Duke Energy Florida, LLC
Ten-Year Site Plan

April 2020

2020-2029

Submitted to:
Florida Public Service Commission

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF REQUIRED SCHEDULES

LIST OF
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.

(Blank Page)

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 1.83 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.

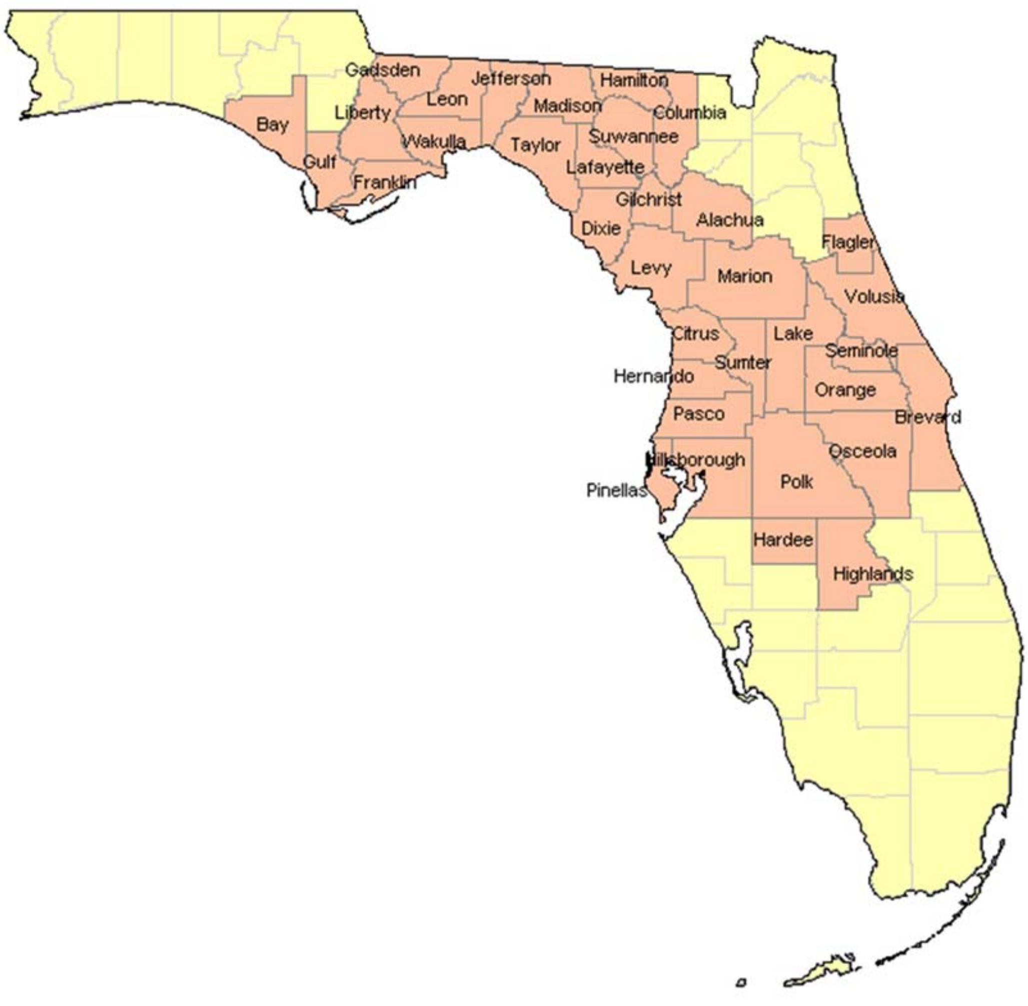
ENERGY MANAGEMENT and ENERGY EFFICIENCY

The Company's residential Energy Management program represents a demand response type of program where participating customers help manage future growth and costs. Approximately 439,000 customers participated in the residential Energy Management program during 2019, contributing about 711 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, 2019, DEF had total summer capacity resources of 11,858 MW consisting of installed capacity of 9,902 MW and 1,956 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, 2019

(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	1,144	1,227
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	553
HINES ENERGY COMPLEX	4	POLK	CC	NG	DFO	PL	TK	*	12/07		610,500	516	544
OSPREY ENERGY CENTER POWER PLANT	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	**5,266**	**5,753**
COMBUSTION TURBINE													
AVON PARK	P1	HIGHLANDS	GT	NG	DFO	PL	TK	*	12/68	10/2020 **	33,750	24	25
AVON PARK	P2	HIGHLANDS	GT	DFO		TK		*	12/68	10/2020 **	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
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	11/2027 **	43,000	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		5,100	2	0
SUWANNEE RIVER SOLAR FACILITY	PV1	SUWANNEE	PV	SO					11/17		8,800	4	0
HAMILTON SOLAR FACILITY	PV1	HAMILTON	PV	SO					12/18		74,900	42	0
TRENTON SOLAR FACILITY	PV1	GILCHRIST	PV	SO					12/19		74,900	43	0
LAKE PLACID	PV1	HIGHLANDS	PV	SO					12/19		45,000	26	0
ST PETERSBURG	PV1	PINELLAS	PV	SO					12/19		350	0.2	0
											SOLAR Total	**119**	**0**
											TOTAL RESOURCES (MW)	**9,902**	**10,894**

* APPROXIMATELY 2 TO 3 DAYS OF OIL USE TYPICALLY TARGETED FOR ENTIRE PLANT.
** DATES FOR RETIREMENT ARE APPROXIMATE AND SUBJECT TO CHANGE

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 2019 reflected a national economy continuing and surpassing the record for longest expansion in U.S. history albeit with modest to slow overall growth. Growth in 2019 slowed compared to 2018 due to fading effects from the tax cuts, a weakening global economy, and disruptions from international trade policy. The 2019 performance was somewhat buoyed by the Federal Reserve decision to defer proposed increases to interest rates during the year.

The 2020 outlook calls for slower U.S. economic growth as the trends of 2019 continue. 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 2019 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 or could unwind due to an unexpected economic imbalance or Global political event.

Over the course of the ten years of history in this Site Plan (2010-2019), the nation and the State of Florida have endured the worst economic downturn in eighty years and have emerged to set the record for longest economic recovery. Economic measures appear to have returned to normal pre-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 full employment. More business investment and increased productivity will be required to hold off rising inflation and higher interest rates. The Federal Reserve will have its work cut out maintaining this balance. 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 1.22% from 2010 – 2019 (Schedule 2.1.1 Column 2). Demographic conditions going forward look amenable to sustaining a level of growth closer to 1.25% over the 2020-2029 period. The rate of residential customer growth, which averaged 1.27% per year over the historical ten-year period, is expected to improve to an average of 1.43% 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 1.641 million in 2010 to 1.833 million in 2019, an increase of 192,052 or 1.24% annual growth rate. The projected number of total customers between 2020 and 2029 is 246,321 or 1.39% annual growth rate. The DEF service area projected ten-year average population growth is expected to remain elevated from the previous 10 years mainly due to the large baby-boom age cohort retiring to sunny Florida.

From 2010 to 2019 net energy for load (NEL) declined by -0.33% (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 2019 Sales for Resale value has fallen 583 GWh from its 2010 level. The level of Wholesale NEL over the ten-year forecast is projected to decline an additional 2,012 GWh from the 2019 level. This decline is offset by a projected increase in the much larger retail energy sector which is projected to grow 7.8% over the next decade.

