Ten-Year Site Plan

2020 – 2029
(Detail as of December 31, 2019)
April 1, 2020

Submitted To:
State of Florida
Public Service Commission

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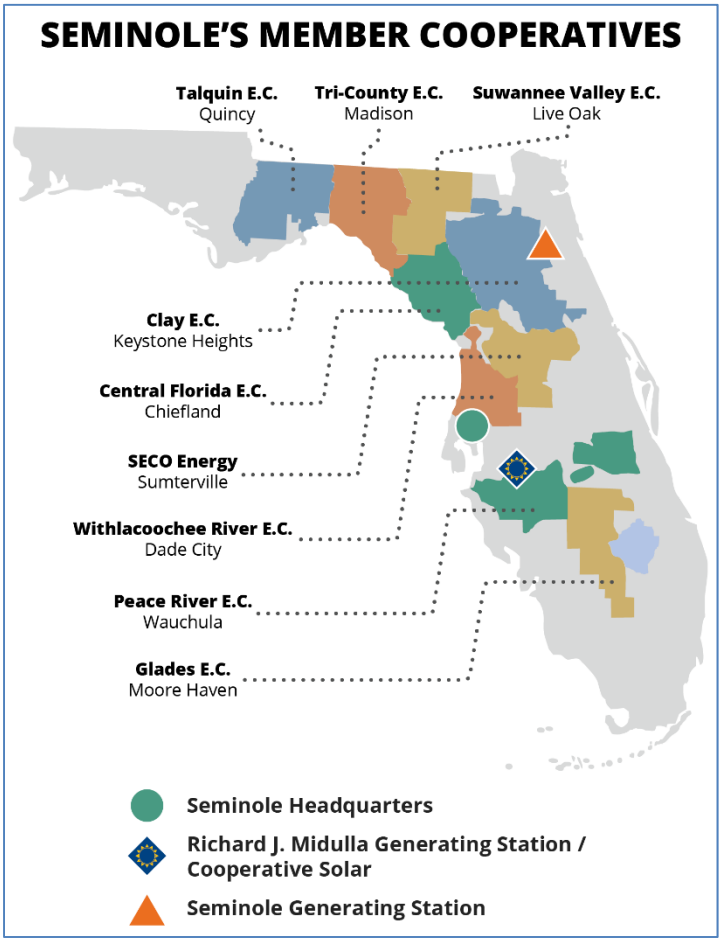
DESCRIPTION OF EXISTING FACILITIES

1.1 Overview

Seminole Electric Cooperative, Inc. (Seminole) is a generation and transmission cooperative responsible for meeting the electric power and energy needs of its nine distribution cooperative Members (Members). Member service areas are indicated on Map 1 below:

Map 1



Seminole Electric COOPERATIVE, INC.

Seminole provides full requirements service (with limited exceptions) under wholesale power contracts with all of its Members. One exception relates to the ability of four of our Members to purchase small amounts of hydroelectric power allocated to them from the Southeastern Power Administration (SEPA). SEPA provides 26 MW (or approximately 1% of the total energy required by all Members). Seminole's wholesale power contracts also permit each Member to own or lease renewable generation and/or peak shaving generation, (or at the request of Members, Seminole to enter into power purchase agreements for renewable generation), located behind the Member delivery points, up to 5% of their load requirements based on each Member's average annual system peak demands for the prior three calendar years. Seminole serves the aggregate loads of its Members with a combination of owned and purchased power resources. As of December 31, 2019, Seminole had total summer capacity resources of approximately 3,900 MW consisting of owned, installed net capacity of 2,056 MW and the remaining capacity in firm purchased power. Additional information on Seminole's existing resources is located in Schedule 1 and Table 1.2 below.

1.2 Existing Facilities

1.2.1 Owned Generation

Seminole's existing generating facilities include:

1) Seminole Generating Station (SGS) Units 1 & 2 comprise a 1,275 MW (net winter) coal-fired plant located in Putnam County near Palatka, Florida.
2) Midulla Generating Station (MGS) Units 1–3 comprise a 572 MW (net winter) gas-fired two-on-one combined cycle plant located in Hardee County, Florida; and,
3) MGS Units 4–8 comprise a 310 MW (net winter) peaking plant consisting of five twin-pack gas turbines.

Schedule 1

Existing Generating Facilities as of December 31, 2019

Plant	Unit No.	Location	Unit Type	Fuel		Fuel Transportation		Alt Fuel Days Use	Com In-Svc Date (Mo/Yr)	Expected Retirement (Mo/Yr)	Gen. Max Nameplate (MW)	Net Capability (MW)	
				Pri	Alt	Pri	Alt					Summer	Winter
MGS	1-3	Hardee County	CC	NG	DFO	PL	TK	Unk	01/02	Unk	639	526	572
MGS	4-8	Hardee County	CT	NG	DFO	PL	TK	Unk	12/06	Unk	310	270	310
SGS	1	Putnam County	ST	BIT	N/A	RR	N/A	N/A	02/84	Unk	735.9	626	637
SGS	2	Putnam County	ST	BIT	N/A	RR	N/A	N/A	12/84		735.9	634	638

Schedule Abbreviations:

General

Unk – Unknown
N/A – Not applicable

Unit Type

ST – Steam Turbine
CC – Combined Cycle
CT – Combustion Turbine
PV – Photovoltaic

Fuel Type

BIT – Bituminous Coal
NG – Natural Gas
DFO – Ultra low sulfur diesel
Sun – Solar Energy

Fuel Transportation

PL – Pipeline
RR – Railroad
TK – Truck

Notes:
- Seminole is currently evaluating which of either SGS U1 or SGS U2 will be removed from service commensurate with the commissioning of the Seminole Combined Cycle Facility.

1.2.2 Transmission

Seminole serves its Members' load primarily in three transmission areas: Seminole Direct Serve (SDS) system, Duke Energy Florida (DEF) system, and Florida Power & Light (FPL) system. Seminole's existing transmission facilities consist of 226 circuit miles of 230 kV and 125 circuit miles of 69 kV lines. Seminole's facilities are interconnected to the grid at twenty-one (21) 230 kV transmission interconnections with the entities shown in Table 1.1.

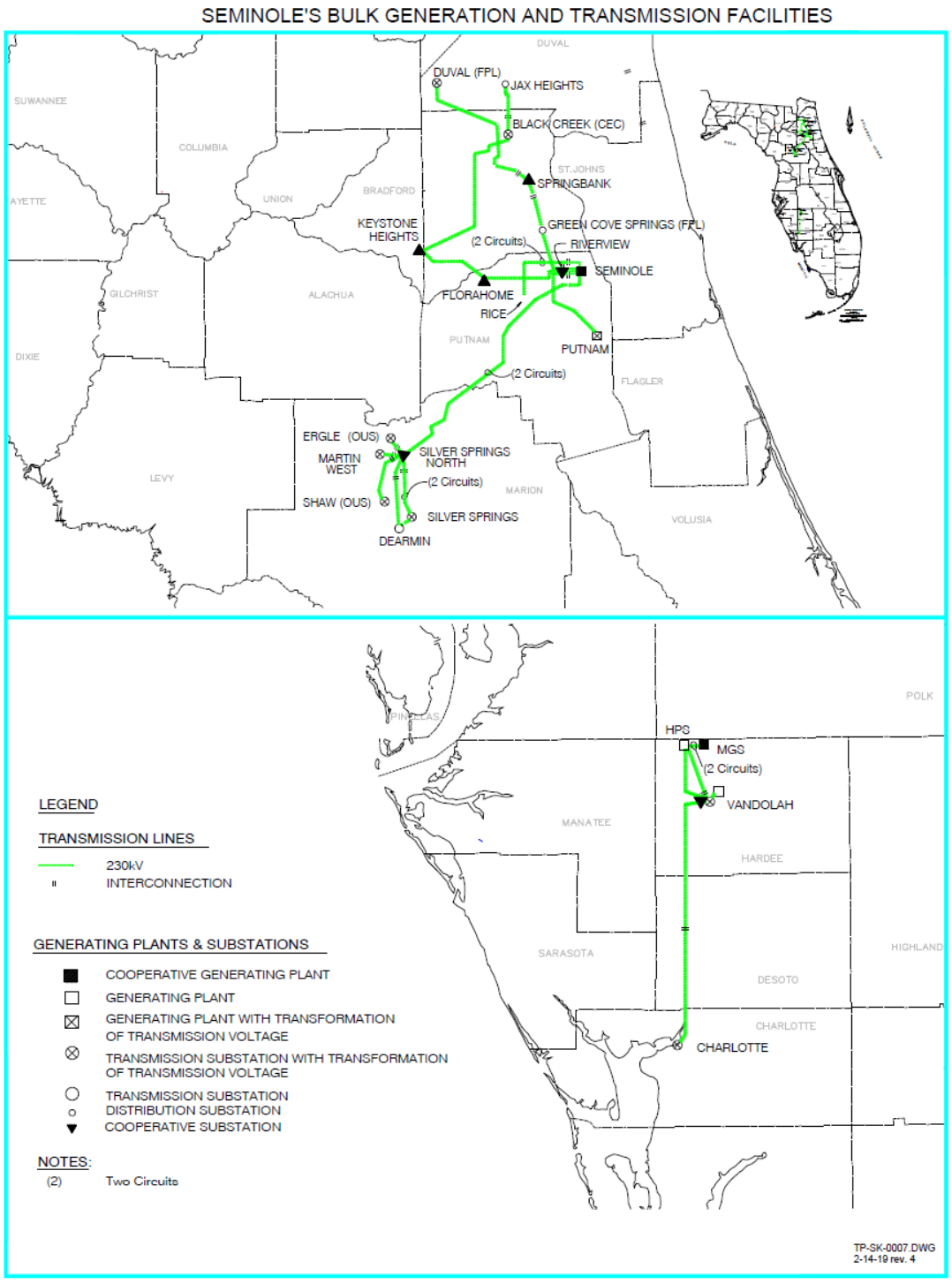
Table 1.1

Transmission Grid Interconnections with Other Entities

Entity	Voltage (kV)	Number of Interconnections
Florida Power & Light	230	7
Duke Energy Florida	230	7
JEA	230	1
City of Ocala (OEU)	230	2
Tampa Electric Company	230	1
Invenergy, LLC	230	3

Note: This table describes physical facility interconnections, which do not necessarily constitute contractual interconnections for purposes of transmission service or interconnections between balancing areas.

Seminole contracts with other utilities for firm transmission service to serve Member loads that are imbedded in the balancing authority areas of other utilities. Map 2 below depicts Seminole's 230 kV transmission lines, including its interconnections with those entities identified in Table 1.1 above.


SEMINOLE'S BULK GENERATION AND TRANSMISSION FACILITIES
DUVAL
DUVAL (FPL)
JAX HEIGHTS
BLACK CREEK (CEC)
SUWANNEE
COLUMBIA
ST.JOHNS
SPRINGBANK
AYETTE
UNION
BRADFORD
KEYSTONE HEIGHTS
GREEN COVE SPRINGS (FPL)
(2 Circuits)
RIVERVIEW
SEMINOLE
GILCHRIST
ALACHUA
FLORAHOME
RICE
PUTNAM
PUTNAM
DIXIE
(2 Circuits)
FLAGLER
ERGLE (OUS)
MARTIN WEST
SILVER SPRINGS NORTH
LEVY
(2 Circuits)
MARION
SHAW (OUS)
SILVER SPRINGS
VOLUSIA
DEARMIN
POLK
PINELLAS
HPS
MGS
(2 Circuits)
VANDOLAH
MANATEE
HARDEE
SARASOTA
HIGHLAND
DESOTO
CHARLOTTE
CHARLOTTE
LEGEND
TRANSMISSION LINES
230kV
INTERCONNECTION
GENERATING PLANTS & SUBSTATIONS
COOPERATIVE GENERATING PLANT
GENERATING PLANT
GENERATING PLANT WITH TRANSFORMATION OF TRANSMISSION VOLTAGE
TRANSMISSION SUBSTATION WITH TRANSFORMATION OF TRANSMISSION VOLTAGE
TRANSMISSION SUBSTATION
DISTRIBUTION SUBSTATION
COOPERATIVE SUBSTATION
NOTES:
(2) Two Circuits
TP-SK-0007.DWG
2-14-19 rev. 4

Map 2

1.3 Purchased Power Resources

Table 1.2 below sets forth Seminole's purchased power resource included in Seminole's resource portfolio.

