normal rates of growth as the current economic expansion nears the record for longest expansion in U.S. history. County population growth rate projections from the University of Florida's Bureau of Economic and Business Research (BEBR) were incorporated into this projection. The DEF service area population has been estimated to have grown at an average ten-year growth of 1.16 percent from 2009 – 2018 (Schedule 2.1.1 Column 2). Demographic conditions going forward look amenable to sustaining a level of growth closer to 1.3% over the 2019-2028 period. The rate of residential customer growth, which averaged 1.15% per year over the historical ten-year period, is expected to improve to an average of 1.45% for the projected ten years. A projected decline in average household size will result in a higher rate of household growth. By looking at Schedule 2.3.1 Column 6, we find that total DEF customers grew from 1.630 million in 2009 to 1.802 million in 2018, an increase of 171,369 or 1.12% annual growth rate. The projected number of total customers between 2019 and 2028 is 245,991 or 1.41% annual growth rate.

From 2009 to 2018 net energy for load (NEL) was essentially unchanged at 0.03% (Schedule 2.3.1 Column 4), primarily due to terminated contracts in the Sales for Resale or Wholesale jurisdiction (Schedule 2.3.1 Column 2). Historically, the 2018 Sales for Resale value has fallen 1,372 GWh from its 2009 level. The level of Wholesale NEL over the ten-year forecast is projected to decline an additional 1,426 GWh from the 2018 level. This decline is offset by a steady increase in the retail load sector which has increased by roughly 4% over the last ten years, an amount equal to the wholesale decline, and is projected to grow approximately 10% over the next decade, almost double the total energy decline in the wholesale sector. Total DEF customer growth in 2018 reached 1.12%, lower than the 2017 growth rate but still slightly higher than the 5-year average growth of 1.47%. The forecast over the next ten years calls for an average annual customer growth rate of 1.41%. Florida population growth is expected to remain elevated through most of the 2020s as the large baby-boom age cohort retire to sunny Florida.

During the 2009 to 2018 historical period the DEF Summer net firm demand (Schedule 3.1 column 10) declined from 9,624 MW to 8,545 MW, an average -1.3% per year. Once again, most of the decline came from the DEF wholesale load sector (Column 3), which dropped from a level of 1,618 MW in 2009 to 812 MW in 2018, a total drop of 806 MW or -50%. A secondary reason for the decline is continued growth in conservation and demand response participation. The projected ten-year period total DEF summer net firm demand growth of only 8 MW or 0.0% per year over the 10-year horizon is due to continued projected declines in wholesale peak demand.

## ENERGY CONSUMPTION AND DEMAND FORECAST SCHEDULES

The below schedules have been provided to represent DEF's expectations for a Base Case as well as reasonable High and Low forecast scenarios for resource planning purposes. (Base-B, High-H and Low-L):

| SCHEDULE | DESCRIPTION |
|---|---|
| 2.1, 2.2 and 2.3 | History and Forecast of Energy Consumption and Number of Customers by Customer Class (B, H and L) |
| 3.1 | History and Forecast of Base Summer Peak Demand (MW) (B, H and L) |
| 3.2 | History and Forecast of Base Winter Peak Demand (MW) (B, H and L) |
| 3.3 | History and Forecast of Base Annual Net Energy for Load (GWh) (B, H and L) |
| 4 | Previous Year Actual and Two-Year Forecast of Peak Demand and Net Energy for Load by Month (B, H and L) |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.1.1
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
BASE CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| | RURAL AND RESIDENTIAL | | | | | COMMERCIAL | | |
| YEAR | DEF POPULATION | MEMBERS PER HOUSEHOLD | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER |
| HISTORY: | | | | | | | | |
| 2009 | 3,564,937 | 2.473 | 19,399 | 1,441,325 | 13,459 | 11,883 | 161,390 | 73,632 |
| 2010 | 3,621,407 | 2.495 | 20,524 | 1,451,466 | 14,140 | 11,896 | 161,674 | 73,579 |
| 2011 | 3,625,558 | 2.496 | 19,238 | 1,452,454 | 13,245 | 11,892 | 162,071 | 73,374 |
| 2012 | 3,641,179 | 2.496 | 18,251 | 1,458,690 | 12,512 | 11,723 | 163,297 | 71,792 |
| 2013 | 3,713,013 | 2.495 | 18,508 | 1,488,159 | 12,437 | 11,718 | 165,936 | 70,617 |
| 2014 | 3,747,160 | 2.492 | 19,003 | 1,503,758 | 12,637 | 11,789 | 167,253 | 70,485 |
| 2015 | 3,794,138 | 2.489 | 19,932 | 1,524,605 | 13,074 | 12,070 | 169,147 | 71,359 |
| 2016 | 3,837,436 | 2.485 | 20,265 | 1,543,967 | 13,126 | 12,094 | 170,999 | 70,724 |
| 2017 | 3,906,975 | 2.483 | 19,791 | 1,573,260 | 12,579 | 11,918 | 173,695 | 68,612 |
| 2018 | 3,954,499 | 2.476 | 20,636 | 1,597,132 | 12,920 | 12,172 | 175,848 | 69,216 |
| FORECAST: | | | | | | | | |
| 2019 | 4,013,466 | 2.470 | 20,343 | 1,624,690 | 12,521 | 12,067 | 178,557 | 67,579 |
| 2020 | 4,070,191 | 2.471 | 20,637 | 1,647,440 | 12,527 | 12,208 | 181,015 | 67,440 |
| 2021 | 4,129,577 | 2.467 | 20,887 | 1,673,995 | 12,477 | 12,327 | 183,346 | 67,236 |
| 2022 | 4,182,767 | 2.460 | 21,076 | 1,700,215 | 12,396 | 12,425 | 185,608 | 66,944 |
| 2023 | 4,233,800 | 2.452 | 21,275 | 1,726,425 | 12,323 | 12,529 | 187,771 | 66,726 |
| 2024 | 4,283,713 | 2.445 | 21,438 | 1,752,362 | 12,234 | 12,619 | 189,913 | 66,445 |
| 2025 | 4,334,883 | 2.439 | 21,796 | 1,777,519 | 12,262 | 12,814 | 192,031 | 66,728 |
| 2026 | 4,387,123 | 2.434 | 21,874 | 1,802,497 | 12,135 | 12,824 | 194,078 | 66,075 |
| 2027 | 4,441,443 | 2.431 | 22,134 | 1,826,913 | 12,116 | 12,930 | 196,028 | 65,960 |
| 2028 | 4,494,486 | 2.429 | 22,585 | 1,850,092 | 12,207 | 13,124 | 197,900 | 66,316 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.1.2
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
HIGH CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| | RURAL AND RESIDENTIAL | | | | | COMMERCIAL | | |
| YEARYEAR | DEF POPULATION | MEMBERS PER HOUSEHOLD | GWhGWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER |
| HISTORY: | | | | | | | | |
| 2009 | 3,564,937 | 2.473 | 19,399 | 1,441,325 | 13,459 | 11,883 | 161,390 | 73,632 |
| 2010 | 3,621,407 | 2.495 | 20,524 | 1,451,466 | 14,140 | 11,896 | 161,674 | 73,579 |
| 2011 | 3,625,558 | 2.496 | 19,238 | 1,452,454 | 13,245 | 11,892 | 162,071 | 73,374 |
| 2012 | 3,641,179 | 2.496 | 18,251 | 1,458,690 | 12,512 | 11,723 | 163,297 | 71,792 |
| 2013 | 3,713,013 | 2.495 | 18,508 | 1,488,159 | 12,437 | 11,718 | 165,936 | 70,617 |
| 2014 | 3,747,160 | 2.492 | 19,003 | 1,503,758 | 12,637 | 11,789 | 167,253 | 70,485 |
| 2015 | 3,794,138 | 2.489 | 19,932 | 1,524,605 | 13,074 | 12,070 | 169,147 | 71,359 |
| 2016 | 3,837,436 | 2.485 | 20,265 | 1,543,967 | 13,126 | 12,094 | 170,999 | 70,724 |
| 2017 | 3,906,975 | 2.483 | 19,791 | 1,573,260 | 12,579 | 11,918 | 173,695 | 68,612 |
| 2018 | 3,954,499 | 2.476 | 20,636 | 1,597,132 | 12,920 | 12,172 | 175,848 | 69,216 |
| FORECAST: | | | | | | | | |
| 2019 | 4,026,822 | 2.470 | 22,599 | 1,630,097 | 13,864 | 12,489 | 178,871 | 69,822 |
| 2020 | 4,097,996 | 2.471 | 23,043 | 1,658,694 | 13,893 | 12,766 | 181,670 | 70,272 |
| 2021 | 4,172,377 | 2.467 | 23,474 | 1,691,345 | 13,879 | 13,022 | 184,356 | 70,634 |
| 2022 | 4,241,097 | 2.460 | 23,858 | 1,723,925 | 13,839 | 13,276 | 186,987 | 71,000 |
| 2023 | 4,308,201 | 2.452 | 24,239 | 1,756,764 | 13,797 | 13,542 | 189,537 | 71,446 |
| 2024 | 4,374,718 | 2.445 | 24,592 | 1,789,590 | 13,742 | 13,771 | 192,079 | 71,692 |
| 2025 | 4,443,039 | 2.439 | 25,109 | 1,821,868 | 13,782 | 14,100 | 194,613 | 72,454 |
| 2026 | 4,512,937 | 2.434 | 25,432 | 1,854,189 | 13,716 | 14,254 | 197,086 | 72,322 |
| 2027 | 4,585,434 | 2.431 | 25,900 | 1,886,142 | 13,732 | 14,515 | 199,475 | 72,768 |
| 2028 | 4,657,134 | 2.429 | 26,525 | 1,917,044 | 13,837 | 14,851 | 201,797 | 73,595 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.1.3
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
LOW CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|
| | RURAL AND RESIDENTIAL | | | | | COMMERCIAL | | |
| YEAR | DEF POPULATION | MEMBERS PER HOUSEHOLD | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER |
| HISTORY: | | | | | | | | |
| 2009 | 3,564,937 | 2.473 | 19,399 | 1,441,325 | 13,459 | 11,883 | 161,390 | 73,632 |
| 2010 | 3,621,407 | 2.495 | 20,524 | 1,451,466 | 14,140 | 11,896 | 161,674 | 73,579 |
| 2011 | 3,625,558 | 2.496 | 19,238 | 1,452,454 | 13,245 | 11,892 | 162,071 | 73,374 |
| 2012 | 3,641,179 | 2.496 | 18,251 | 1,458,690 | 12,512 | 11,723 | 163,297 | 71,792 |
| 2013 | 3,713,013 | 2.495 | 18,508 | 1,488,159 | 12,437 | 11,718 | 165,936 | 70,617 |
| 2014 | 3,747,160 | 2.492 | 19,003 | 1,503,758 | 12,637 | 11,789 | 167,253 | 70,485 |
| 2015 | 3,794,138 | 2.489 | 19,932 | 1,524,605 | 13,074 | 12,070 | 169,147 | 71,359 |
| 2016 | 3,837,436 | 2.485 | 20,265 | 1,543,967 | 13,126 | 12,094 | 170,999 | 70,724 |
| 2017 | 3,906,975 | 2.483 | 19,791 | 1,573,260 | 12,579 | 11,918 | 173,695 | 68,612 |
| 2018 | 3,954,499 | 2.476 | 20,636 | 1,597,132 | 12,920 | 12,172 | 175,848 | 69,216 |
| FORECAST: | | | | | | | | |
| 2019 | 4,000,123 | 2.470 | 17,923 | 1,619,289 | 11,069 | 11,567 | 178,242 | 64,894 |
| 2020 | 4,042,516 | 2.471 | 18,044 | 1,636,239 | 11,028 | 11,606 | 180,363 | 64,346 |
| 2021 | 4,087,151 | 2.467 | 18,135 | 1,656,797 | 10,946 | 11,614 | 182,346 | 63,692 |
| 2022 | 4,125,189 | 2.460 | 18,166 | 1,676,811 | 10,834 | 11,610 | 184,245 | 63,015 |
| 2023 | 4,160,667 | 2.452 | 18,219 | 1,696,604 | 10,739 | 11,617 | 186,035 | 62,447 |
| 2024 | 4,194,640 | 2.445 | 18,246 | 1,715,924 | 10,633 | 11,588 | 187,792 | 61,706 |
| 2025 | 4,229,473 | 2.439 | 18,418 | 1,734,295 | 10,620 | 11,647 | 189,516 | 61,458 |
| 2026 | 4,265,026 | 2.434 | 18,392 | 1,752,332 | 10,496 | 11,551 | 191,158 | 60,424 |
| 2027 | 4,302,304 | 2.431 | 18,487 | 1,769,681 | 10,447 | 11,541 | 192,697 | 59,893 |
| 2028 | 4,337,992 | 2.429 | 18,723 | 1,785,674 | 10,485 | 11,598 | 194,151 | 59,740 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.2.1
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
BASE CASE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|
| | INDUSTRIAL | | | | | | |
| YEAR | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER | RAILROADS AND RAILWAYS GWh | STREET & HIGHWAY LIGHTING GWh | OTHER SALES TO PUBLIC AUTHORITIES GWh | TOTAL SALES TO ULTIMATE CONSUMERS GWh |
| HISTORY: | | | | | | | |
| 2009 | 3,285 | 2,487 | 1,320,869 | 0 | 26 | 3,230 | 37,824 |
| 2010 | 3,219 | 2,481 | 1,297,461 | 0 | 26 | 3,260 | 38,925 |
| 2011 | 3,243 | 2,408 | 1,346,761 | 0 | 25 | 3,200 | 37,598 |
| 2012 | 3,160 | 2,372 | 1,332,209 | 0 | 25 | 3,221 | 36,381 |
| 2013 | 3,206 | 2,343 | 1,368,331 | 0 | 25 | 3,159 | 36,616 |
| 2014 | 3,267 | 2,280 | 1,432,895 | 0 | 25 | 3,157 | 37,240 |
| 2015 | 3,293 | 2,243 | 1,468,123 | 0 | 24 | 3,234 | 38,553 |
| 2016 | 3,197 | 2,178 | 1,467,860 | 0 | 24 | 3,194 | 38,774 |
| 2017 | 3,120 | 2,137 | 1,459,991 | 0 | 24 | 3,171 | 38,023 |
| 2018 | 3,107 | 2,080 | 1,493,750 | 0 | 24 | 3,206 | 39,144 |
| FORECAST: | | | | | | | |
| 2019 | 3,325 | 2,045 | 1,625,580 | 0 | 24 | 3,209 | 38,968 |
| 2020 | 3,517 | 2,028 | 1,733,824 | 0 | 24 | 3,219 | 39,604 |
| 2021 | 3,671 | 2,013 | 1,823,343 | 0 | 24 | 3,227 | 40,135 |
| 2022 | 3,694 | 2,000 | 1,846,982 | 0 | 23 | 3,238 | 40,457 |
| 2023 | 3,690 | 1,989 | 1,855,504 | 0 | 23 | 3,254 | 40,771 |
| 2024 | 3,683 | 1,978 | 1,861,527 | 0 | 23 | 3,271 | 41,034 |
| 2025 | 3,690 | 1,970 | 1,873,519 | 0 | 23 | 3,289 | 41,612 |
| 2026 | 3,670 | 1,962 | 1,870,687 | 0 | 23 | 3,307 | 41,696 |
| 2027 | 3,666 | 1,955 | 1,875,398 | 0 | 22 | 3,325 | 42,078 |
| 2028 | 3,677 | 1,949 | 1,886,807 | 0 | 22 | 3,346 | 42,754 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.2.2
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
HIGH CASE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|
| | INDUSTRIAL | | | | | | |
| YEAR | GWh | AVERAGE NO. OF CUSTOMERS | AVERAGE KWh CONSUMPTION PER CUSTOMER | RAILROADS AND RAILWAYS GWh | STREET & HIGHWAY LIGHTING GWh | OTHER SALES TO PUBLIC AUTHORITIES GWh | TOTAL SALES TO ULTIMATE CONSUMERS GWh |
| HISTORY: | | | | | | | |
| 2009 | 3,285 | 2,487 | 1,320,869 | 0 | 26 | 3,230 | 37,824 |
| 2010 | 3,219 | 2,481 | 1,297,461 | 0 | 26 | 3,260 | 38,925 |
| 2011 | 3,243 | 2,408 | 1,346,761 | 0 | 25 | 3,200 | 37,598 |
| 2012 | 3,160 | 2,372 | 1,332,209 | 0 | 25 | 3,221 | 36,381 |
| 2013 | 3,206 | 2,343 | 1,368,331 | 0 | 25 | 3,159 | 36,616 |
| 2014 | 3,267 | 2,280 | 1,432,895 | 0 | 25 | 3,157 | 37,240 |
| 2015 | 3,293 | 2,243 | 1,468,123 | 0 | 24 | 3,234 | 38,553 |
| 2016 | 3,197 | 2,178 | 1,467,860 | 0 | 24 | 3,194 | 38,774 |
| 2017 | 3,120 | 2,137 | 1,459,991 | 0 | 24 | 3,171 | 38,023 |
| 2018 | 3,107 | 2,080 | 1,493,750 | 0 | 24 | 3,206 | 39,144 |
| FORECAST: | | | | | | | |
| 2019 | 3,349 | 2,045 | 1,637,254 | 0 | 24 | 3,300 | 41,761 |
| 2020 | 3,547 | 2,028 | 1,748,905 | 0 | 24 | 3,321 | 42,702 |
| 2021 | 3,708 | 2,013 | 1,841,827 | 0 | 24 | 3,341 | 43,569 |
| 2022 | 3,738 | 2,000 | 1,868,892 | 0 | 23 | 3,366 | 44,261 |
| 2023 | 3,740 | 1,989 | 1,880,828 | 0 | 23 | 3,394 | 44,938 |
| 2024 | 3,740 | 1,978 | 1,890,292 | 0 | 23 | 3,426 | 45,551 |
| 2025 | 3,753 | 1,970 | 1,905,665 | 0 | 23 | 3,456 | 46,442 |
| 2026 | 3,739 | 1,962 | 1,906,235 | 0 | 23 | 3,489 | 46,936 |
| 2027 | 3,742 | 1,955 | 1,914,307 | 0 | 22 | 3,521 | 47,701 |
| 2028 | 3,759 | 1,949 | 1,928,706 | 0 | 22 | 3,555 | 48,713 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.2.3
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
LOW CASE

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|
| | INDUSTRIAL | | | | STREET & | OTHER SALES | TOTAL SALES |
| | | AVERAGE | AVERAGE KWh | RAILROADS | HIGHWAY | TO PUBLIC | TO ULTIMATE |
| | | NO. OF | CONSUMPTION | AND RAILWAYS | LIGHTING | AUTHORITIES | CONSUMERS |
| YEAR | GWh | CUSTOMERS | PER CUSTOMER | GWh | GWh | GWh | GWh |
| HISTORY: | | | | | | | |
| 2009 | 3,285 | 2,487 | 1,320,869 | 0 | 26 | 3,230 | 37,824 |
| 2010 | 3,219 | 2,481 | 1,297,461 | 0 | 26 | 3,260 | 38,925 |
| 2011 | 3,243 | 2,408 | 1,346,761 | 0 | 25 | 3,200 | 37,598 |
| 2012 | 3,160 | 2,372 | 1,332,209 | 0 | 25 | 3,221 | 36,381 |
| 2013 | 3,206 | 2,343 | 1,368,331 | 0 | 25 | 3,159 | 36,616 |
| 2014 | 3,267 | 2,280 | 1,432,895 | 0 | 25 | 3,157 | 37,240 |
| 2015 | 3,293 | 2,243 | 1,468,123 | 0 | 24 | 3,234 | 38,553 |
| 2016 | 3,197 | 2,178 | 1,467,860 | 0 | 24 | 3,194 | 38,774 |
| 2017 | 3,120 | 2,137 | 1,459,991 | 0 | 24 | 3,171 | 38,023 |
| 2018 | 3,107 | 2,080 | 1,493,750 | 0 | 24 | 3,206 | 39,144 |
| FORECAST: | | | | | | | |
| 2019 | 3,294 | 2,045 | 1,610,511 | 0 | 24 | 3,100 | 35,909 |
| 2020 | 3,479 | 2,028 | 1,715,390 | 0 | 24 | 3,097 | 36,250 |
| 2021 | 3,627 | 2,013 | 1,801,680 | 0 | 24 | 3,092 | 36,492 |
| 2022 | 3,645 | 2,000 | 1,822,196 | 0 | 23 | 3,092 | 36,536 |
| 2023 | 3,634 | 1,989 | 1,827,704 | 0 | 23 | 3,094 | 36,589 |
| 2024 | 3,622 | 1,978 | 1,830,815 | 0 | 23 | 3,100 | 36,579 |
| 2025 | 3,624 | 1,970 | 1,839,969 | 0 | 23 | 3,104 | 36,816 |
| 2026 | 3,599 | 1,962 | 1,834,507 | 0 | 23 | 3,109 | 36,674 |
| 2027 | 3,590 | 1,955 | 1,836,644 | 0 | 22 | 3,114 | 36,755 |
| 2028 | 3,597 | 1,949 | 1,845,514 | 0 | 22 | 3,121 | 37,062 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.3.1
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
BASE CASE