During the 2010 to 2019 historical period the DEF summer net firm demand (Schedule 3.1 Column 10) increased from 8,929 MW to 9,260 MW, an average annual ten-year increase of 0.4% per year. Warm summer temperatures drove both Retail and Wholesale demand levels significantly higher than prior year (Columns 3 and 4). The -2.4% average ten-year decline in DEF wholesale load sector reflects the long-term reduction in Sales for Resale contracts. The projected total DEF summer net firm demand declines by an average annual -9.5 MW or -0.1% per year over the ten-year horizon 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:								
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	3,968,241	2.485	20,636	1,597,132	12,920	12,172	175,848	69,216
2019	4,040,257	2.485	20,775	1,626,117	12,776	12,198	178,036	68,514
FORECAST:								
2020	4,084,807	2.479	20,771	1,647,764	12,605	12,157	180,059	67,517
2021	4,143,110	2.478	20,954	1,671,957	12,533	12,247	182,170	67,228
2022	4,199,107	2.475	21,062	1,696,746	12,413	12,311	184,489	66,730
2023	4,253,915	2.470	21,223	1,722,233	12,323	12,381	186,886	66,246
2024	4,310,646	2.466	21,315	1,748,031	12,194	12,436	189,181	65,736
2025	4,365,966	2.461	21,624	1,774,062	12,189	12,610	191,393	65,885
2026	4,416,028	2.454	21,637	1,799,522	12,024	12,588	193,571	65,029
2027	4,467,149	2.448	21,894	1,824,816	11,998	12,646	195,729	64,608
2028	4,517,624	2.443	22,334	1,849,212	12,077	12,819	197,818	64,801
2029	4,567,233	2.439	22,604	1,872,584	12,071	12,872	199,843	64,410

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		
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:								
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	3,968,241	2.485	20,636	1,597,132	12,920	12,172	175,848	69,216
2019	4,040,257	2.485	20,775	1,626,117	12,776	12,198	178,036	68,514
FORECAST:								
2020	4,101,544	2.479	23,969	1,654,516	14,487	12,586	180,469	69,739
2021	4,177,878	2.478	24,340	1,685,988	14,437	12,749	183,021	69,660
2022	4,252,527	2.475	24,661	1,718,331	14,352	12,887	185,799	69,362
2023	4,326,593	2.470	25,026	1,751,657	14,287	13,032	188,671	69,074
2024	4,403,208	2.466	25,357	1,785,567	14,201	13,164	191,459	68,754
2025	4,478,985	2.461	25,837	1,819,986	14,196	13,411	194,180	69,066
2026	4,550,009	2.454	26,111	1,854,119	14,083	13,469	196,884	68,410
2027	4,622,629	2.448	26,599	1,888,329	14,086	13,606	199,582	68,172
2028	4,695,106	2.443	27,260	1,921,861	14,184	13,856	202,226	68,518
2029	4,767,214	2.439	27,767	1,954,577	14,206	13,995	204,818	68,329

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:								
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	3,968,241	2.485	20,636	1,597,132	12,920	12,172	175,848	69,216
2019	4,040,257	2.485	20,775	1,626,117	12,776	12,198	178,036	68,514
FORECAST:								
2020	4,068,085	2.479	18,740	1,641,018	11,420	11,624	179,650	64,704
2021	4,108,503	2.478	18,752	1,657,991	11,310	11,645	181,323	64,223
2022	4,146,147	2.475	18,712	1,675,346	11,169	11,641	183,191	63,545
2023	4,182,158	2.470	18,715	1,693,182	11,053	11,641	185,123	62,880
2024	4,219,638	2.466	18,674	1,711,126	10,913	11,631	186,942	62,220
2025	4,255,310	2.461	18,762	1,729,098	10,850	11,729	188,665	62,167
2026	4,285,397	2.454	18,652	1,746,291	10,681	11,647	190,341	61,191
2027	4,316,194	2.448	18,738	1,763,151	10,628	11,635	191,987	60,601
2028	4,346,033	2.443	18,981	1,778,974	10,670	11,726	193,556	60,581
2029	4,374,704	2.439	19,075	1,793,647	10,635	11,709	195,053	60,030

DUKE ENERGY FLORIDA

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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:							
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
2019	2,963	2,025	1,463,210	0	24	3,227	39,187
FORECAST:							
2020	3,224	2,002	1,610,381	0	24	3,222	39,397
2021	3,410	2,000	1,704,798	0	24	3,223	39,857
2022	3,599	2,000	1,799,406	0	23	3,233	40,228
2023	3,642	2,000	1,821,147	0	23	3,245	40,513
2024	3,672	2,000	1,835,899	0	23	3,257	40,704
2025	3,677	2,000	1,838,469	0	23	3,272	41,206
2026	3,656	2,000	1,828,095	0	23	3,284	41,188
2027	3,652	2,000	1,825,783	0	23	3,299	41,513
2028	3,661	2,000	1,830,546	0	22	3,316	42,152
2029	3,650	2,000	1,824,774	0	22	3,334	42,481

DUKE ENERGY FLORIDA

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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:							
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
2019	2,963	2,025	1,463,210	0	24	3,227	39,187
FORECAST:							
2020	3,250	2,002	1,623,678	0	24	3,323	43,151
2021	3,444	2,000	1,722,135	0	24	3,334	43,891
2022	3,641	2,000	1,820,690	0	23	3,354	44,567
2023	3,693	2,000	1,846,332	0	23	3,376	45,151
2024	3,730	2,000	1,864,938	0	23	3,400	45,673
2025	3,742	2,000	1,871,222	0	23	3,424	46,437
2026	3,730	2,000	1,864,758	0	23	3,449	46,781
2027	3,732	2,000	1,866,195	0	23	3,475	47,436
2028	3,748	2,000	1,874,112	0	22	3,503	48,389
2029	3,744	2,000	1,872,139	0	22	3,533	49,061

DUKE ENERGY FLORIDA

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	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:							
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
2019	2,963	2,025	1,463,210	0	24	3,227	39,187
FORECAST:							
2020	3,188	2,002	1,592,766	0	24	3,103	36,679
2021	3,366	2,000	1,683,241	0	24	3,094	36,881
2022	3,548	2,000	1,774,201	0	23	3,094	37,019
2023	3,585	2,000	1,792,416	0	23	3,095	37,060
2024	3,608	2,000	1,803,884	0	23	3,098	37,034
2025	3,606	2,000	1,803,115	0	23	3,101	37,221
2026	3,580	2,000	1,789,822	0	23	3,105	37,007
2027	3,569	2,000	1,784,554	0	23	3,109	37,074
2028	3,573	2,000	1,786,306	0	22	3,114	37,416
2029	3,556	2,000	1,777,902	0	22	3,121	37,483

DUKE ENERGY FLORIDA

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

(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:					
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
2019	2,910	2,704	44,801	26,707	1,832,885
FORECAST:					
2020	1,460	2,788	43,645	26,903	1,856,728
2021	1,379	2,703	43,939	27,100	1,883,227
2022	1,611	2,752	44,591	27,296	1,910,532
2023	1,265	2,757	44,536	27,488	1,938,607
2024	1,266	2,911	44,880	27,680	1,966,893
2025	898	2,617	44,721	27,867	1,995,322
2026	898	2,868	44,955	28,056	2,023,149
2027	898	2,857	45,268	28,245	2,050,789
2028	898	2,728	45,778	28,434	2,077,463
2029	898	2,745	46,124	28,622	2,103,049

DUKE ENERGY FLORIDA

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

(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:					
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
2019	2,910	2,704	44,801	26,707	1,832,885
FORECAST:					
2020	1,460	3,445	48,056	26,903	1,863,890
2021	1,379	3,418	48,688	27,103	1,898,112
2022	1,611	3,484	49,662	27,300	1,933,430
2023	1,265	3,518	49,934	27,492	1,969,820
2024	1,266	3,663	50,602	27,684	2,006,709
2025	898	3,461	50,796	27,872	2,044,037
2026	898	3,701	51,380	28,060	2,081,063
2027	898	3,719	52,052	28,249	2,118,160
2028	898	3,622	52,909	28,439	2,154,525
2029	898	3,682	53,640	28,627	2,190,023

DUKE ENERGY FLORIDA

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

(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:					
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
2019	2,910	2,704	44,801	26,707	1,832,885
FORECAST:					
2020	1,460	2,711	40,850	26,903	1,849,574
2021	1,379	2,642	40,902	27,100	1,868,414
2022	1,611	2,666	41,296	27,296	1,887,834
2023	1,265	2,659	40,983	27,488	1,907,793
2024	1,266	2,755	41,055	27,680	1,927,748
2025	898	2,523	40,642	27,867	1,947,629
2026	898	2,703	40,608	28,056	1,966,687
2027	898	2,676	40,647	28,245	1,985,383
2028	898	2,545	40,859	28,434	2,002,963
2029	898	2,556	40,937	28,622	2,019,322

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:										
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
2019	11,029	1021	10,008	230	394	566	86	414	80	9,260
FORECAST:										
2020	10,798	950	9,849	325	400	584	91	403	80	8,915
2021	10,872	963	9,909	335	407	603	95	406	80	8,946
2022	10,962	963	10,000	335	414	619	99	408	80	9,007
2023	10,718	662	10,056	335	421	633	104	409	80	8,735
2024	10,777	662	10,116	335	428	647	108	410	80	8,769
2025	10,623	461	10,162	335	435	662	112	410	80	8,588
2026	10,673	461	10,212	335	442	676	116	411	80	8,612
2027	10,751	461	10,290	335	449	689	121	411	80	8,666
2028	10,869	461	10,408	335	456	702	125	412	80	8,759
2029	10,963	461	10,502	335	463	715	129	412	80	8,829