TABLE 1.2

Seller	Contract Term		Contract Capacity (MW)		Primary Fuel (if Any)	Firm Capacity	Description
	Begins	Ends	Summer	Winter			
Hardee Power Partners	1/1/2013	12/31/2032	290	356	NG	YES	Hardee CC1 & CT 2B
Hardee Power Partners	1/1/2013	12/31/2032	70	89	NG	YES [1]	Hardee CT 2A
Oleander Power Project	1/1/2010	12/31/2021	459	546	NG	YES	Oleander CTs 2-4
Florida Power & Light	6/1/2014	5/31/2021	200	200	System [4]	YES	System Intermediate
Duke Energy Florida	1/1/2014	12/31/2020	100	600	System [4]	YES	System Peaking
Duke Energy Florida	1/1/2014	12/31/2020	150	150	System [4]	YES	System Intermediate
Duke Energy Florida	6/1/2016	12/31/2024	200-500	200-500	System [4]	YES	System Intermediate
Duke Energy Florida	1/1/2021	3/31/2027	0	50-600	System [4]	YES	System Peaking
Duke Energy Florida	1/1/2021	12/31/2030	10-450		System [4]	YES	System Intermediate
Duke Energy Florida	1/1/2021	12/31/2035			System [4]	YES	System Peaking
Farm Credit Leasing Services Corporations	8/1/2017	8/31/2027	2.2	2.2	SUN	YES [2]	MGS Solar Facility
Shady Hills Energy Center	12/1/2021	11/30/2051	546	575	NG	YES	New Combined Cycle Facility
Southern Company Services	6/1/2021	5/31/2026	100-150	100-150	UNK	YES	System Intermediate
FRP Putnam County Solar	12/31/2023	12/31/2048	74.5	74.5	SUN	YES [3]	Solar Facility
FRP Gadsden County Solar	12/31/2023	12/31/2048	74.5	74.5	SUN	YES [3]	Solar Facility
FRP Gilchrist County Solar	6/30/2023	6/30/2043	74.5	74.5	SUN	YES [3]	Solar Facility
FRP Columbia County Solar	6/30/2023	6/30/2043	74.5	74.5	SUN	YES [3]	Solar Facility
Telogia Power, LLC	7/1/2009	5/31/2020	13	13	WDS	YES	Telogia Facility
Timberline Energy, LLC	2/1/2008	3/31/2020	1.6	1.6	LFG	YES	Timberline Landfill
Hillsborough County , Florida	3/1/2010	2/28/2025	38	38	MSW	YES	Hillsborough WTE
City of Tampa, Florida	8/1/2011	7/31/2026	20	20	MSW	YES	McKay Bay WTE
Individual SECI Member Cooperatives	1/1/2000	Evergreen	124.43	124.43	DFO	YES	Member Distributed Generation

Notes:

- Seminole Electric Cooperative may sell a portion of the renewable energy credits associated with its renewable generation to third parties. The third parties can use the credits to meet mandatory or voluntary renewable requirements.

1) The Winter firm capacity for Hardee CT2A is reduced to 0 (zero) to reflect current transmission limitations.
2) MGS Solar Unit 2.2 MW solar nameplate rating. Seminole assumes 32% capacity applies towards summer reserve margin and 0% capacity towards winter reserve margin.
3) FRP Solar units have 74.5 MW solar nameplate rating. Seminole assumes 60% capacity towards summer reserve margin and 0% capacity towards winter reserve margin.
4) System PPAs are not tied to one specific resource or fuel type although they are primarily natural gas.

FORECAST OF ELECTRIC DEMAND AND ENERGY CONSUMPTION

2.1 Energy Consumption and Number of Customers

Residential consumer growth is projected to increase at an average annual rate of 1.3 percent from 2020 through 2029. Similarly, commercial consumer growth is projected to increase at an average annual rate of 1.3 percent during the same period. Residential energy sales are projected to grow at an average annual rate of 1.1 percent, and commercial energy sales are projected to grow at an average annual rate of 1.5 percent from 2020 through 2029. Schedules 2.1, 2.2, and 2.3 below show the aggregate number of customers and energy consumption by customer classification of Seminole's nine Members, including other sales and purchases.

Schedule 2.1

History and Forecast of Energy Consumption and Number of Customers by Customer Class

		Residential			
Year	Estimated Population Served by Members	People per Household	GWh	Average Number of Customers	Average Consumption Per Customer (kWh)
2010	1,692,257	2.22	11,369	761,993	14,920
2011	1,716,516	2.24	10,412	765,279	13,605
2012	1,723,920	2.24	9,979	769,591	12,967
2013	1,749,359	2.25	10,018	777,493	12,885
2014	1,636,117	2.47	8,808	662,626	13,293
2015	1,669,742	2.48	9,068	673,215	13,470
2016	1,702,838	2.49	9,310	683,672	13,618
2017	1,721,202	2.48	9,097	692,699	13,133
2018	1,742,857	2.48	9,644	703,331	13,712
2019	1,761,767	2.46	9,754	716,879	13,606
2020	1,787,632	2.45	9,622	730,611	13,170
2021	1,808,355	2.43	9,708	742,700	13,071
2022	1,825,830	2.42	9,802	753,710	13,005
2023	1,842,602	2.41	9,915	764,124	12,976
2024	1,859,502	2.40	10,026	774,291	12,949
2025	1,876,195	2.39	10,142	784,268	12,932
2026	1,893,147	2.38	10,248	794,080	12,906
2027	1,910,494	2.38	10,368	803,662	12,901
2028	1,927,964	2.37	10,481	812,977	12,892
2029	1,945,656	2.37	10,593	822,088	12,885

Notes:

- Actual value for 2013 and prior includes Lee County Electric Cooperative.
- Includes Sales from SEPA.

Schedule 2.2

History and Forecast of Energy Consumption and Number of Customers by Customer Class

Commercial[1]

Year	GWh	Average Number of Customers	Average Consumption Per Customer (kWh)	Other Sales (GWh)[2]	Total Member Sales to Ultimate Consumers (GWh)[3]
2010	4,525	78,788	57,433	158	16,052
2011	4,366	78,828	55,386	160	14,938
2012	4,456	80,598	55,287	164	14,599
2013	4,482	82,302	54,458	166	14,666
2014	4,001	72,632	55,086	151	12,960
2015	4,155	73,290	56,689	151	13,374
2016	4,311	74,411	57,935	152	13,773
2017	4,322	76,118	56,780	144	13,563
2018	4,447	78,044	56,981	145	14,236
2019	4,515	80,257	56,257	156	14,425
2020	4,553	80,769	56,371	125	14,300
2021	4,644	81,937	56,678	125	14,477
2022	4,718	83,140	56,748	126	14,646
2023	4,790	84,327	56,803	127	14,832
2024	4,863	85,495	56,881	127	15,016
2025	4,937	86,630	56,989	128	15,207
2026	5,011	87,735	57,115	128	15,387
2027	5,085	88,802	57,262	129	15,582
2028	5,157	89,845	57,399	129	15,767
2029	5,211	90,879	57,340	130	15,934

Notes:

- Actual value for 2013 and prior includes Lee County Electric Cooperative.
- Includes Sales from SEPA.

1) Includes Industrial and Interruptible Customers.

2) Includes Lighting Customers.

3) Excludes Sales for Resale.

Schedule 2.3
History and Forecast of Energy Consumption and
Number of Customers by Customer Class

Year	Sales for Resale (GWh)	Utility Use & Losses Less SEPA (GWh)	Net Energy for Load (GWh)	Other Customers	Total Number of Consumers
2010	0	1,294	17,346	4,956	845,737
2011	157	942	16,037	4,954	849,061
2012	134	1,036	15,769	4,818	855,007
2013	137	1,009	15,812	5,185	864,980
2014	170	724	13,854	5,308	740,566
2015	16	714	14,104	5,343	751,848
2016	56	642	14,471	5,384	763,468
2017	64	698	14,325	5,539	774,356
2018	40	636	14,912	5,680	787,055
2019	42	628	15,095	5,756	802,892
2020	26	649	14,975	5,731	817,111
2021	7	665	15,149	5,766	830,403
2022	0	674	15,320	5,792	842,642
2023	0	685	15,517	5,811	854,262
2024	0	697	15,713	5,823	865,609
2025	0	708	15,915	5,836	876,734
2026	0	718	16,105	5,848	887,663
2027	0	728	16,310	5,857	898,321
2028	0	741	16,508	5,869	908,691
2029	0	769	16,703	5,880	918,847

Notes:
- Actual value for 2013 and prior includes Lee County Electric Cooperative.
- Includes Sales from SEPA.

2.2 Annual Peak Demand and Net Energy for Load

Winter net firm demand is projected to increase at an average annual rate of 1.3 percent from the 2019/2020 season through the 2028/2029 season. Summer net firm demand is estimated to increase by 1.2 percent from 2020 through 2029. Net Energy for Load is projected to grow at an average annual rate of 1.2 percent from 2020 through 2029. Schedules 3.1, 3.2, and 3.3 provide Seminole's summer peak demand, winter peak demand, and net energy for load, respectively.

Schedule 3.1

History and Forecast of Summer Peak Demand (MW)

Year	Total	Wholesale	Retail	Interruptible Load[1]	Distributed Generation[2]	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2010	3,714	3,714	0	0	67	99	N/A	N/A[3]	N/A	3,548
2011	3,829	3,829	0	0	79	97	N/A	N/A[3]	N/A	3,653
2012	3,525	3,525	0	0	0	97	N/A	N/A[3]	N/A	3,428
2013	3,665	3,665	0	0	0	99	N/A	N/A[3]	N/A	3,566
2014	3,155	3,155	0	0	0	67	N/A	N/A[3]	N/A	3,088
2015	3,072	3,072	0	0	0	51	N/A	N/A[3]	N/A	3,021
2016	3,299	3,299	0	0	0	56	N/A	N/A[3]	N/A	3,243
2017	3,187	3,187	0	0	0	54	N/A	19	N/A	3,114
2018	3,196	3,196	0	0	0	54	N/A	20	N/A	3,122
2019	3,477	3,477	0	0	0	58	N/A	20	N/A	3,399
2020	3,385	3,385	0	37	67	59	N/A	22	N/A	3,200
2021	3,415	3,415	0	36	67	59	N/A	22	N/A	3,231
2022	3,460	3,460	0	37	67	62	N/A	22	N/A	3,272
2023	3,502	3,502	0	36	67	62	N/A	22	N/A	3,315
2024	3,543	3,543	0	36	67	62	N/A	22	N/A	3,356
2025	3,585	3,585	0	36	67	63	N/A	22	N/A	3,397
2026	3,624	3,624	0	36	67	64	N/A	22	N/A	3,435
2027	3,666	3,666	0	36	67	65	N/A	22	N/A	3,476
2028	3,705	3,705	0	36	67	65	N/A	22	N/A	3,515
2029	3,743	3,743	0	36	67	65	N/A	22	N/A	3,553

Notes:

- Actual value for 2013 and prior includes Lee County Electric Cooperative.

1) Excludes wholesale interruptible purchases.

2) Distributed generation reflects customer-owned self-service generation.

3) Reduced demands associated with Member Cooperative coincident demand billing are not reflected, although reductions are reflected in net firm demand.

Schedule 3.1.1

High Case Forecast of Summer Peak Demand (MW)

Year	Total	Wholesale	Retail	Interruptible Load[1]	Distributed Generation[2]	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2020	3,488	3,488	0	37	67	59	N/A	22	N/A	3,303
2021	3,518	3,518	0	36	67	59	N/A	22	N/A	3,334
2022	3,563	3,563	0	37	67	62	N/A	22	N/A	3,375
2023	3,605	3,605	0	36	67	62	N/A	22	N/A	3,418
2024	3,652	3,652	0	36	67	62	N/A	22	N/A	3,465
2025	3,694	3,694	0	36	67	63	N/A	22	N/A	3,506
2026	3,737	3,737	0	36	67	64	N/A	22	N/A	3,548
2027	3,777	3,777	0	36	67	65	N/A	22	N/A	3,587
2028	3,817	3,817	0	36	67	65	N/A	22	N/A	3,627
2029	3,848	3,848	0	36	67	65	N/A	22	N/A	3,658

Notes:
1) Excludes wholesale interruptible purchases.
2) Distributed generation reflects customer-owned self-service generation.

Schedule 3.1.2

Low Case Forecast of Summer Peak Demand (MW)

Year	Total	Wholesale	Retail	Interruptible Load[1]	Distributed Generation[2]	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2020	3,241	3,241	0	37	67	59	N/A	22	N/A	3,056
2021	3,271	3,271	0	36	67	59	N/A	22	N/A	3,087
2022	3,316	3,316	0	37	67	62	N/A	22	N/A	3,128
2023	3,356	3,356	0	36	67	62	N/A	22	N/A	3,169
2024	3,402	3,402	0	36	67	62	N/A	22	N/A	3,215
2025	3,444	3,444	0	36	67	63	N/A	22	N/A	3,256
2026	3,484	3,484	0	36	67	64	N/A	22	N/A	3,295
2027	3,525	3,525	0	36	67	65	N/A	22	N/A	3,335
2028	3,564	3,564	0	36	67	65	N/A	22	N/A	3,374
2029	3,594	3,594	0	36	67	65	N/A	22	N/A	3,404

Notes:
1) Excludes wholesale interruptible purchases
2) Distributed generation reflects customer-owned self-service generation.

Schedule 3.2

History and Forecast of Winter Peak Demand (MW)

Year	Total	Wholesale	Retail	Interruptible Load[1]	Distributed Generation[2]	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2009-10	5,263	5,263	0	0	64	152	N/A	N/A[3]	N/A	5,047
2010-11	4,476	4,476	0	0	55	106	N/A	N/A[3]	N/A	4,315
2011-12	4,118	4,118	0	0	66	134	N/A	N/A[3]	N/A	3,918
2012-13	3,839	3,839	0	0	0	132	N/A	N/A[3]	N/A	3,707
2013-14	3,333	3,333	0	0	0	93	N/A	18	N/A	3,240
2014-15	3,672	3,672	0	0	0	61	N/A	14	N/A	3,593
2015-16	3,377	3,377	0	0	0	56	N/A	14	N/A	3,307
2016-17	3,083	3,083	0	0	0	51	N/A	17	N/A	3,018
2017-18	4,024	4,024	0	0	0	68	N/A	22	N/A	3,939
2018-19	3,068	3,068	0	0	0	53	N/A	22	N/A	2,993
2019-20	3,713	3,713	0	44	67	64	N/A	22	N/A	3,516
2020-21	3,771	3,771	0	44	67	65	N/A	22	N/A	3,573
2021-22	3,814	3,814	0	44	67	66	N/A	22	N/A	3,615
2022-23	3,867	3,867	0	44	67	66	N/A	22	N/A	3,668
2023-24	3,911	3,911	0	44	67	66	N/A	22	N/A	3,712
2024-25	3,973	3,973	0	44	67	68	N/A	22	N/A	3,772
2025-26	4,022	4,022	0	44	67	70	N/A	22	N/A	3,819
2026-27	4,076	4,076	0	44	67	70	N/A	22	N/A	3,873
2027-28	4,123	4,123	0	44	67	71	N/A	22	N/A	3,919
2028-29	4,172	4,172	0	44	67	74	N/A	22	N/A	3,965

Notes:

- Actual value for 2013 and prior includes Lee County Electric Cooperative.