| (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|
| YEAR | SALES FOR RESALE GWh | UTILITY USE & LOSSES GWh | NET ENERGY FOR LOAD GWh | OTHER CUSTOMERS (AVERAGE NO.) | TOTAL NO. OF CUSTOMERS |
| HISTORY: | | | | | |
| 2009 | 3,696 | 2,604 | 44,124 | 24,993 | 1,630,195 |
| 2010 | 3,493 | 3,742 | 46,160 | 25,212 | 1,640,833 |
| 2011 | 2,712 | 2,180 | 42,490 | 25,228 | 1,642,161 |
| 2012 | 1,768 | 3,065 | 41,214 | 25,480 | 1,649,839 |
| 2013 | 1,488 | 2,668 | 40,772 | 25,759 | 1,682,197 |
| 2014 | 1,333 | 2,402 | 40,975 | 25,800 | 1,699,091 |
| 2015 | 1,243 | 2,484 | 42,280 | 25,866 | 1,721,861 |
| 2016 | 1,803 | 2,277 | 42,854 | 26,005 | 1,743,149 |
| 2017 | 2,196 | 2,700 | 42,919 | 26,248 | 1,775,340 |
| 2018 | 2,324 | 2,756 | 44,224 | 26,504 | 1,801,564 |
| FORECAST: | | | | | |
| 2019 | 1,653 | 2,585 | 43,206 | 26,740 | 1,832,032 |
| 2020 | 1,489 | 2,527 | 43,620 | 26,872 | 1,857,355 |
| 2021 | 1,377 | 2,437 | 43,949 | 27,037 | 1,886,392 |
| 2022 | 1,609 | 2,452 | 44,519 | 27,199 | 1,915,022 |
| 2023 | 1,264 | 2,431 | 44,466 | 27,361 | 1,943,546 |
| 2024 | 1,239 | 2,540 | 44,813 | 27,515 | 1,971,768 |
| 2025 | 898 | 2,222 | 44,732 | 27,665 | 1,999,184 |
| 2026 | 898 | 2,463 | 45,057 | 27,807 | 2,026,344 |
| 2027 | 898 | 2,429 | 45,405 | 27,947 | 2,052,843 |
| 2028 | 898 | 2,264 | 45,916 | 28,083 | 2,078,024 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.3.2
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
HIGH CASE

| (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|
| YEAR | SALES FOR RESALE GWh | UTILITY USE & LOSSES GWh | NET ENERGY FOR LOAD GWh | OTHER CUSTOMERS (AVERAGE NO.) | TOTAL NO. OF CUSTOMERS |
| HISTORY: | | | | | |
| 2009 | 3,696 | 2,604 | 44,124 | 24,993 | 1,630,195 |
| 2010 | 3,493 | 3,742 | 46,160 | 25,212 | 1,640,833 |
| 2011 | 2,712 | 2,180 | 42,490 | 25,228 | 1,642,161 |
| 2012 | 1,768 | 3,065 | 41,214 | 25,480 | 1,649,839 |
| 2013 | 1,488 | 2,668 | 40,772 | 25,759 | 1,682,197 |
| 2014 | 1,333 | 2,402 | 40,975 | 25,800 | 1,699,091 |
| 2015 | 1,243 | 2,484 | 42,280 | 25,866 | 1,721,861 |
| 2016 | 1,803 | 2,277 | 42,854 | 26,005 | 1,743,149 |
| 2017 | 2,196 | 2,700 | 42,919 | 26,248 | 1,775,340 |
| 2018 | 2,324 | 2,756 | 44,224 | 26,504 | 1,801,564 |
| FORECAST: | | | | | |
| 2019 | 1,653 | 2,760 | 46,175 | 26,740 | 1,837,753 |
| 2020 | 1,489 | 2,736 | 46,927 | 26,872 | 1,869,264 |
| 2021 | 1,377 | 2,685 | 47,630 | 27,037 | 1,904,752 |
| 2022 | 1,609 | 2,717 | 48,588 | 27,199 | 1,940,112 |
| 2023 | 1,264 | 2,718 | 48,919 | 27,361 | 1,975,650 |
| 2024 | 1,239 | 2,828 | 49,617 | 27,515 | 2,011,163 |
| 2025 | 898 | 2,570 | 49,910 | 27,665 | 2,046,115 |
| 2026 | 898 | 2,791 | 50,625 | 27,807 | 2,081,045 |
| 2027 | 898 | 2,783 | 51,382 | 27,947 | 2,115,519 |
| 2028 | 898 | 2,660 | 52,270 | 28,083 | 2,148,872 |

**DUKE ENERGY FLORIDA**

SCHEDULE 2.3.3
HISTORY AND FORECAST OF ENERGY CONSUMPTION AND
NUMBER OF CUSTOMERS BY CUSTOMER CLASS
LOW CASE

| (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|
| YEAR | SALES FOR RESALE GWh | UTILITY USE & LOSSES GWh | NET ENERGY FOR LOAD GWh | OTHER CUSTOMERS (AVERAGE NO.) | TOTAL NO. OF CUSTOMERS |
| HISTORY: | | | | | |
| 2009 | 3,696 | 2,604 | 44,124 | 24,993 | 1,630,195 |
| 2010 | 3,493 | 3,742 | 46,160 | 25,212 | 1,640,833 |
| 2011 | 2,712 | 2,180 | 42,490 | 25,228 | 1,642,161 |
| 2012 | 1,768 | 3,065 | 41,214 | 25,480 | 1,649,839 |
| 2013 | 1,488 | 2,668 | 40,772 | 25,759 | 1,682,197 |
| 2014 | 1,333 | 2,402 | 40,975 | 25,800 | 1,699,091 |
| 2015 | 1,243 | 2,484 | 42,280 | 25,866 | 1,721,861 |
| 2016 | 1,803 | 2,277 | 42,854 | 26,005 | 1,743,149 |
| 2017 | 2,196 | 2,700 | 42,919 | 26,248 | 1,775,340 |
| 2018 | 2,324 | 2,756 | 44,224 | 26,504 | 1,801,564 |
| FORECAST: | | | | | |
| 2019 | 1,653 | 2,409 | 39,972 | 26,740 | 1,826,316 |
| 2020 | 1,489 | 2,350 | 40,089 | 26,872 | 1,845,501 |
| 2021 | 1,377 | 2,264 | 40,133 | 27,037 | 1,868,193 |
| 2022 | 1,609 | 2,260 | 40,406 | 27,199 | 1,890,255 |
| 2023 | 1,264 | 2,225 | 40,078 | 27,361 | 1,911,989 |
| 2024 | 1,239 | 2,289 | 40,106 | 27,515 | 1,933,210 |
| 2025 | 898 | 2,016 | 39,730 | 27,665 | 1,953,445 |
| 2026 | 898 | 2,175 | 39,746 | 27,807 | 1,973,259 |
| 2027 | 898 | 2,126 | 39,780 | 27,947 | 1,992,280 |
| 2028 | 898 | 1,982 | 39,942 | 28,083 | 2,009,856 |

**DUKE ENERGY FLORIDA**

SCHEDULE 3.1.1
HISTORY AND FORECAST OF SUMMER PEAK DEMAND (MW)
BASE CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| HISTORY: | | | | | | | | | | |
| 2009 | 10,853 | 1618 | 9,235 | 262 | 291 | 271 | 84 | 211 | 110 | 9,624 |
| 2010 | 10,242 | 1272 | 8,970 | 271 | 304 | 298 | 96 | 234 | 110 | 8,929 |
| 2011 | 9,972 | 934 | 9,038 | 227 | 317 | 329 | 97 | 256 | 110 | 8,636 |
| 2012 | 9,788 | 1080 | 8,708 | 262 | 328 | 358 | 98 | 280 | 124 | 8,337 |
| 2013 | 9,581 | 581 | 9,000 | 317 | 341 | 382 | 101 | 298 | 124 | 8,017 |
| 2014 | 10,067 | 814 | 9,253 | 232 | 355 | 404 | 108 | 313 | 132 | 8,523 |
| 2015 | 10,058 | 772 | 9,286 | 303 | 360 | 435 | 124 | 324 | 80 | 8,431 |
| 2016 | 10,530 | 893 | 9,637 | 235 | 366 | 466 | 100 | 339 | 80 | 8,946 |
| 2017 | 10,220 | 808 | 9,412 | 203 | 342 | 498 | 95 | 349 | 80 | 8,653 |
| 2018 | 10,271 | 812 | 9,459 | 257 | 386 | 532 | 83 | 387 | 80 | 8,545 |
| FORECAST: | | | | | | | | | | |
| 2019 | 10,812 | 979 | 9,833 | 273 | 387 | 563 | 91 | 400 | 80 | 9,019 |
| 2020 | 10,865 | 939 | 9,926 | 356 | 393 | 584 | 95 | 403 | 80 | 8,953 |
| 2021 | 10,969 | 963 | 10,006 | 356 | 399 | 603 | 99 | 406 | 80 | 9,026 |
| 2022 | 11,063 | 963 | 10,100 | 366 | 405 | 619 | 103 | 408 | 80 | 9,082 |
| 2023 | 10,843 | 662 | 10,181 | 366 | 411 | 633 | 108 | 409 | 80 | 8,836 |
| 2024 | 10,938 | 662 | 10,276 | 366 | 417 | 647 | 112 | 410 | 80 | 8,907 |
| 2025 | 10,823 | 461 | 10,362 | 366 | 423 | 662 | 116 | 410 | 80 | 8,766 |
| 2026 | 10,921 | 461 | 10,460 | 366 | 429 | 676 | 120 | 411 | 80 | 8,839 |
| 2027 | 11,026 | 461 | 10,565 | 366 | 435 | 689 | 124 | 411 | 80 | 8,920 |
| 2028 | 11,157 | 461 | 10,695 | 366 | 441 | 702 | 129 | 412 | 80 | 9,027 |

**Historical Values (2009 - 2018):**

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) =Customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**Projected Values (2019 - 2028):**

Cols. (2) - (4) = forecasted peak without load control, cumulative conservation, and customer-owned self-service cogeneration.

Cols. (5) - (9) = cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

DUKE ENERGY FLORIDA

SCHEDULE 3.1.2
HISTORY AND FORECAST OF SUMMER PEAK DEMAND (MW)
HIGH CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| HISTORY: | | | | | | | | | | |
| 2009 | 10,853 | 1,618 | 9,235 | 262 | 291 | 271 | 84 | 211 | 110 | 9,624 |
| 2010 | 10,242 | 1,272 | 8,970 | 271 | 304 | 298 | 96 | 234 | 110 | 8,929 |
| 2011 | 9,972 | 934 | 9,038 | 227 | 317 | 329 | 97 | 256 | 110 | 8,636 |
| 2012 | 9,788 | 1,080 | 8,708 | 262 | 328 | 358 | 98 | 280 | 124 | 8,337 |
| 2013 | 9,581 | 581 | 9,000 | 317 | 341 | 382 | 101 | 298 | 124 | 8,017 |
| 2014 | 10,067 | 814 | 9,253 | 232 | 355 | 404 | 108 | 313 | 132 | 8,523 |
| 2015 | 10,058 | 772 | 9,286 | 303 | 360 | 435 | 124 | 324 | 80 | 8,431 |
| 2016 | 10,530 | 893 | 9,637 | 235 | 366 | 466 | 100 | 339 | 80 | 8,946 |
| 2017 | 10,220 | 808 | 9,412 | 203 | 342 | 498 | 95 | 349 | 80 | 8,653 |
| 2018 | 10,271 | 812 | 9,459 | 257 | 386 | 532 | 83 | 349 | 80 | 8,545 |
| FORECAST: | | | | | | | | | | |
| 2019 | 11,569 | 979 | 10,590 | 273 | 387 | 563 | 91 | 400 | 80 | 9,776 |
| 2020 | 11,700 | 939 | 10,761 | 356 | 393 | 584 | 95 | 403 | 80 | 9,788 |
| 2021 | 11,884 | 963 | 10,922 | 356 | 399 | 603 | 99 | 406 | 80 | 9,941 |
| 2022 | 12,061 | 963 | 11,099 | 366 | 405 | 619 | 103 | 408 | 80 | 10,080 |
| 2023 | 11,927 | 662 | 11,266 | 366 | 411 | 633 | 108 | 409 | 80 | 9,920 |
| 2024 | 12,105 | 662 | 11,443 | 366 | 417 | 647 | 112 | 410 | 80 | 10,074 |
| 2025 | 12,072 | 461 | 11,611 | 366 | 423 | 662 | 116 | 410 | 80 | 10,015 |
| 2026 | 12,259 | 461 | 11,797 | 366 | 429 | 676 | 120 | 411 | 80 | 10,177 |
| 2027 | 12,456 | 461 | 11,995 | 366 | 435 | 689 | 124 | 411 | 80 | 10,350 |
| 2028 | 12,675 | 461 | 12,213 | 366 | 441 | 702 | 129 | 412 | 80 | 10,545 |

**Historical Values (2009 - 2018):**

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) =Customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**Projected Values (2019 - 2028):**

Cols. (2) - (4) = forecasted peak without load control, cumulative conservation, and customer-owned self-service cogeneration.

Cols. (5) - (9) = cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**DUKE ENERGY FLORIDA**

SCHEDULE 3.1.3
HISTORY AND FORECAST OF SUMMER PEAK DEMAND (MW)
LOW CASE FORECAST

| (1) YEAR | (2) TOTAL | (3) WHOLESALE | (4) RETAIL | (5) INTERRUPTIBLE | (6) RESIDENTIAL LOAD MANAGEMENT | (7) RESIDENTIAL CONSERVATION | (8) COMM. / IND. LOAD MANAGEMENT | (9) COMM. / IND. CONSERVATION | (OTH) OTHER DEMAND REDUCTIONS | (10) NET FIRM DEMAND |
|---|---|---|---|---|---|---|---|---|---|---|
| HISTORY: | | | | | | | | | | |
| 2009 | 10,853 | 1,618 | 9,235 | 262 | 291 | 271 | 84 | 211 | 110 | 9,624 |
| 2010 | 10,242 | 1,272 | 8,970 | 271 | 304 | 298 | 96 | 234 | 110 | 8,929 |
| 2011 | 9,972 | 934 | 9,038 | 227 | 317 | 329 | 97 | 256 | 110 | 8,636 |
| 2012 | 9,788 | 1,080 | 8,708 | 262 | 328 | 358 | 98 | 280 | 124 | 8,337 |
| 2013 | 9,581 | 581 | 9,000 | 317 | 341 | 382 | 101 | 298 | 124 | 8,017 |
| 2014 | 10,067 | 814 | 9,253 | 232 | 355 | 404 | 108 | 313 | 132 | 8,523 |
| 2015 | 10,058 | 772 | 9,286 | 303 | 360 | 435 | 124 | 324 | 80 | 8,431 |
| 2016 | 10,530 | 893 | 9,637 | 235 | 366 | 466 | 100 | 339 | 80 | 8,946 |
| 2017 | 10,220 | 808 | 9,412 | 203 | 342 | 498 | 95 | 349 | 80 | 8,653 |
| 2018 | 10,271 | 812 | 9,459 | 257 | 386 | 532 | 83 | 387 | 80 | 8,545 |
| FORECAST: | | | | | | | | | | |
| 2019 | 10,013 | 979 | 9,034 | 273 | 387 | 563 | 91 | 400 | 80 | 8,220 |
| 2020 | 10,003 | 939 | 9,063 | 356 | 393 | 584 | 95 | 403 | 80 | 8,091 |
| 2021 | 10,045 | 963 | 9,082 | 356 | 399 | 603 | 99 | 406 | 80 | 8,101 |
| 2022 | 10,073 | 963 | 9,110 | 366 | 405 | 619 | 103 | 408 | 80 | 8,092 |
| 2023 | 9,792 | 662 | 9,130 | 366 | 411 | 633 | 108 | 409 | 80 | 7,785 |
| 2024 | 9,819 | 662 | 9,157 | 366 | 417 | 647 | 112 | 410 | 80 | 7,787 |
| 2025 | 9,636 | 461 | 9,175 | 366 | 423 | 662 | 116 | 410 | 80 | 7,579 |
| 2026 | 9,666 | 461 | 9,205 | 366 | 429 | 676 | 120 | 411 | 80 | 7,584 |
| 2027 | 9,701 | 461 | 9,240 | 366 | 435 | 689 | 124 | 411 | 80 | 7,596 |
| 2028 | 9,756 | 461 | 9,294 | 366 | 441 | 702 | 129 | 412 | 80 | 7,626 |

**Historical Values (2009 - 2018):**

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) =Customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**Projected Values (2019 - 2028):**

Cols. (2) - (4) = forecasted peak without load control, cumulative conservation, and customer-owned self-service cogeneration.

Cols. (5) - (9) = cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**DUKE ENERGY FLORIDA**

SCHEDULE 3.2.1
HISTORY AND FORECAST OF WINTER PEAK DEMAND (MW)
BASE CASE FORECAST

| (1) YEAR | (2) TOTAL | (3) WHOLESALE | (4) RETAIL | (5) INTERRUPTIBLE | (6) RESIDENTIAL LOAD MANAGEMENT | (7) RESIDENTIAL CONSERVATION | (8) COMM. / IND. LOAD MANAGEMENT | (9) COMM. / IND. CONSERVATION | (OTH) OTHER DEMAND REDUCTIONS | (10) NET FIRM DEMAND |
|---|---|---|---|---|---|---|---|---|---|---|
| HISTORY: | | | | | | | | | | |
| 2008/09 | 12,089 | 2,229 | 9,860 | 268 | 759 | 518 | 71 | 148 | 291 | 10,034 |
| 2009/10 | 13,694 | 2,189 | 11,505 | 246 | 651 | 563 | 80 | 163 | 322 | 11,670 |
| 2010/11 | 11,343 | 1,625 | 9,718 | 271 | 661 | 628 | 94 | 180 | 221 | 9,288 |
| 2011/12 | 9,721 | 905 | 8,816 | 186 | 643 | 686 | 96 | 203 | 206 | 7,701 |
| 2012/13 | 9,109 | 831 | 8,278 | 287 | 652 | 747 | 97 | 220 | 213 | 6,893 |
| 2013/14 | 9,467 | 658 | 8,809 | 257 | 654 | 785 | 101 | 229 | 219 | 7,222 |
| 2014/15 | 10,648 | 1,035 | 9,613 | 273 | 669 | 815 | 109 | 236 | 237 | 8,308 |
| 2015/16 | 9,678 | 1,275 | 8,403 | 207 | 681 | 845 | 113 | 240 | 170 | 7,421 |
| 2016/17 | 8,739 | 701 | 8,038 | 191 | 687 | 878 | 78 | 243 | 165 | 6,497 |
| 2017/18 | 11,559 | 1,071 | 10,488 | 244 | 699 | 913 | 79 | 246 | 196 | 9,183 |
| FORECAST: | | | | | | | | | | |
| 2018/19 | 11,448 | 1,225 | 10,223 | 243 | 711 | 943 | 86 | 250 | 191 | 9,023 |
| 2019/20 | 11,731 | 1,381 | 10,350 | 270 | 723 | 965 | 91 | 251 | 193 | 9,239 |
| 2020/21 | 11,185 | 713 | 10,472 | 316 | 735 | 983 | 95 | 252 | 194 | 8,611 |
| 2021/22 | 11,574 | 1,014 | 10,560 | 324 | 747 | 999 | 99 | 252 | 195 | 8,958 |
| 2022/23 | 11,344 | 713 | 10,631 | 324 | 759 | 1,014 | 103 | 253 | 196 | 8,696 |
| 2023/24 | 11,447 | 713 | 10,734 | 324 | 771 | 1,027 | 107 | 253 | 197 | 8,768 |
| 2024/25 | 11,294 | 512 | 10,782 | 324 | 783 | 1,043 | 112 | 253 | 197 | 8,583 |
| 2025/26 | 11,376 | 512 | 10,863 | 324 | 795 | 1,057 | 116 | 253 | 198 | 8,633 |
| 2026/27 | 11,461 | 512 | 10,948 | 324 | 807 | 1,070 | 120 | 253 | 199 | 8,688 |
| 2027/28 | 11,544 | 462 | 11,082 | 324 | 819 | 1,083 | 124 | 253 | 200 | 8,741 |

**Historical Values (2009 - 2018):**

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**Projected Values (2019 - 2028):**

Cols. (2) - (4) = forecasted peak without load control, cumulative conservation, and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**DUKE ENERGY FLORIDA**

SCHEDULE 3.2.2
HISTORY AND FORECAST OF WINTER PEAK DEMAND (MW)
HIGH CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| HISTORY: | | | | | | | | | | |
| 2008/09 | 12,089 | 2,229 | 9,860 | 268 | 759 | 518 | 71 | 148 | 291 | 10,034 |
| 2009/10 | 13,694 | 2,189 | 11,505 | 246 | 651 | 563 | 80 | 163 | 322 | 11,670 |
| 2010/11 | 11,343 | 1,625 | 9,718 | 271 | 661 | 628 | 94 | 180 | 221 | 9,288 |
| 2011/12 | 9,721 | 905 | 8,816 | 186 | 643 | 686 | 96 | 203 | 206 | 7,701 |
| 2012/13 | 9,109 | 831 | 8,278 | 287 | 652 | 747 | 97 | 220 | 213 | 6,893 |
| 2013/14 | 9,467 | 658 | 8,809 | 257 | 654 | 785 | 101 | 229 | 219 | 7,222 |
| 2014/15 | 10,648 | 1,035 | 9,613 | 273 | 669 | 815 | 109 | 236 | 237 | 8,308 |
| 2015/16 | 9,678 | 1,275 | 8,403 | 207 | 681 | 845 | 113 | 240 | 170 | 7,421 |
| 2016/17 | 8,739 | 701 | 8,038 | 191 | 687 | 878 | 78 | 243 | 165 | 6,497 |
| 2017/18 | 11,559 | 1,071 | 10,488 | 244 | 699 | 913 | 79 | 246 | 196 | 9,183 |
| FORECAST: | | | | | | | | | | |
| 2018/19 | 13,187 | 1,225 | 11,962 | 243 | 711 | 943 | 86 | 250 | 191 | 10,762 |
| 2019/20 | 13,569 | 1,381 | 12,188 | 270 | 723 | 965 | 91 | 251 | 193 | 11,077 |
| 2020/21 | 13,143 | 713 | 12,430 | 316 | 735 | 983 | 95 | 252 | 194 | 10,568 |
| 2021/22 | 13,631 | 1,014 | 12,617 | 324 | 747 | 999 | 99 | 252 | 195 | 11,014 |
| 2022/23 | 13,495 | 713 | 12,782 | 324 | 759 | 1,014 | 103 | 253 | 196 | 10,846 |
| 2023/24 | 13,667 | 713 | 12,954 | 324 | 771 | 1,027 | 107 | 253 | 197 | 10,987 |
| 2024/25 | 13,626 | 512 | 13,114 | 324 | 783 | 1,043 | 112 | 253 | 197 | 10,915 |
| 2025/26 | 13,804 | 512 | 13,291 | 324 | 795 | 1,057 | 116 | 253 | 198 | 11,061 |
| 2026/27 | 13,990 | 512 | 13,477 | 324 | 807 | 1,070 | 120 | 253 | 199 | 11,217 |
| 2027/28 | 14,150 | 462 | 13,688 | 324 | 819 | 1,083 | 124 | 253 | 200 | 11,346 |