Historical Values (2010 - 2019):

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:										
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
2019	11,029	1,021	10,008	230	394	566	86	414	80	9,260
FORECAST:										
2020	11,957	950	11,008	325	400	584	91	403	80	10,074
2021	12,111	963	11,148	335	407	603	95	406	80	10,185
2022	12,275	963	11,312	335	414	619	99	408	80	10,319
2023	12,106	662	11,444	335	421	633	104	409	80	10,123
2024	12,239	662	11,578	335	428	647	108	410	80	10,231
2025	12,167	461	11,706	335	435	662	112	410	80	10,132
2026	12,298	461	11,837	335	442	676	116	411	80	10,237
2027	12,459	461	11,998	335	449	689	121	411	80	10,374
2028	12,656	461	12,195	335	456	702	125	412	80	10,546
2029	12,840	461	12,379	335	463	715	129	412	80	10,706

Historical Values (2010 - 2019):

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)	(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:										
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
2019	11,029	1,021	10,008	230	394	566	86	414	80	9,260
FORECAST:										
2020	10,136	950	9,186	325	400	584	91	403	80	8,252
2021	10,156	963	9,194	335	407	603	95	406	80	8,230
2022	10,190	963	9,227	335	414	619	99	408	80	8,235
2023	9,890	662	9,228	335	421	633	104	409	80	7,907
2024	9,893	662	9,231	335	428	647	108	410	80	7,885
2025	9,681	461	9,220	335	435	662	112	410	80	7,647
2026	9,673	461	9,212	335	442	676	116	411	80	7,613
2027	9,692	461	9,231	335	449	689	121	411	80	7,607
2028	9,747	461	9,285	335	456	702	125	412	80	7,637
2029	9,780	461	9,319	335	463	715	129	412	80	7,646

Historical Values (2010 - 2019):

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)	(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	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	658	815	109	236	237	8,319
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	9,182
2018/19	8,527	572	7,955	239	711	948	84	251	164	6,130
FORECAST:										
2019/20	11,873	1,385	10,487	243	727	965	87	251	195	9,406
2020/21	11,350	713	10,637	299	741	983	91	252	196	8,789
2021/22	11,764	1,014	10,750	299	755	999	95	252	197	9,167
2022/23	11,554	713	10,841	299	769	1,014	99	253	198	8,922
2023/24	11,677	713	10,964	299	783	1,027	103	253	200	9,012
2024/25	11,475	512	10,962	299	797	1,043	108	253	199	8,777
2025/26	11,612	512	11,100	299	811	1,057	112	253	201	8,880
2026/27	11,705	512	11,193	299	825	1,070	116	253	202	8,941
2027/28	11,800	462	11,338	299	839	1,083	120	253	204	9,003
2028/29	11,867	462	11,404	299	853	1,095	125	253	204	9,038

Historical Values (2010 - 2019):

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 (2020 - 2029):

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:										
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	658	815	109	236	237	8,319
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	9,182
2018/19	8,527	572	7,955	239	711	948	84	251	164	6,130
FORECAST:										
2019/20	12,675	1,385	11,289	243	727	965	87	251	195	10,208
2020/21	12,227	713	11,514	299	741	983	91	252	196	9,666
2021/22	12,707	1,014	11,693	299	755	999	95	252	197	10,110
2022/23	12,569	713	11,856	299	769	1,014	99	253	198	9,937
2023/24	12,764	713	12,051	299	783	1,027	103	253	200	10,099
2024/25	12,661	512	12,149	299	797	1,043	108	253	199	9,963
2025/26	12,853	512	12,341	299	811	1,057	112	253	201	10,121
2026/27	13,026	512	12,514	299	825	1,070	116	253	202	10,262
2027/28	13,200	462	12,738	299	839	1,083	120	253	204	10,403
2028/29	13,349	462	12,886	299	853	1,095	125	253	204	10,520

Historical Values (2010 - 2019):

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 (2020 - 2029):

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:										
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	658	815	109	236	237	8,319
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	9,182
2018/19	8,527	572	7,955	239	711	948	84	251	164	6,130
FORECAST:										
2019/20	10,072	1,385	8,687	243	727	965	87	251	195	7,605
2020/21	9,486	713	8,773	299	741	983	91	252	196	6,925
2021/22	9,839	1,014	8,825	299	755	999	95	252	197	7,242
2022/23	9,567	713	8,854	299	769	1,014	99	253	198	6,935
2023/24	9,618	713	8,905	299	783	1,027	103	253	200	6,953
2024/25	9,362	512	8,850	299	797	1,043	108	253	199	6,664
2025/26	9,437	512	8,924	299	811	1,057	112	253	201	6,705
2026/27	9,466	512	8,954	299	825	1,070	116	253	202	6,702
2027/28	9,485	462	9,023	299	839	1,083	120	253	204	6,688
2028/29	9,497	462	9,035	299	853	1,095	125	253	204	6,669

Historical Values (2010 - 2019):

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 (2020 - 2029):

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:									
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	52.1
2013	43,142	772	734	864	36,616	1,488	2,668	40,772	53.0
2014	43,443	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	45,200	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	52.7
2018	46,729	977	933	595	39,145	2,324	2,755	44,224	48.9
2019	47,385	1,017	972	595	39,187	2,910	2,704	44,801	51.3
FORECAST:									
2020	46,219	1,027	951	596	39,397	1,460	2,788	43,645	52.8
2021	46,539	1,048	957	595	39,857	1,379	2,703	43,939	56.1
2022	47,217	1,069	961	595	40,228	1,611	2,752	44,591	55.5
2023	47,185	1,090	965	595	40,513	1,265	2,757	44,536	57.0
2024	47,554	1,110	968	596	40,704	1,266	2,911	44,880	56.7
2025	47,417	1,129	972	595	41,206	898	2,617	44,721	58.2
2026	47,673	1,147	976	595	41,188	898	2,868	44,955	57.8
2027	48,007	1,165	979	595	41,513	898	2,857	45,268	57.8
2028	48,539	1,182	983	596	42,152	898	2,728	45,778	57.9
2029	48,903	1,199	986	595	42,481	898	2,745	46,124	58.3

* Load Factors for historical years 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 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:									
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	52.1
2013	43,142	772	734	864	36,616	1,488	2,668	40,772	53.0
2014	43,443	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	45,200	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	52.7
2018	46,729	977	933	595	39,145	2,324	2,755	44,224	48.9
2019	47,385	1,017	972	595	39,187	2,910	2,704	44,801	51.3
FORECAST:									
2020	50,630	1,027	951	596	43,151	1,460	3,445	48,056	53.6
2021	51,289	1,048	957	595	43,891	1,379	3,418	48,688	57.5
2022	52,288	1,069	961	595	44,567	1,611	3,484	49,662	56.1
2023	52,560	1,069	961	595	45,151	1,611	3,172	49,934	57.4
2024	53,252	1,090	965	595	45,673	1,265	3,664	50,602	57.2
2025	53,492	1,129	972	595	46,437	898	3,461	50,796	58.2
2026	54,098	1,147	976	595	46,781	898	3,701	51,380	57.9
2027	54,792	1,165	979	595	47,436	898	3,719	52,052	57.9
2028	55,670	1,182	983	596	48,389	898	3,622	52,909	57.9
2029	56,420	1,199	986	595	49,061	898	3,682	53,640	58.2

* Load Factors for historical years 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 CASE 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:									
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	52.1
2013	43,142	772	734	864	36,616	1,488	2,668	40,772	53.0
2014	43,443	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	45,200	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	52.7
2018	46,729	977	933	595	39,145	2,324	2,755	44,224	48.9
2019	47,385	1,017	972	595	39,187	2,910	2,704	44,801	51.3
FORECAST:									
2020	43,424	1,027	951	596	36,679	1,460	2,711	40,850	61.1
2021	43,503	1,048	957	595	36,881	1,379	2,642	40,902	67.4
2022	43,921	1,069	961	595	37,019	1,611	2,666	41,296	65.1
2023	43,633	1,090	965	595	37,060	1,265	2,659	40,983	67.5
2024	43,729	1,110	968	596	37,034	1,266	2,755	41,055	67.2
2025	43,338	1,129	972	595	37,221	898	2,523	40,642	69.6
2026	43,326	1,147	976	595	37,007	898	2,703	40,608	69.1
2027	43,386	1,165	979	595	37,074	898	2,676	40,647	69.2
2028	43,620	1,182	983	596	37,416	898	2,545	40,859	69.6
2029	43,716	1,199	986	595	37,483	898	2,556	40,937	70.1