1) Excludes wholesale interruptible purchases.

2) Distributed generation reflects customer-owned self-service generation.

3) Reduced demands associated with Member Cooperative coincident demand billing are not reflected, although reductions are reflected in net firm demand.

Schedule 3.2.1

High Case Forecast of Winter Peak Demand (MW)

Year	Total	Wholesale	Retail	Interruptible Load[1]	Distributed Generation[2]	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2019-20	4,205	4,205	0	44	67	64	N/A	22	N/A	4,008
2020-21	4,259	4,259	0	44	67	65	N/A	22	N/A	4,061
2021-22	4,295	4,295	0	44	67	66	N/A	22	N/A	4,096
2022-23	4,345	4,345	0	44	67	66	N/A	22	N/A	4,146
2023-24	4,392	4,392	0	44	67	66	N/A	22	N/A	4,193
2024-25	4,450	4,450	0	44	67	68	N/A	22	N/A	4,249
2025-26	4,498	4,498	0	44	67	70	N/A	22	N/A	4,295
2026-27	4,547	4,547	0	44	67	70	N/A	22	N/A	4,344
2027-28	4,592	4,592	0	44	67	71	N/A	22	N/A	4,388
2028-29	4,629	4,629	0	44	67	74	N/A	22	N/A	4,422

Notes:
1) Excludes wholesale interruptible purchases.
2) Distributed generation reflects customer-owned self-service generation.

Schedule 3.2.2

Low Case Forecast of Winter Peak Demand (MW)

Year	Total	Wholesale	Retail	Interruptible Load[1]	Distributed Generation[2]	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2019-20	3,325	3,325	0	44	67	64	N/A	22	N/A	3,128
2020-21	3,387	3,387	0	44	67	65	N/A	22	N/A	3,189
2021-22	3,432	3,432	0	44	67	66	N/A	22	N/A	3,233
2022-23	3,489	3,489	0	44	67	66	N/A	22	N/A	3,290
2023-24	3,541	3,541	0	44	67	66	N/A	22	N/A	3,342
2024-25	3,603	3,603	0	44	67	68	N/A	22	N/A	3,402
2025-26	3,658	3,658	0	44	67	70	N/A	22	N/A	3,455
2026-27	3,714	3,714	0	44	67	70	N/A	22	N/A	3,511
2027-28	3,763	3,763	0	44	67	71	N/A	22	N/A	3,559
2028-29	3,804	3,804	0	44	67	74	N/A	22	N/A	3,597

Notes:
1) Excludes wholesale interruptible purchases.
2) Distributed generation reflects customer-owned self-service generation.

Schedule 3.3

History and Forecast of Annual Net Energy for Load (GWh)

Year	Total	Conservation		Retail	Total Sales Including Sales for Resale	Utility Use & Losses Less SEPA	Net Energy for Load	Load Factor %
		Residential	Commercial					
2010	17,346	N/A	N/A	0	16,052	1,294	17,346	39.2
2011	16,037	N/A	N/A	0	15,095	942	16,037	46.7
2012	15,769	N/A	N/A	0	14,733	1,036	15,769	45.8
2013	15,812	N/A	N/A	0	14,803	1,009	15,812	45.7
2014	13,854	N/A	N/A	0	13,130	724	13,854	44.3
2015	14,104	N/A	N/A	0	13,390	714	14,104	48.7
2016	14,471	N/A	N/A	0	13,829	642	14,471	50.0
2017	14,325	N/A	N/A	0	13,627	698	14,325	52.5
2018	14,912	N/A	N/A	0	14,276	636	14,912	43.2
2019	15,095	N/A	N/A	0	14,467	628	15,095	50.7
2020	14,975	N/A	N/A	0	14,326	649	14,975	48.6
2021	15,149	N/A	N/A	0	14,484	665	15,149	48.4
2022	15,320	N/A	N/A	0	14,646	674	15,320	48.4
2023	15,517	N/A	N/A	0	14,832	685	15,517	48.3
2024	15,713	N/A	N/A	0	15,016	697	15,713	48.3
2025	15,915	N/A	N/A	0	15,207	708	15,915	48.2
2026	16,105	N/A	N/A	0	15,387	718	16,105	48.1
2027	16,310	N/A	N/A	0	15,582	728	16,310	48.1
2028	16,508	N/A	N/A	0	15,767	741	16,508	48.1
2029	16,703	N/A	N/A	0	15,934	769	16,703	48.1

Notes:

- Actual value for 2013 and prior includes Lee County Electric Cooperative.

Schedule 3.3.1

High Case of Annual Net Energy for Load (GWh)

Year	Total	Conservation		Retail	Total Sales Including Sales for Resale	Utility Use & Losses Less SEPA	Net Energy for Load	Load Factor %
		Residential	Commercial					
2020	16,127	N/A	N/A	0	15,434	693	16,127	45.9
2021	16,300	N/A	N/A	0	15,583	717	16,300	45.8
2022	16,474	N/A	N/A	0	15,749	725	16,474	45.9
2023	16,669	N/A	N/A	0	15,936	733	16,669	45.9
2024	16,879	N/A	N/A	0	16,136	743	16,879	46.0
2025	17,082	N/A	N/A	0	16,330	752	17,082	45.9
2026	17,271	N/A	N/A	0	16,494	777	17,271	45.9
2027	17,476	N/A	N/A	0	16,690	786	17,476	45.9
2028	17,675	N/A	N/A	0	16,880	795	17,675	46.0
2029	17,866	N/A	N/A	0	17,044	822	17,866	46.1

Note: None

Schedule 3.3.2

Low Case Forecast of Annual Net Energy for Load (GWh)

Year	Total	Conservation		Retail	Total Sales Including Sales for Resale	Utility Use & Losses Less SEPA	Net Energy for Load	Load Factor %
		Residential	Commercial					
2020	14,126	N/A	N/A	0	13,519	607	14,126	51.6
2021	14,300	N/A	N/A	0	13,671	629	14,300	51.2
2022	14,473	N/A	N/A	0	13,836	637	14,473	51.1
2023	14,668	N/A	N/A	0	14,023	645	14,668	50.9
2024	14,878	N/A	N/A	0	14,223	655	14,878	50.8
2025	15,079	N/A	N/A	0	14,416	663	15,079	50.6
2026	15,273	N/A	N/A	0	14,586	687	15,273	50.5
2027	15,479	N/A	N/A	0	14,782	697	15,479	50.3
2028	15,675	N/A	N/A	0	14,970	705	15,675	50.3
2029	15,874	N/A	N/A	0	15,144	730	15,874	50.4

Note: None

2.3 Monthly Peak Demand and Net Energy for Load

Schedules 4 to 4.2 show actual net firm peak demand and net energy for load by month for 2019 and forecasts thereafter.

Schedule 4

Previous Year and 2-Year Forecast of Peak Demand and Net Energy for Load by Month

	2019 Actual		2020 Forecast		2021 Forecast	
Month	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)
January	2,993	1,217	3,516	1,205	3,573	1,219
February	2,461	928	3,109	1,058	3,125	1,073
March	2,613	1,040	2,452	1,077	2,431	1,093
April	2,688	1,096	2,498	1,089	2,537	1,105
May	3,342	1,436	2,904	1,325	2,953	1,342
June	3,399	1,470	3,005	1,404	3,025	1,417
July	3,272	1,494	3,082	1,510	3,102	1,523
August	3,203	1,538	3,200	1,527	3,231	1,539
September	3,268	1,454	2,959	1,390	2,977	1,404
October	3,055	1,315	2,662	1,181	2,683	1,195
November	2,317	1,027	2,476	1,042	2,502	1,057
December	2,520	1,080	2,817	1,167	2,838	1,182
ANNUAL		**15,095**		**14,975**		**15,149**

Schedule 4.1

2-Year High Case Forecast of Peak Demand and Net Energy for Load by Month

	2019 Actual		2020 Forecast		2021 Forecast	
Month	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)
January			4,008	1,389	4,061	1,403
February			3,336	1,139	3,350	1,154
March			2,709	1,180	2,692	1,195
April			2,680	1,185	2,719	1,201
May			3,061	1,389	3,107	1,406
June			3,173	1,488	3,192	1,502
July			3,232	1,582	3,250	1,595
August			3,303	1,582	3,334	1,594
September			3,047	1,422	3,069	1,435
October			2,879	1,285	2,901	1,299
November			2,666	1,138	2,692	1,154
December			3,255	1,348	3,269	1,362
ANNUAL				**16,127**		**16,300**

Schedule 4.2

2-Year Low Case Forecast of Peak Demand and Net Energy for Load by Month

	2019 Actual		2020 Forecast		2021 Forecast	
Month	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)
January			3,128	1,085	3,189	1,100
February			2,876	983	2,894	999
March			2,383	1,033	2,368	1,049
April			2,430	1,053	2,470	1,068
May			2,651	1,221	2,700	1,237
June			2,852	1,339	2,870	1,353
July			2,934	1,442	2,954	1,455
August			3,056	1,436	3,087	1,449
September			2,807	1,335	2,828	1,348
October			2,497	1,112	2,519	1,125
November			2,408	1,004	2,435	1,019
December			2,616	1,083	2,641	1,098
ANNUAL				**14,126**		**14,300**

2.4 Fuel Requirements

Seminole's coal, oil, and natural gas requirements for owned and future generating units are shown on Schedule 5 below:

Schedule 5

Actual & Base Case Fuel Requirements For Seminole Generating Resources

Fuel Requirements		Units	Actual 2018	Actual 2019	Forecast 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Nuclear		Trillion BTU	0	0	0	0	0	0	0	0	0	0	0	0
Coal		1000 Tons	3,159	2,894	3,030	3,026	2,412	1,086	1,129	1,129	1,149	1,156	1,141	1,140
Residual	Total	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
	Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
	CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
	CT	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
Distillate	Total	1000 BBL	36	32	34	34	27	12	13	13	13	13	13	13
	Steam	1000 BBL	35	32	34	34	27	12	13	13	13	13	13	13
	CC	1000 BBL	1	0	0	0	0	0	0	0	0	0	0	0
	CT	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
Natural Gas	Total	1000 MCF	27,572	27,252	32,131	32,837	31,125	58,996	57,380	59,755	60,948	62,449	63,427	65,185
	Steam	1000 MCF	0	0	0	0	0	0	0	0	0	0	0	0
	CC	1000 MCF	25,188	25,483	30,242	30,076	30,073	58,720	57,216	59,496	60,574	62,002	61,832	62,618
	CT	1000 MCF	2,384	1,769	1,889	2,761	1,052	276	164	259	374	447	1,595	2,567

Notes:
- Above fuel is for existing and future owned generating resources (excludes purchased power contracts).
- Totals may not add due to rounding.

2.5 Energy Sources by Fuel Type

Seminole's base case total system energy sources in GWh and percent for each fuel type are shown on Schedules 6.1 and 6.2, respectively, on the following pages. Other than the purchases from solar facilities, Seminole's additional requirements for capacity beyond 2021 are assumed to be from resources with natural gas as the primary fuel.

Schedule 6.1

Energy Sources (GWh)

Energy Sources		Units	Actual 2018	Actual 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024	Forecast 2025	Forecast 2026	Forecast 2027	Forecast 2028	Forecast 2029
Inter-Regional Interchange		GWh	-	-	-	103	33	23	9	17	7	-	-	-
Nuclear		GWh	-	-	-	-	-	-	-	-	-	-	-	-
Coal		GWh	7,599	6,952	7,394	7,409	5,724	2,549	2,647	2,649	2,701	2,723	2,681	2,677
Residual	Total	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	Steam	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	CC	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	CT	GWh	-	-	-	-	-	-	-	-	-	-	-	-
Distillate	Total	GWh	20	18	20	20	16	7	7	7	7	7	7	7
	Steam	GWh	20	18	20	20	16	7	7	7	7	7	7	7
	CC	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	CT	GWh	-	-	-	-	-	-	-	-	-	-	-	-
Natural Gas	Total	GWh	3,619	3,745	4,505	4,559	4,466	8,982	8,782	9,130	9,259	9,470	9,656	9,868
	Steam	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	CC	GWh	3,416	3,591	4,332	4,306	4,369	8,957	8,767	9,107	9,225	9,429	9,477	9,572
	CT	GWh	203	154	173	253	97	25	15	23	34	41	179	296
NUG		GWh	-	-	-	-	-	-	-	-	-	-	-	-
Renewables		GWh	-	-	-	-	-	-	-	-	-	-	-	-
Other		GWh	3,674	4,380	3,056	3,058	5,081	3,956	4,268	4,112	4,131	4,110	4,164	4,151
Total Renewables		GWh	610	595	469	423	423	612	1,213	953	858	771	770	768
Non-Firm Interchange Renewables Solar		GWh	3	4	3	3	3	190	791	773	773	771	770	768
Firm Interchange Renewables MSW		GWh	492	493	422	420	420	422	422	180	85	-	-	-
Firm Interchange Renewables Biomass		GWh	88	88	41	-	-	-	-	-	-	-	-	-
Firm Interchange Renewables Landfill Gas		GWh	27	10	3	-	-	-	-	-	-	-	-	-
Firm Interchange Base		GWh	24	7	-	-	-	-	-	-	-	-	-	-
Firm Interchange Intermediate		GWh	2,904	3,691	2,546	2,585	4,655	3,341	3,052	3,147	3,251	3,309	3,376	3,367
Firm Interchange Peaking		GWh	136	87	41	50	3	3	3	12	22	30	18	16
Net Energy for Load		GWh	14,912	15,095	14,975	15,149	15,320	15,517	15,713	15,915	16,105	16,310	16,508	16,703

Notes:

- Net interchange, unit power purchases and DEF and FPL system purchases are included under source fuel categories.
- Totals may not add due to rounding.
- Seminole Electric Cooperative may sell a portion of the renewable energy credits associated with its renewable generation to third parties. The third parties can use the credits to meet mandatory or voluntary renewable requirements.