**Historical Values (2009 - 2018):**

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**Projected Values (2019 - 2028):**

Cols. (2) - (4) = forecasted peak without load control, cumulative conservation, and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**DUKE ENERGY FLORIDA**

SCHEDULE 3.2.3
HISTORY AND FORECAST OF WINTER PEAK DEMAND (MW)
LOW CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (OTH) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | WHOLESALE | RETAIL | INTERRUPTIBLE | RESIDENTIAL LOAD MANAGEMENT | RESIDENTIAL CONSERVATION | COMM. / IND. LOAD MANAGEMENT | COMM. / IND. CONSERVATION | OTHER DEMAND REDUCTIONS | NET FIRM DEMAND |
| HISTORY: | | | | | | | | | | |
| 2008/09 | 12,089 | 2,229 | 9,860 | 268 | 759 | 518 | 71 | 148 | 291 | 10,034 |
| 2009/10 | 13,694 | 2,189 | 11,505 | 246 | 651 | 563 | 80 | 163 | 322 | 11,670 |
| 2010/11 | 11,343 | 1,625 | 9,718 | 271 | 661 | 628 | 94 | 180 | 221 | 9,288 |
| 2011/12 | 9,721 | 905 | 8,816 | 186 | 643 | 686 | 96 | 203 | 206 | 7,701 |
| 2012/13 | 9,109 | 831 | 8,278 | 287 | 652 | 747 | 97 | 220 | 213 | 6,893 |
| 2013/14 | 9,467 | 658 | 8,809 | 257 | 654 | 785 | 101 | 229 | 219 | 7,222 |
| 2014/15 | 10,648 | 1,035 | 9,613 | 273 | 669 | 815 | 109 | 236 | 237 | 8,308 |
| 2015/16 | 9,678 | 1,275 | 8,403 | 207 | 681 | 845 | 113 | 240 | 170 | 7,421 |
| 2016/17 | 8,739 | 701 | 8,038 | 191 | 687 | 878 | 78 | 243 | 165 | 6,497 |
| 2017/18 | 11,559 | 1,071 | 10,488 | 244 | 699 | 913 | 79 | 246 | 196 | 9,183 |
| FORECAST: | | | | | | | | | | |
| 2018/19 | 9,693 | 1,225 | 8,468 | 243 | 711 | 943 | 86 | 250 | 170 | 7,290 |
| 2019/20 | 9,884 | 1,381 | 8,503 | 270 | 723 | 965 | 91 | 251 | 170 | 7,415 |
| 2020/21 | 9,289 | 713 | 8,576 | 316 | 735 | 983 | 95 | 252 | 170 | 6,738 |
| 2021/22 | 9,613 | 1,014 | 8,599 | 324 | 747 | 999 | 99 | 252 | 170 | 7,021 |
| 2022/23 | 9,326 | 713 | 8,613 | 324 | 759 | 1,014 | 103 | 253 | 170 | 6,703 |
| 2023/24 | 9,345 | 713 | 8,632 | 324 | 771 | 1,027 | 107 | 253 | 171 | 6,692 |
| 2024/25 | 9,154 | 512 | 8,641 | 324 | 783 | 1,043 | 112 | 253 | 170 | 6,469 |
| 2025/26 | 9,172 | 512 | 8,659 | 324 | 795 | 1,057 | 116 | 253 | 170 | 6,457 |
| 2026/27 | 9,192 | 512 | 8,680 | 324 | 807 | 1,070 | 120 | 253 | 171 | 6,448 |
| 2027/28 | 9,184 | 462 | 8,721 | 324 | 819 | 1,083 | 124 | 253 | 171 | 6,410 |

**Historical Values (2009 - 2018):**

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**Projected Values (2019 - 2028):**

Cols. (2) - (4) = forecasted peak without load control, cumulative conservation, and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

**DUKE ENERGY FLORIDA**

SCHEDULE 3.3.1
HISTORY AND FORECAST OF ANNUAL NET ENERGY FOR LOAD (GWh)
BASE CASE FORECAST

| (1) YEAR | (2) TOTAL | (3) RESIDENTIAL CONSERVATION | (4) COMM. / IND. CONSERVATION | (OTH) OTHER ENERGY REDUCTIONS | (5) RETAIL | (6) WHOLESALE | (7) UTILITY USE & LOSSES | (8) NET ENERGY FOR LOAD | (9) LOAD FACTOR (%) * |
|---|---|---|---|---|---|---|---|---|---|
| HISTORY: | | | | | | | | | |
| 2009 | 45,978 | 583 | 492 | 779 | 37,824 | 3,696 | 2,604 | 44,124 | 44.5 |
| 2010 | 48,135 | 638 | 558 | 779 | 38,925 | 3,493 | 3,742 | 46,160 | 45.3 |
| 2011 | 44,580 | 687 | 624 | 779 | 37,597 | 2,712 | 2,181 | 42,490 | 46.7 |
| 2012 | 43,396 | 733 | 669 | 780 | 36,381 | 1,768 | 3,065 | 41,214 | 52.0 |
| 2013 | 43,142 | 772 | 734 | 864 | 36,616 | 1,488 | 2,668 | 40,772 | 53.0 |
| 2014 | 43,442 | 812 | 791 | 864 | 37,240 | 1,333 | 2,402 | 40,975 | 50.7 |
| 2015 | 44,552 | 848 | 829 | 595 | 38,553 | 1,243 | 2,484 | 42,280 | 50.9 |
| 2016 | 45,199 | 892 | 857 | 596 | 38,774 | 1,803 | 2,277 | 42,854 | 50.6 |
| 2017 | 45,318 | 933 | 871 | 595 | 38,024 | 2,196 | 2,699 | 42,919 | 50.8 |
| 2018 | 46,729 | 977 | 933 | 595 | 39,145 | 2,324 | 2,755 | 44,224 | 48.9 |
| FORECAST: | | | | | | | | | |
| 2019 | 45,708 | 991 | 915 | 595 | 38,968 | 1,653 | 2,585 | 43,206 | 54.7 |
| 2020 | 46,153 | 1,014 | 923 | 596 | 39,604 | 1,489 | 2,527 | 43,620 | 53.7 |
| 2021 | 46,509 | 1,036 | 929 | 595 | 40,135 | 1,377 | 2,437 | 43,949 | 55.6 |
| 2022 | 47,104 | 1,057 | 934 | 595 | 40,457 | 1,609 | 2,452 | 44,519 | 56.0 |
| 2023 | 47,076 | 1,077 | 937 | 595 | 40,771 | 1,264 | 2,431 | 44,466 | 57.4 |
| 2024 | 47,446 | 1,097 | 940 | 596 | 41,034 | 1,239 | 2,540 | 44,813 | 57.3 |
| 2025 | 47,387 | 1,116 | 944 | 595 | 41,612 | 898 | 2,222 | 44,732 | 58.3 |
| 2026 | 47,735 | 1,135 | 948 | 595 | 41,696 | 898 | 2,463 | 45,057 | 58.2 |
| 2027 | 48,104 | 1,152 | 952 | 595 | 42,078 | 898 | 2,429 | 45,405 | 58.1 |
| 2028 | 48,636 | 1,169 | 955 | 596 | 42,754 | 898 | 2,264 | 45,916 | 57.9 |

* Load Factors are calculated using the actual and projected annual peak.

**DUKE ENERGY FLORIDA**

SCHEDULE 3.3.2
HISTORY AND FORECAST OF ANNUAL NET ENERGY FOR LOAD (GWh)
HIGH LOAD FORECAST

| (1) | (2) | (3) | (4) | (OTH) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| YEAR | TOTAL | RESIDENTIAL CONSERVATION | COMM. / IND. CONSERVATION | OTHER ENERGY REDUCTIONS | RETAIL | WHOLESALE | UTILITY USE & LOSSES | NET ENERGY FOR LOAD | LOAD FACTOR (%) * |
| HISTORY: | | | | | | | | | |
| 2009 | 45,978 | 583 | 492 | 779 | 37,824 | 3,696 | 2,604 | 44,124 | 44.5 |
| 2010 | 48,135 | 638 | 558 | 779 | 38,925 | 3,493 | 3,742 | 46,160 | 45.3 |
| 2011 | 44,580 | 687 | 624 | 779 | 37,597 | 2,712 | 2,181 | 42,490 | 46.7 |
| 2012 | 43,396 | 733 | 669 | 780 | 36,381 | 1,768 | 3,065 | 41,214 | 52.0 |
| 2013 | 43,142 | 772 | 734 | 864 | 36,616 | 1,488 | 2,668 | 40,772 | 53.0 |
| 2014 | 43,442 | 812 | 791 | 864 | 37,240 | 1,333 | 2,402 | 40,975 | 50.7 |
| 2015 | 44,552 | 848 | 829 | 595 | 38,553 | 1,243 | 2,484 | 42,280 | 50.9 |
| 2016 | 45,199 | 892 | 857 | 596 | 38,774 | 1,803 | 2,277 | 42,854 | 50.6 |
| 2017 | 45,318 | 933 | 871 | 595 | 38,024 | 2,196 | 2,699 | 42,919 | 50.8 |
| 2018 | 46,729 | 977 | 933 | 595 | 39,145 | 2,324 | 2,755 | 44,224 | 48.9 |
| FORECAST: | | | | | | | | | |
| 2019 | 48,676 | 991 | 915 | 595 | 41,761 | 1,653 | 2,760 | 46,175 | 49.0 |
| 2020 | 49,460 | 1,014 | 923 | 596 | 42,702 | 1,489 | 2,736 | 46,927 | 48.2 |
| 2021 | 50,190 | 1,036 | 929 | 595 | 43,569 | 1,377 | 2,685 | 47,630 | 51.4 |
| 2022 | 51,148 | 1,036 | 929 | 595 | 44,261 | 1,377 | 2,950 | 48,588 | 52.5 |
| 2023 | 51,505 | 1,057 | 934 | 595 | 44,938 | 1,609 | 2,372 | 48,919 | 50.7 |
| 2024 | 52,251 | 1,097 | 940 | 596 | 45,551 | 1,239 | 2,828 | 49,617 | 51.4 |
| 2025 | 52,565 | 1,116 | 944 | 595 | 46,442 | 898 | 2,570 | 49,910 | 52.2 |
| 2026 | 53,302 | 1,135 | 948 | 595 | 46,936 | 898 | 2,791 | 50,625 | 52.2 |
| 2027 | 54,081 | 1,152 | 952 | 595 | 47,701 | 898 | 2,783 | 51,382 | 52.3 |
| 2028 | 54,991 | 1,169 | 955 | 596 | 48,713 | 898 | 2,660 | 52,270 | 52.4 |

* Load Factors are calculated using the actual and projected annual peak.

**DUKE ENERGY FLORIDA**

SCHEDULE 3.3.3
HISTORY AND FORECAST OF ANNUAL NET ENERGY FOR LOAD (GWh)
LOW LOAD FORECAST

| (1) YEAR | (2) TOTAL | (3) RESIDENTIAL CONSERVATION | (4) COMM. / IND. CONSERVATION | (OTH) OTHER ENERGY REDUCTIONS | (5) RETAIL | (6) WHOLESALE | (7) UTILITY USE & LOSSES | (8) NET ENERGY FOR LOAD | (9) LOAD FACTOR (%) * |
|---|---|---|---|---|---|---|---|---|---|
| HISTORY: | | | | | | | | | |
| 2009 | 45,978 | 583 | 492 | 779 | 37,824 | 3,696 | 2,604 | 44,124 | 44.5 |
| 2010 | 48,135 | 638 | 558 | 779 | 38,925 | 3,493 | 3,742 | 46,160 | 45.3 |
| 2011 | 44,580 | 687 | 624 | 779 | 37,597 | 2,712 | 2,181 | 42,490 | 46.7 |
| 2012 | 43,396 | 733 | 669 | 780 | 36,381 | 1,768 | 3,065 | 41,214 | 52.0 |
| 2013 | 43,142 | 772 | 734 | 864 | 36,616 | 1,488 | 2,668 | 40,772 | 53.0 |
| 2014 | 43,442 | 812 | 791 | 864 | 37,240 | 1,333 | 2,402 | 40,975 | 50.7 |
| 2015 | 44,552 | 848 | 829 | 595 | 38,553 | 1,243 | 2,484 | 42,280 | 50.9 |
| 2016 | 45,199 | 892 | 857 | 596 | 38,774 | 1,803 | 2,277 | 42,854 | 50.6 |
| 2017 | 45,318 | 933 | 871 | 595 | 38,024 | 2,196 | 2,699 | 42,919 | 50.8 |
| 2018 | 46,729 | 977 | 933 | 595 | 39,145 | 2,324 | 2,755 | 44,224 | 48.9 |
| FORECAST: | | | | | | | | | |
| 2019 | 42,473 | 991 | 915 | 595 | 35,909 | 1,653 | 2,409 | 39,972 | 62.6 |
| 2020 | 42,622 | 1,014 | 923 | 596 | 36,250 | 1,489 | 2,350 | 40,089 | 61.5 |
| 2021 | 42,693 | 1,036 | 929 | 595 | 36,492 | 1,377 | 2,264 | 40,133 | 68.0 |
| 2022 | 42,991 | 1,057 | 934 | 595 | 36,536 | 1,609 | 2,260 | 40,406 | 65.7 |
| 2023 | 42,687 | 1,077 | 937 | 595 | 36,589 | 1,264 | 2,225 | 40,078 | 68.3 |
| 2024 | 42,739 | 1,097 | 940 | 596 | 36,579 | 1,239 | 2,289 | 40,106 | 68.2 |
| 2025 | 42,386 | 1,116 | 944 | 595 | 36,816 | 898 | 2,016 | 39,730 | 70.1 |
| 2026 | 42,424 | 1,135 | 948 | 595 | 36,674 | 898 | 2,175 | 39,746 | 70.3 |
| 2027 | 42,479 | 1,152 | 952 | 595 | 36,755 | 898 | 2,126 | 39,780 | 70.4 |
| 2028 | 42,662 | 1,169 | 955 | 596 | 37,062 | 898 | 1,982 | 39,942 | 70.9 |

* Load Factors are calculated using the actual and projected annual peak.

**DUKE ENERGY FLORIDA**

SCHEDULE 4.1
PREVIOUS YEAR ACTUAL AND TWO-YEAR FORECAST OF PEAK DEMAND
AND NET ENERGY FOR LOAD BY MONTH
BASE CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | ACTUAL | | FORECAST | | FORECAST | |
| | 2018 | | 2019 | | 2020 | |
| MONTH | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh |
| JANUARY | 10,320 | 3,734 | 10,174 | 3,311 | 10,435 | 3,295 |
| FEBRUARY | 6,980 | 2,899 | 9,098 | 2,893 | 9,369 | 2,967 |
| MARCH | 6,462 | 3,016 | 7,831 | 3,112 | 8,054 | 3,095 |
| APRIL | 6,524 | 3,158 | 7,328 | 3,130 | 7,538 | 3,186 |
| MAY | 8,094 | 3,660 | 8,468 | 3,835 | 8,701 | 3,877 |
| JUNE | 8,894 | 4,252 | 9,481 | 4,233 | 9,448 | 4,209 |
| JULY | 8,740 | 4,407 | 9,440 | 4,369 | 9,588 | 4,508 |
| AUGUST | 9,271 | 4,497 | 9,770 | 4,386 | 9,797 | 4,430 |
| SEPTEMBER | 9,147 | 4,372 | 9,151 | 4,118 | 9,244 | 4,170 |
| OCTOBER | 8,656 | 3,914 | 8,606 | 3,555 | 8,667 | 3,589 |
| NOVEMBER | 7,361 | 3,169 | 6,956 | 3,028 | 7,019 | 3,025 |
| DECEMBER | 7,621 | 3,146 | 8,396 | 3,236 | 8,480 | 3,269 |
| TOTAL | | 44,224 | | 43,206 | | 43,620 |

NOTE: Recorded Net Peak demands and NEL include off-system wholesale contracts.

**DUKE ENERGY FLORIDA**

SCHEDULE 4.2
PREVIOUS YEAR ACTUAL AND TWO-YEAR FORECAST OF PEAK DEMAND
AND NET ENERGY FOR LOAD BY MONTH
HIGH CASE FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | ACTUAL | | FORECAST | | FORECAST | |
| | 2018 | | 2019 | | 2020 | |
| MONTH | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh |
| JANUARY | 10,320 | 3,734 | 11,936 | 3,690 | 12,296 | 3,695 |
| FEBRUARY | 6,980 | 2,899 | 10,733 | 3,014 | 11,096 | 3,094 |
| MARCH | 6,462 | 3,016 | 9,357 | 3,499 | 9,664 | 3,508 |
| APRIL | 6,524 | 3,158 | 8,127 | 3,419 | 8,408 | 3,499 |
| MAY | 8,094 | 3,660 | 9,260 | 4,038 | 9,573 | 4,107 |
| JUNE | 8,894 | 4,252 | 10,280 | 4,380 | 10,325 | 4,386 |
| JULY | 8,740 | 4,407 | 10,197 | 4,489 | 10,439 | 4,661 |
| AUGUST | 9,271 | 4,497 | 10,527 | 4,490 | 10,632 | 4,567 |
| SEPTEMBER | 9,147 | 4,372 | 9,951 | 4,254 | 10,127 | 4,339 |
| OCTOBER | 8,656 | 3,914 | 9,465 | 3,820 | 9,603 | 3,888 |
| NOVEMBER | 7,361 | 3,169 | 8,193 | 3,364 | 8,329 | 3,393 |
| DECEMBER | 7,621 | 3,146 | 10,064 | 3,719 | 10,225 | 3,790 |
| TOTAL | | 44,224 | | 46,175 | | 46,927 |

NOTE: Recorded Net Peak demands and NEL include off-system wholesale contracts.

**DUKE ENERGY FLORIDA**

SCHEDULE 4.3
PREVIOUS YEAR ACTUAL AND TWO-YEAR FORECAST OF PEAK DEMAND
AND NET ENERGY FOR LOAD BY MONTH
LOW LOAD FORECAST

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| | ACTUAL | | FORECAST | | FORECAST | |
| | 2018 | | 2019 | | 2020 | |
| MONTH | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh | PEAK DEMAND MW | NEL GWh |
| JANUARY | 10,320 | 3,734 | 8,420 | 3,006 | 8,588 | 2,964 |
| FEBRUARY | 6,980 | 2,899 | 7,551 | 2,653 | 7,747 | 2,691 |
| MARCH | 6,462 | 3,016 | 6,486 | 2,818 | 6,655 | 2,779 |
| APRIL | 6,524 | 3,158 | 6,670 | 2,871 | 6,832 | 2,904 |
| MAY | 8,094 | 3,660 | 7,747 | 3,595 | 7,923 | 3,610 |
| JUNE | 8,894 | 4,252 | 8,697 | 3,931 | 8,597 | 3,878 |
| JULY | 8,740 | 4,407 | 8,658 | 4,141 | 8,745 | 4,251 |
| AUGUST | 9,271 | 4,497 | 8,971 | 4,107 | 8,935 | 4,123 |
| SEPTEMBER | 9,147 | 4,372 | 8,384 | 3,851 | 8,415 | 3,878 |
| OCTOBER | 8,656 | 3,914 | 7,888 | 3,321 | 7,885 | 3,336 |
| NOVEMBER | 7,361 | 3,169 | 6,105 | 2,784 | 6,105 | 2,765 |
| DECEMBER | 7,621 | 3,146 | 6,884 | 2,894 | 6,897 | 2,911 |
| TOTAL | | 44,224 | | 39,972 | | 40,089 |

NOTE: Recorded Net Peak demands and NEL include off-system wholesale contracts.

## FUEL REQUIREMENTS AND ENERGY SOURCES

DEF's two-year actual and ten-year projected nuclear, coal, oil, and gas requirements (by fuel unit) are shown in Schedule 5. DEF's two-year actual and ten-year projected energy sources by fuel type are presented in Schedules 6.1 and 6.2, in GWh and percent (%) respectively. Although DEF's fuel mix continues to rely on an increasing amount of natural gas to meet its generation needs, DEF continues to maintain alternate fuel supplies including long term operation of some coal fired facilities, adequate supplies of oil for dual fuel back up and increasing amounts of renewable generation particularly from solar generation. Projections shown in Schedules 5 and 6 reflect the Base Load and Energy Forecasts.