* Load Factors for historical years 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	
	2019		2020		2021	
MONTH	PEAK DEMAND MW	NEL GWh	PEAK DEMAND MW	NEL GWh	PEAK DEMAND MW	NEL GWh
JANUARY	7,248	3,239	10,577	3,110	10,035	3,154
FEBRUARY	6,784	2,775	8,416	2,843	7,830	2,805
MARCH	6,632	3,037	7,971	3,048	7,375	3,086
APRIL	7,521	3,342	7,832	3,227	7,773	3,251
MAY	9,175	4,147	8,829	3,945	8,757	3,952
JUNE	9,970	4,526	9,498	4,270	9,630	4,315
JULY	9,585	4,594	9,624	4,603	9,690	4,608
AUGUST	9,190	4,658	9,731	4,520	9,783	4,527
SEPTEMBER	9,273	4,400	9,325	4,245	9,392	4,270
OCTOBER	8,393	4,131	8,565	3,682	8,735	3,718
NOVEMBER	6,918	2,994	7,020	2,989	7,174	3,043
DECEMBER	5,895	2,958	9,471	3,165	9,108	3,210
TOTAL		44,801		43,645		43,939

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	
	2019		2020		2021	
MONTH	PEAK DEMAND MW	NEL GWh	PEAK DEMAND MW	NEL GWh	PEAK DEMAND MW	NEL GWh
JANUARY	7,248	3,239	11,404	3,793	10,926	3,862
FEBRUARY	6,784	2,775	9,189	3,385	8,656	3,379
MARCH	6,632	3,037	8,642	3,574	8,097	3,636
APRIL	7,521	3,342	8,466	3,530	8,461	3,578
MAY	9,175	4,147	9,495	4,149	9,486	4,184
JUNE	9,970	4,526	10,168	4,467	10,369	4,543
JULY	9,585	4,594	10,272	4,768	10,397	4,804
AUGUST	9,190	4,658	10,382	4,671	10,503	4,708
SEPTEMBER	9,273	4,400	9,980	4,409	10,111	4,463
OCTOBER	8,393	4,131	9,241	3,959	9,463	4,022
NOVEMBER	6,918	2,994	7,801	3,439	8,020	3,519
DECEMBER	5,895	2,958	10,320	3,913	10,018	3,990
TOTAL		44,801		48,056		48,688

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 CASE FORECAST

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ACTUAL		FORECAST		FORECAST	
	2019		2020		2021	
MONTH	PEAK DEMAND MW	NEL GWh	PEAK DEMAND MW	NEL GWh	PEAK DEMAND MW	NEL GWh
JANUARY	7,248	3,239	8,776	2,931	8,172	2,951
FEBRUARY	6,784	2,775	6,910	2,665	6,278	2,617
MARCH	6,632	3,037	6,618	2,791	5,979	2,807
APRIL	7,521	3,342	7,236	2,973	7,137	2,978
MAY	9,175	4,147	8,208	3,704	8,091	3,689
JUNE	9,970	4,526	8,843	3,993	8,917	4,015
JULY	9,585	4,594	8,977	4,397	8,984	4,379
AUGUST	9,190	4,658	9,068	4,262	9,067	4,245
SEPTEMBER	9,273	4,400	8,690	3,995	8,718	3,999
OCTOBER	8,393	4,131	7,949	3,435	8,084	3,452
NOVEMBER	6,918	2,994	6,298	2,788	6,417	2,826
DECEMBER	5,895	2,958	7,845	2,917	7,443	2,945
TOTAL		44,801		40,850		40,902

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	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
(1)	NUCLEAR		TRILLION BTU	0	0	0	0	0	0	0	0	0	0	0	0
(2)	COAL		1,000 TON	3,746	1,976	1,735	1,782	1,701	1,455	1,329	1,523	1,525	1,583	1,796	1,803
(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	198	121	66	73	53	41	133	110	133	169	242	193
(9)		STEAM	1,000 BBL	55	42	19	19	19	24	24	26	28	26	20	24
(10)		CC	1,000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(11)		CT	1,000 BBL	143	79	46	54	34	17	109	84	105	143	222	169
(12)		DIESEL	1,000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(13)	NATURAL GAS	TOTAL	1,000 MCF	222,083	246,124	233,860	235,307	235,624	232,804	244,581	241,656	243,558	250,990	251,574	251,051
(14)		STEAM	1,000 MCF	29,207	25,020	8,141	9,551	10,207	10,041	10,365	11,757	12,232	12,539	13,610	12,703
(15)		CC	1,000 MCF	184,419	210,736	220,983	221,465	220,928	218,842	227,711	224,566	224,929	227,109	226,859	227,467
(16)		CT	1,000 MCF	8,456	10,369	4,736	4,291	4,489	3,921	6,506	5,334	6,398	11,342	11,105	10,881
	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	6,766	1,044	0	0	0	0	0	0	0	0
(18.1)	OTHER, NATURAL GAS	ANNUAL FIRM INTERCHANGE, CT	1,000 MCF	N/A	N/A	12,025	14,614	14,055	16,965	12,096	12,717	11,799	2,470	0	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	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
(1)	ANNUAL FIRM INTERCHANGE 1/		GWh	2,244	1,062	1,170	1,425	1,367	1,648	1,176	1,234	1,146	249	39	34
(2)	NUCLEAR		GWh	0	0	0	0	0	0	0	0	0	0	0	0
(3)	COAL		GWh	8,422	4,322	3,661	3,763	3,522	2,985	2,735	2,963	2,952	3,099	3,551	3,540
(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	90	30	17	20	13	6	41	32	39	55	86	65
(10)		STEAM	GWh	30	0	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	61	30	17	20	13	6	41	32	39	55	86	65
(13)		DIESEL	GWh	0	0	0	0	0	0	0	0	0	0	0	0
(14)	NATURAL GAS	TOTAL	GWh	28,687	35,092	34,078	34,189	34,109	33,770	35,311	34,780	34,955	35,684	35,587	35,671
(15)		STEAM	GWh	2,714	2,278	627	735	782	767	801	912	957	984	1,073	995
(16)		CC	GWh	25,360	31,911	32,997	33,028	32,875	32,603	33,910	33,363	33,403	33,686	33,588	33,733
(17)		CT	GWh	612	903	454	425	452	400	600	505	595	1,014	926	942
(18)	OTHER 2/														
	QF PURCHASES		GWh	1,826	1,803	1,994	1,999	2,003	2,003	822	497	2	2	2	2
	RENEWABLES OTHER		GWh	0	0	0	0	0	0	0	0	0	0	0	0
	RENEWABLES MSW		GWh	845	670	946	941	956	956	956	949	949	949	952	949
	RENEWABLES BIOMASS		GWh	399	15	0	0	0	0	0	0	0	0	0	0
	RENEWABLES SOLAR		GWh	26	222	835	1,460	2,620	3,167	3,840	4,266	4,912	5,231	5,562	5,862
	IMPORT FROM OUT OF STATE		GWh	1,685	1,290	943	142	0	0	0	0	0	0	0	0
	EXPORT TO OUT OF STATE		GWh	0	0	0	0	0	0	0	0	0	0	0	0
(19)	NET ENERGY FOR LOAD		GWh	44,224	44,505	43,645	43,939	44,591	44,536	44,880	44,721	44,955	45,268	45,778	46,124