Schedule 6.2

Energy Sources (Percent)

Energy Sources		Units	Actual 2018	Actual 2019	Forecast 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Inter-Regional Interchange		GWh	0.0%	0.0%	0.0%	0.7%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
Nuclear		GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Coal		GWh	51.0%	46.1%	49.4%	48.9%	37.4%	16.4%	16.8%	16.6%	16.8%	16.7%	16.2%	16.0%
Residual	Total	GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Steam	GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	CC	GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	CT	GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Distillate	Total	GWh	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Steam	GWh	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	CC	GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	CT	GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Natural Gas	Total	GWh	24.3%	24.8%	30.1%	30.1%	29.2%	57.9%	55.9%	57.4%	57.5%	58.1%	58.5%	59.1%
	Steam	GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	CC	GWh	22.9%	23.8%	28.9%	28.4%	28.5%	57.7%	55.8%	57.2%	57.3%	57.8%	57.4%	57.3%
	CT	GWh	1.4%	1.0%	1.2%	1.7%	0.6%	0.2%	0.1%	0.1%	0.2%	0.3%	1.1%	1.8%
NUG		GWh	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		GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other		GWh	24.6%	29.0%	20.4%	20.2%	33.2%	25.5%	27.2%	25.8%	25.7%	25.2%	25.2%	24.9%
Total Renewables		GWh	4.1%	3.9%	3.1%	2.8%	2.8%	3.9%	7.7%	6.0%	5.3%	4.7%	4.7%	4.6%
Non-Firm Interchange Renewables Solar		GWh	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	5.0%	4.9%	4.8%	4.7%	4.7%	4.6%
Firm Interchange Renewables MSW		GWh	3.3%	3.3%	2.8%	2.8%	2.7%	2.7%	2.7%	1.1%	0.5%	0.0%	0.0%	0.0%
Firm Interchange Renewables Biomass		GWh	0.6%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Firm Interchange Renewables Landfill Gas		GWh	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Firm Interchange Base		GWh	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Firm Interchange Intermediate		GWh	19.5%	24.5%	17.0%	17.1%	30.4%	21.5%	19.4%	19.8%	20.2%	20.3%	20.5%	20.2%
Firm Interchange Peaking		GWh	0.9%	0.6%	0.3%	0.3%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.1%	0.1%
Net Energy for Load		GWh	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes:

- Net interchange, unit power purchases and DEF and FPL system purchases are included under source fuel categories.
- Totals may not add due to rounding.
- Seminole Electric Cooperative may sell a portion of the renewable energy credits associated with its renewable generation to third parties. The third parties can use the credits to meet mandatory or voluntary renewable requirements.

FORECASTING METHODS AND PROCEDURES

3.1 Forecasting Methodology

Seminole adheres to generally accepted methodology and procedures currently employed in the electric utility industry to forecast number of consumers, energy, and peak demand. Forecast models are developed using regression analysis. Each Member Cooperative is modeled separately based on the unique growth characteristics in that service territory. Seminole produces monthly forecasts for each Member system, and when applicable, by rate classification. Seminole's system forecast is the aggregate of Member system forecasts. Model input data sources include Member Rural Utilities Services Form-7 Financial and Statistical Reports (RUS Form-7), Moody's Economic Consumer and Credit Analytics (ECCA), University of Florida's Bureau of Economic and Business Research (UF BEBR), Seminole's System Operations Power Billing System (PBS), Itron, Bureau of Labor Statistics (BLS) and AccuWeather.

3.1.1 Consumer Model

Numbers of consumers are modeled by month with regression analysis. Explanatory variables analyzed in these models include population, housing statistics, and economic indicators. Consumer models are specified by Member total and by rate classification. Rate class forecasts are reconciled to match, in aggregate, the total consumer forecasts by Member. Territorial agreements and information provided directly from Member representatives regarding anticipated changes in service territories are incorporated in forecast projections. The "other" consumer class represents a small portion of Member energy sales,

including irrigation, street and highway lighting, public buildings, and sales for resale.

3.1.2 Energy Model

Forecasts of Member energy purchases from Seminole are developed using regression analysis on hourly delivery point meter data aggregated to monthly values. Models are developed by Member total and by rate classification. Explanatory variables analyzed in these models include temperature and precipitation statistics, population and housing statistics, economic indicators, and price projections developed internally. Parameters explaining the reduction in load due to energy efficiency are also included. Member rate class energy purchases from Seminole are derived by scaling-up RUS Form-7 monthly energy sales to end-users by distribution loss factors. Rate class forecasts are reconciled bottom-up to match total level forecasts.

3.1.3 Peak Demand Model

Maximum peak demand is modeled by month and by season for each Member system using regression analysis. Explanatory variables analyzed in these models include temperature and precipitation statistics, population and housing statistics, gross product, internal electricity price data, load factor and energy efficiency.

Seasonal peak models are designed to predict winter and summer peaks based on a range of months where the highest peaks are expected to occur in each season. Winter seasonal peak models regress the highest peak during November through

March of each year against contemporaneous explanatory variables. Summer seasonal peak models regress the highest peak from April through September of each year against contemporaneous explanatory variables. Seasonal peak forecasts replace monthly model forecast results for the month each seasonal peak is most likely to occur.

Seminole's maximum demand is the aggregate of the one-hour simultaneous demands of all Members that maximizes the peak of the system in a single month. Forecasts of Seminole maximum demand are derived by applying coincident factors to Member-maximum demand forecasts. Future peak demands coincident with Seminole may be equal to or less than Member non-coincident maximum peaks, if the Member peak is normally not coincident with Seminole.

Load factor forecasts are derived through regression analysis of daily and monthly temperatures leading up to the peak day. These models are also developed by month and by season.

3.1.4 Alternative-Scenario Model

In addition to the base forecast, Seminole forecasts load conditions given mild and severe temperatures in the Members' geographical regions based on 90/10 percentiles of historical temperature observations.

3.1.5 Behind-the-Meter Solar

Seminole added behind-the-meter distributed solar projections to the load forecast study process in 2017. The purpose of the analysis is to reduce future energy and demand requirements that Seminole expects will otherwise be served, by solar facilities that are owned by either Seminole's Members or the end-use consumer members (e.g., rooftop solar). Seminole only forecasts new incremental growth in solar capacity, as existing capacity is already accounted for in historical load data. The underlying data for this analysis are gathered from annual net metering reports that the Members submit to the Florida Public Service Commission, which show the number of customer-owned renewable generation connections and the capacity associated with those connections. The historical trend from these data are analyzed to produce solar capacity growth rates five years ahead. End-use solar capacity growth rates published in the U.S. Energy Information Administration's (EIA) Annual Energy Outlook (AEO) are utilized thereafter. The hourly impacts of the installed capacity are estimated using the solar resource calculator available on the National Renewable Energy Laboratory website. The hourly values output by the calculator are scaled up by Seminole's capacity projections, and aggregated to estimate monthly energy output. Monthly demand estimates are selected based on seasonal peak hours coincident with Seminole.

3.2 Load Forecast Data

The primary resources for load forecasting are weather data, economic data, Member retail data, delivery point meter data, and energy efficiency data. Number of consumers and sales by consumer class are provided by Members through the RUS Form-7 financial report. Hourly delivery point load data is provided monthly by Seminole's System Operations department. Independent source data for economic and demographic statistics as well as energy efficiency are provided by government and credit rating agencies, independent vendors, and local universities.

Energy efficiency data for load forecast models are derived by combining Itron Statistically Adjusted End-Use (SAE) spreadsheets and Member residential appliance saturation surveys. Itron's spreadsheets provide appliance energy consumption and equipment stock historical data and projections from the EIA's AEO for the South Atlantic census region. Seminole also uses electric appliance saturation statistics captured in Member residential surveys to better reflect Member territory equipment adoption trends. These data are analyzed by utilizing Itron's SAE indexing methodology interacted with temperature statistics to produce "heat-use index", "cool-use index", and "base-use index" time-series at the usage-per-consumer level. These statistics are scaled to fit Seminole's total-energy requirement models by rate class and are aggregated to a Member-system total using weighted combinations. The SAE theory for calculating commercial energy efficiency variables is optimized by incorporating County-level employment by industry data from the BLS to approximate weighted shares and intensities of industrial equipment within each

Member Cooperative's service territory as opposed to the broader South Atlantic census region. Last, the "other" rate class efficiency assumptions include lighting efficiencies for Member Cooperatives that account for public street and highway lighting in this classification.

3.2.1 Materials Reviewed and/or Employed

Load Data by Delivery Point:

- Seminole's System Operations' Power Billing System (PBS)

Retail Number of Consumers, Energy Sales by Rate Class:

- Rural Utilities Services Form-7 Financial and Statistical Reports (RUS Form-7)

Individual Large Consumer Loads Over 1000 kVA:

- Member provided

Demographic and Economic Indicators:

- DataBuffet, Moody's Analytics Economic Consumer and Credit Analytics (ECCA)
- Projections of Florida Population by County, Volume 50, Bulletin 177, University of Florida Bureau of Economic and Business Research (UF BEBR); Quarterly Estimates from the Florida Legislative Office of Economic and Demographic Research.
- Employment by Industry, Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics (BLS)

Energy Efficiency and Behind-the-Meter Solar:

- 2018 Annual Energy Outlook (AEO), U.S. Energy Information Administration (EIA)
- 2017 Residential and Commercial Statistically Adjusted End-Use Spreadsheets, Itron
- 2016 Member Residential Appliance Saturation Survey
- National Renewable Energy Laboratory of the U.S. Department of Energy (DOE)

Weather Data:

- AccuWeather, Inc.

3.3 Significant Load Forecast Assumptions

3.3.1 Economic Assumptions

Seminole Members serve electricity to primarily-rural areas within 42 counties in the north, central, and south regions of Florida, which differ uniquely in geography, weather, and natural resources. These broad, low-density land areas are largely undeveloped. Population growth in Seminole's territory is sensitive to national economic and demographic factors that influence population migration from other states and metropolitan areas within Florida.

Historically, consumer growth in the Seminole-Member system has grown at a faster rate than the State of Florida as a whole and this trend is expected to continue. The leading indicators for load growth are Florida's expanding economy and net migration prospects into the state, especially from "baby boomer" retirees. Consumer growth and business activity will drive system growth, while downward pressure will come from flattening and declining residential end-use due to growth in efficient technologies, renewable generation, and alternative resources.

3.3.2 Weather Assumptions

Hourly temperature data for 25 weather stations in the proximity of Member service territories are provided by AccuWeather. Weather statistics for each Member's geographical area are derived from a set of weather stations that are found to best predict Member load over recent years.

Historical weather statistics input into forecast models include precipitation and relative humidity, minimum and maximum temperatures, and heating and cooling degree days. Monthly heating degree days represent the sum of degrees each daily average temperatures falls below 61° Fahrenheit, which is an approximate temperature when consumers turn on heating devices. Alternatively, monthly cooling degree days represent the sum of degrees each daily average temperatures exceeds 72° Fahrenheit, which is an approximate temperature when consumers turn on A/C units.

Normal weather statistics are based on a 30-year horizon of historical monthly observations. The two seasonal peak demand months for each year across the 30-year horizon are used to generate seasonal weather statistics. Extreme weather used for alternative-scenario forecasts include the 10^{th} and 90^{th} percentiles of historical temperatures, representing mild, and severe events, respectively.

FORECAST OF FACILITIES REQUIREMENTS

Seminole's base case forecasts of capacity and demand for the projected summer and winter peaks are in the following Schedules 7.1 and 7.2, respectively. The forecast includes the addition of approximately 2,468 MW of summer capacity by 2029. Such capacity is needed to replace the capacity associated with the removal of a Seminole Generating Station coal unit from service, expiring purchased power contracts and to serve increased Member load requirements while maintaining Seminole's reliability criteria. Overall, these additions, expirations and changes result in a net increase of 353 MW of total summer capacity by 2029.

Seminole's capacity expansion plan includes the construction of a new advanced, large-frame two-on-one natural gas combined cycle unit to be constructed adjacent to the existing Seminole Generation Site (Seminole Combined Cycle Facility or SCCF). The facility is expected to have a gross nominal output of 1,183 MW and a net nominal output of 1,050 MW, which it is anticipated to achieve across the entire range of ambient conditions typically experienced in Palatka, Florida. SCCF is scheduled to begin construction during the first quarter of 2020 and is expected to commence service in October 2022, coinciding with the removal of a Seminole coal unit from service. At this time, Seminole is evaluating which of the two coal units to remove from service.

In addition to the SCCF, Seminole's capacity expansion plan includes a number of new power purchase agreements to fulfill its needs. Seminole has executed agreements for a new natural gas one-on-one combined cycle facility and newly constructed solar facilities. Further details on these agreements is detailed in Table 1.2 above. The agreement with Shady Hills Energy Center, LLC is for a new highly efficient 575 MW (net winter) one-on-one combined cycle with duct burners, with a commercial operation date of December 2021. Other power agreements include purchases from two counterparties for system power, one from Southern Company Services, Inc. and a second from Duke Energy Florida. System power is provided for terms between five and fifteen years. Finally, Seminole has purchase power agreements for approximately 300 MW with Florida Renewable Partners, with commercial operation scheduled for 2023.