**DUKE ENERGY FLORIDA**

SCHEDULE 5
FUEL REQUIREMENTS

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -ACTUAL- | | | | | | | | | | | |
| | | FUEL REQUIREMENTS | UNITS | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| (1) | NUCLEAR | | TRILLION BTU | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (2) | COAL | | 1,000 TON | 4,023 | 3,746 | 2,437 | 1,644 | 1,458 | 1,318 | 1,500 | 1,815 | 1,838 | 1,951 | 1,901 | 1,950 |
| (3) | RESIDUAL | TOTAL | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (4) | | STEAM | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (5) | | CC | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (6) | | CT | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (7) | | DIESEL | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (8) | DISTILLATE | TOTAL | 1,000 BBL | 136 | 198 | 27 | 74 | 56 | 49 | 45 | 114 | 208 | 124 | 189 | 180 |
| (9) | | STEAM | 1,000 BBL | 62 | 55 | 13 | 22 | 24 | 26 | 26 | 24 | 24 | 20 | 21 | 22 |
| (10) | | CC | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (11) | | CT | 1,000 BBL | 74 | 143 | 14 | 51 | 31 | 23 | 19 | 91 | 185 | 104 | 168 | 158 |
| (12) | | DIESEL | 1,000 BBL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (13) | NATURAL GAS | TOTAL | 1,000 MCF | 212,681 | 222,083 | 228,807 | 237,460 | 241,708 | 237,507 | 233,158 | 240,416 | 239,242 | 238,990 | 246,022 | 247,009 |
| (14) | | STEAM | 1,000 MCF | 30,663 | 29,207 | 10,777 | 7,888 | 9,150 | 9,675 | 9,396 | 10,732 | 9,546 | 10,260 | 11,401 | 10,788 |
| (15) | | CC | 1,000 MCF | 175,869 | 184,419 | 213,440 | 225,622 | 228,502 | 223,902 | 219,986 | 224,353 | 224,539 | 223,191 | 223,657 | 225,148 |
| (16) | | CT | 1,000 MCF | 6,147 | 8,456 | 4,590 | 3,951 | 4,057 | 3,931 | 3,776 | 5,331 | 5,157 | 5,539 | 10,963 | 11,073 |
| | OTHER (SPECIFY) | | | | | | | | | | | | | | |
| (17) | OTHER, DISTILLATE | ANNUAL FIRM INTERCHANGE | 1,000 BBL | N/A | N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (18) | OTHER, NATURAL GAS | ANNUAL FIRM INTERCHANGE, CC | 1,000 MCF | N/A | N/A | 8,890 | 7,373 | 1,444 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (18.1) | OTHER, NATURAL GAS | ANNUAL FIRM INTERCHANGE, CT | 1,000 MCF | N/A | N/A | 8,518 | 7,850 | 12,633 | 18,545 | 17,586 | 9,761 | 6,170 | 7,017 | 1,036 | 0 |
| (19) | OTHER, COAL | ANNUAL FIRM INTERCHANGE, STEAM | 1,000 TON | N/A | N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**DUKE ENERGY FLORIDA**

SCHEDULE 6.1
ENERGY SOURCES (GWh)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -ACTUAL- | | | | | | | | | | | |
| | ENERGY SOURCES | | UNITS | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| (1) | ANNUAL FIRM INTERCHANGE 1/ | | GWh | 2,037 | 2,244 | 838 | 778 | 1,241 | 1,810 | 1,718 | 963 | 653 | 700 | 145 | 56 |
| (2) | NUCLEAR | | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (3) | COAL | | GWh | 8,722 | 8,422 | 5,373 | 3,495 | 3,074 | 2,752 | 3,123 | 3,675 | 3,697 | 3,916 | 3,824 | 3,930 |
| (4) | RESIDUAL | TOTAL | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (5) | | STEAM | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (6) | | CC | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (7) | | CT | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (8) | | DIESEL | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (9) | DISTILLATE | TOTAL | GWh | 62 | 90 | 5 | 19 | 12 | 9 | 7 | 34 | 74 | 38 | 67 | 63 |
| (10) | | STEAM | GWh | 33 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (11) | | CC | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (12) | | CT | GWh | 29 | 61 | 5 | 19 | 12 | 9 | 7 | 34 | 74 | 38 | 67 | 63 |
| (13) | | DIESEL | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (14) | NATURAL GAS | TOTAL | GWh | 27,307 | 28,687 | 32,820 | 34,735 | 35,251 | 34,575 | 33,920 | 34,847 | 34,657 | 34,585 | 35,223 | 35,377 |
| (15) | | STEAM | GWh | 2,869 | 2,714 | 859 | 614 | 713 | 761 | 735 | 851 | 754 | 810 | 905 | 854 |
| (16) | | CC | GWh | 23,974 | 25,360 | 31,534 | 33,713 | 34,120 | 33,406 | 32,788 | 33,481 | 33,413 | 33,249 | 33,294 | 33,500 |
| (17) | | CT | GWh | 464 | 612 | 428 | 407 | 417 | 408 | 397 | 515 | 490 | 526 | 1,024 | 1,024 |
| (18) | OTHER 2/ | | | | | | | | | | | | | | |
| | QF PURCHASES | | GWh | 1,754 | 1,826 | 1,921 | 1,929 | 1,922 | 1,920 | 1,922 | 814 | 496 | 2 | 2 | 2 |
| | RENEWABLES OTHER | | GWh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | RENEWABLES MSW | | GWh | 896 | 845 | 755 | 757 | 755 | 755 | 755 | 757 | 755 | 755 | 755 | 757 |
| | RENEWABLES BIOMASS | | GWh | 584 | 399 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | RENEWABLES SOLAR | | GWh | 16 | 26 | 249 | 875 | 1,496 | 2,698 | 3,022 | 3,723 | 4,400 | 5,061 | 5,389 | 5,731 |
| | IMPORT FROM OUT OF STATE | | GWh | 1,545 | 1,685 | 1,245 | 1,031 | 199 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | EXPORT TO OUT OF STATE | | GWh | -4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (19) | NET ENERGY FOR LOAD | | GWh | 42,919 | 44,224 | 43,206 | 43,620 | 43,949 | 44,519 | 44,466 | 44,813 | 44,732 | 45,057 | 45,405 | 45,916 |

1/ NET ENERGY PURCHASED (+) OR SOLD (-) WITHIN THE FRCC REGION.
2/ NET ENERGY PURCHASED (+) OR SOLD (-).

**DUKE ENERGY FLORIDA**

SCHEDULE 6.2

ENERGY SOURCES (PERCENT)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | -ACTUAL- | | | | | | | | | | | |
| | ENERGY SOURCES | | UNITS | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| (1) | ANNUAL FIRM INTERCHANGE 1/ | | % | 4.7% | 5.1% | 1.9% | 1.8% | 2.8% | 4.1% | 3.9% | 2.1% | 1.5% | 1.6% | 0.3% | 0.1% |
| (2) | NUCLEAR | | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (3) | COAL | | % | 20.3% | 19.0% | 12.4% | 8.0% | 7.0% | 6.2% | 7.0% | 8.2% | 8.3% | 8.7% | 8.4% | 8.6% |
| (4) | RESIDUAL | TOTAL | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (5) | | STEAM | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (6) | | CC | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (7) | | CT | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (8) | | DIESEL | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (9) | DISTILLATE | TOTAL | % | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.2% | 0.1% | 0.1% | 0.1% |
| (10) | | STEAM | % | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (11) | | CC | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (12) | | CT | % | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.2% | 0.1% | 0.1% | 0.1% |
| (13) | | DIESEL | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (14) | NATURAL GAS | TOTAL | % | 63.6% | 64.9% | 76.0% | 79.6% | 80.2% | 77.7% | 76.3% | 77.8% | 77.5% | 76.8% | 77.6% | 77.0% |
| (15) | | STEAM | % | 6.7% | 6.1% | 2.0% | 1.4% | 1.6% | 1.7% | 1.7% | 1.9% | 1.7% | 1.8% | 2.0% | 1.9% |
| (16) | | CC | % | 55.9% | 57.3% | 73.0% | 77.3% | 77.6% | 75.0% | 73.7% | 74.7% | 74.7% | 73.8% | 73.3% | 73.0% |
| (17) | | CT | % | 1.1% | 1.4% | 1.0% | 0.9% | 0.9% | 0.9% | 0.9% | 1.1% | 1.1% | 1.2% | 2.3% | 2.2% |
| (18) | OTHER 2/ | | | | | | | | | | | | | | |
| | QF PURCHASES | | % | 4.1% | 4.1% | 4.4% | 4.4% | 4.4% | 4.3% | 4.3% | 1.8% | 1.1% | 0.0% | 0.0% | 0.0% |
| | RENEWABLES OTHER | | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | RENEWABLES MSW | | % | 2.1% | 1.9% | 1.7% | 1.7% | 1.7% | 1.7% | 1.7% | 1.7% | 1.7% | 1.7% | 1.7% | 1.6% |
| | RENEWABLES BIOMASS | | % | 1.4% | 0.9% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | RENEWABLES SOLAR | | % | 0.0% | 0.1% | 0.6% | 2.0% | 3.4% | 6.1% | 6.8% | 8.3% | 9.8% | 11.2% | 11.9% | 12.5% |
| | IMPORT FROM OUT OF STATE | | % | 3.6% | 3.8% | 2.9% | 2.4% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | EXPORT TO OUT OF STATE | | % | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| (19) | NET ENERGY FOR LOAD | | % | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

1/ NET ENERGY PURCHASED (+) OR SOLD (-) WITHIN THE FRCC REGION.

2/ NET ENERGY PURCHASED (+) OR SOLD (-).

## FORECASTING METHODS AND PROCEDURES

### INTRODUCTION

Accurate forecasts of long-range electric energy consumption, customer growth, and peak demand are essential elements in electric utility planning. Accurate projections of a utility's future load growth require a forecasting methodology with the ability to account for a variety of factors influencing electric consumption over the planning horizon. DEF's forecasting framework utilizes a set of econometric models as well as the Itron statistically adjusted end-use (SAE) approach to achieve this end. This section will describe the underlying methodology of the customer, energy, and peak demand forecasts including the principal assumptions incorporated within each. Also included is a description of how DSM impacts the forecast and a review of DEF's DSM programs.

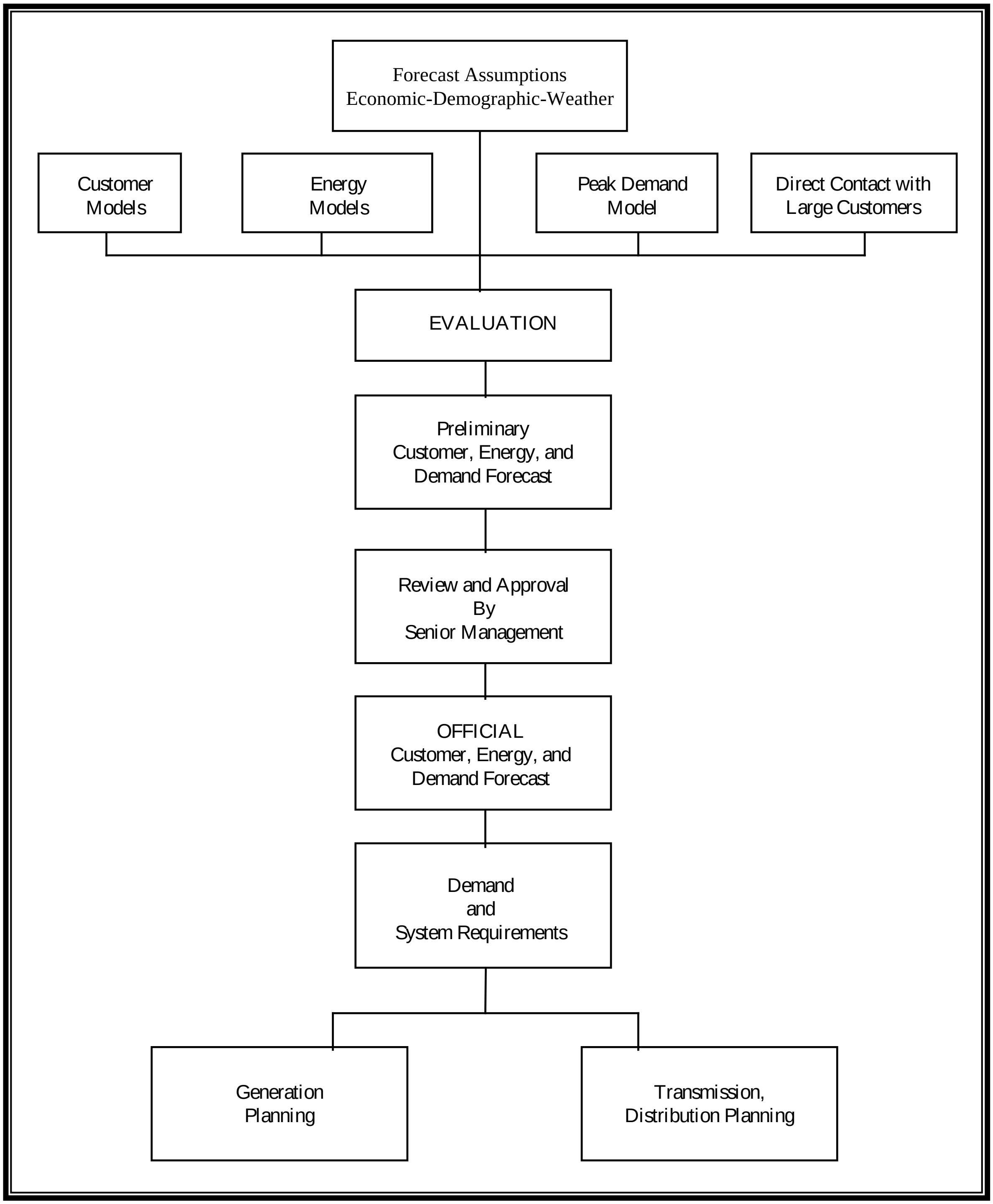
Figure 2.1, entitled "Customer, Energy and Demand Forecast," gives a general description of DEF's forecasting process. Highlighted in the diagram is a disaggregated modeling approach that blends the impacts of average class usage, as well as customer growth, based on a specific set of assumptions for each class. Also accounted for is some direct contact with large customers. These inputs provide the tools needed to frame the most likely scenario of the Company's future demand.

### FORECAST ASSUMPTIONS

The first step in any forecasting effort is the development of assumptions upon which the forecast is based. A collaborative internal Company effort develops these assumptions including the research efforts of several external sources. These assumptions specify major factors that influence the level of customers, energy sales, or peak demand over the forecast horizon. The following set of assumptions forms the basis for the forecast presented in this document.

**FIGURE 2.1**

**Customer, Energy, and Demand Forecast**



## GENERAL ASSUMPTIONS

1. Normal weather conditions for energy sales are assumed over the forecast horizon using a sales-weighted 30-year average of conditions at the St Petersburg, Orlando, and Tallahassee weather stations. For billed kilowatt-hour (kWh) sales projections, the normal weather calculation begins with a historical 30-year average of calendar and billing cycle weighted monthly heating and cooling degree-days (HDD and CDD). The expected consumption period read dates for each projected billing cycle determines the exact historical dates for developing the 30-year average weather condition each month. Each class displays different weather-sensitive base temperatures from which degree day (DD) values begin to accumulate. Seasonal and monthly peak demand projections are based on a 30-year historical average of system-weighted degree days using the "Itron Rank-Sort Normal" approach which takes annual weather extremes into account as well as the date and hour of occurrence.

2. DEF customer forecast is based upon historical population estimates and produced by the BEBR at the University of Florida (as published in "Florida Population Studies", Bulletin No. 180 January 2018) and provides the basis for the population forecast used in the development of the DEF customer forecast. National and Florida economic projections produced by Moody's Analytics in their July 2018 forecast, along with EIA 2018 surveys of residential appliance saturation and average appliance efficiency levels provided the basis for development of the DEF energy forecast.

3. Within the DEF service area, the phosphate mining industry is the dominant sector in the industrial sales class. Three major customers accounted for 28 percent of the industrial class MWh sales in 2018, slightly less than 2017. These energy intensive "crop nutrient" producers mine and process phosphate-based fertilizer products for the global marketplace. The supply and demand (price) for their products are dictated by global conditions that include, but are not limited to, foreign competition, national/international agricultural industry conditions, exchange-rate fluctuations, and international trade pacts. The market price of the raw mined commodity often dictates production levels. Load and energy consumption at the DEF-served mining or chemical processing sites depend heavily on plant operations, which are heavily influenced by these global as well as the local conditions, including environmental regulations. A major rock-mining site

closed in September 2018 due to an environmental issue at another site that processes this rock. Going forward, global currency fluctuations and global stockpiles of farm commodities will determine the demand for fertilizers. The DEF forecast calls for another year of lower electric consumption from this sector as the current strength of U.S. dollar makes all domestic crop-nutrient production less price competitive at home and abroad. Also, an increase in self-service generation will drag down energy requirements from DEF. The U.S. farm sector continues to be hit by sanctions on Russia which imports U.S. farm products. The forecast does account for one customer's intention to open a new mine in phases between the years 2019 and 2022. An upside risk to this projection lies in the price of energy, especially natural gas, which is a major cost in mining and producing phosphoric fertilizers. Once currency and trade issues stabilize and demand for farm products improve, one would expect a favorable environment for this industry.

4. DEF supplies load and energy service to wholesale customers on a "full" and "partial" requirement basis. Full requirements (FR) customers demand and energy are assumed to grow at a rate that approximates their historical trend. Contracts for this service include the cities of Chattahoochee, Mt. Dora and Williston. Partial requirements (PR) customers load is assumed to reflect the current contractual obligations reflected by the nature of the stratified load they have contracted for, plus their ability to receive dispatched energy from power marketers any time it is more economical for them to do so. Contracts for PR service included in this forecast are with the Reedy Creek Improvement District (RCID), Seminole Electric Cooperative, Inc. (SECI), and the city of Homestead. Many contracts are projected to "term out" in various years in this projection.

5. This forecast assumes that DEF will successfully renew all future franchise agreements.

6. This forecast incorporates demand and energy reductions expected to be realized through currently FPSC approved DSM goals as stated in Docket No. 20130200-EI.

7. This forecast reflects impacts from both Plug-in Hybrid Electric Vehicle (PHEV) and behind the meter (customer owned) Photo Voltaic (PV) units on energy and peak demand. PHEV customer penetration levels, which are expected to be a small share of the total DEF service area vehicle

stock over the planning horizon, incorporates an EPRI Model view that includes gasoline price expectations. DEF customer PV penetration levels are expected to continue to grow over the planning horizon and the forecast incorporates a view on equipment and electric price impacts on customer use.

8. Expected energy and demand reductions from customer-owned self-service cogeneration facilities are also included in this forecast. DEF will supply the supplemental load of self-service cogeneration customers. While DEF offers “standby” service to all cogeneration customers, the forecast does not assume an unplanned need for power at time of peak.

9. This forecast assumes that the regulatory environment and the obligation to serve our retail customers will continue throughout the forecast horizon. Regarding wholesale customers, the forecast does not plan for generation resources unless a long-term contract is in place. FR customers are typically assumed to renew their contracts with DEF except those who have termination provisions and have given their notice to terminate.

## ECONOMIC ASSUMPTIONS

The economic outlook for this forecast was developed in the Summer of 2018 as the nation’s economy continued an upward rebound from the Great Recession. Most economic indicators pointed to significant year-over-year improvements in the near term. These included strong employment growth and declining unemployment, minimal home foreclosures, much improved home construction levels and consumer confidence. Nationally, energy prices and interest rates are low and relatively stable. Consumers were spending (and borrowing) again. More recently there are signs of marginal improvement in median household incomes (after inflation) and improvement in the rate of homeownership. As the reported rate of national unemployment is now at or below 4 percent, the tightening of the labor supply typically leads to wage increases. Increased consumer confidence, along with higher but still reasonable mortgage rates has revived the desire to own homes but home price affordability measures now limit many from entering the single-family market. While the nation’s manufacturing sector is enjoying a somewhat favorable environment, it must continue to navigate an environment with uncertain trade policy and stronger global competition. The U.S.

service sector is also riding a wave of favorable conditions. Stable interest rates and energy prices have invigorated the American consumer, and are now being reflected in higher consumer sentiment surveys. This forecast does consider policies laid out in the first six months of the Trump administration, including the 2017 Tax Cuts and Jobs Act passed in 2018. Stimulus supplied by this policy is expected to boost the economy primarily during 2018 and only marginally in 2019.

The Florida economy continues to expand at a good clip, although the level of consumer sentiment, as measured by the University of Florida-BEBR, has fallen from its mid-2018 peak. Preliminary estimates of Florida population show an increase in resident population of 356,426 from 2017's level. This amounts to 976 new residents a day or a 1.74% increase. This creates a healthy demand for housing and services throughout the State. Nationally, the U.S. census Bureau has reported that baby-boomers are retiring at a rate of 10,000 per day. Duke Energy load forecasts have been expecting for years that Florida will benefit from an on-rush of retirees. After some delay created by the financial crisis, one can safely say this trend has begun. This impact is expected to peak in 2025 but continue through most of the 2020s.

The Florida unemployment rate dropped to 3.3 percent in December 2018, down from 4.1 percent a year earlier. The State's employment picture has continued to be strong, adding 231,000 jobs over the year. Only the government sector lost jobs in 2018.