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

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	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
(1)	ANNUAL FIRM INTERCHANGE 1/		%	5.1%	2.4%	2.7%	3.2%	3.1%	3.7%	2.6%	2.8%	2.5%	0.5%	0.1%	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		%	19.0%	9.7%	8.4%	8.6%	7.9%	6.7%	6.1%	6.6%	6.6%	6.8%	7.8%	7.7%
(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	%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%
(10)		STEAM	%	0.1%	0.0%	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%	0.1%	0.1%	0.1%	0.1%	0.2%	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	%	64.9%	78.8%	78.1%	77.8%	76.5%	75.8%	78.7%	77.8%	77.8%	78.8%	77.7%	77.3%
(15)		STEAM	%	6.1%	5.1%	1.4%	1.7%	1.8%	1.7%	1.8%	2.0%	2.1%	2.2%	2.3%	2.2%
(16)		CC	%	57.3%	71.7%	75.6%	75.2%	73.7%	73.2%	75.6%	74.6%	74.3%	74.4%	73.4%	73.1%
(17)		CT	%	1.4%	2.0%	1.0%	1.0%	1.0%	0.9%	1.3%	1.1%	1.3%	2.2%	2.0%	2.0%
(18)	OTHER 2/														
	QF PURCHASES		%	4.1%	4.1%	4.6%	4.5%	4.5%	4.5%	1.8%	1.1%	0.0%	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		%	1.9%	1.5%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
	RENEWABLES BIOMASS		%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	RENEWABLES SOLAR		%	0.1%	0.5%	1.9%	3.3%	5.9%	7.1%	8.6%	9.5%	10.9%	11.6%	12.1%	12.7%
	IMPORT FROM OUT OF STATE		%	3.8%	2.9%	2.2%	0.3%	0.0%	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.

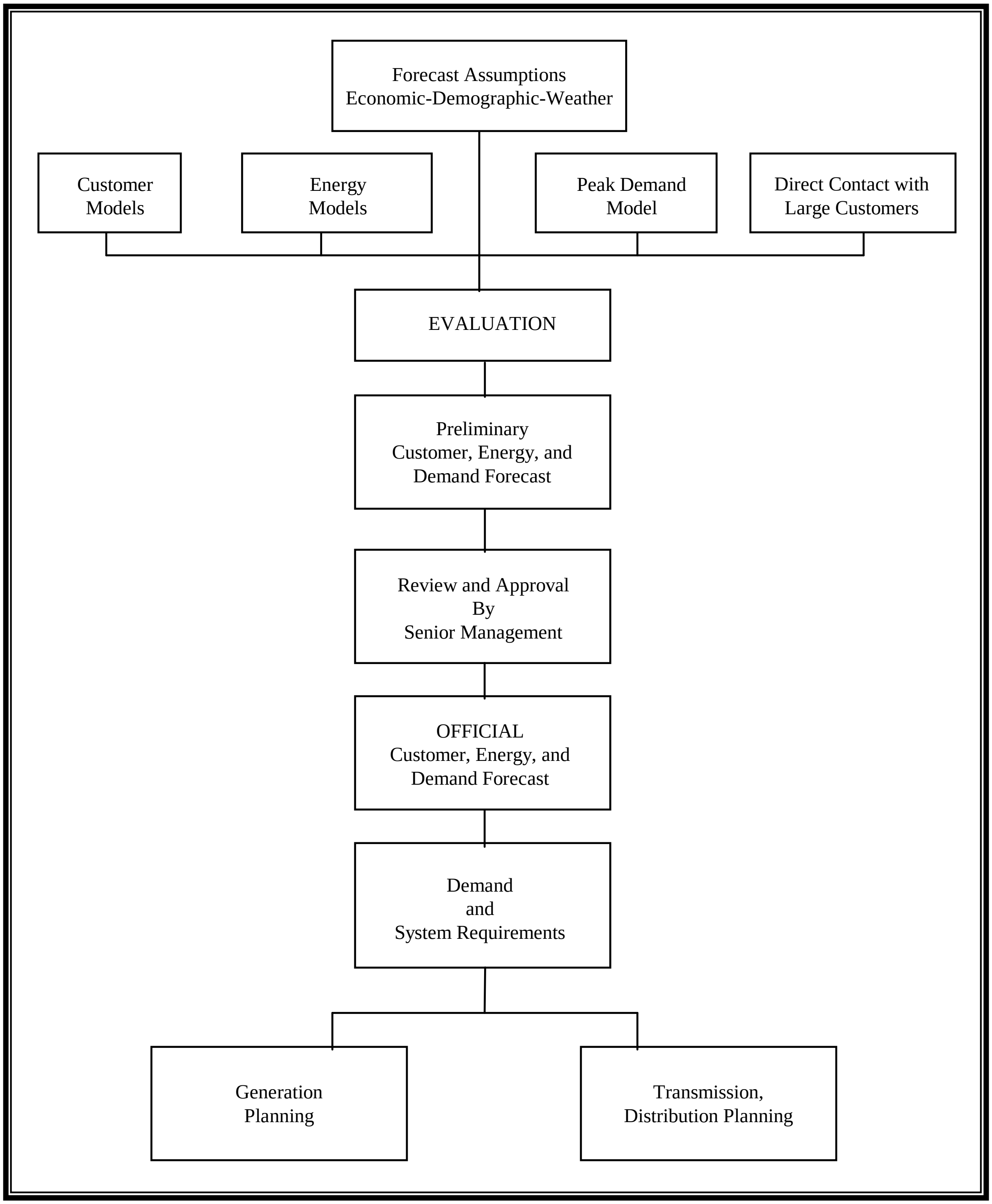
Figure 2.1, entitled "Customer, Energy and Demand Forecast," gives a general description of DEF's forecasting process. Highlighted in the diagram is a disaggregated modeling approach that blends the impacts of average class usage, as well as customer growth, based on a specific set of assumptions for 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. 183 April 2019) 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 2019 forecast, along with EIA 2019 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 24% of the industrial class MWh sales in 2019, significantly less than 2018. 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, international trade pacts and U.S. environmental regulations. 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.

Going forward, global currency fluctuations and global stockpiles of farm commodities will determine the demand for fertilizers. The DEF forecast calls for a rebound in electric consumption from this sector as a major producer restructures its supply chain. The U.S. farm sector was hit hard by retaliatory sanctions from China 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 2020 and 2022. Any increase in self-service generation will act to reduce energy requirements from DEF. An upside risk to this projection lies in the price of energy, especially low natural gas price, which is a major cost in mining and producing phosphoric fertilizers. Trade issues are expected to stabilize in 2020 and demand for farm products should improve, as will the demand for crop nutrients.

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) and Seminole Electric Cooperative, Inc. (SECI). 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. 20190018-EG.

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 2019 as the nation’s economy set a new record for length of business cycle expansion continuing a pace of steady if modest growth. 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 extremely 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%, the tightening of the labor supply typically leads to wage increases. Increased consumer confidence, along with reasonable mortgage rates has revived the desire to own homes but home price affordability measures now limit many from entering the single-family market. The nation’s manufacturing sector has slowed considerably in 2019 as it had to navigate through an uncertain trade war which increased prices on imported products and exported products due to retaliatory tariffs. 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 the waning effects from the 2017 Tax Cuts and Jobs Act passed in 2018. Stimulus supplied by this policy helped support growth in national and state economies in 2018 but only marginally in 2019.

The Florida economy continues to expand at a good clip, the level of consumer sentiment, as measured by the University of Florida-BEBR, has remained close to its April 2019 peak. Newly released 2019 estimates of Florida population show an increase in resident population of 368,021 from 2018's level, breaking the >1,000 new residents per day threshold. This creates a healthy demand for housing and services throughout the State. Duke Energy load forecasts have been expecting Florida to benefit from an on-rush of retirees for several years. 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 3.0% in December 2019, down from 3.3% a year earlier. The State's employment picture has continued to be strong, adding 212,000 jobs over the year, topped only by California and Texas.

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, the length of the billing month and rates of customer owned renewable and electric vehicle adoption. The incorporation of residential and commercial “end-use” energy has 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 not expected to decline as rapidly as it has for years. The pace of “off-shoring” manufacturing jobs is expected to decline from past levels. Secondly, the rapid increase in Florida population should recalibrate Florida’s competitiveness in “location analysis” studies performed by industry when determining site selection for new operations.

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 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% 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 as well as service area population and household growth. First, a calculation of thirty 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 November 26, 2019, the FPSC issued Order No. PSC-2019-00509-FOF which established demand side management goals for the FEECA utilities for 2020-2024 based on the goals approved in the 2014 Goals setting proceeding (Order PSC-14-0696-FOF-EU). The residential and commercial goals from the 2014 Goals setting proceeding are depicted in Tables 2.1 and 2.2. DEF assumes the trends in these goals will be extended though the forecast period. As required by Florida Administrative Code, Rule 25-17.0021, DEF filed a Program Plan designed to meet these Commission established goals on February 24, 2020. These programs will be subject to periodic monitoring and evaluation to ensure that all demand-side resources are acquired in a cost-effective manner and that the program savings are durable.