Schedule 7.1

Forecast of Capacity, Demand and Scheduled Maintenance at Time of Summer Peak

Year	Total Installed Capacity (MW)	Firm Capacity Import (MW)			Firm Capacity Export (MW)	QFs (MW)	Capacity Available (MW)		System Firm Summer Peak Demand (MW)		Reserve Margin Before Maintenance		Scheduled Maintenance (MW)	Reserve Margin After Maintenance	
		PR and FR	Purchases	Total			Total	FR	Total	Obligation	MW	% of Pk		MW	% of Pk
2020	2,056	0	1,886	1,886	0	0	3,942	3,942	3,200	3,200	742	23%	0	742	23%
2021	2,056	0	1,686	1,686	0	0	3,742	3,742	3,231	3,231	511	16%	0	511	16%
2022	2,056	0	1,773	1,773	0	0	3,829	3,829	3,272	3,272	557	17%	0	557	17%
2023	2,538	0	1,423	1,423	0	0	3,961	3,961	3,315	3,315	646	19%	0	646	19%
2024	2,538	0	1,602	1,602	0	0	4,140	4,140	3,356	3,356	784	23%	0	784	23%
2025	2,538	0	1,514	1,514	0	0	4,052	4,052	3,397	3,397	655	19%	0	655	19%
2026	2,538	0	1,422	1,422	0	0	3,960	3,960	3,435	3,435	525	15%	0	525	15%
2027	2,538	0	1,469	1,469	0	0	4,007	4,007	3,476	3,476	531	15%	0	531	15%
2028	2,630	0	1,594	1,594	0	0	4,224	4,224	3,515	3,515	709	20%	0	709	20%
2029	2,722	0	1,594	1,594	0	0	4,316	4,316	3,553	3,553	763	21%	0	763	21%

Notes:
- Total installed capacity and the associated reserve margins are based on Seminole's current base plan and are based on a 15% reserve margin criterion.
- Total Installed Capacity does not include SEPA. 60% of Solar Summer Peak Rating is included in reserve calculations.
- Percent reserves are calculated at 15% of Seminole's obligation and include any surplus capacity.

Schedule 7.2

Forecast of Capacity, Demand and Scheduled Maintenance at Time of Winter Peak

Year	Total Installed Capacity (MW)	Firm Capacity Import (MW)			Firm Capacity Export (MW)	QFs (MW)	Capacity Available (MW)		System Firm Winter Peak Demand (MW)		Reserve Margin Before Maintenance		Scheduled Maintenance (MW)	Reserve Margin After Maintenance	
		PR and FR	Other Purchases	Total			Total	Less PR and FR	Total	Obligation	MW	% of Pk		MW	% of Pk
2019/20	2,157	0	2,483	2,483	0	0	4,640	4,640	3,516	3,516	1124	32%	0	1124	32%
2020/21	2,157	0	1,971	1,971	0	0	4,128	4,128	3,573	3,573	555	16%	0	555	16%
2021/22	2,157	0	2,011	2,011	0	0	4,168	4,168	3,615	3,615	553	15%	0	553	15%
2022/23	2,642	0	1,587	1,587	0	0	4,229	4,229	3,668	3,668	561	15%	0	561	15%
2023/24	2,642	0	1,637	1,637	0	0	4,279	4,279	3,712	3,712	567	15%	0	567	15%
2024/25	2,642	0	1,668	1,668	0	0	4,310	4,310	3,772	3,772	538	14%	0	538	14%
2025/26	2,642	0	1,761	1,761	0	0	4,403	4,403	3,819	3,819	584	15%	0	584	15%
2026/27	2,642	0	1,823	1,823	0	0	4,465	4,465	3,873	3,873	592	15%	0	592	15%
2027/28	2,734	0	1,784	1,784	0	0	4,518	4,518	3,919	3,919	599	15%	0	599	15%
2028/29	2,826	0	1,744	1,744	0	0	4,570	4,570	3,965	3,965	605	15%	0	605	15%

Notes:
- Total installed capacity and the associated reserve margins are based on Seminole's current base plan and are based on a 15% reserve margin criterion.
- Total Installed Capacity does not include SEPA. 60% of Solar Summer Peak Rating is included in reserve calculations.
- Percent reserves are calculated at 15% of Seminole's obligation and include any surplus capacity.

4.1 Planned and Prospective Generating Facility Additions and Changes

Schedule 8 below shows Seminole's planned and prospective generating facility additions and changes.

Planned and Prospective Generating Facility Additions and Changes

Plant Name	Unit No	Location	Unit Type	Fuel		Transportation		Const. Start Date	Comm. In-Service Date	Expected Retirement Date	Max Nameplate	Summer MW	Winter MW	Status
				Pri	Alt	Pri	Alt							
SEMINOLE CC FACILITY	TBD	Putnam County	CC	NG		PL		02/2020	10/2022		1116	1108	1122	T
SEMINOLE GENERATING STATION	TBD	Putnam County	ST	BIT		RR				10/2022	-735.9	See Note 1	See Note 1	P
UNNAMED RECIPROCATING UNIT	1	UNKNOWN	IC	NG		PL		See Note 2	12/2027		91.9	91.9	91.9	P
UNNAMED RECIPROCATING UNIT	2	UNKNOWN	IC	NG		PL		See Note 2	12/2028		91.9	91.9	91.9	P

Notes:

- Abbreviations – See Schedule 1.

1) Seminole is currently evaluating which of either SGS U1 or SGS U2 will be removed from service commensurate with the commissioning of the Seminole Combined Cycle Facility. The applicable capacity ratings are identified on Schedule 1.

2) Future resource which may be existing or new as determined by future Request for Proposal results.

4.2 Proposed Generating Facilities

Schedule 9 below reports the status and specifications of Seminole's proposed generating facility.

Schedule 9

Status Report and Specifications of Proposed Generating Facilities

1	Plant Name & Unit Number	Seminole CC Facility	Unnamed Generating Station Recipricating Unit 1	Unnamed Generating Station Recipricating Unit 2
2	Capacity			
	a. Summer (MW):	1108	92	92
	b. Winter (MW):	1122	92	92
	c. ISO (MW):	1122	92	92
3	Technology Type:	Combined Cycle	Reciprocating Engine	Reciprocating Engine
4	Anticipated Construction Timing			
	a. Field construction start-date [(1)]:	October 2019	December 2025	December 2026
	b. Commercial in-service date:	October 2022	December 2027	December 2028
5	Fuel			
	a. Primary fuel:	Natural Gas	Natural Gas	Natural Gas
	b. Alternate fuel:	None	None	None
6	Air Pollution Control Strategy	Dry Low-NOx burners, SCR, and Oxidation Catalyst	SCR and CO catalyst	SCR and CO catalyst
7	Cooling Method:	Wet Cooling Tower with Forced Draft Fans	TEWAC Cooled	TEWAC Cooled
8	Total Site Area:	SGS	TBD	TBD
9	Construction Status:	Planned	Planned	Planned
10	Certification Status:	Planned	Planned	Planned
11	Status With Federal Agencies	N/A	N/A	N/A
12	Projected Unit Performance Data			
	Planned Outage Factor (POF):	4.00	1.00	1.00
	Forced Outage Factor (FOF):	3.00	3.00	3.00
	Equivalent Availability Factor (EAF):	93.00	96.00	96.00
	Resulting Capacity Factor (%):	76%	12%	10%
	Average Net Operating Heat Rate (ANOHR):	6,314	8,499	8,499
13	Projected Unit Financial Data ($2022)			
	Book Life (Years):	33	33	33
	Total Installed Cost (In-Service Year $/kW)[(2)]:	649	1,134	1,159
	Direct Construction Cost ($/kW):	607	1,087	1,111
	AFUDC Amount ($/kW):	41	47	48
	Escalation ($/kW):	Included in values above	Included in values above	Included in values above
	Fixed O&M ($/kW-Yr):	15	14.66	15.01
	Variable O&M ($/Run Hour):	-	-	-
	Variable O&M ($/MWH):	0.114	0.917	0.938
	K Factor:	N/A	N/A	N/A

NOTES: 1) Assumes thirty-six months of construction.
2) Calculated at ISO rating.

4.3 Proposed Transmission Lines

Schedule 10 below reports status and specifications of Seminole's proposed directly associated transmission lines corresponding with proposed generating facilities.

Schedule 10

Status Report and Specifications of Proposed Transmission Lines

1	Point of Origin and Termination:	Seminole will utilize existing transmission lines and does not anticipate any new lines.
2	Number of Lines:	
3	Right-of-Way	
4	Line Length:	
5	Voltage:	
6	Anticipated Construction Timing:	
7	Anticipated Capital Investment:	
8	Substation:	
9	Participation with Other Utilities:	

Notes: None

5.1 Transmission Reliability

In general, Seminole models its transmission planning criteria after the Florida Reliability Coordinating Council's ("FRCC") planning guidelines and procedures. The FRCC has modeled its planning guidelines consistent with the North American Electric Reliability Corporation's ("NERC") Reliability Standards. Seminole's Transmission facilities are planned such that they shall not exceed their applicable facility rating under normal conditions or contingency events. In addition, Seminole uses the following voltage guidelines for all applicable stations:

Table 1.3

	Phase-to-Phase Voltage	No Contingency [1] Normal Conditions (lower/upper limit)	Post Contingency [1]
Seminole Owned	230 kV 115 kV 69 kV	0.95pu/1.05pu 0.90pu/1.05pu 0.90pu/1.05pu	0.95pu/1.05pu 0.90pu/1.05pu 0.90pu/1.05pu
Seminole Member Owned	230 kV 138 kV 115 kV 69 kV	0.90pu/1.05pu 0.90pu/1.05pu 0.90pu/1.05pu 0.90pu/1.05pu	0.90pu/1.05pu 0.90pu/1.05pu 0.90pu/1.05pu 0.90pu/1.05pu

Notes:

1) Exception: For Seminole and Member-owned BES transmission systems; the lower voltage limits used during transient/stability studies are in accordance with the FRCC's Stability Criteria document. For Seminole's owned 230 kV transmission system, the upper voltage limit during steady-state and transient studies can reach up to 1.065 pu; however, typically the transmission planner will utilize 1.05 pu as a starting point.

5.2 Plan Economics

Seminole creates a base case scenario using the most recent load forecast, fuel forecast, operational cost assumptions, and financial assumptions against which power supply alternatives are then compared to determine the overall effect on the present worth of revenue requirements (PWRR). All other things being equal, the option with the lowest long-term PWRR is normally selected. Sensitivity analyses are done to test how robust the selected generation option is when various parameters change from the base study assumptions (e.g., load forecast, fuel price, and capital costs of new generation).

5.3 Fuel Price Forecast

5.3.1 Coal

Spot and long-term market commodity prices for coal (at the mine) and transportation rates have shown increased volatility in recent years. This condition is expected to continue into the future, as environmental rules/standards, coal generating station retirements, coal supply/demand imbalances, coal transportation availability/pricing, and world energy markets all combine to affect U.S. coal prices. The underlying value of coal at the mine will continue to be driven by changing domestic demand, reductions to the number of available coal suppliers, planned coal unit retirements, export opportunities for U.S. coal, and federal/state mine safety rules/legislation affecting the direct mining costs. Additional coal delivered price increases and volatility will come from the cost of transportation equipment (railcars), handling service contracts and freight transportation impacts. Railroads are also affected by reduced coal deliveries, federal rules and legislative

changes and fuel oil markets, all of which are impacting the volatility of the cost of rail service in the U.S. CSX Transportation, Inc. is Seminole's sole coal transport provider and the parties are operating under a confidential multi-year rail transportation contract. Seminole also has a confidential multi-year coal contract with Alliance Coal, LLC providing a majority of our coal requirements from the Illinois Basin. Both of these existing relationships reduce Seminole's coal price volatility risk for the near term.

5.3.2 Fuel Oil

The domestic price for fuel oil will continue to reflect the price volatility of the world energy market for crude oil and refined products. Seminole is currently only purchasing ultra-low sulfur fuel oil for its generating stations, generally as a backup fuel to natural gas. As Seminole uses limited quantities of fuel oil to provide for the energy requirements of its members, fuel oil volatility is not a major driver in regards to system energy costs.

5.3.3 Natural Gas

Natural gas prices are projected to remain fairly stable over the next ten years, with volatility projected primarily in the short term markets. Henry Hub gas prices for 2020 are projected to be relatively low, around $2.00 per mmBtu and remain relatively flat in response to an over-supplied gas market due to increased gas production, which continues to outpace demand. Beyond 2020, nominal gas prices are projected to remain below $3.00 per mmBtu through 2030.

5.3.4 Modeling of Fuel Sensitivity

Given the uncertainty of future fuel prices, the historical volatility of natural gas prices, and Seminole's reliance on gas as a significant component of its fuel portfolio, it is prudent to evaluate the impact of various natural gas prices on its alternative resources for meeting future needs. For this, Seminole incorporates both a high and low natural gas price forecast as a complement to its base case price forecast to support resource planning. Calculated with available market information, Seminole's high/low gas price curves form a statistical confidence interval around its base case price forecast.

5.4 Coal/Gas Price Differential

The 2019 market prices for natural gas and coal delivered to Seminole's generating units continue to reflect soft gas prices and a significant narrowing of the price spread that historically existed between the two fuels. This spread is now inverted, with natural gas prices below that of coal throughout the study period given the market's projection of depressed gas prices.

5.5 Modeling of Generation Unit Performance

Existing units are modeled with forced outage rates and heat rates for the near term based on recent historical data. The long-term rates are based on a weighting of industry average data or manufacturers' design performance data.