Throughout the ten-year forecast horizon, risks and uncertainties are always recognized and handled on a "highest probability of outcome" basis. General rules of economic theory, namely, supply and demand equilibrium are maintained in the long run. This notion is applied to energy/commodity prices, currency levels, the housing market, wage rates, birth rates, inflation and interest rates. Uncertainty surrounding specific weather anomalies (hurricanes or earthquakes), international crises, such as wars or terrorist acts, are not explicitly designed into this projection. Thus, any situations of this variety will result in a deviation from this forecast.

## FORECAST METHODOLOGY

The DEF forecast of customers, energy sales, and peak demand applies both an econometric and end-use methodology. The residential and commercial energy projections incorporate Itron's SAE approach while other classes use customer-class specific econometric models. These models are expressly designed to capture class-specific variation over time. Peak demand models are projected on a disaggregated basis as well. This allows for appropriate handling of individual assumptions in the areas of wholesale contracts, demand response, interruptible service and changes in self-service generation capacity.

## ENERGY AND CUSTOMER FORECAST

In the retail jurisdiction, customer class models have been specified showing a historical relationship to weather and economic/demographic indicators using monthly data for sales models and customer models. Sales are regressed against "driver" variables that best explain monthly fluctuations over the historical sample period. Forecasts of these input variables are either derived internally or come from a review of the latest projections made by several independent forecasting concerns. The external sources of data include Moody's Analytics and the University of Florida's BEBR. Internal company forecasts are used for projections of electricity price, weather conditions, and the length of the billing month. The incorporation of residential and commercial "end-use" energy have been modeled as well. Surveys of residential appliance saturation and average efficiency performed by the company's Market Research department and the Energy Information Agency (EIA), along with trended projections of both by Itron capture a significant piece of the changing future environment for electric energy consumption. Specific sectors are modeled as follows:

### *Residential Sector*

Residential kWh usage per customer is modeled using the SAE framework. This approach explicitly introduces trends in appliance saturation and efficiency, dwelling size and thermal efficiency. It allows for an easier explanation of usage levels and changes in weather-sensitivity over time. The "bundling" of 19 residential appliances into "heating", "cooling" and "other" end uses form the basis of equipment-oriented drivers that interact with typical exogenous factors such as real median household income, average household size, cooling degree-days, heating degree-days, the real price of electricity to the residential class and the average number of billing days in each sales month. This structure captures significant variation in residential usage caused by changing appliance efficiency and saturation levels, economic cycles, weather fluctuations, electric price, and sales month duration. Projections of kWh usage per customer combined with the customer forecast provide the forecast of total residential energy sales. The residential customer forecast is developed by correlating monthly residential customers with county level population projections for counties in which DEF serves residential customers are provided by the BEBR.

***Commercial Sector***

Commercial MWh energy sales are forecast based on commercial sector (non-agricultural, non-manufacturing and non-governmental) employment, the real price of electricity to the commercial class, the average number of billing days in each sales month and heating and cooling degree-days. As in the residential sector, these variables are interacted with the commercial end-use equipment (listed below) after trends in equipment efficiency and saturation rates have been projected.

- Heating
- Cooling
- Ventilation
- Water heating
- Cooking
- Refrigeration
- Outdoor Lighting
- Indoor Lighting
- Office Equipment (PCs)
- Miscellaneous

The SAE model contains indices that are based on end-use energy intensity projections developed from EIA's commercial end-use forecast database. Commercial energy intensity is measured in terms of end-use energy use per square foot. End-use energy intensity projections are based on end-use efficiency and saturation estimates that are in turn driven by assumptions in available technology and costs, energy prices, and economic conditions. Energy intensities are calculated from the EIA's Annual Energy Outlook (AEO) commercial database. End-use intensity projections are derived for eleven building types. The energy intensity (EI) is derived by dividing end-use electricity consumption projections by square footage:

$$EI_{bet} = Energy_{bet} / sqft_{bt}$$

Where:

$Energy_{bet}$ = energy consumption for building type b, end-use e, year t

$Sqft_{bt}$ = square footage for building type b in year t

Commercial customers are modeled using the projected level of residential customers.

***Industrial Sector***

Energy sales to this sector are separated into two sub-sectors. A significant portion of industrial energy use is consumed by the phosphate mining industry. Because this one industry is such a large share of the total industrial class, it is separated and modeled apart from the rest of the class. The term "non-phosphate industrial" is used to refer to those customers who comprise the remaining portion of total industrial class sales. Both groups are impacted significantly by changes in economic activity. However, adequately explaining sales levels requires separate explanatory variables. Non-phosphate industrial energy sales are modeled using Florida manufacturing employment interacted with the Florida industrial production index, and the average number of sales month billing days.

The industrial phosphate mining industry is modeled using customer-specific information with respect to expected market conditions. Since this sub-sector is comprised of only three customers, the forecast is dependent upon information received from direct customer contact. DEF Large Account Management employees provide specific phosphate customer information regarding customer production schedules, inventory levels, area mine-out and start-up predictions, and changes in self-service generation or energy supply situations over the forecast horizon. These Florida mining companies compete globally into a global market where farming conditions dictate the need for “crop nutrients”. The projection of industrial accounts is expected to continue its historic decline. The decline in manufacturing nationwide, the increased competitiveness between the states, mergers between companies within the state, all have resulted in a continued decline in customer growth for this class.

***Street Lighting***

Electricity sales to the street and highway lighting class have now declined for several years. A continued decline is expected as improvements in lighting efficiency are projected. The number of accounts, which has dropped by more than one-third since 1995 due to most transferring to public authority ownership, is expected to decline further before leveling off in the intermediate term. A simple time-trend was used to project energy consumption and customer growth in this class.

***Public Authorities***

Energy sales to public authorities (SPA), comprised of federal, state and local government operated services, is also projected to grow within the DEF's service area. The level of government services, and thus energy, can be tied to the population base, as well as the amount of tax revenue collected to pay for these services. Factors affecting population growth will affect the need for additional governmental services (i.e. public schools, city services, etc.) thereby increasing SPA energy consumption. Government employment has been determined to be the best indicator of the level of government services provided. This variable, along with cooling degree-days and the sales month billing days, results in a significant level of explained variation over the historical sample period. Adjustments are also included in this model to account for the large change in school-related energy use throughout the year. The SPA customer forecast is projected linearly as a function of a time-trend. Recent budget issues have also had an impact on the near-term pace of growth.

***Sales for Resale Sector***

The Sales for Resale sector encompasses all firm sales to other electric power entities. This includes sales to other utilities (municipal or investor-owned) as well as power agencies (rural electric authority or municipal).

SECI is a wholesale, or sales for resale, customer of DEF that contracts for both seasonal and stratified loads over the forecast horizon. The municipal sales for resale class includes a number of customers, divergent not only in scope of service (i.e., full or partial requirement), but also in composition of ultimate consumers. Each customer is modeled separately in order to accurately reflect its individual profile. Three customers in this class, Chattahoochee, Mt. Dora, and Williston, are municipalities whose full energy requirements are supplied by DEF. Energy projections for full requirement customers grow at a rate that approximates their historical trend with additional information coming from the respective city officials. DEF serves partial requirement service (PR) to municipalities such as Homestead, and another power provider, RCID. In each case, these customers contract with DEF for a specific level and type of stratified capacity needed to provide their particular electrical system with an appropriate level of reliability. The energy forecast for each contract is derived using its historical load factors where enough history exists, or typical load factors for a given type of contracted stratified load and expected fuel prices. Electric energy growth and competitive market prices will dictate the amount of wholesale demand and energy throughout the forecast horizon.

**PEAK DEMAND FORECAST**

The forecast of peak demand also employs a disaggregated econometric methodology. For seasonal (winter and summer) peak demands, as well as each month of the year, DEF’s coincident system peak is separated into five major components. These components consist of total retail load, interruptible and curtailable tariff non-firm load, conservation and demand response program capability, wholesale demand, and company use demand.

Total retail load refers to projections of DEF retail monthly net peak demand before any activation of DEF's General Load Reduction Plan. The historical values of this series are constructed to show the size of DEF's retail net peak demand assuming no utility activated load control had ever taken place. The value of constructing such a "clean" series enables the forecaster to observe and correlate the underlying trend in retail peak demand to retail customer levels and coincident weather conditions at the time of the peak and the amounts of Base-Heating-Cooling load estimated by the monthly Itron models without the impacts of year-to-year variation in utility-sponsored DR programs. Monthly peaks are projected using the Itron SAE generated use patterns for both weather sensitive (cooling & heating) appliances and base load appliances calculated by class in the energy models. Daily and hourly models of applying DEF class-of-business load research survey data lead to class and total retail hourly load profiles when a 30-year normal weather template replaces actual weather. The projections of retail peak are the result of a monthly model driven by the summation of class base, heating and cooling energy interpolated 30-year normal weather pattern-driven load profile. The projection for the months of January (winter) and August (summer) are typically when the seasonal peaks occur. Energy conservation and direct load control estimates consistent with DEF's DSM goals that have been established by the FPSC are applied to the MW forecast. Projections of dispatchable and cumulative non-dispatchable DSM impacts are subtracted from the projection of potential firm retail demand resulting in a projected series of firm retail monthly peak demand figures. The Interruptible and Curtailable service (IS and CS) tariff load projection is developed from historic monthly trends, as well as the incorporation of specific projected information obtained from DEF's large industrial accounts on these tariffs by account executives. Developing this piece of the demand forecast allows for appropriate firm retail demand results in the total retail coincident peak demand projection.

Sales for Resale demand projections represent load supplied by DEF to other electric suppliers such as SECI, RCID, and other electric transmission and distribution entities. For Partial Requirement demand projections, contracted MW levels dictate the level of seasonal demands. The Full Requirement municipal demand forecast is estimated for individual cities using historically trended growth rates adjusted for current economic conditions.

DEF "company use" at the time of system peak is estimated using load research metering studies similar to potential firm retail. It is assumed to remain stable over the forecast horizon as it has historically.

Each of the peak demand components described above is a positive value except for the DSM program MW impacts and IS and CS load. These impacts represent a reduction in peak demand and are assigned a negative value. Total system firm peak demand is then calculated as the arithmetic sum of the five components.

**HIGH & LOW SCENARIOS**

DEF has developed high and low scenarios around the base case energy sales and peak demand projections. The overall results reflect a one standard deviation probability of outcome, or 67 percent of all possible outcomes between the high case and low case. Of course, the base case represents the 50/50 probability of all expected outcomes.

Both scenarios incorporate historical variation in weather and economic conditions. First, a calculation of twenty-nine years of historical variation for economic driver variables selected in the base case energy sales models. High & Low case series were developed by determining the one standard deviation level of outcome - both high and Low - around each respective base case economic variable for each class. Similarly, high and low weather variables were determined for the energy and peak weather variables (HDDs, CDDs, and monthly peak DDs) using actual 30-year weather conditions. Each weather variable used in the modeling process is ranked monthly from "high-to-low" degree days. The high (hottest) one-third of each variable is averaged and becomes a normal "High Case" weather condition. Similarly, the mildest one-third of each weather variable's 30 observations are averaged and become the normal "Low Case" weather condition.

This procedure captures the most influential variables around energy sales and peak demand by estimating high and low cases for economics and weather conditions.

## CONSERVATION

On August 20, 2015, the PSC issued Order No. PSC-15-0332-PAA-EG, approving the DEF's Demand Side Management Plan for 2015 through 2024.

DEF's currently approved DSM programs consist of five residential programs, six commercial and industrial programs and one research and development program that will continue to be offered through 2024. DEF also offers a Qualifying Facilities Program as discussed in Chapter 3. The programs are subject to periodic monitoring and evaluation in order to ensure that all demand-side resources are acquired in a cost-effective manner and that the program savings are durable. A brief description of each of the currently offered DSM programs is provided below.

### RESIDENTIAL CONSERVATION PROGRAMS

Table 2.1 depicts the expected residential DSM savings for 2015 through 2024. The 2015 through 2018 savings reflect the actual achievements as reported on DEF's 2018 Annual DSM Report to the FPSC and the savings for 2019 through 2024 reflect the impacts of the residential goals as approved in the 2014 Goals Proceeding (Order PSC 14-0696-FOF-EU).

**TABLE 2.1**

**Residential DSM MW and GWH Savings**

| Year | Annual Summer MW | Cumulative Summer MW | Annual Winter MW | Cumulative Winter MW | Annual GWH | Cumulative GWH |
|---|---|---|---|---|---|---|
| 2015 | 25.3 | 25.3 | 41.5 | 41.5 | 39.4 | 39.4 |
| 2016 | 30.0 | 55.4 | 52.4 | 93.9 | 47.3 | 86.7 |
| 2017 | 30.6 | 86.0 | 54.3 | 148.2 | 46.4 | 133.1 |
| 2018 | 25.6 | 111.5 | 45.0 | 193.2 | 43.4 | 176.5 |
| 2019 | 17.7 | 129.2 | 37.5 | 230.7 | 13.0 | 189.5 |
| 2020 | 15.5 | 144.7 | 32.2 | 262.9 | 9.3 | 198.8 |
| 2021 | 13.7 | 158.4 | 27.8 | 290.7 | 6.2 | 205.0 |
| 2022 | 12.2 | 170.6 | 24.5 | 315.2 | 3.8 | 208.8 |
| 2023 | 11.3 | 181.9 | 22.3 | 337.5 | 2.2 | 211.0 |
| 2024 | 10.7 | 192.6 | 20.9 | 358.4 | 1.2 | 212.2 |

**The following provides an overview of each Residential Program:**

**Home Energy Check –** This is DEF's home energy audit program as required by Rule 25-17.003(3) (b). DEF offers a variety of options to customers for home energy audits including walk-through audits, phone assisted audits, and web enabled on-line audits. At the completion of the audit, DEF also provides kits that contain energy saving measures that may be easily installed by the customer.

**Residential Incentive Program –** This program provides incentives on a variety of cost-effective measures designed to provide energy savings. DEF expects to provide incentives to customers for the installation of approximately 90,000 energy saving measures over the ten-year FEECA goal period. These measures primarily include heating and cooling, duct repair, insulation, and energy efficient windows. The measures and incentive levels included in this program have been updated to reflect the impacts of new codes and standards.

**Neighborhood Energy Saver –** This program is designed to provide energy saving education and assistance to low income customers. This program targets neighborhoods that meet certain income eligibility requirements. DEF installs energy saving measures in approximately 4500 homes and provides home energy reports to approximately 15,000 customers annually through this program. These home energy reports provide information about energy efficiency and remind customers about low cost energy saving measures.

**Low Income Weatherization Assistance Program –** DEF partners with local agencies to provide funding for energy efficiency and weatherization measures to low income customers through this program. DEF expects to provide assistance to approximately 500 customers annually through this program.

**EnergyWise –** EnergyWise is a voluntary residential demand response program that provides monthly bill credits to customers who allow DEF to reduce peak demand by controlling service to selected electric equipment through various devices and communication options installed on the customer's premises. These interruptions are at DEF's option, during specified time periods, and coincident with hours of peak demand. Customers must have a minimum average monthly usage of 600 kwh's to be eligible to participate in this program.

## COMMERCIAL/INDUSTRIAL CONSERVATION PROGRAMS

Table 2.2 depicts the expected commercial/industrial DSM savings for 2015 through 2024. The 2015 through 2018 savings reflect the actual achievements as reported on DEF's 2018 Annual DSM Report to the FPSC and the projected savings for 2019 through 2024 reflect the impacts of the commercial/industrial goals as approved in the 2014 Goals Proceeding (Order PSC 14-0696-FOF-EU).

**TABLE 2.2**
**Commercial/Industrial DSM MW and GWH Savings**

| Year | Annual Summer MW | Cumulative Summer MW | Annual Winter MW | Cumulative Winter MW | Annual GWH | Cumulative GWH |
|---|---|---|---|---|---|---|
| 2015 | 34.9 | 34.9 | 27.6 | 27.6 | 36.3 | 36.3 |
| 2016 | 85.3 | 120.2 | 71.9 | 99.5 | 27.6 | 63.9 |
| 2017 | 51.8 | 172.0 | 26.3 | 125.8 | 35.4 | 99.3 |
| 2018 | 60.3 | 232.3 | 43.4 | 169.2 | 39.0 | 138.3 |
| 2019 | 9.1 | 241.4 | 5.0 | 174.2 | 8.0 | 146.3 |
| 2020 | 8.2 | 249.6 | 5.2 | 179.4 | 5.9 | 152.2 |
| 2021 | 6.9 | 256.5 | 4.8 | 184.2 | 3.9 | 156.1 |
| 2022 | 6.0 | 262.5 | 4.7 | 188.9 | 2.4 | 158.5 |
| 2023 | 5.6 | 268.1 | 5.0 | 193.9 | 1.4 | 159.9 |
| 2024 | 5.0 | 273.1 | 4.6 | 198.5 | 0.8 | 160.7 |

**The following provides a list of the Commercial programs along with a brief overview of each program:**

**Business Energy Check –** This is a commercial energy audit program that provides commercial customers with an analysis of their energy usage and information about energy-saving practices and cost-effective measures that they can implement at their facilities.

**Better Business –** This program provides incentives to commercial customers on a variety of cost-effective energy efficiency measures. These measures include chillers, cool roof, insulation, and DX systems.

**Florida Custom Incentive –** The objective of this program is to encourage customers to make capital investments for the installation of energy efficiency measures which reduce energy and peak demand. This program provides incentives for customized energy efficiency projects and measures that are cost effective and are not otherwise included in DEF's prescriptive commercial programs.

**Interruptible Service –** This program is available to non-residential customers with a minimum billing demand of 500 KW or more who are willing to have their power interrupted. DEF has remote control access to the switch providing power to the customer's equipment. Customers participating in the Interruptible Service program receive a monthly interruptible demand credit based on their billing demand and billing load factor.

**Curtailable Service -** This program is an indirect load control program that reduces DEF's energy demand at times of capacity shortage during peak or emergency conditions.

**Standby Generation** - This program is a demand control program that reduces DEF's demand based upon the control of the customer equipment. The program is a voluntary program available to all commercial and industrial customers who have on-site stand-by generation capacity of at least 50 kW and are willing to reduce their DEF demand when deemed necessary.

## OTHER DSM PROGRAMS

**The following provides an overview of other DSM programs:**

**Technology Development –** This program is used to fund research and development of new energy efficiency and demand response opportunities. DEF will use this program to investigate new technologies and support the development of new energy efficiency and demand response programs.

**Qualifying Facilities –** This program supports the administration and management of interconnection and purchased power agreements from potential and current DEF portfolio of qualifying cogeneration and small power production facilities, including renewables. The program supports meetings with interested parties or potential Qualified Facility (QF) developers interested in providing renewable capacity or energy deliveries within our service territory. Project, interconnection, and avoided cost discussions with renewable and combined heat and power developers who are also exploring distributed generation options continue to increase. Most of the interest is coming from solar photovoltaic developers as the price of photovoltaic panels has decreased over time. The cost of this technology continues to decrease and subsidies remain in place. This increase in solar activity is evident in the number of interconnection requests which now represent over 6,100 MW of solar PV projects representing 80 active projects. As the technologies advance and the market evolves, the Company's policies will continue to be refined and compliant.

# *CHAPTER 3*

## *FORECAST OF FACILITIES REQUIREMENTS*

DUKE ENERGY.
FLORIDA

# CHAPTER 3

# FORECAST OF FACILITIES REQUIREMENTS

## RESOURCE PLANNING FORECAST

## OVERVIEW OF CURRENT FORECAST

### *Supply-Side Resources*

As of December 31, 2018, DEF had a summer total capacity resource of 11,789 MW (see Table 3.1). This capacity resource includes fossil steam generators (2,425 MW), combined cycle plants (5,226 MW), combustion turbines (2,092 MW), solar power plants (51 MW), utility purchased power (424 MW), independent power purchases (1,120 MW), and non-utility purchased power (451 MW). Table 3.2 presents DEF's firm capacity contracts with Renewable and Cogeneration Facilities.

### *Demand-Side Programs*

Total DSM resources are presented in Schedules 3.1 and 3.2 of Chapter 2. These programs include Non-Dispatchable DSM, Interruptible Load, and Dispatchable Load Control resources.

### *Capacity and Demand Forecast*

DEF's forecasts of capacity and demand for the projected summer and winter peaks can been found in Schedules 7.1 and 7.2, respectively. Demand forecasts shown in these schedules are based on Schedules 3.1.1 and 3.2.1, the base summer and winter forecasts. DEF's forecasts of capacity and demand are based on serving expected growth in retail requirements in its regulated service area and meeting commitments to wholesale power customers who have entered into supply contracts with DEF. In its planning process, DEF balances its supply plan for the needs of retail and wholesale customers and endeavors to ensure that cost-effective resources are available to meet the needs across the customer base.

### *Base Expansion Plan*

DEF's planned supply resource additions and changes are shown in Schedule 8 and are referred to as DEF's Base Expansion Plan. This plan includes a net addition of 1,448 MW of Solar PV generation with an expected equivalent summer firm capacity contribution of 803 MW and 452 MW of new natural gas fired generation consisting of two planned combustion turbine units in year 2027 at undesignated sites as well as the incorporation of the full firm capacity of the Osprey Energy Center. DEF continues to seek market supply-side resource alternatives to enhance DEF's resource plan. In this plan, DEF has assigned this DEF owned solar PV generation an equivalent summer capacity value equal to 57% of the nameplate capacity of the planned installations. This assignment assumes that the projects developed over the period of this plan will be of equivalent design to the recently completed Hamilton Solar Energy Center. Given the small amount of PV solar currently present on the DEF system, DEF plans to evaluate this assignment over time and may revise this value in future Site Plans based on changes in project designs and the data received from actual operation of these facilities once they are installed.