RESIDENTIAL CONSERVATION PROGRAMS

TABLE 2.1

Residential DSM MW and GWH Savings

Year	Annual Summer	Cumulative Summer	Annual Winter	Cumulative Winter	Annual GWH's	Cumulative GWH's
2020	15.5	15.5	32.2	32.2	9.3	9.3
2021	13.7	29.2	27.8	60.0	6.2	15.5
2022	12.2	41.4	24.5	84.5	3.8	19.3
2023	11.3	52.7	22.3	106.8	2.2	21.5

The following provides an overview of the DEF's Residential DSM Programs effective as of December 31, 2019:

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 4,500 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

Commercial/Industrial DSM MW and GWH Savings

Year	Annual Summer	Cumulative Summer	Annual Winter	Cumulative Winter	Annual GWH's	Cumulative GWH's
2020	8.2	8.2	5.2	5.2	5.9	5.9
2021	6.9	15.1	4.8	10.0	3.9	9.8
2022	6.0	21.1	4.7	14.7	2.4	12.2
2023	5.6	26.7	5.0	19.7	1.4	13.6
2024	5.0	31.7	4.6	24.3	0.8	14.4

The following provides a list of the Commercial programs that we have as of December 31, 2019 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 analyzes, forecasts, facilitates, and administers the potential and actual power purchases from Qualifying Facilities (QFs) and the state jurisdictional QF or distributed generator interconnections. The program supports meetings with interested parties or potential QFs, including cogeneration and small power production facilities including renewables 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 remain steady. Most of the interest is coming from companies utilizing solar photovoltaic technology 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 5,500 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

CHAPTER 3

FORECAST OF FACILITIES REQUIREMENTS

RESOURCE PLANNING FORECAST

OVERVIEW OF CURRENT FORECAST

Supply-Side Resources

As of December 31, 2019, DEF had a summer total capacity resource of 11,858 MW (see Table 3.1). This capacity resource includes fossil steam generators (2,425 MW), combined cycle plants (5,266 MW), combustion turbines (2,092 MW), solar power plants (119 MW), utility purchased power (424 MW), independent power purchases (1,120 MW), and non-utility purchased power (412 MW). Table 3.2 presents DEF's firm capacity contracts with Renewable and Cogeneration Facilities.

Demand-Side Programs

DEF will file Programs designed to meet the demand side management goals established by the Commission in Order PSC-2019-00509-FOF on February 24, 2020. 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 1,403 MW of Solar PV generation with an expected equivalent summer firm capacity contribution of approximately 800 MW and 452 MW of new natural gas fired generation consisting of two planned combustion turbine units, one added in year 2027 and another in year 2029, 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 single-axis tracking technology. We foresee that as more solar is added, the net-load peak hour will start to shift to later hours, and the solar contribution to firm capacity might decline. 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.

On June 19, 2019, EPA issued the Affordable Clean Energy (ACE) Rule to replace the 2015 Clean Power Plan. States now have three years to develop plans and two additional years to achieve compliance. It is anticipated that there may be delays to the schedule due to litigation. DEF is currently evaluating potential requirements for ACE Rule compliance but does not expect that these will result in material impacts to unit operations or capacity. Additional details regarding DEF's compliance strategies in response to the ACE rule are provided in DEF's annual update to the Integrated Clean Air Compliance Plan filed in Docket No. 190007-EI.

Although there continues to be significant uncertainty about the specific form of regulation, DEF continues to expect that more stringent CO_2 emissions limitations in one form or another will be part of the regulatory future and has incorporated 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 Avon Park, Bayboro, Debary

P2 - P6, Bartow P1 & P3, and University of Florida. Peakers at Higgins were retired at the end of 2019. Continued operations of the peaking units at Avon Park are planned until later in the year 2020 while Bayboro is planned through the year 2025. The Debary P2 - P6, Bartow P1 & P3, and University of Florida 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 2020 through 2029. 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, 2019

PLANTS	SUMMER NET DEPENDABLE CAPABILITY (MW)
Fossil Steam	2,425
Combined Cycle	5,266
Combustion Turbine	2092
Solar	119
Total Net Dependable Generating Capability	**9,902**
Dependable Purchased Power	1,956
Firm Qualifying Facility Contracts (412 MW)	
Investor Owned Utilities (424 MW)	
Independent Power Producers (1,120 MW)	
TOTAL DEPENDABLE CAPACITY RESOURCES	**11,858**

TABLE 3.2

DUKE ENERGY FLORIDA
FIRM RENEWABLES
AND COGENERATION CONTRACTS

AS OF DECEMBER 31, 2019

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
TOTAL	**411.8**

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
2020	9,978	1,878	0	78	11,934	8,915	3,019	34%	0	3,019	34%
2021	10,021	1,454	0	78	11,553	8,946	2,607	29%	0	2,607	29%
2022	10,222	1,454	0	78	11,754	9,007	2,747	31%	0	2,747	31%
2023	10,305	1,454	0	78	11,837	8,735	3,102	36%	0	3,102	36%
2024	10,724	859	0	78	11,661	8,769	2,892	33%	0	2,892	33%
2025	10,721	744	0	78	11,543	8,588	2,955	34%	0	2,955	34%
2026	10,632	640	0	78	11,350	8,612	2,738	32%	0	2,738	32%
2027	10,566	0	0	78	10,644	8,666	1,978	23%	0	1,978	23%
2028	10,561	0	0	78	10,639	8,759	1,880	21%	0	1,880	21%
2029	10,826	0	0	78	10,903	8,829	2,074	23%	0	2,074	23%

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 INSTALLED CAPACITY	FIRM[a] CAPACITY IMPORT	FIRM CAPACITY EXPORT	QF[b]	TOTAL CAPACITY AVAILABLE	SYSTEM FIRM WINTER 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
2019/20	10,894	1,961	0	78	12,933	9,406	3,528	38%	0	3,528	38%
2020/21	10,850	1,961	0	78	12,889	8,789	4,101	47%	0	4,101	47%
2021/22	10,850	1,537	0	78	12,465	9,167	3,298	36%	0	3,298	36%
2022/23	10,850	1,537	0	78	12,465	8,922	3,543	40%	0	3,543	40%
2023/24	10,850	1,422	0	78	12,350	9,012	3,339	37%	0	3,339	37%
2024/25	11,205	785	0	78	12,068	8,777	3,291	38%	0	3,291	38%
2025/26	10,967	681	0	78	11,726	8,880	2,846	32%	0	2,846	32%
2026/27	10,967	681	0	78	11,726	8,941	2,785	31%	0	2,785	31%
2027/28	10,732	0	0	78	10,809	9,003	1,806	20%	0	1,806	20%
2028/29	10,732	0	0	78	10,809	9,038	1,771	20%	0	1,771	20%

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, 2020 THROUGH DECEMBER 31, 2029

(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]
COLUMBIA	1	COLUMBIA	PV	SO				08/2019	03/2020		74,900	43	0	P	(1)
DEBARY	1	VOLUSIA	PV	SO				07/2019	05/2020		74,500	34	0	P	(1)
TWIN RIVERS	1	HAMILTON	PV	SO				04/2020	12/2020		74,900	43	0	P	(1)
SANTA FE	1	COLUMBIA	PV	SO				04/2020	12/2020		74,900	43	0	P	(1)
AVON PARK	P1	HIGHLANDS	GT	NG	DFO	PL	TK			10/2020		(24)	(25)	RT	(1)
AVON PARK	P2	HIGHLANDS	GT	DFO		TK				10/2020		(24)	(25)	RT	(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		74,900	43	0	P	(1)
UNKNOWN	1	UNKNOWN	PV	SO				04/2021	12/2021		56,000	32	0	P	(1)
SOLAR DEGRADATION	N/A	N/A	N/A	N/A		N/A		N/A	N/A	N/A	N/A	(1)			(2)
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)			(2)
UNKNOWN	1	UNKNOWN	PV	SO				04/2023	05/2023		74,900	43	0	P	(1)
UNKNOWN	1	UNKNOWN	PV	SO				04/2023	05/2023		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)			(2)
OSPREY CC	1	POLK	CC	NG	DFO	PL	TK		05/2024			337	355	P	(3)
UNKNOWN	1	UNKNOWN	PV	SO				04/2024	05/2024		74,900	43	0	P	(1)
UNKNOWN	1	UNKNOWN	PV	SO				04/2024	05/2024		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	(3)			(2)
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)			(2)
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)			(2)
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	226	240	P	(1)
UNKNOWN	1	UNKNOWN	PV	SO				04/2027	12/2027		74,900	43	0	P	(1)
UNIVERSITY OF FLORIDA	P1	ALACHUA	GT	DFO		WA				11/2027		(44)	(46)		
SOLAR DEGRADATION	N/A	N/A	N/A	N/A		N/A		N/A	N/A	N/A	N/A	(4)			(2)
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)			(2)
UNKNOWN	P2	UNKNOWN	GT	NG	DFO	PL	TK	01/2025	06/2029		229,400	226	240	P	(1)
UNKNOWN	1	UNKNOWN	PV	SO				04/2027	12/2029		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)			(2)

a. See page v. for Code Legend of Future Generating Unit Status.
b. NOTES
(1) Planned, Prospective, or Committed project.
(2) Solar capacity degrades by 0.5% every year
(3) 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, 2020