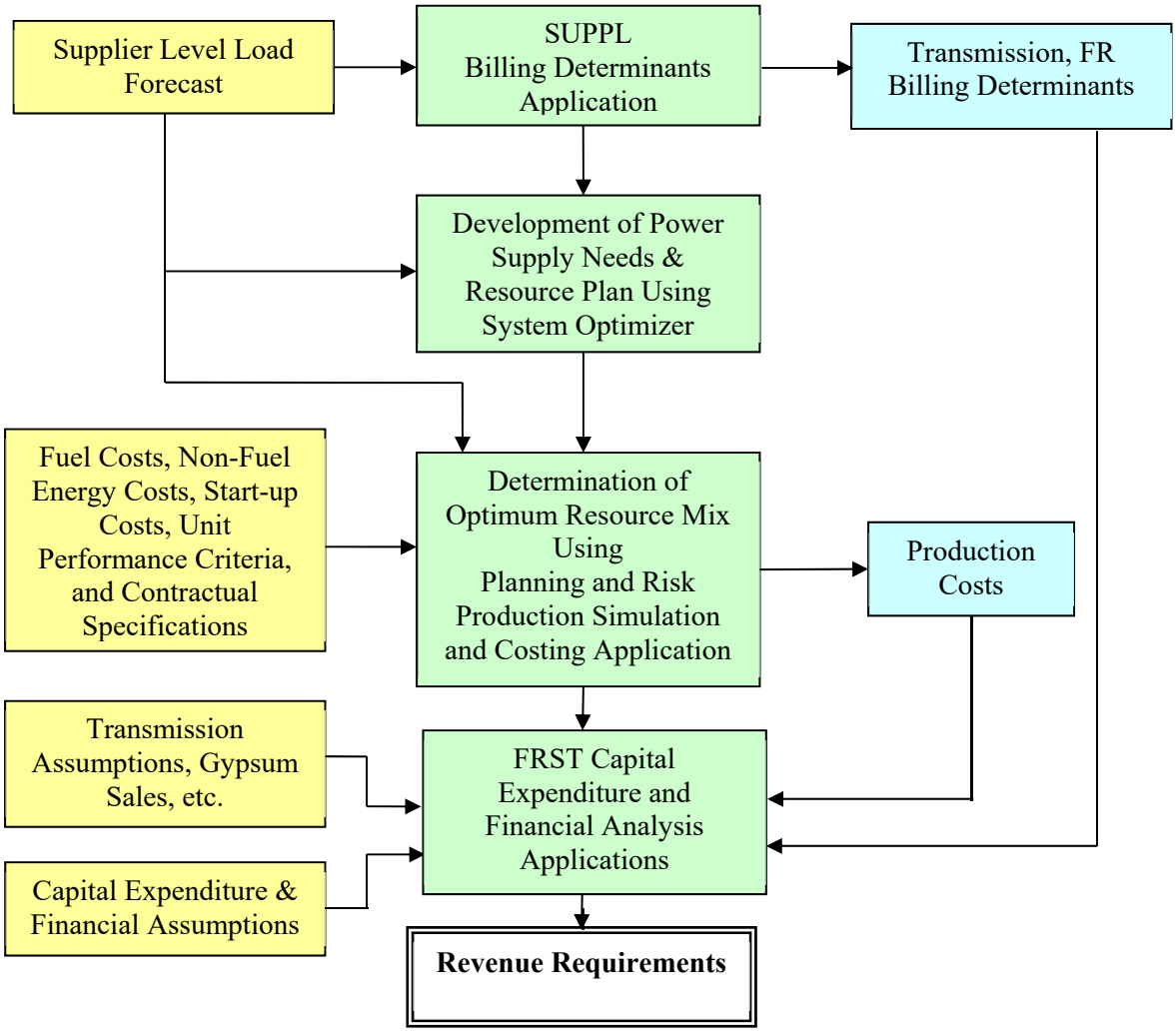
5.6 Financial Assumptions

Expansion plans are evaluated based on Seminole's forecast of market-based loan fund rates.

5.7 Resource Planning Process

Seminole's primary long-range planning goal is to develop the most cost-effective way to meet its Members' load requirements while maintaining high system reliability and managing risk. Seminole's optimization process for resource selection is based primarily on total revenue requirements. As a not-for-profit cooperative, revenue requirements translate directly into rates to our Members. The plan with the lowest revenue requirements is generally selected, assuming that other factors such as reliability impact, initial rate impact, risk, and strategic considerations are neutral. Seminole also recognizes that planning assumptions change over time, so planning decisions must be robust and are, therefore, tested over a variety of sensitivities. A flow chart of Seminole's planning process is shown below in Figure 5.1.

Figure 5.1
Resource Planning Process



5.8 Reliability Criteria

The total amount of generating capacity and reserves required by Seminole is affected by Seminole's load forecast and its reliability criteria. Reserves serve two primary purposes: to provide replacement power during generator outages, and to account for load forecast uncertainty. Seminole's primary reliability criteria is a minimum reserve margin of 15% during the peak winter and summer seasons which ensures that Seminole has adequate generating capacity to provide reliable service to its Members and to limit Seminole's emergency purchases from interconnected, neighboring systems.

5.9 DSM Programs

Schedules 3.1 and 3.2 reflect the estimated savings from residential and commercial load management programs. Seminole promotes Member involvement in demand side management (DSM) through its rate structure, which provides Members with price signals that reflect Seminole's cost of supplying power in aggregate. Under this rate structure, Seminole's demand charge to each of its Members is applied to each Member's demand at the time of Seminole's peak. This encourages Members to concentrate their load-management efforts on controlling Seminole's overall system peak rather than their separate peaks. In addition, Seminole's wholesale rate to its Members include time-of-use fuel charges to reflect the differences in fuel costs incurred by Seminole to serve its Members during the peak and off-peak periods. Each Member may use these price signals to evaluate the cost effectiveness of DSM, energy efficiency and conservation measures for its own circumstances. To ensure Members have the opportunity to achieve maximum

load-management benefit, Seminole's system operators develop and implement a coordinated load management demand reduction strategy in real time to notify Members when Seminole's monthly billing peak is expected to occur.

Members participate in Seminole's coordinated load management-demand reduction strategy during peak-demand billing events through distribution system voltage reduction ("VR") and coincident peak power rate programs. Seminole's Members also offer a variety of programs and services to end-use member-consumers in order to promote energy efficiency, conservation and cost savings. Member DSM, energy efficiency and conservation programs include:

- **Distribution System Voltage Reduction (VR):** Coordinated load management-demand reduction program where Member system operators lower voltage during critical peak billing periods, within allowable thresholds, on distribution feeders to reduce demand during critical peak billing periods.
- **Commercial Coincident Peak Power (CPP) Rates:** Coordinated load management-demand reduction program where enrolled commercial and industrial member-consumers are signaled to shed load during critical peak billing periods.
- **Commercial Interruptible Rates:** Direct load control program where Seminole or the Members interrupt electrical service to enrolled member-consumers during extreme peak demand, capacity shortage or emergency conditions.
- **Commercial Customer Load Generation Program:** Standby peak-shaving generators, which Seminole and its Members may dispatch for purpose of load management and

enhanced reliability. Members with standby generators under this program receive a billing credit.

- **Time-of-Use (TOU) Rates**: Residential, commercial, or industrial rates that encourage member-consumers to use power during off-peak hours when prices are relatively less expensive.
- **Residential Pre-Pay:** Residential member-consumers pre-pay for their electricity and receive enhanced feedback on their energy use and costs. The increased energy awareness that this program provides results in behavioral changes that produce energy savings.
- **LED/CFL Efficient Bulb Giveaway:** This program provides end-use member-consumers with free energy-efficient 10 Watt (W) equivalent Light emitting diode ("LED") bulbs to replace their existing compact Fluorescent light ("CFL") bulbs or incandescent bulbs.
- **LED Outdoor and Street Lighting:** Replacement of Member-owned outdoor and street lighting with lower wattage LEDs.
- **Energy Smart Rebates:** A rebate is given to residential member-consumers to upgrade to more efficient equipment and/or improve the building envelope. Rebate opportunities include: air conditioners and heat pumps, heat pump water heaters, solar water heaters, insulation – batt or spray foam – and window film.
- **Energy Audits:** On-site energy audit program for residential, commercial and industrial member-consumers.

Seminole assists its Members in evaluating and implementing DSM measures. In 2008, Seminole and its Members jointly formed an Energy Efficiency Working Group to coordinate and further-enhance energy conservation and efficiency initiatives. The function of this group is to promote conservation, efficiency and DSM programs through the sharing of information, consumer education, and joint assessment of energy efficiency technologies. In addition to participating in the Working Group, Seminole has sponsored its own conservation and efficiency initiatives, which include giving LED light bulbs to member-consumers during Member meetings and administering an LED light bulb bulk purchase program for Members. Seminole also provides Members with materials that can be distributed to end-use member-consumers including educational brochures, manufactured housing weatherization brochures, videos on energy efficiency home auditing, and a video on Cooperative Solar. Seminole remains active in upgrading utility system efficiency at administration and generation facilities.

In addition, Seminole works with Members to evaluate and implement pilot programs. In 2019, Seminole, in coordination with its Members, began the implementation of a Smart Thermostat demand response pilot program that in the first year had 1,100 end-use consumer member thermostats enrolled. The second phase of the pilot is currently underway to add additional thermostats.

Finally, Seminole also is committed to working with its Members to improve program tracking and increase future savings by enhancing current efforts and adding new measures to existing programs when appropriate. In 2016, Seminole engaged Advanced Energy and Tierra Resource Consultants, LLC (AE/Tierra), an energy and natural resource consulting firm, to assist Seminole and its Member in quantifying the energy efficiency and DSM savings achieved by our various programs.

5.10 Strategic Concerns

In the rapidly changing utility industry, strategic and risk related issues are becoming increasingly important and play a companion role to economics in Seminole's power supply planning process. Seminole values resource diversity, flexibility and optionality as a hedge against a variety of risks, as evidenced by our current generation portfolio. Long-term resources contribute stability while shorter-term arrangements add flexibility. Seminole considers both system and unit-specific capacity when determining our reserve requirements. Resource location, transmission interconnection, and deliverability are all considerations for Seminole in constructing its portfolio. Flexibility in fuel supply is another significant strategic concern. A portfolio that relies on a diverse number of fuel types is better protected against extreme price fluctuations, supply interruptions, and transportation constraints/instability. Seminole believes that the existing and future diversity in its power supply plan has significant strategic value, leaving Seminole in a good position to respond to both market and industry changes while remaining competitive.

5.11 Procurement of Supply-Side Resources

In making decisions on future procurement of power supply, Seminole compares self-build, acquisition, and purchased power alternatives. Seminole solicits proposals from reliable, creditworthy counterparties in the wholesale market. Seminole's evaluation of its options includes an assessment of economic life cycle cost, reliability, operational flexibility, strategic concerns, and risk elements.

5.12 Transmission Construction and Upgrade Plans

To support the construction and future operation of SCCF, Seminole will be expanding its existing SGS Switchyard to facilitate interconnection of the new SCCF plant with Seminole's 230 kV transmission system. As a result of generation interconnection studies performed by Seminole, its consultants, and the FRCC, it has been identified that a re-rating of FPL's existing 230 kV transmission line emanating from the SGS Switchyard to FPL's remote-end substation is required. The re-rating will be performed by FPL and will be implemented prior to the commercial operation date of SCCF.

ENVIRONMENTAL AND LAND USE INFORMATION

6.1 Potential Sites

6.1.1 Gilchrist Site – Gilchrist County, Florida

Seminole owns land in Gilchrist County but has not made a final determination if or when the site will be used for any of Seminole's future resource requirements. The Gilchrist site is approximately five-hundred twenty (520) acres in size. The site, as shown on map 3, is located in the central portion of Gilchrist County, approximately two (2) miles east-northeast of Bell, Florida, and about thirty (30) miles west of Gainesville and may be suitable for installation of generation or transmission resources.

Following initial site evaluation in 2007, an additional site evaluation in 2015 included ecological surveys to identify current vegetation/land use types, listed plant or animal species, and location of any wetlands. Prior to the field surveys, available maps and other pertinent information were gathered and reviewed, including: wetland occurrence information documented on National Wetland Inventory (NWI) map(s) from the U.S. Fish and Wildlife Service (USFWS), soils maps information from the National Resource Conservation Service (NRCS), records of any listed plants or animals known from Gilchrist County that are available from online data and records maintained by the Florida Natural Areas Inventory (FNAI) and the Atlas of Florida Vascular Plants maintained by the University of South Florida Herbarium, lists of federally listed plants and animals

maintained by USFWS, and records of eagle nest locations and wading bird rookeries that might occur within the site available on the Florida Fish and Wildlife Conservation Commission (FWC) website.

Much of the site has been used for silviculture (pine plantation) and consists of large tracts of planted longleaf and slash pine communities. Few natural upland communities remain. Most of these large tracts have been harvested, leaving xeric oak, and pine remnants. A few wetland communities remain on the east side of the site with relatively minor disturbances due to adjacent silvicultural activities. Evidence of listed species include gopher tortoise (state threatened) burrows.

At such time as Seminole determines the Gilchrist site should be considered a preferred site for the construction of generation or transmission facilities, Seminole will update the site evaluation and will obtain necessary approvals.

6.2 Preferred Sites

6.2.1 Seminole Generating Station Site (SGS) - Putnam County, Florida

Seminole Generating Station Site is located in a rural unincorporated area of Putnam County approximately five (5) miles north of the City of Palatka. The site is one thousand nine-hundred eighty-one and a half (1,981.5) acres bordered by U.S. 17 on the west, and is primarily undeveloped land on the other sides. The site was certified in 1979 (PA78-10) for two coal-fired electric generating units, SGS Units 1 & 2, totaling approximately 1,472 MW. The selected location for the SCCF

facility involves construction and operation of a natural gas-fired two-on-one combined-cycle generating facility and onsite associated facilities on an approximately thirty-two (32) acre parcel adjacent to the existing SGS plant The new unit will have a gross nominal generating capacity of 1,183 MW and a net nominal generating capacity of approximately 1,050 MW.