The promulgation of the Mercury and Air Toxics Standards (MATS) by the EPA in April of 2012 presented new environmental requirements for the DEF units at Anclote, Suwannee and Crystal River. As discussed in previous TYSPs, DEF has implemented steps at the affected sites to reach compliance with these requirements. The key step in completing this compliance plan in 2018 was the retirement of Crystal River Units 1 and 2 which became effective December 31, 2018. Additional details regarding DEF's compliance strategies in response to the MATS rule are provided in DEF's annual update to the Integrated Clean Air Compliance Plan filed in Docket No. 180007-EI.

On August 3, 2015, the EPA released final New Source Performance Standards (NSPS) for $CO_2$ emissions from existing fossil fuel-fired Electric Generating Units or EGUs (also known as the Clean Power Plan or CPP). In 2018, EPA proposed to replace the CPP with the Affordable Clean Energy (ACE) rule. It is anticipated that the ACE rule will be promulgated toward the end of the second quarter of 2019. Following promulgation, states will have three years to develop plans and two additional years to achieve compliance. It is also anticipated that there may be delays to the schedule due to litigation. Although there continues to be significant uncertainty about the specific form of regulation, DEF continues to expect that $CO_2$ emissions limitations in one form or another will be part of the regulatory future and has postulated a $CO_2$ emission price forecast as a placeholder for the impacts of such regulation.

DEF continues to modernize its generation resources with the retirement and projected retirements of several of the older units in the fleet, particularly combustion turbines at Higgins, Avon Park, Bayboro, Debary P2 - P6 and Bartow P1 & P3. Continued operations of the peaking units at Higgins and Avon Park are planned until the year 2020 while Bayboro is planned until the year 2025. The Debary P2 - P6 and Bartow P1 & P3 are planned to retire in 2027. There are many factors which may impact these retirements including environmental regulations and permitting, the unit's age and maintenance requirements, local operational needs, their relatively small capacity size and system requirement needs.

DEF's Base Expansion Plan projects the need for additional capacity with proposed in-service dates during the ten-year period from 2019 through 2028. The planned capacity additions, together with purchases from Qualifying Facilities (QF), Investor Owned Utilities, and Independent Power Producers help the DEF system meet the energy requirements of its customer base. The capacity needs identified in this plan may be impacted by DEF's ability to extend or replace existing purchase power, cogeneration and QF contracts and to secure new renewable purchased power resources in their respective projected timeframes. The additions in the Base Expansion Plan depend, in part, on projected load growth, and obtaining all necessary state and federal permits under current schedules. Changes in these or other factors could impact DEF's Base Expansion Plan. DEF has examined the high and low load scenarios presented in Schedules 3.1 and 3.2. As discussed in Chapter 2, these scenarios were developed to present and test a range of likely outcomes in peak load and energy demand. DEF found that the Base Expansion Plan was robust under the range of conditions examined. Current planned capacity is sufficient to meet the demand including reserve margin in these cases through 2023 allowing DEF sufficient time to plan additional generation capacity either through power purchase or new generation construction as needed if higher than baseline conditions emerge. If lower than baseline conditions emerge, DEF can defer future generation alternatives.

Status reports and specifications for the planned new generation facilities are included in Schedule 9. The planned transmission lines associated with DEF Bulk Electric System (BES) are shown in Schedule 10.

**TABLE 3.1**

**DUKE ENERGY FLORIDA**

**TOTAL CAPACITY RESOURCES OF**
**POWER PLANTS AND PURCHASED POWER CONTRACTS**

**AS OF DECEMBER 31, 2018**

| PLANTS | SUMMER NET DEPENDABLE CAPABILITY (MW) |
|---|---|
| **Fossil Steam** | 2,425 |
| **Combined Cycle** | 5,226 |
| **Combustion Turbine** | 2092 |
| **Solar** | 51 |
| **Total Net Dependable Generating Capability** | **9,794** |
| **Dependable Purchased Power** | 1,995 |
| Firm Qualifying Facility Contracts (451 MW) | |
| Investor Owned Utilities (424 MW) | |
| Independent Power Producers (1,120 MW) | |
| **TOTAL DEPENDABLE CAPACITY RESOURCES** | **11,789** |

**TABLE 3.2**

**DUKE ENERGY FLORIDA**
**FIRM RENEWABLES**
**AND COGENERATION CONTRACTS**

**AS OF DECEMBER 31, 2018**

| Facility Name | Firm Capacity (MW) |
|---|---|
| Mulberry | 115 |
| Orange Cogen (CFR-Biogen) | 104 |
| Orlando Cogen | 115 |
| Pasco County Resource Recovery | 23 |
| Pinellas County Resource Recovery 1 | 40 |
| Pinellas County Resource Recovery 2 | 14.8 |
| Ridge Generating Station | 39.6 |
| **TOTAL** | **451.4** |

**DUKE ENERGY FLORIDA**

SCHEDULE 7.1
FORECAST OF CAPACITY, DEMAND AND SCHEDULED MAINTENANCE
AT TIME OF SUMMER PEAK

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOTAL INSTALLED CAPACITY | FIRM[a] CAPACITY IMPORT | FIRM CAPACITY EXPORT | QF[b] | TOTAL CAPACITY AVAILABLE | SYSTEM FIRM SUMMER PEAK DEMAND | RESERVE MARGIN BEFORE MAINTENANCE | | SCHEDULED MAINTENANCE | RESERVE MARGIN AFTER MAINTENANCE | |
| YEAR | MW | MW | MW | MW | MW | MW | MW | % OF PEAK | MW | MW | % OF PEAK |
| 2019 | 9,794 | 1,878 | 0 | 78 | 11,750 | 9,019 | 2,731 | 30% | 0 | 2,731 | 30% |
| 2020 | 9,955 | 1,878 | 0 | 78 | 11,911 | 8,953 | 2,958 | 33% | 0 | 2,958 | 33% |
| 2021 | 10,039 | 1,454 | 0 | 78 | 11,571 | 9,026 | 2,545 | 28% | 0 | 2,545 | 28% |
| 2022 | 10,240 | 1,454 | 0 | 78 | 11,772 | 9,082 | 2,690 | 30% | 0 | 2,690 | 30% |
| 2023 | 10,238 | 1,454 | 0 | 78 | 11,770 | 8,836 | 2,934 | 33% | 0 | 2,934 | 33% |
| 2024 | 10,657 | 859 | 0 | 78 | 11,594 | 8,907 | 2,687 | 30% | 0 | 2,687 | 30% |
| 2025 | 10,740 | 744 | 0 | 78 | 11,562 | 8,766 | 2,796 | 32% | 0 | 2,796 | 32% |
| 2026 | 10,651 | 640 | 0 | 78 | 11,369 | 8,839 | 2,530 | 29% | 0 | 2,530 | 29% |
| 2027 | 10,796 | 0 | 0 | 78 | 10,874 | 8,920 | 1,953 | 22% | 0 | 1,953 | 22% |
| 2028 | 10,835 | 0 | 0 | 78 | 10,913 | 9,027 | 1,885 | 21% | 0 | 1,885 | 21% |

Notes:

a. FIRM Capacity Import includes Cogeneration, Utility and Independent Power Producers, and Short Term Purchase Contracts.

b. QF includes Firm Renewables

**DUKE ENERGY FLORIDA**

SCHEDULE 7.2
FORECAST OF CAPACITY, DEMAND AND SCHEDULED MAINTENANCE
AT TIME OF WINTER PEAK

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TOTAL | FIRM[a] | FIRM | | TOTAL | SYSTEM FIRM | | | | | |
| | INSTALLED | CAPACITY | CAPACITY | | CAPACITY | WINTER PEAK | RESERVE MARGIN | | SCHEDULED | RESERVE MARGIN | |
| | CAPACITY | IMPORT | EXPORT | QF[b] | AVAILABLE | DEMAND | BEFORE MAINTENANCE | | MAINTENANCE | AFTER MAINTENANCE | |
| YEAR | MW | MW | MW | MW | MW | MW | MW | % OF PEAK | MW | MW | % OF PEAK |
| 2018/19 | 10,865 | 1,961 | 0 | 78 | 12,904 | 9,023 | 3,882 | 43% | 0 | 3,882 | 43% |
| 2019/20 | 10,987 | 1,961 | 0 | 78 | 13,026 | 9,239 | 3,787 | 41% | 0 | 3,787 | 41% |
| 2020/21 | 10,937 | 1,961 | 0 | 78 | 12,976 | 8,611 | 4,366 | 51% | 0 | 4,366 | 51% |
| 2021/22 | 10,937 | 1,537 | 0 | 78 | 12,552 | 8,958 | 3,595 | 40% | 0 | 3,595 | 40% |
| 2022/23 | 10,937 | 1,537 | 0 | 78 | 12,552 | 8,696 | 3,856 | 44% | 0 | 3,856 | 44% |
| 2023/24 | 10,937 | 1,422 | 0 | 78 | 12,437 | 8,768 | 3,670 | 42% | 0 | 3,670 | 42% |
| 2024/25 | 11,292 | 785 | 0 | 78 | 12,155 | 8,583 | 3,572 | 42% | 0 | 3,572 | 42% |
| 2025/26 | 11,054 | 681 | 0 | 78 | 11,813 | 8,633 | 3,180 | 37% | 0 | 3,180 | 37% |
| 2026/27 | 11,054 | 681 | 0 | 78 | 11,813 | 8,688 | 3,125 | 36% | 0 | 3,125 | 36% |
| 2027/28 | 11,092 | 0 | 0 | 78 | 11,169 | 8,741 | 2,429 | 28% | 0 | 2,429 | 28% |

Notes:

a. FIRM Capacity Import includes Cogeneration, Utility and Independent Power Producers, and Short Term Purchase Contracts.

b. QF includes Firm Renewables

**DUKE ENERGY FLORIDA**

SCHEDULE 8
PLANNED AND PROSPECTIVE GENERATING FACILITY ADDITIONS AND CHANGES

AS OF JANUARY 1, 2019 THROUGH DECEMBER 31, 2028

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | FIRM | | | |
| | | | | | | | | CONST. | COM'L IN- | EXPECTED | GEN. MAX. | NET CAPABILITY | | | |
| | UNIT | LOCATION | UNIT | FUEL | | FUEL TRANSPORT | | START | SERVICE | RETIREMENT | NAMEPLATE | SUMMER | WINTER | | |
| PLANT NAME | NO. | (COUNTY) | TYPE | PRI. | ALT. | PRI. | ALT. | MO. / YR | MO. / YR | MO. / YR | KW | MW | MW | STATUS[a] | NOTES[b] |
| ST PETERSBURG PIER | 1 | PINELLAS | PV | SO | | | | 01/2019 | 12/2019 | | 350 | 0 | 0 | P | (1) and (2) |
| TRENTON | 1 | GILCHRIST | PV | SO | | | | 04/2019 | 12/2019 | | 74,900 | 43 | 0 | P | (1) |
| LAKE PLACID | 1 | HIGHLANDS | PV | SO | | | | 05/2019 | 12/2019 | | 45,000 | 26 | 0 | P | (1) |
| DEBARY | 1 | VOLUSIA | PV | SO | | | | 07/2019 | 03/2020 | | 74,500 | 34 | 0 | P | (1) |
| COLUMBIA | 1 | COLUMBIA | PV | SO | | | | 08/2019 | 03/2020 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2020 | 12/2020 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2020 | 12/2020 | | 74,900 | 43 | 0 | P | (1) |
| AVON PARK | P1 | HIGHLANDS | GT | NG | DFO | PL | TK | | | 06/2020 | | (24) | (25) | RT | (1) |
| AVON PARK | P2 | HIGHLANDS | GT | DFO | | TK | | | | 06/2020 | | (24) | (25) | RT | (1) |
| HIGGINS | P1-4 | PINELLAS | GT | NG | DFO | PL | TK | | | 06/2020 | | 0 | 0 | RT | (3) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2021 | 12/2021 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2021 | 12/2021 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2021 | 12/2021 | | 55,000 | 31 | 0 | P | (1) |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (1) | | | (4) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 05/2021 | 01/2022 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 05/2021 | 01/2022 | | 74,900 | 43 | 0 | P | (1) |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (1) | | | (4) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2023 | 12/2023 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2023 | 12/2023 | | 74,900 | 43 | 0 | P | (1) |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (2) | | | (4) |
| OSPREY CC | 1 | POLK | CC | NG | DFO | PL | TK | | 05/2024 | | | 337 | 355 | P | (5) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2024 | 12/2024 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2024 | 12/2024 | | 74,900 | 43 | 0 | P | (1) |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (2) | | | (4) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2025 | 12/2025 | | 74,900 | 43 | 0 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2025 | 12/2025 | | 74,900 | 43 | 0 | P | (1) |
| BAYBORO | P1 - P4 | PINELLAS | GT | DFO | | WA | | | | 12/2025 | | (171) | (238) | | |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (3) | | | (4) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2026 | 12/2026 | | 74,900 | 43 | 0 | P | (1) |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (3) | | | (4) |
| DEBARY | P2 - P6 | VOLUSIA | GT | DFO | | TK | | | | 06/2027 | | (249) | (324) | | |
| BARTOW | P1, P3 | PINELLAS | GT | DFO | | WA | | | | 06/2027 | | (82) | (105) | | |
| UNKNOWN | P1 | UNKNOWN | GT | NG | DFO | PL | TK | 01/2025 | 06/2027 | | 229,400 | 218 | 233 | P | (1) |
| UNKNOWN | P2 | UNKNOWN | GT | NG | DFO | PL | TK | 01/2025 | 06/2027 | | 229,400 | 218 | 233 | P | (1) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2027 | 12/2027 | | 74,900 | 43 | 0 | P | (1) |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (4) | | | (4) |
| UNKNOWN | 1 | UNKNOWN | PV | SO | | | | 04/2028 | 12/2028 | | 74,900 | 43 | 0 | P | (1) |
| SOLAR DEGRADATION | N/A | N/A | N/A | N/A | | N/A | | N/A | N/A | N/A | N/A | (4) | | | (4) |

a. See page v. for Code Legend of Future Generating Unit Status.
b. NOTES
(1) Planned, Prospective, or Committed project.
(2) St Petersburg Pier Firm Capacity is 0.16 Mw for the Summer and 0 for the Winter
(3) Higgins P1 20 MW, P2 25 MW, P3 31 MW & P4 31 MW (Summer MW) is non-frim capacity and shown as 0 MW each due to non-firm fuel source.
Higgins P1 20 MW, P2 25 MW, P3 36 MW & P4 38 MW (Winter MW) is non-frim capacity and shown as 0 MW each due to non-firm fuel source.
(4) Solar capacity degrades by 0.5% every year
(5) Osprey CC Acquisition total capacity is available once Transmission Upgrades are in service, total Summer capacity goes up to 582MW and total Winter capacity goes up to 600MW

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **St Petersburg Pier** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 0.4 | |
| | b. Summer Firm (MWac): | | 0.2 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 1/2019 | |
| | b. Commercial in-service date: | | 12/2019 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | 3 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~ 22 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw [(1)] | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

NOTES

[(1)] Average cost of projects to be filed together as specified in DEF's 2017 Second Revised and Restated Settlement Agreement

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **Trenton** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2019 | |
| | b. Commercial in-service date: | | 12/2019 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | N/A % | |
| | b. Forced Outage Factor (FOF): | | N/A % | |
| | c. Equivalent Availability Factor (EAF): | | N/A % | |
| | d. Resulting Capacity Factor (%): | | ~29 % | |
| | e. Average Net Operating Heat Rate (ANOHR): | | N/A BTU/kWh | |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **Lake Placid** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 45.0 | |
| | b. Summer Firm (MWac): | | 25.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 5/2019 | |
| | b. Commercial in-service date: | | 12/2019 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~400-450 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **Columbia** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 8/2019 | |
| | b. Commercial in-service date: | | 3/2020 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **Debary** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.5 | |
| | b. Summer Firm (MWac): | | 33.5 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 7/2019 | |
| | b. Commercial in-service date: | | 3/2020 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~28 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | |
|---|---|---|---|
| (1) | Plant Name and Unit Number: | **TBD** | |
| (2) | Capacity | | |
| | a. Nameplate (MWac): | 74.9 | |
| | b. Summer Firm (MWac): | 42.7 | |
| | c. Winter Firm (MWac): | - | |
| (3) | Technology Type: | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | |
| | a. Field construction start date: | 4/2020 | |
| | b. Commercial in-service date: | 12/2020 | (EXPECTED) |
| (5) | Fuel | | |
| | a. Primary fuel: | SOLAR | |
| | b. Alternate fuel: | N/A | |
| (6) | Air Pollution Control Strategy: | N/A | |
| (7) | Cooling Method: | N/A | |
| (8) | Total Site Area: | ~500-600 ACRES | |
| (9) | Construction Status: | PLANNED | |
| (10) | Certification Status: | | |
| (11) | Status with Federal Agencies: | | |
| (12) | Projected Unit Performance Data | | |
| | a. Planned Outage Factor (POF): | N/A % | |
| | b. Forced Outage Factor (FOF): | N/A % | |
| | c. Equivalent Availability Factor (EAF): | N/A % | |
| | d. Resulting Capacity Factor (%): | ~29 % | |
| | e. Average Net Operating Heat Rate (ANOHR): | N/A BTU/kWh | |
| (13) | Projected Unit Financial Data | | |
| | a. Book Life (Years): | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): ($2019) | | |
| | d. AFUDC Amount ($/kW): | | |
| | e. Escalation ($/kW): | | |
| | f. Fixed O&M ($/kWdc-yr): ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): ($2019) | 0.00 | |
| | h. K Factor: | NO CALCULATION | |

## DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2020 | |
| | b. Commercial in-service date: | | 12/2020 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2021 | |
| | b. Commercial in-service date: | | 12/2021 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2021 | |
| | b. Commercial in-service date: | | 12/2021 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | N/A % | |
| | b. Forced Outage Factor (FOF): | | N/A % | |
| | c. Equivalent Availability Factor (EAF): | | N/A % | |
| | d. Resulting Capacity Factor (%): | | ~29 % | |
| | e. Average Net Operating Heat Rate (ANOHR): | | N/A BTU/kWh | |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 55.0 | |
| | b. Summer Firm (MWac): | | 31.4 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2021 | |
| | b. Commercial in-service date: | | 12/2021 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~450-550 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | N/A % | |
| | b. Forced Outage Factor (FOF): | | N/A % | |
| | c. Equivalent Availability Factor (EAF): | | N/A % | |
| | d. Resulting Capacity Factor (%): | | ~29 % | |
| | e. Average Net Operating Heat Rate (ANOHR): | | N/A BTU/kWh | |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | Less than $1,650/Kw | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | Less than $8/Kw | |
| | g. Variable O&M ($/MWh): | ($2019) | 0.00 | |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 5/2021 | |
| | b. Commercial in-service date: | | 01/2022 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 5/2021 | |
| | b. Commercial in-service date: | | 01/2022 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2023 | |
| | b. Commercial in-service date: | | 12/2023 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

## DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2024 | |
| | b. Commercial in-service date: | | 12/2024 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2024 | |
| | b. Commercial in-service date: | | 12/2024 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | **TBD** | | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | 74.9 | | |
| | b. Summer Firm (MWac): | 42.7 | | |
| | c. Winter Firm (MWac): | - | | |
| (3) | Technology Type: | PHOTOVOLTAIC | | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | 4/2025 | | |
| | b. Commercial in-service date: | 12/2025 | | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | SOLAR | | |
| | b. Alternate fuel: | N/A | | |
| (6) | Air Pollution Control Strategy: | N/A | | |
| (7) | Cooling Method: | N/A | | |
| (8) | Total Site Area: | ~500-600 ACRES | | |
| (9) | Construction Status: | PLANNED | | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | N/A % | |
| | b. Forced Outage Factor (FOF): | | N/A % | |
| | c. Equivalent Availability Factor (EAF): | | N/A % | |
| | d. Resulting Capacity Factor (%): | | ~29 % | |
| | e. Average Net Operating Heat Rate (ANOHR): | | N/A BTU/kWh | |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): ($2019) | | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): ($2019) | | | |
| | g. Variable O&M ($/MWh): ($2019) | | 0.00 | |
| | h. K Factor: | NO CALCULATION | | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2025 | |
| | b. Commercial in-service date: | | 12/2025 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | **TBD** | | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | 74.9 | | |
| | b. Summer Firm (MWac): | 42.7 | | |
| | c. Winter Firm (MWac): | - | | |
| (3) | Technology Type: | PHOTOVOLTAIC | | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | 4/2026 | | |
| | b. Commercial in-service date: | 12/2026 | | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | SOLAR | | |
| | b. Alternate fuel: | N/A | | |
| (6) | Air Pollution Control Strategy: | N/A | | |
| (7) | Cooling Method: | N/A | | |
| (8) | Total Site Area: | ~500-600 ACRES | | |
| (9) | Construction Status: | PLANNED | | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | N/A % | |
| | b. Forced Outage Factor (FOF): | | N/A % | |
| | c. Equivalent Availability Factor (EAF): | | N/A % | |
| | d. Resulting Capacity Factor (%): | | ~29 % | |
| | e. Average Net Operating Heat Rate (ANOHR): | | N/A BTU/kWh | |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 30 | |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): ($2019) | | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): ($2019) | | | |
| | g. Variable O&M ($/MWh): ($2019) | | 0.00 | |
| | h. K Factor: | NO CALCULATION | | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | |
|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **Undesignated CT P1** |
| (2) | Capacity | | |
| | a. Summer (MWs): | | 218 |
| | b. Winter (MWs): | | 233 |
| (3) | Technology Type: | | COMBUSTION TURBINE |
| (4) | Anticipated Construction Timing | | |
| | a. Field construction start date: | | 1/2025 |
| | b. Commercial in-service date: | | 6/2027 (EXPECTED) |
| (5) | Fuel | | |
| | a. Primary fuel: | | NATURAL GAS |
| | b. Alternate fuel: | | DISTILLATE FUEL OIL |
| (6) | Air Pollution Control Strategy: | | Dry Low Nox Combustion |
| (7) | Cooling Method: | | N/A |
| (8) | Total Site Area: | | UNKNOWN |
| (9) | Construction Status: | | PLANNED |
| (10) | Certification Status: | | PLANNED |
| (11) | Status with Federal Agencies: | | PLANNED |
| (12) | Projected Unit Performance Data | | |
| | a. Planned Outage Factor (POF): | | 3.00 % |
| | b. Forced Outage Factor (FOF): | | 2.00 % |
| | c. Equivalent Availability Factor (EAF): | | 95.06 % |
| | d. Resulting Capacity Factor (%): | | 7.2 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | 12,005 BTU/kWh |
| (13) | Projected Unit Financial Data | | |
| | a. Book Life (Years): | | 35 |
| | b. Total Installed Cost (In-service year $/kW): | | 675.5 |
| | c. Direct Construction Cost ($/kW): | ($2019) | 586.9 |
| | d. AFUDC Amount ($/kW): | | 31.1 |
| | e. Escalation ($/kW): | | 57.5 |
| | f. Fixed O&M ($/kW-yr): | ($2019) | 1.69 |
| | g. Variable O&M ($/MWh): | ($2019) | 7.16 |
| | h. K Factor: | | NO CALCULATION |