(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 (%):		~31 %	
	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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)	Less than $8/Kw	
	g. Variable O&M ($/MWh):	($2020)	0.00	
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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:		9/2019	
	b. Commercial in-service date:		5/2020	(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:		~300-400 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 (%):			~24 %
	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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)	Less than $8/Kw	
	g. Variable O&M ($/MWh):	($2020)	0.00	
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(1)	Plant Name and Unit Number:	**Twin Rivers**	
(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:	~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 (%):		~27 %
	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): ($2020)		
	d. AFUDC Amount ($/kW):		
	e. Escalation ($/kW):		
	f. Fixed O&M ($/kWdc-yr): ($2020)		Less than $8/Kw
	g. Variable O&M ($/MWh): ($2020)		0.00
	h. K Factor:	NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(1)	Plant Name and Unit Number:		**Santa Fe**	
(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:		~500-650 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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)	Less than $8/Kw	
	g. Variable O&M ($/MWh):	($2020)	0.00	
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)	Less than $8/Kw	
	g. Variable O&M ($/MWh):	($2020)	0.00	
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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): ($2020)		
	d. AFUDC Amount ($/kW):		
	e. Escalation ($/kW):		
	f. Fixed O&M ($/kWdc-yr): ($2020)	Less than $8/Kw	
	g. Variable O&M ($/MWh): ($2020)	0.00	
	h. K Factor:	NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(1)	Plant Name and Unit Number:	**TBD**	
(2)	Capacity		
	a. Nameplate (MWac):	56.0	
	b. Summer Firm (MWac):	31.9	
	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): ($2020)		
	d. AFUDC Amount ($/kW):		
	e. Escalation ($/kW):		
	f. Fixed O&M ($/kWdc-yr): ($2020)	Less than $8/Kw	
	g. Variable O&M ($/MWh): ($2020)	0.00	
	h. K Factor:	NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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): ($2020)		
	d. AFUDC Amount ($/kW):		
	e. Escalation ($/kW):		
	f. Fixed O&M ($/kWdc-yr): ($2020)		
	g. Variable O&M ($/MWh): ($2020)		0.00
	h. K Factor:	NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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:		9/2022	
	b. Commercial in-service date:		5/2023	(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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:		9/2022	
	b. Commercial in-service date:		5/2023	(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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:		9/2023	
	b. Commercial in-service date:		5/2024	(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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:		9/2023	
	b. Commercial in-service date:		5/2024	(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(1)	Plant Name and Unit Number:		**Undesignated CT P1**	
(2)	Capacity			
	a. Summer (MWs):		226	
	b. Winter (MWs):		240	
(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 (%):		18.6	%
	e. Average Net Operating Heat Rate (ANOHR):		10,621	BTU/kWh
(13)	Projected Unit Financial Data			
	a. Book Life (Years):		35	
	b. Total Installed Cost (In-service year $/kW):		647.4	
	c. Direct Construction Cost ($/kW):	($2020)	562.2	
	d. AFUDC Amount ($/kW):		35.3	
	e. Escalation ($/kW):		49.9	
	f. Fixed O&M ($/kW-yr):	($2020)	1.64	
	g. Variable O&M ($/MWh):	($2020)	7.26	
	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, 2020

(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): ($2020)			
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr): ($2020)			
	g. Variable O&M ($/MWh): ($2020)		0.00	
	h. K Factor:	NO CALCULATION		

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		0.00
	h. K Factor:		NO CALCULATION	

DUKE ENERGY FLORIDA

SCHEDULE 9
STATUS REPORT AND SPECIFICATIONS OF PROPOSED GENERATING FACILITIES
AS OF JANUARY 1, 2020

(1)	Plant Name and Unit Number:		**Undesignated CT P2**	
(2)	Capacity			
	a. Summer (MWs):		226	
	b. Winter (MWs):		240	
(3)	Technology Type:		COMBUSTION TURBINE	
(4)	Anticipated Construction Timing			
	a. Field construction start date:		1/2027	
	b. Commercial in-service date:		6/2029	(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 (%):		18.6	%
	e. Average Net Operating Heat Rate (ANOHR):		10,621	BTU/kWh
(13)	Projected Unit Financial Data			
	a. Book Life (Years):		35	
	b. Total Installed Cost (In-service year $/kW):		665.3	
	c. Direct Construction Cost ($/kW):	($2020)	562.2	
	d. AFUDC Amount ($/kW):		36.3	
	e. Escalation ($/kW):		66.8	
	f. Fixed O&M ($/kW-yr):	($2020)	1.64	
	g. Variable O&M ($/MWh):	($2020)	7.26	
	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, 2020

(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:		4/2029	
	b. Commercial in-service date:		12/2029	(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):	($2020)		
	d. AFUDC Amount ($/kW):			
	e. Escalation ($/kW):			
	f. Fixed O&M ($/kWdc-yr):	($2020)		
	g. Variable O&M ($/MWh):	($2020)		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

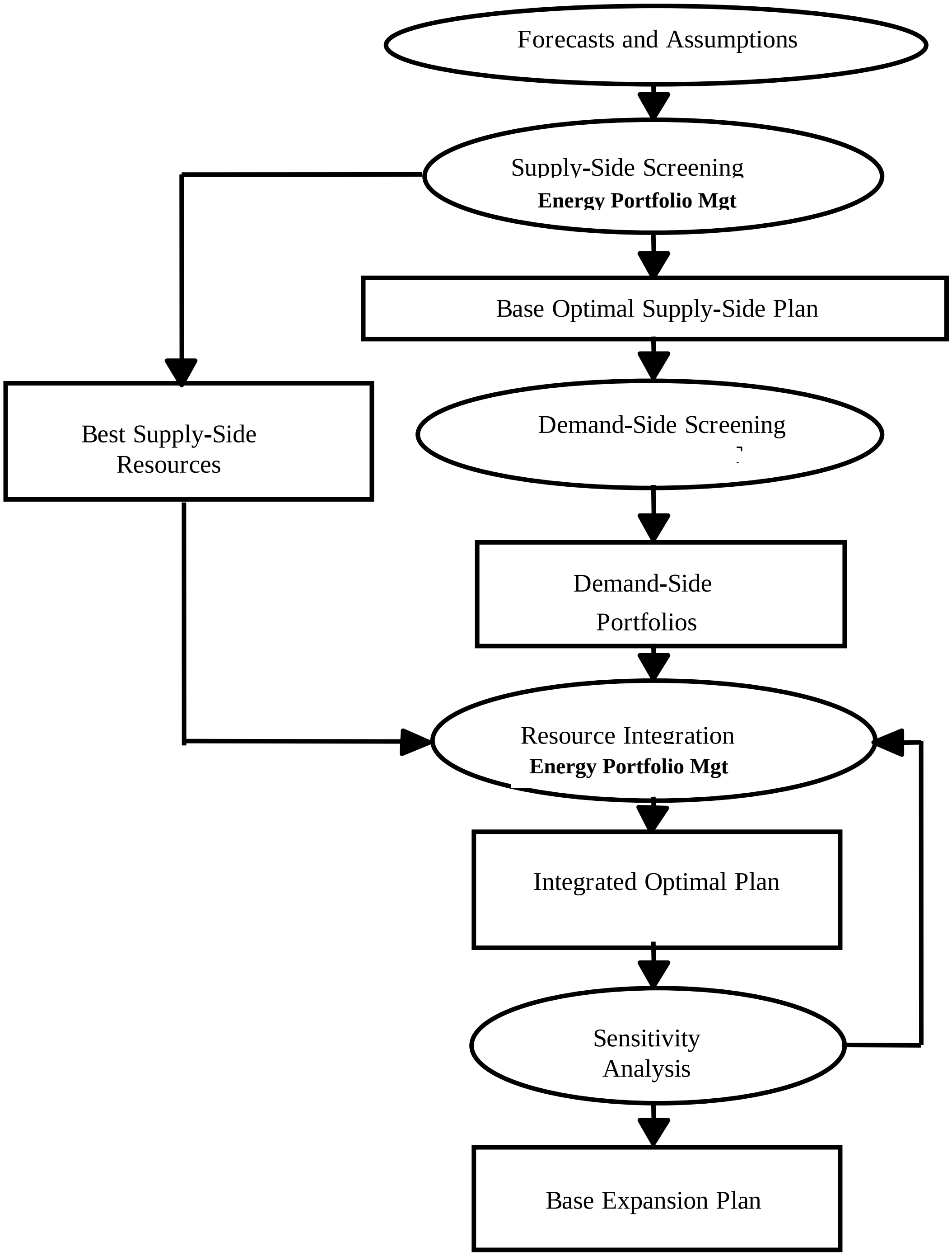
DEF employs an Integrated Resource Planning (IRP) process to determine the most cost-effective mix of supply- and demand-side alternatives that will reliably satisfy our customers' future demand and energy needs. DEF's IRP process incorporates state-of-the-art computer models used to evaluate a wide 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% 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% 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% 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 2019 (Docket 20190018-EG).