6.2.1.1 Land and Environmental Features

a. U.S. Geological Survey Map

See map 4

b. Proposed Facilities Layout

See map 5

c. Map of Site and Adjacent Areas

See map 6

d. Existing Future Land Use (FLU) Designations of Site and Adjacent Areas

The existing FLU designation for the SGS site is Public Facilities (PF) as shown on map 7. The SGS site zoning is Planned Unit Development (PUD) as depicted on map 8. The SGS site is currently utilized as a power generation facility. The portion of the SGS site on which the SCCF will be located is undeveloped woodland. The SCCF unit will be located south of an existing substation, southwest of existing hyperbolic cooling towers, north of an SGS recreational area, and east of the

existing SGS waste treatment area. The northern, northwestern, western, northeastern, eastern and southern adjacent properties to SGS are designated A2. The RR land use designation abuts the portion of the property located south of CR 209.

e. General Environmental Features On and In the Site Vicinity

1. Natural Environment

The SGS site is currently used for electrical generation. Units 1 and 2 are located in the central portion of the site. The site is undeveloped except for Units 1 and 2 and ancillary facilities. Undeveloped portions of the site are primarily forested wetlands and uplands. The SCCF will be located on an upland portion of the property, and will not impact wetlands.

2. Listed Species

Ecological surveys of the SCCF area revealed the presence of gopher tortoises. No listed plant species have been identified in the areas to be impacted. Gopher tortoises are a state-designated threatened species. Seminole will comply with current (FWC) gopher tortoise permitting and relocation rules throughout construction of the SCCF.1 For these reasons, no adverse impacts to threatened or endangered species are anticipated as a result of the

1 Required pre-clearing surveys were completed in advance of Construction Start activities that began in the first quarter of 2020.

SCCF.

3. Natural Resources of Regional Significance Status

Construction of the SCCF will not adversely impact natural resources of regional significance.

4. Other Significant Features

Seminole is not aware of any other significant site features.

f. Design Features and Mitigation Options

The design includes a new natural gas-fired approximately 1,183 MW (gross nominal)/1,050 MW (net nominal), two-on-one, combined-cycle generating facility and onsite associated facilities on an approximately 32 acre portion of the SGS site. One of the two existing SGS coal-fired units will be removed from service coincident with the declared commercial operation of SCCF. Because Seminole does not anticipate on-site wetland impacts, no mitigation is anticipated.

g. Local Government Future Land Use Designations

As shown on map 7, all of the SGS site is currently designated PF on the Putnam County Future Land Use Map. The PF category designation allows Community Facilities and Services Type 4, of which power generating plants and facilities are one.

h. Site Selection Criteria Process

The SGS site has been selected as the location for the SCCF based on

various factors including land use/ownership, site development, electrical transmission, fuel supply, water supply, wastewater, environmental assessment, transportation, technology, schedule, and economics.

i. Water Resources

Water Resources include surface water from the St. Johns River and groundwater from the Upper Floridan Aquifer.

j. Geologic Features of Site and Adjacent Areas

Putnam County is underlain by sedimentary rocks with an average thickness of nearly 4,000' that range in age from the early Paleozoic era to the Recent. Formations and groups include (from oldest to youngest): the Cedar Keys Formation of Paleocene age; Oldsmar Limestone of early Eocene age; Avon Park Formation of middle Eocene Age; Ocala Limestone of the late Eocene Age; Hawthorn Group of Miocene age; Nashua Formation of the Pliocene Age; and undifferentiated sediments of the Pleistocene Age.

The SCCF area is underlain by very loose to very dense fine sand, fine sand with silt, fine sand with clay, silty fine sand, and clayey fine sand and very soft to firm clay to depths of approximately 87' below the existing ground surface. Soil borings in the area then encountered medium dense to very dense marl and weathered limestone at depths of

90’ to 100’ below the existing ground surface.

k. Projected Water Quantities for Various Uses

Cooling water make-up (peak): 8.26 million gallons per day (MGD)

Process water (peak): 0.410 MGD

Potable water (peak): 0.001 MGD

l. Water Supply Sources by Type

Cooling water make-up: Surface Water

Process water: Floridan Aquifer System

Potable water: Floridan Aquifer System

m. Water Conservation Strategies Under Consideration

Water conservation measures that are incorporated into the current operation of SGS include the collection, treatment, and recycling of plant process wastewater streams. This wastewater reuse minimizes groundwater and service water uses. A portion of recirculated condenser cooling water (cooling tower blowdown) is withdrawn from the closed cycle cooling tower and discharged to the St. Johns River.

Site stormwater is reused to the maximum extent possible and any not reused is treated in wet detention ponds and released to onsite wetlands. The SCCF will likewise utilize a closed cooling system that will cycle cooling water approximately three times prior to disposal. In addition,

like the existing SGS units, the source of cooling water make-up is tidally-influenced surface water. Water conservation measures will include collection, treatment, and recycling of plant process wastewater streams to minimize groundwater and service water uses. The SCCF will not require any additional surface water allocation and will require only 0.07 MGD of additional ground water.

n. Water Discharges and Pollution Control

The SCCF will utilize a closed cycle cooling system with cooling towers for heat dissipation, minimizing water discharges. Heat recovery steam generator blowdown and evaporative cooler blowdown will also be reused in the cooling tower. Cooling tower blowdown will be combined with treated sanitary waste and other wastewaters for discharge via existing infrastructure. Discharge from the existing SGS units is to the St. Johns River, and the SCCF will utilize the same discharge location. The current discharge meets, and any future discharge will meet, all applicable requirements. Stormwater management and treatment will be provided via an on-site stormwater management system designed based on, at a minimum, the 25-year, 24-hour storm and in accordance with all applicable federal, state, and local requirements.

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

Natural gas will be delivered to SGS via a new pipeline lateral interconnecting with Florida Gas Transmission's mainline transmission

system. Seminole has entered into a contract with a third party to construct, own and operate the natural gas pipeline lateral. Solid waste will be disposed of at an appropriate off-site landfill. All hazardous waste generated during operation of the SCCF will be managed in accordance with applicable requirements. Seminole will implement BMPs to prevent and control the inadvertent release of pollutants.

p. Air Emissions and Control Systems

Air emissions will be minimized through the use of clean natural gas as the fuel source for the SCCF, efficient combined cycle technology, internal combustion controls, and air pollution control equipment. The combustor design will minimize the formation of nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compounds (VOCs). Selective catalytic reduction (SCR) will further control NO_x emissions. An oxidation catalyst will further control CO and VOC emissions.

q. Noise Emissions and Control Systems

Off-site noise impacts from the SCCF unit are expected to be minimal given that the site has been in operation for electrical generation for decades. Further, the area to be impacted on-site is more than 1,300 feet from the site boundary and over 2,000 feet from the nearest residence.

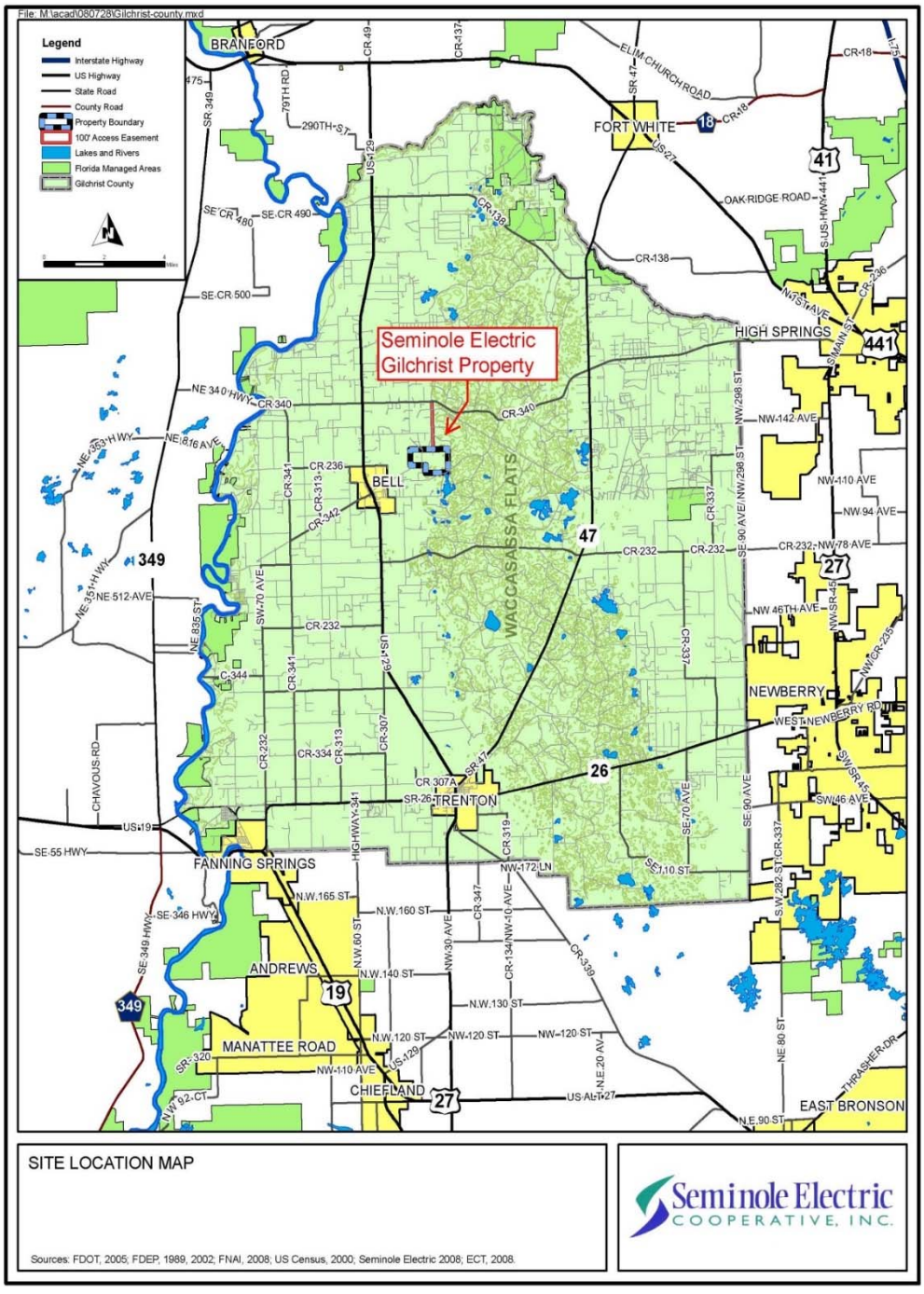
r. Status of Applications

Seminole filed a Site Certification Application for construction of the SCCF under the Florida Power Plant Siting Act (PPSA), Chapter 403,

Part II and received approval from the Florida Department of Environmental Protection (FDEP) on July 27, 2018. An application for a Prevention of Significant Deterioration (PSD) air construction permit with the FDEP was submitted on December 8, 2017 and the permit was issued on March 21, 2018. Seminole filed a Petition for Determination of Need for the SCCF with the Florida Public Service Commission on December 21, 2017 and received the Final Order on May 25, 2018. An application to revise the existing National Pollutant Discharge Elimination System (NPDES) permit was received by FDEP on October 17, 2018.2

2 A Notice of Intent (NOI) was published on February 20, 2020 and FDEP has confirmed that no comments were received. Accordingly, the Final Permit Issuance is expected in the first quarter of 2020.