NOTES
Total Installed Cost includes gas expansion, transmission interconnection and integration
$/kW values are based on Summer capacity
Fixed O&M cost does not include firm gas transportation costs

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **Undesignated CT P2** | |
| (2) | Capacity | | | |
| | a. Summer (MWs): | | 218 | |
| | b. Winter (MWs): | | 233 | |
| (3) | Technology Type: | | COMBUSTION TURBINE | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 1/2025 | |
| | b. Commercial in-service date: | | 6/2027 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | NATURAL GAS | |
| | b. Alternate fuel: | | DISTILLATE FUEL OIL | |
| (6) | Air Pollution Control Strategy: | | Dry Low Nox Combustion | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | UNKNOWN | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | PLANNED | |
| (11) | Status with Federal Agencies: | | PLANNED | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | 3.00 % | |
| | b. Forced Outage Factor (FOF): | | 2.00 % | |
| | c. Equivalent Availability Factor (EAF): | | 95.06 % | |
| | d. Resulting Capacity Factor (%): | | 7.2 % | |
| | e. Average Net Operating Heat Rate (ANOHR): | | 12,005 BTU/kWh | |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | 35 | |
| | b. Total Installed Cost (In-service year $/kW): | | 675.5 | |
| | c. Direct Construction Cost ($/kW): | ($2019) | 586.9 | |
| | d. AFUDC Amount ($/kW): | | 31.1 | |
| | e. Escalation ($/kW): | | 57.5 | |
| | f. Fixed O&M ($/kW-yr): | ($2019) | 1.69 | |
| | g. Variable O&M ($/MWh): | ($2019) | 7.16 | |
| | h. K Factor: | | NO CALCULATION | |

NOTES
Total Installed Cost includes gas expansion, transmission interconnection and integration
$/kW values are based on Summer capacity
Fixed O&M cost does not include firm gas transportation costs

## DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2027 | |
| | b. Commercial in-service date: | | 12/2027 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2019

| | | | | |
|---|---|---|---|---|
| (1) | Plant Name and Unit Number: | | **TBD** | |
| (2) | Capacity | | | |
| | a. Nameplate (MWac): | | 74.9 | |
| | b. Summer Firm (MWac): | | 42.7 | |
| | c. Winter Firm (MWac): | | - | |
| (3) | Technology Type: | | PHOTOVOLTAIC | |
| (4) | Anticipated Construction Timing | | | |
| | a. Field construction start date: | | 4/2028 | |
| | b. Commercial in-service date: | | 12/2028 | (EXPECTED) |
| (5) | Fuel | | | |
| | a. Primary fuel: | | SOLAR | |
| | b. Alternate fuel: | | N/A | |
| (6) | Air Pollution Control Strategy: | | N/A | |
| (7) | Cooling Method: | | N/A | |
| (8) | Total Site Area: | | ~500-600 ACRES | |
| (9) | Construction Status: | | PLANNED | |
| (10) | Certification Status: | | | |
| (11) | Status with Federal Agencies: | | | |
| (12) | Projected Unit Performance Data | | | |
| | a. Planned Outage Factor (POF): | | | N/A % |
| | b. Forced Outage Factor (FOF): | | | N/A % |
| | c. Equivalent Availability Factor (EAF): | | | N/A % |
| | d. Resulting Capacity Factor (%): | | | ~29 % |
| | e. Average Net Operating Heat Rate (ANOHR): | | | N/A BTU/kWh |
| (13) | Projected Unit Financial Data | | | |
| | a. Book Life (Years): | | | 30 |
| | b. Total Installed Cost (In-service year $/kW): | | | |
| | c. Direct Construction Cost ($/kWac): | ($2019) | | |
| | d. AFUDC Amount ($/kW): | | | |
| | e. Escalation ($/kW): | | | |
| | f. Fixed O&M ($/kWdc-yr): | ($2019) | | |
| | g. Variable O&M ($/MWh): | ($2019) | | 0.00 |
| | h. K Factor: | | NO CALCULATION | |

**DUKE ENERGY FLORIDA**

SCHEDULE 10
STATUS REPORT AND SPECIFICATIONS OF PROPOSED DIRECTLY ASSOCIATED TRANSMISSION LINES

**OSPREY**

| | |
|---|---|
| (1) POINT OF ORIGIN AND TERMINATION: | Kathleen - Osprey - Haines City East |
| (2) NUMBER OF LINES: | 1 |
| (3) RIGHT-OF-WAY: | New transmission line right-of-way |
| (4) LINE LENGTH: | 50 miles |
| (5) VOLTAGE: | 230 kV |
| (6) ANTICIPATED CONSTRUCTION TIMING: | 6/1/2024 |
| (7) ANTICIPATED CAPITAL INVESTMENT: | $150,000,000 |
| (8) SUBSTATIONS: | Kathleen, Osprey, Haines City East |
| (9) PARTICIPATION WITH OTHER UTILITIES: | N/A |

## INTEGRATED RESOURCE PLANNING OVERVIEW

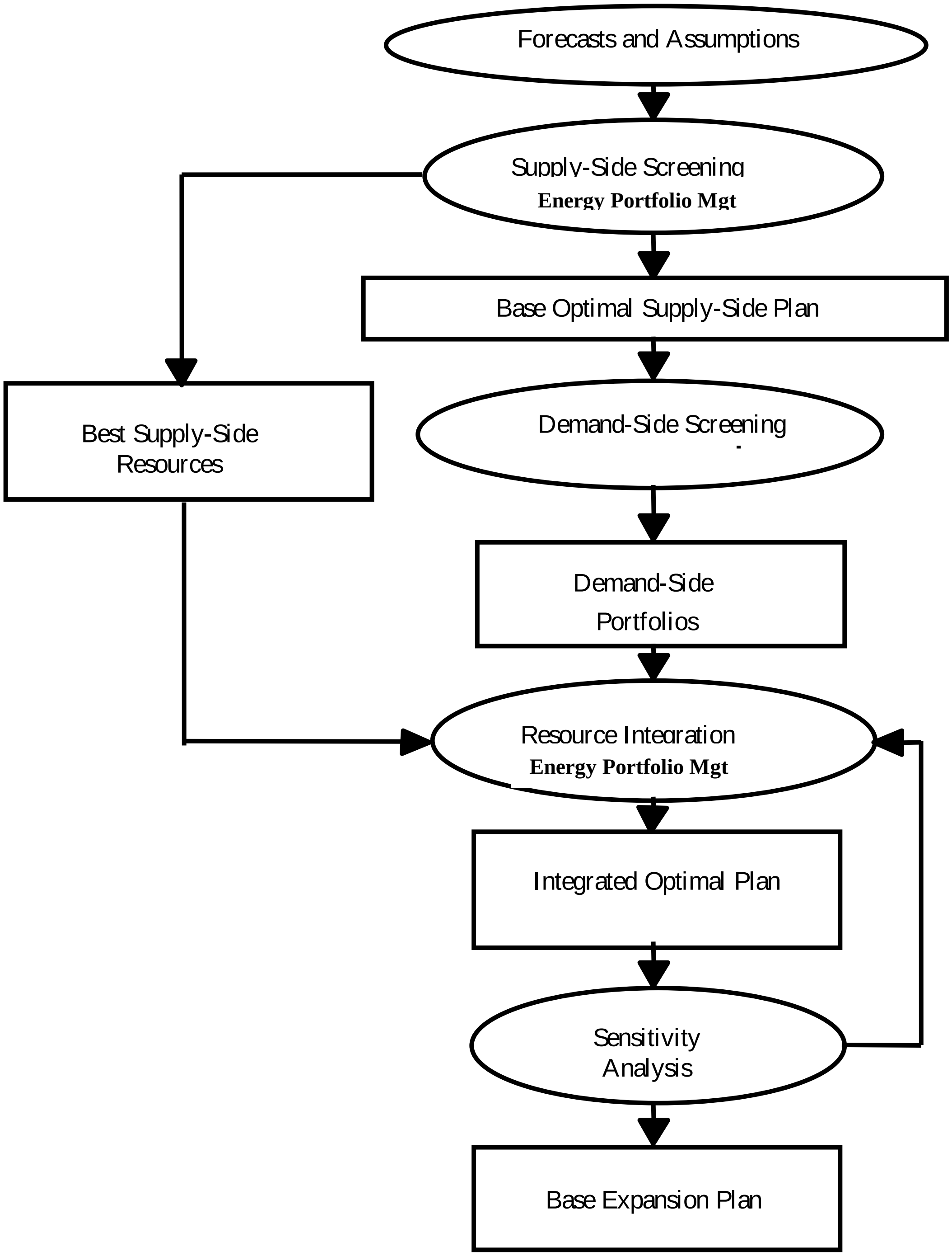
DEF employs an Integrated Resource Planning (IRP) process to determine the most cost-effective mix of supply- and demand-side alternatives that will reliably satisfy our customers' future demand and energy needs. DEF's IRP process incorporates state-of-the-art computer models used to evaluate a wide range of future generation alternatives and cost-effective conservation and dispatchable demand-side management programs on a consistent and integrated basis.

An overview of DEF's IRP Process is shown in Figure 3.1. The process begins with the development of various forecasts, including demand and energy, fuel prices, and economic assumptions. Future supply- and demand-side resource alternatives are identified and extensive cost and operating data are collected to enable these to be modeled in detail. These alternatives are optimized together to determine the most cost-effective plan for DEF to pursue over the next ten years to meet the Company's reliability criteria. The resulting ten-year plan, the Integrated Optimal Plan, is then tested under different relevant sensitivity scenarios to identify variances, if any, which would warrant reconsideration of any of the base plan assumptions. If the plan is judged robust and works within the corporate framework, it evolves as the Base Expansion Plan. This process is discussed in more detail in the following section titled "The Integrated Resource Planning (IRP) Process".

The IRP provides DEF with substantial guidance in assessing and optimizing the Company's overall resource mix on both the supply side and the demand side. When a decision supporting a significant resource commitment is being developed (e.g. plant construction, power purchase, DSM program implementation), the Company will move forward with directional guidance from the IRP and delve much further into the specific levels of examination required. This more detailed assessment will typically address very specific technical requirements and cost estimates, detailed corporate financial considerations, and the most current dynamics of the business and regulatory environments.

**FIGURE 3.1**

**Integrated Resource Planning (IRP) Process Overview**



## THE INTEGRATED RESOURCE PLANNING (IRP) PROCESS

### *Forecasts and Assumptions*

The evaluation of possible supply- and demand-side alternatives, and development of the optimal plan, is an integral part of the IRP process. These steps together comprise the integration process that begins with the development of forecasts and collection of input data. Base forecasts that reflect DEF's view of the most likely future scenario are developed. Additional future scenarios along with high and low forecasts may also be developed. Computer models used in the process are brought up-to-date to reflect this data, along with the latest operating parameters and maintenance schedules for DEF's existing generating units. This establishes a consistent starting point for all further analysis.

### *Reliability Criteria*

Utilities require a margin of generating capacity above the firm demands of their customers in order to provide reliable service. Periodic scheduled outages are required to perform maintenance and inspections of generating plant equipment. At any given time during the year, some capacity may be out of service due to unanticipated equipment failures resulting in forced outages of generation units. Adequate reserve capacity must be available to accommodate these outages and to compensate for higher than projected peak demand due to forecast uncertainty and abnormal weather. In addition, some capacity must be available for operating reserves to maintain the balance between supply and demand on a moment-to-moment basis.

DEF plans its resources in a manner consistent with utility industry planning practices, and employs both deterministic and probabilistic reliability criteria in the resource planning process. A Reserve Margin criterion is used as a deterministic measure of DEF's ability to meet its forecasted seasonal peak load with firm capacity. DEF plans its resources to satisfy a minimum 20 percent Reserve Margin criterion.

Loss of Load Probability (LOLP) is a probabilistic criterion that measures the probability that a company will be unable to meet its load throughout the year. While Reserve Margin considers the peak load and amount of installed resources, LOLP considers generating unit sizes, capacity mix, maintenance scheduling, unit availabilities, and capacity assistance available from other utilities. A standard probabilistic reliability threshold commonly used in the electric utility industry, and the criterion employed by DEF, is a maximum of one day in ten years loss of load probability.

DEF has based its resource planning on the use of dual reliability criteria since the early 1990s, a practice that has been accepted by the FPSC. DEF's resource portfolio is designed to satisfy the 20 percent Reserve Margin requirement and probabilistic analyses are periodically conducted to ensure that the one day in ten years LOLP criterion is also satisfied. By using both the Reserve Margin and LOLP planning criteria, DEF's resource portfolio is designed to have sufficient capacity available to meet customer peak demand, and to provide reliable generation service under expected load conditions. DEF has found that resource additions are typically triggered to meet the 20 percent Reserve Margin thresholds before LOLP becomes a factor.

***Supply-Side Screening***

Potential supply-side resources are screened to determine those that are the most cost-effective. Data used for the screening analysis is compiled from various industry sources and DEF's experiences. The wide range of resource options is pre-screened to set aside those that do not warrant a detailed cost-effectiveness analysis. Typical screening criteria are costs, fuel source, technology maturity, environmental parameters (e.g. possible climate legislation), and overall resource feasibility.

Economic evaluation of generation alternatives is performed using the System Optimizer optimization program, a module of the Energy Portfolio Management software. This optimization tool evaluates revenue requirements for specific resource plans generated from multiple combinations of future resource additions that meet system reliability criteria and other system constraints. All resource plans are then ranked by system revenue requirements.

***Demand-Side Screening***

Like supply-side resources, the impacts of potential demand-side resources are also factored into the integrated resource plan. The projected MW and MWH impacts for demand-side management resources are based on the energy efficiency measures and load management programs included in DEF's 2015 DSM Plan and meet the goals established by the Florida Public Service Commission (FPSC) in December 2014 (Docket 130200-EI).

### *Resource Integration and the Integrated Optimal Plan*

The cost-effective generation alternatives can then be optimized together with the demand-side portfolios developed in the screening process to formulate integrated optimal plans. The optimization program considers all possible future combinations of supply- and demand-side alternatives that meet the Company's reliability criteria in each year of the ten-year study period and reports those that provide both flexibility and reasonable revenue requirements (rates) for DEF's customers.

### *Developing the Base Expansion Plan*

The integrated optimized plan that provides the lowest revenue requirements may then be further tested using sensitivity analysis, including High and Low Demand and Energy Forecasts (see Schedules 2 and 3). The economics of the plan may be evaluated under high and low forecast scenarios for fuel, load and financial assumptions, or any other sensitivities which the planner deems relevant. From the sensitivity assessment, the plan that is identified as achieving the best balance of flexibility and cost is then reviewed within the corporate framework to determine how the plan potentially impacts or is impacted by many other factors. If the plan is judged robust under this review, it would then be considered the Base Expansion Plan.

## KEY CORPORATE FORECASTS

### *Load Forecast*

The assumptions and methodology used to develop the base case load and energy forecast are described in Chapter 2 of this TYSP. The High and Low forecasts of load and energy were provided to Resource Planning to test the robustness of the base plan.

### *Fuel Forecast*

The base case fuel price forecast was developed using short-term and long-term spot market price projections from industry-recognized sources. The base cost for coal is based on the existing contracts and spot market coal prices and transportation arrangements between DEF and its various suppliers. For the longer term, the prices are based on spot market forecasts reflective of expected market conditions. Oil and natural gas prices are estimated based on current and expected contracts and spot purchase arrangements as well as near-term and long-term market forecasts. Oil and natural gas commodity prices are driven primarily by open market forces of supply and demand. Natural gas firm transportation cost is determined primarily by pipeline tariff rates.

***Financial Forecast***

The key financial assumptions used in DEF's most recent planning studies were 47 percent debt and 53 percent equity capital structure, projected cost of debt of 4.55 percent, and an equity return of 10.5 percent. The assumptions resulted on a weighted average cost of capital of 7.70 percent and an after-tax discount rate of 7.15 percent.

## TEN-YEAR SITE PLAN (TYSP) RESOURCE ADDITIONS

DEF's planned supply resource additions and changes are shown in Schedule 8 and are referred to as DEF's Base Expansion Plan. This plan includes a net addition of 1,448 MW of Solar PV generation with an expected equivalent summer firm capacity contribution of 803 MW and 452 MW of new natural gas fired generation consisting of two planned combustion turbine units in year 2027 at undesignated sites as well as the incorporation of the full firm capacity of the Osprey Energy Center. DEF continues to seek market supply-side resource alternatives to enhance DEF's resource plan. In this plan, DEF has assigned this DEF owned solar PV generation an equivalent summer capacity value equal to 57% of the nameplate capacity of the planned installations. This assignment assumes that the projects developed over the period of this plan will be of equivalent design to the recently completed Hamilton Solar Energy Center. Given the small amount of PV solar currently present on the DEF system, DEF plans to evaluate this assignment over time and may revise this value in future Site Plans based on changes in project designs and the data received from actual operation of these facilities once they are installed.

DEF's Base Expansion Plan projects the need for additional capacity with proposed in-service dates during the ten-year period from 2019 through 2028. The planned capacity additions, together with purchases from Qualifying Facilities (QF), Investor Owned Utilities, and Independent Power Producers help the DEF system meet the energy requirements of its customer base. The capacity needs identified in this plan may be impacted by DEF's ability to extend or replace existing purchase power and QF contracts and to secure new renewable purchased power resources in their respective projected timeframes. The additions in the Base Expansion Plan depend, in part, on projected load growth, and obtaining all necessary state and federal permits under current schedules. Changes in these or other factors could impact DEF's Base Expansion Plan.

Through its ongoing planning process, DEF will continue to evaluate the timetables for all projected resource additions and assess alternatives for the future considering, among other things, projected load growth, fuel prices, lead times in the construction marketplace, project development timelines for new fuels and technologies, and environmental compliance considerations. The Company will continue to examine the merits of new generation alternatives and adjust its resource plans accordingly to ensure optimal selection of resource additions based on the best information available.

**RENEWABLE ENERGY**

DEF continues to secure renewable energy from the following facilities listed by fuel type:

***Purchases from Municipal Solid Waste Facilities:***

Pasco County Resource Recovery (23 MW)

Pinellas County Resource Recovery (54.8 MW)

Dade County Resource Recovery (As Available)

Lake County Resource Recovery (As Available)

Lee County Resource Recovery (As Available)

***Purchases from Waste Heat from Exothermic Processes:***

PCS Phosphate (As Available)

Citrus World (As Available)

***Photovoltaics***

DEF-owned Solar Facilities (92.6 MW)

Osceola 3.8MW

Perry 5.1 MW

Suwannee 8.8MW

Hamilton 74.9MW

Customer-owned renewable generation under DEF's Net Metering Tariff (98 MW as of 12/31/18)

DEF also has several As-Available contracts utilizing solar PV technologies. As-Available energy purchases are made on an hour by hour basis for which contractual commitments to the quantity, time or reliability of delivery are not required. At this time, the solar developers are projecting in-service dates beyond 2019. As of December 31, 2018, DEF had over 6,100 MW of solar projects in the various grid interconnection queues in Florida, representing over 80 active projects. While some of those projects anticipate selling to entities other than DEF, the Company continues to have the obligation to purchase uncommitted energy from those certified QF facilities at As-Available energy rates. As a result, DEF has assumed the future presence of some 500 MW of QF solar projects over a 5-year period. In total, DEF is reasonably projecting over 2,500 MW of solar PV projects to be installed in the DEF territory over the 10-year period. Project ownership proportions may change over time based on specific project economics, development details, renewable energy incentives and other factors.

DEF continues to field inquiries from renewable suppliers and explore whether these potential QF suppliers can provide project commitments and reliable capacity or energy consistent with FERC Rules and the FPSC Rules, 25-17.080 through 25-17.310. DEF will continue to submit renewable contracts in compliance with all rules as appropriate.

Depending upon the mix of generators operating at any given time, the purchase of renewable energy may reduce DEF's use of fossil fuels. Renewable energy sources making firm commitments to the company can also defer or eliminate the need to construct more conventional generators. As part of DEF's integrated resource planning process, we are continually evaluating cost-effective alternatives to meet our customer's needs. DEF knows that renewable and distributed energy resources are an important part of Florida's energy future and we are committed to advancing these resources in an affordable and sustainable way. We are encouraged to see solar PV technology continue to reduce in price. As a result of the forecasts around solar PV technology, DEF has incorporated this clean energy source as a supply-side resource in both DEF's near-term and long-term generation plans.