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% debt and 53% equity capital structure, projected cost of debt of 4.35%, and an equity return of 10.5%. The assumptions resulted on a weighted average cost of capital of 7.61% and an after-tax discount rate of 7.10%.

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 1,403 MW of Solar PV generation with an expected equivalent summer firm capacity contribution of approximately 800 MW and 452 MW of new natural gas fired generation consisting of two planned combustion turbine units, one added in year 2027 and another in year 2029, 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 single-axis tracking technology. We foresee that as more solar is added, the net-load peak hour will start to shift to later hours, and the solar contribution to firm capacity might decline. 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 2020 through 2029. 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 (212.85 MW)

Osceola 3.8 MW

Perry 5.1 MW

Suwannee 8.8 MW

Hamilton 74.9 MW

Trenton 74.9 MW

Lake Placid 45.0 MW

St Petersburg Pier 0.35 MW

Customer-owned renewable generation under DEF’s Net Metering Tariff (about 175 MW as of 12/31/19)

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 companies are projecting in-service dates beyond 2020. As of December 31, 2019, DEF had over 5,500 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 QFs at as-available energy rates. As a result, DEF is currently forecasting approximately 675 MW of QF as-available solar projects over a five-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 next ten-year period. However, DEF continues to study and refine this projection. 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 potential renewable suppliers and explore whether these potential QFs 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 policies 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 an increasing supply-side resource in both DEF's near-term and long-term generation plans.

The development, construction, commissioning and initial operation of the solar projects at Perry, Osceola, Suwannee, Hamilton, the now commercial Lake Placid and Trenton, and under construction DeBary and Columbia plants 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 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. DEF is integrating voltage control in the transmission connected solar projects to enhance operational reliability and local transmission resiliency. In addition, DEF is incorporating the ability to place the solar facilities on Automatic Generation Control (AGC). This capability is preparing DEF for future scenarios where there is an excess of generation on the system and a need to utilize the solar resources to balance generation with demand. DEF is utilizing its operational experience and historic data from these solar resources to optimize the daily economic system dispatch, to quantify additional system flexibility needs to counteract the variability of solar generation and investigate potential fuel diversity contributions. 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, Hamilton, Lake Placid, Trenton, DeBary and Columbia arrays are shown in Figures 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, and 3.9 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

FIGURE 3.6
Lake Placid Solar Site

FIGURE 3.7
Trenton Solar Site

FIGURE 3.8
DeBary Solar Site

FIGURE 3.9
Columbia 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 ten-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_Rev4.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

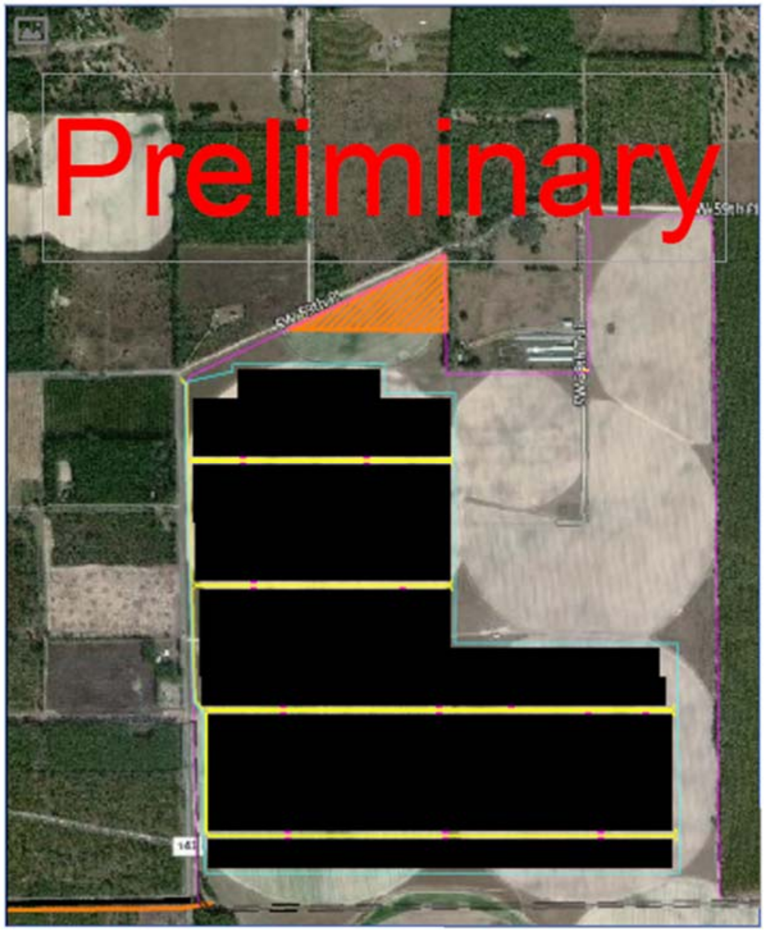
DEF's 2020 TYSP Preferred Sites include two solar generations sites; the Twin Rivers Solar Site and the Santa Fe Solar Site. These Preferred Sites are discussed below.

TWIN RIVERS SOLAR SITE

DEF has identified the Twin Rivers Solar Project, a 74.9 MWac solar single-axis tracking PV project located in Hamilton County, Florida. The site is located on former agricultural and timber lands and is relatively flat with minimal sloping that will allow for the use of a tracking system. The point of interconnection will be a new 230 kV three terminal, three breaker switching station and will be connected via a generation tie-line. All environmental surveys are complete, and DEF has received the necessary special permits from Hamilton County. A Site and Development Plan approval is required from Hamilton County along with an Environmental Resource Permit from FDEP. The project expects to find a limited number of Gopher Tortoises with no other impacts to wetlands or additional species. The project is expected to start construction in early 2020 with an expected in-service date at the end of 2020 or beginning of 2021.

FIGURE 4.1

Twin Rivers Solar Project



SANTA FE SOLAR POWER PLANT

DEF has identified the Santa Fe 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. The point of interconnection will be a new 230 kV three terminal, three breaker switching station and will be connected via a generation tie-line. All environmental surveys are complete, and DEF has received the necessary special use permit from Columbia County. An Environmental Resource Permit is required from FDEP, but it the responsibility of the EPC. A Gopher Tortoises relocation permit from FDEP has been received assuming 89 tortoises will need to be relocated to an already identified recipient site. There are no wetlands on site and no additional species of concern. The project is expected to start construction in early 2020 with an expected in-service date at the end of 2020.

FIGURE 4.2
Santa Fe Solar Project