The development, construction, commissioning and initial operation of the solar demonstration projects at Perry, Osceola, Suwannee and the now commercial Hamilton plant have provided DEF with valuable experience in siting, contracting, constructing, operating, and integrating solar photovoltaic technology facilities on the power grid. DEF has worked with the contractors and drawn experience from Duke's North Carolina jurisdiction to establish necessary standards for the construction and upkeep of utility grade facilities and to develop standards necessary to ensure the reliability of local distribution systems. In addition, operating data from these facilities will begin to provide DEF with a location specific understanding of solar energy production, potential fuel diversity contributions and how these will interact with the existing resource portfolio. Adding these near-term solar facilities is a natural evolution of integrating new generation technology, and supplements the solar PV research and demonstration pilots operated under DEF's conservation programs. The Osceola, Perry, Suwannee and Hamilton arrays are shown in Figures 3.2, 3.3, 3.4, and 3.5 below.

**FIGURE 3.2**
**Osceola Solar Site**

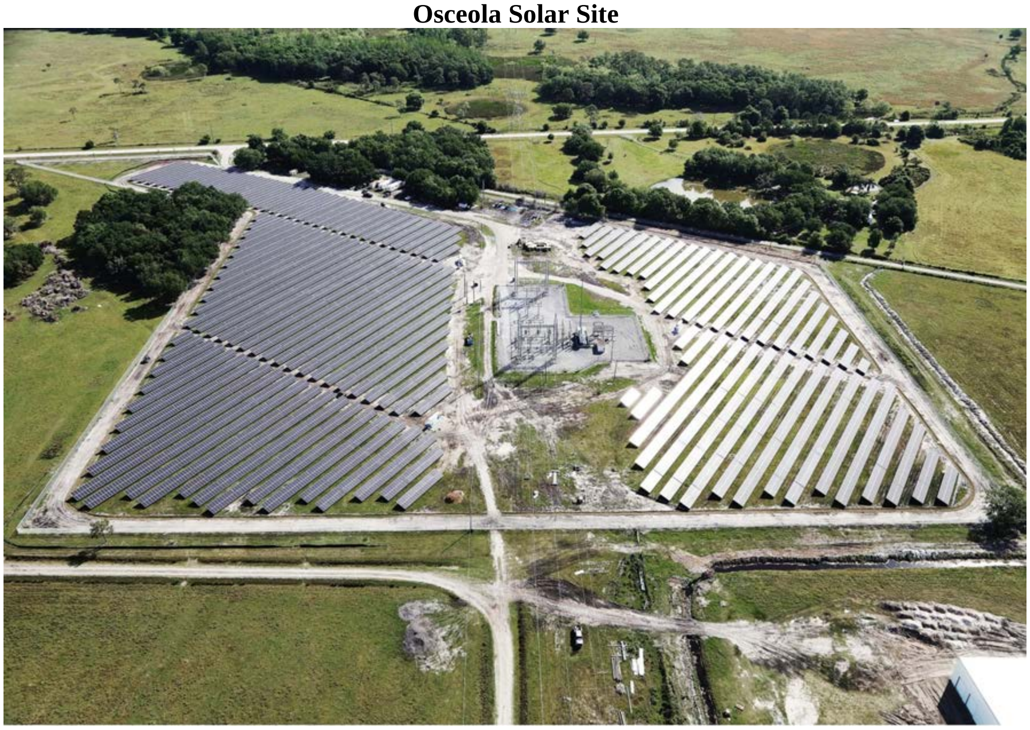


**FIGURE 3.3**
**Perry Solar Site**

**FIGURE 3.4**
**Suwannee Solar Site**

**FIGURE 3.5**
**Hamilton Solar Site**

DEF's current forecast, supporting the Base Expansion Plan includes over 700 MW of DEF-owned solar PV to be under development over the next four years and over 1,500 MW over the 10-year planning horizon. As with all forecasts included here, the forecast relies heavily on the forward-looking price for this technology, the value rendered by this technology, and considerations to other emerging and conventional cost-effective alternatives, including the use of emerging battery storage technology.

**PLAN CONSIDERATIONS**

***Load Forecast***

In general, higher-than-projected load growth would shift the need for new capacity to an earlier year and lower-than-projected load growth would delay the need for new resources. The Company's resource plan provides the flexibility to shift certain resources to earlier or later in-service dates should a significant change in projected customer demand begin to materialize. A specific discussion of DEF's review of load growth forecasts higher and lower than the base forecast can be found in the previous sections.

## TRANSMISSION PLANNING

DEF's transmission planning assessment practices are developed to test the ability of the planned system to meet the reliability criteria as outlined in the FERC Form No. 715 filing, and to assure the system meets DEF, Florida Reliability Coordinating Council, Inc. (FRCC), and North American Electric Reliability Corporation (NERC) criteria. This involves the use of load flow and transient stability programs to model various contingency situations that may occur, and in determining if the system response meets the reliability criteria. In general, this involves running simulations for the loss of any single line, generator, or transformer. DEF runs this analysis for contingencies that may occur at system peak and off-peak load levels, under both summer and winter conditions. Additional studies are performed to determine the system response to credible, but less probable criteria. These studies include the loss of multiple generators, transmission lines, or combinations of each (some load loss is permissible under the more severe disturbances). These credible, but less probable scenarios are also evaluated at various load levels, since some of the more severe situations occur at average or minimum load conditions. In particular, critical fault clearing times are typically the shortest (most severe) at minimum load conditions, with just a few large base load units supplying the system needs. As noted in the DEF reliability criteria, some remedial actions are allowed to reduce system loadings; in particular, sectionalizing is allowed to reduce loading on lower voltage lines for bulk system contingencies, but the risk to load on the sectionalized system must be reasonable (it would not be considered prudent to operate for long periods with a sectionalized system). In addition, the number of remedial action steps and the overall complexity of the scheme are evaluated to determine overall acceptability.

DEF presently uses the following reference documents to calculate and manage Available Transfer Capability (ATC), Total Transfer Capability (TTC) and Transmission Reliability Margin (TRM) for required transmission path postings on the Florida Open Access Same Time Information System (OASIS):

- http://www.oatioasis.com/FPC/FPCdocs/ATCID_Posted_Rev3.docx
- http://www.oatioasis.com/FPC/FPCdocs/TRMID_4.docx

DEF uses the following reference document to calculate and manage Capacity Benefit Margin (CBM):

- http://www.oatioasis.com/FPC/FPCdocs/CBMID_rev3.docx

# CHAPTER 4

# ENVIRONMENTAL AND LAND USE INFORMATION

# CHAPTER 4

# ENVIRONMENTAL AND LAND USE INFORMATION

## PREFERRED SITES

DEF's 2019 TYSP Preferred Sites include the four solar generations sites; the Debary Solar Site, the Trenton Solar Site, the Lake Placid Solar Site and the Columbia Solar Site. These Preferred Sites are discussed below.

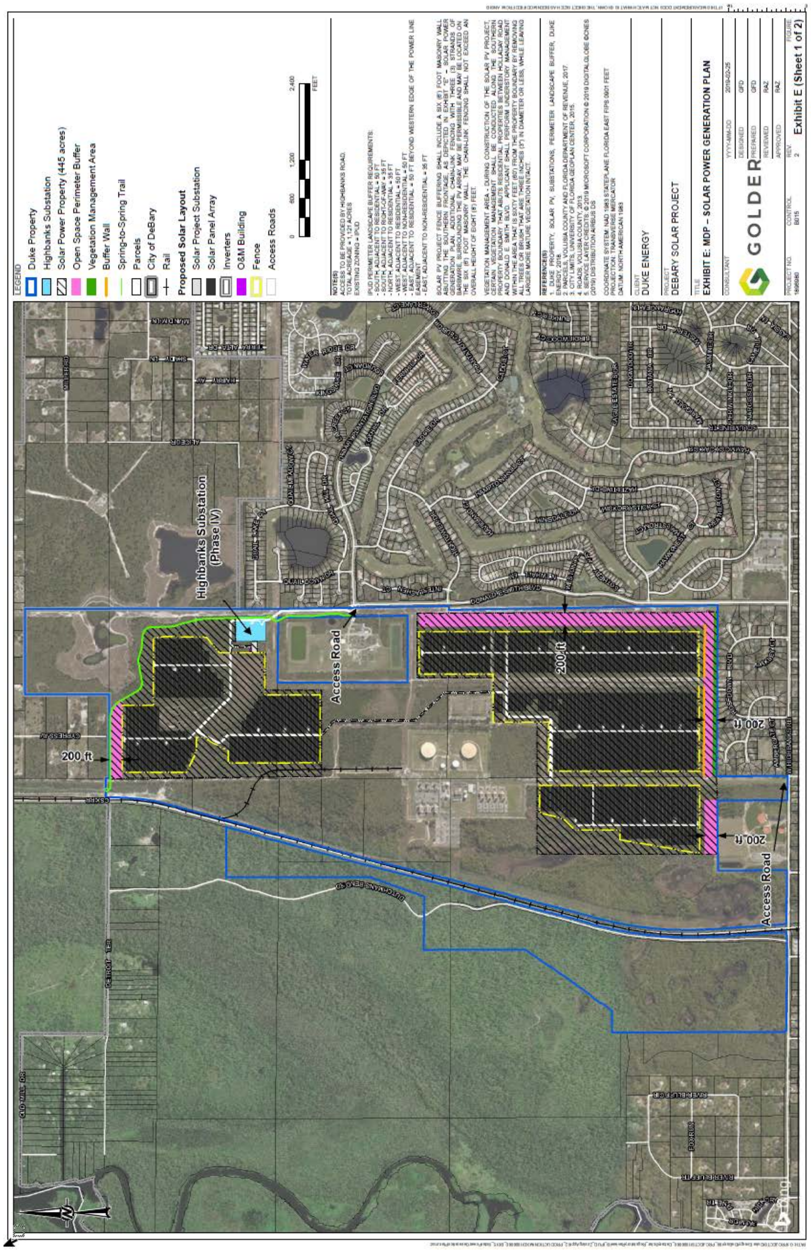
## DEBARY SOLAR SITE

DEF has identified the existing Debary Energy Center site as a preferred site for future solar and/or natural gas fired simple cycle generation. The Debary site currently houses 9 simple cycle peaking units, an oil storage facility, transmission and distribution substations and is connected by both 115 kV and 230 kV transmission lines. Natural gas to the site is provide through a lateral from the Florida Gas Transmission system.

The Debary Solar Project site consists of approximately 450 acres in Volusia County, and is planned to generate 74.5 megawatts of electricity from approximately 300,000 solar panels. The site is currently undeveloped timber lands. The project will not impact any wetlands or floodplains. The site is located within the jurisdiction of the City of Debary and Duke requested a modification to the zoning regulations to allow solar development to occur. This request was approved on March 6, 2019. A Final Site Plan approval is required before construction can occur. The project plans to start construction in the second quarter of 2019 and achieve placed in service in the spring of 2020.

**FIGURE 4.1**

**Debary Solar Project**

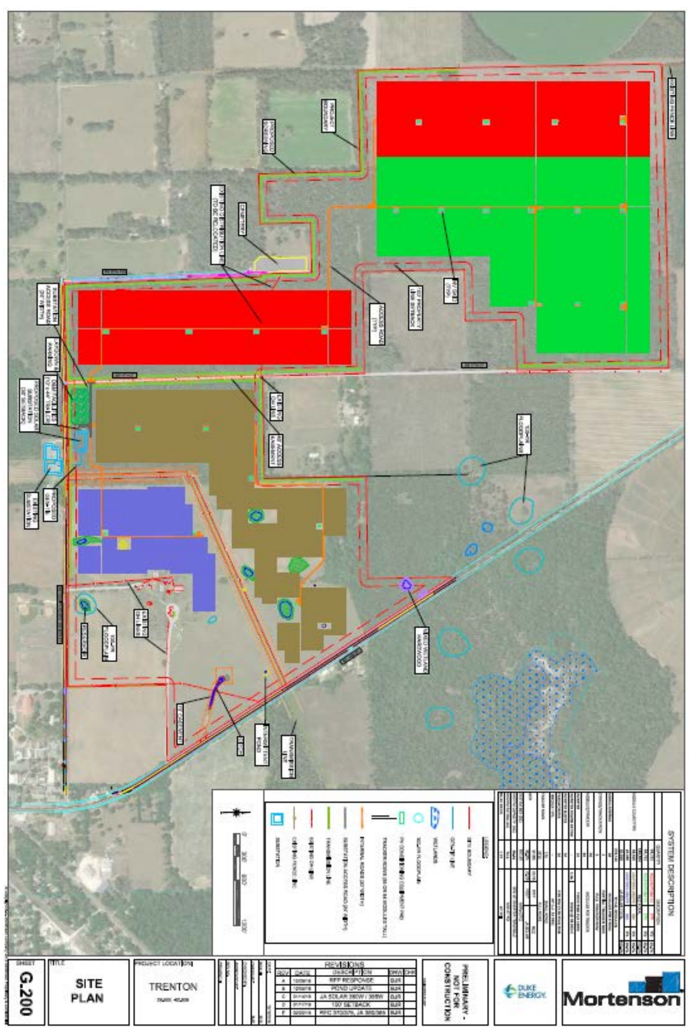


## TRENTON SOLAR POWER PLANT

DEF has identified the Trenton Project, a 74.9 MWac solar single-axis tracking PV project located in Gilchrist County, Florida. The site is former agricultural/cattle grazing and pine timber land and is relatively flat with minimal sloping that will allow for the use of a tracking system. There are no expected impacts to wetlands on site. DEF received approval of the Special Use Permit for solar from Gilchrist County in January 2019. Permits for gopher tortoise mitigation, and stormwater management along with the final site plan are expected to be approved in April 2019. The point of interconnection is the existing Trenton 69kV Substation and will be connected via a generation tie-line. The project is expected to start construction in the 2nd quarter of 2019 with an expected in-service date in the 4th quarter of 2019.

**FIGURE 4.2**

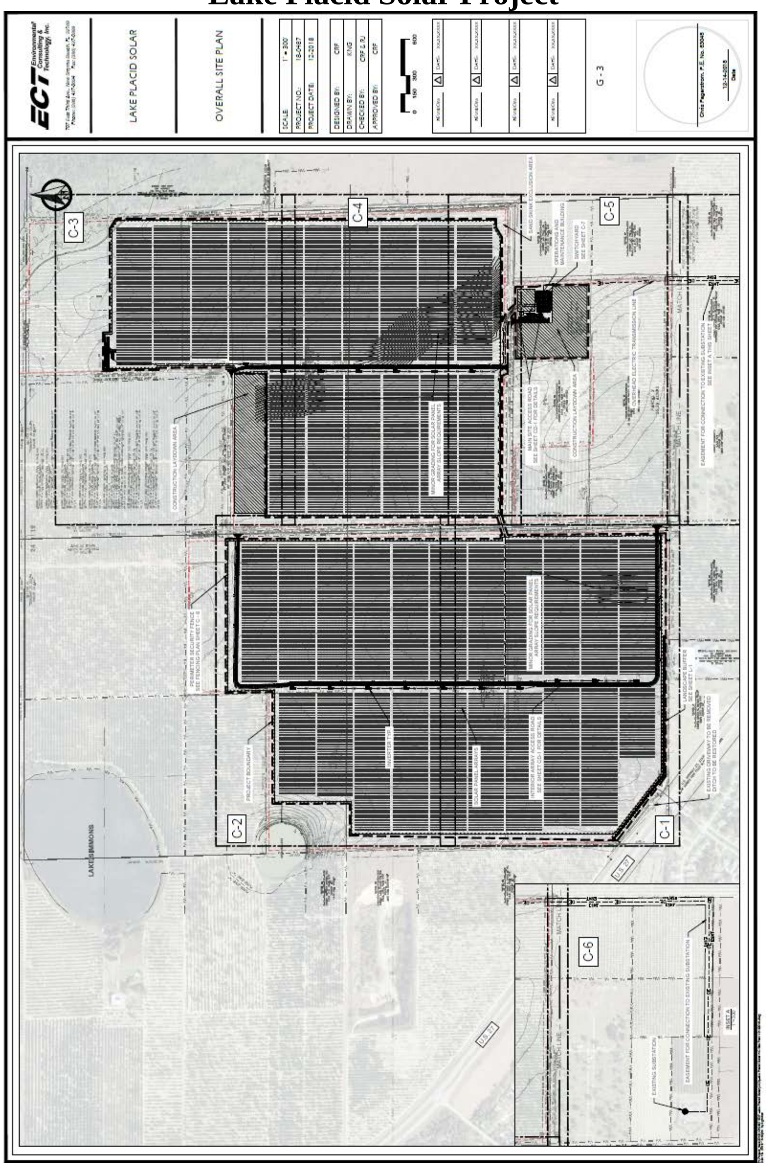
**Trenton Solar Project**



## LAKE PLACID SOLAR POWER PLANT

DEF has identified the Lake Placid Project, a 45.0 MWac single-axis tracking solar PV project located in Highlands County, Florida. The facility will be constructed on approximately 380 acres that are under a long-term lease. The site is a former citrus grove and is relatively flat with minimal sloping that will allow for the use of a tracking system. The point of interconnection is the existing Lake Placid North 69kV Substation. The project is expected to start construction in the second quarter of 2019 with an expected in-service date in the fourth quarter of 2019. All environmental studies have been complete and the project will have no impacts, all permitting and agency approval have been received.

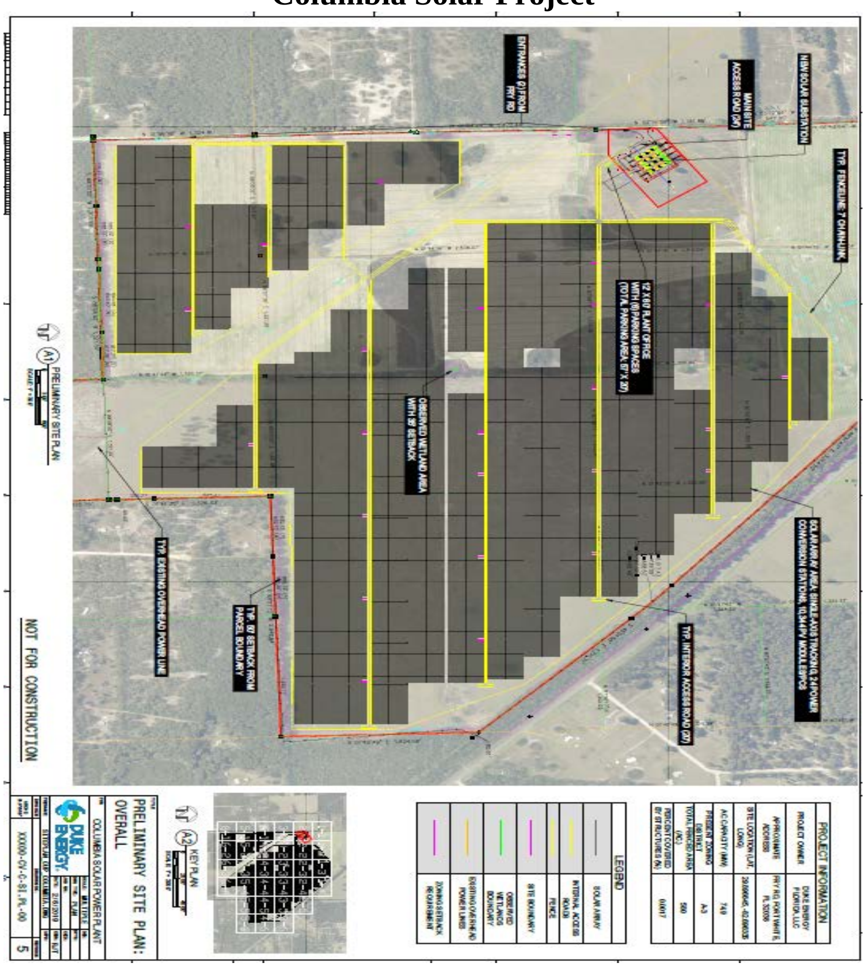
**FIGURE 4.3**
**Lake Placid Solar Project**



**COLUMBIA SOLAR POWER PLANT**

DEF has identified the Columbia Solar Project, a 74.9 MWac solar single-axis tracking PV project located in Columbia County, Florida. The site is a former agricultural and cattle grazing lands and is relatively flat with minimal sloping that will allow for the use of a tracking system. All permitting is complete and there will be no expected impacts to wetlands or endangered species. FDEP has requested a preconstruction survey for both Gopher Tortoises and American Kestrel to be completed just prior to construction. None are expected to be found. All environmental surveys are complete and DEF has received necessary pre-construction permits from Columbia County (Conditional Use Permit) and FDEP regarding stormwater (Environmental Resource Permit). The point of interconnection will be a new 69 kV 4 ring breaker bus switching station and will be connected via a generation tie-line. The project is expected to start construction in mid-2019 with an expected in-service date in the first quarter of 2020.

**FIGURE 4.4**
**Columbia Solar Project**



## ST. PETERSBURG PIER SOLAR ENERGY CENTER

The St Petersburg Pier solar project is under construction midway between St Petersburg Museum of History and the end of the pier. The approximately 2-acre site includes paved areas used for parking and some open space. The area will be renovated and an enhanced parking area is under construction. The grid tied solar arrays will be installed on canopies covering parking spaces and will provide shade while generating energy.  The site is already zoned for the proposed use and no additional environmental permits were required.

**FIGURE 4.5**

**St Petersburg Pier Solar Energy Center**