Map 3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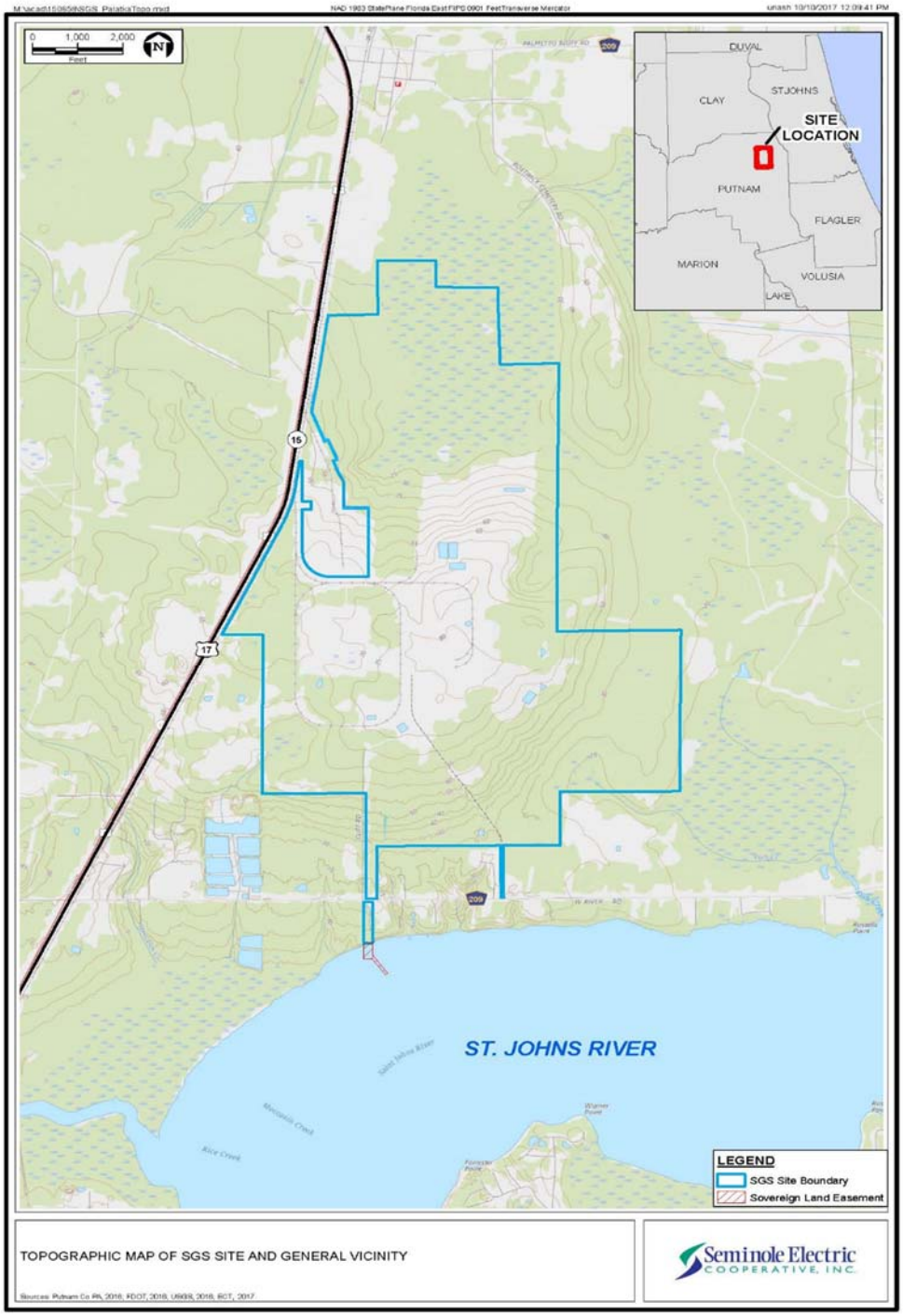
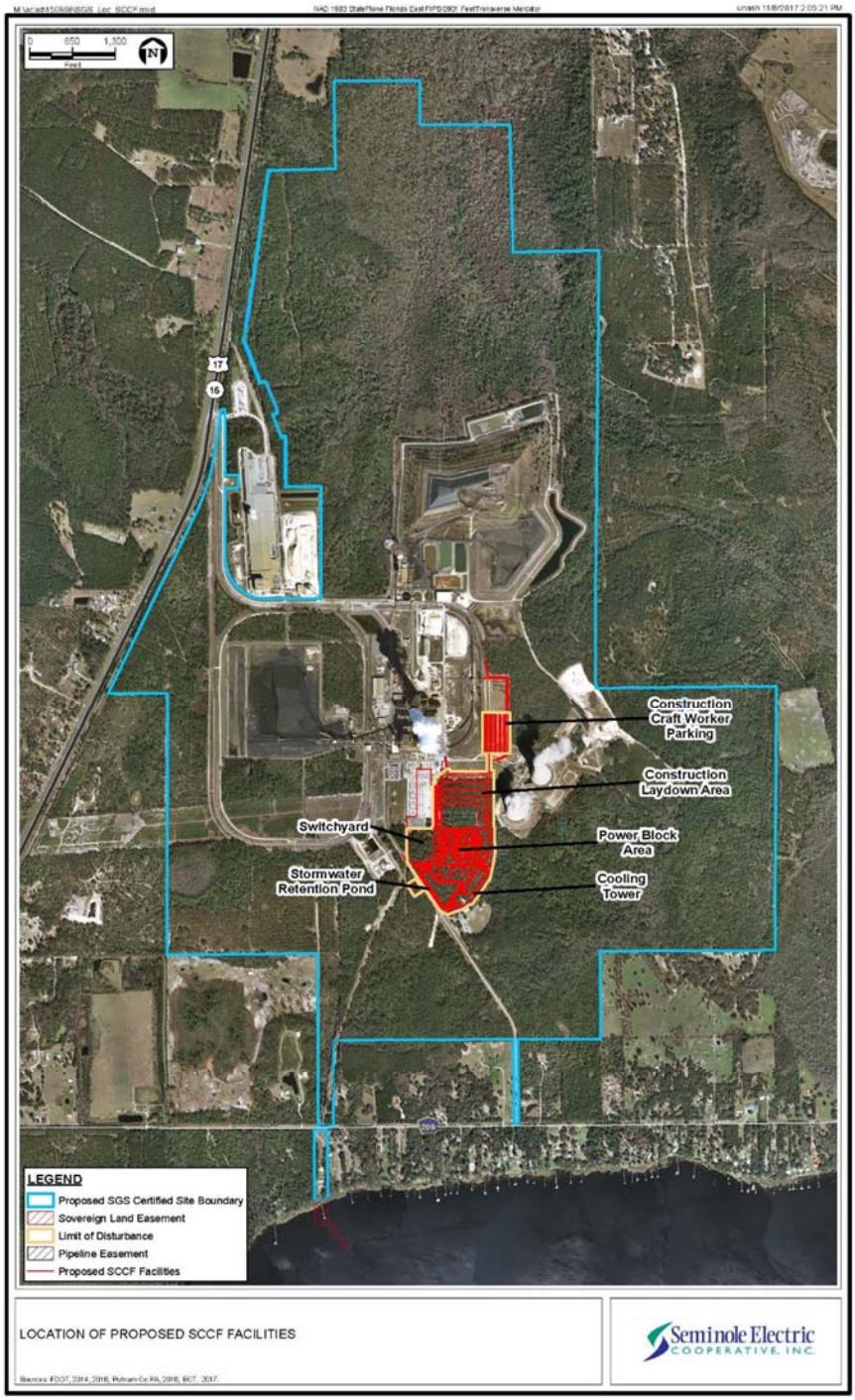
Legend
Interstate Highway
US Highway
State Road
County Road
Property Boundary
100' Access Easement
Lakes and Rivers
Florida Managed Areas
Gilchrist County
Seminole Electric
Gilchrist Property
BRANFORD
FORT WHITE
HIGH SPRINGS
BELL
NEWBERRY
TRENTON
FANNING SPRINGS
ANDREWS
MANATTEE ROAD
CHIEFLAND
EAST BRONSON
WACCASASSA FLATS
SITE LOCATION MAP
Sources: FDOT, 2005; FDEP, 1989, 2002; FNAI, 2008; US Census, 2000; Seminole Electric 2008; ECT, 2008.
Seminole Electric
COOPERATIVE, INC.

Map 4



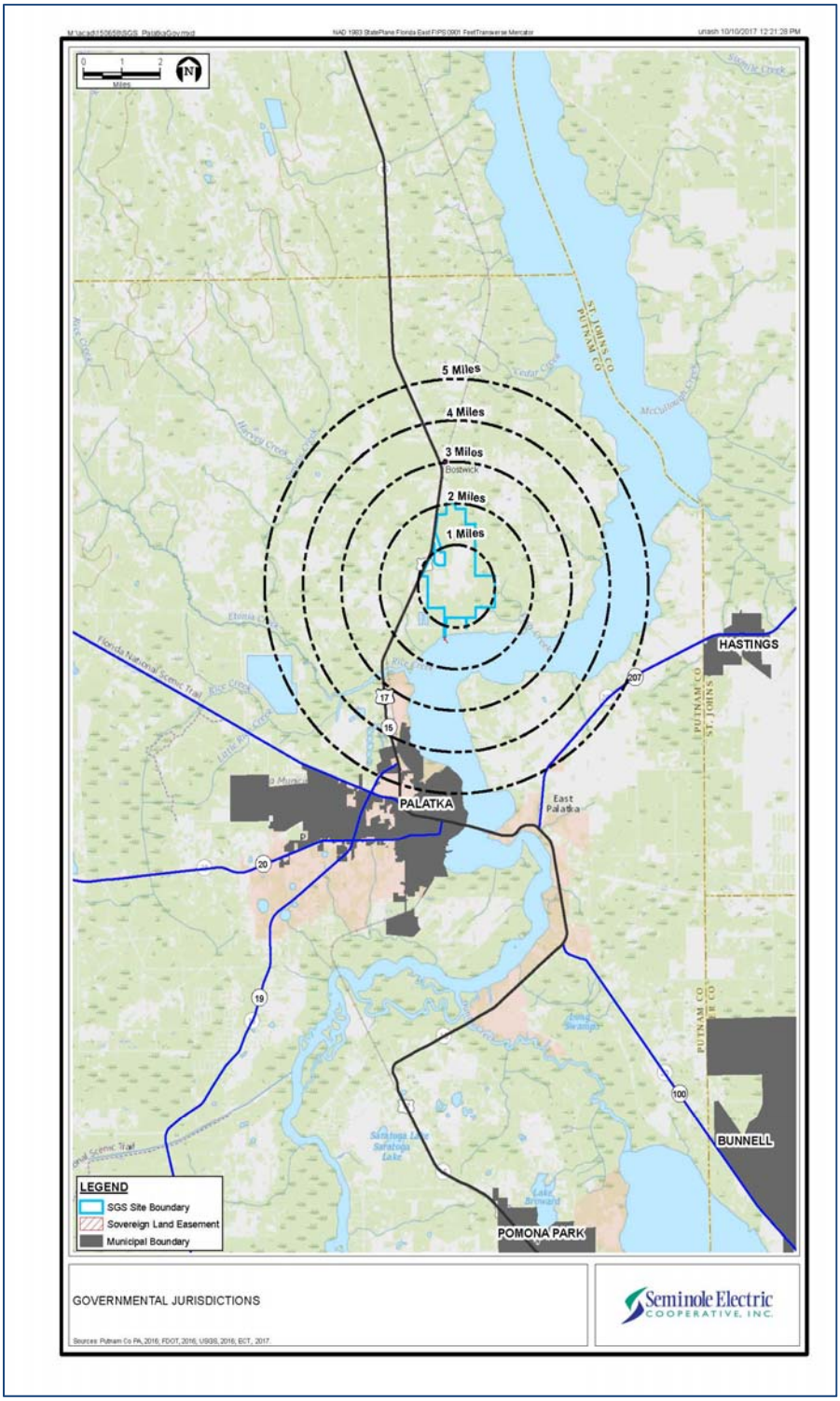
Seminole Electric
COOPERATIVE, INC.

Map 5



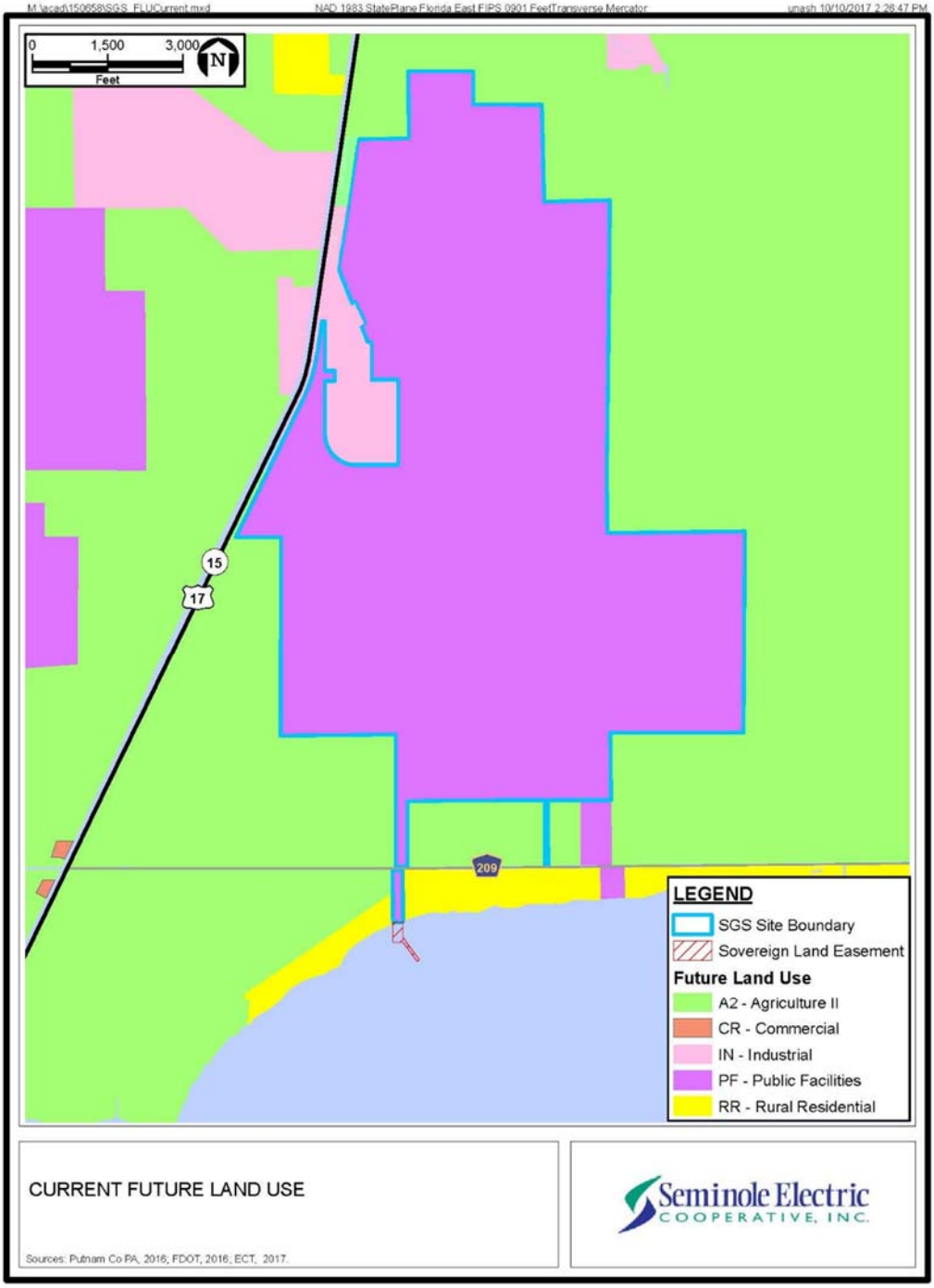
Seminole Electric COOPERATIVE, INC.

Map 6



Seminole Electric
COOPERATIVE, INC.

Map 7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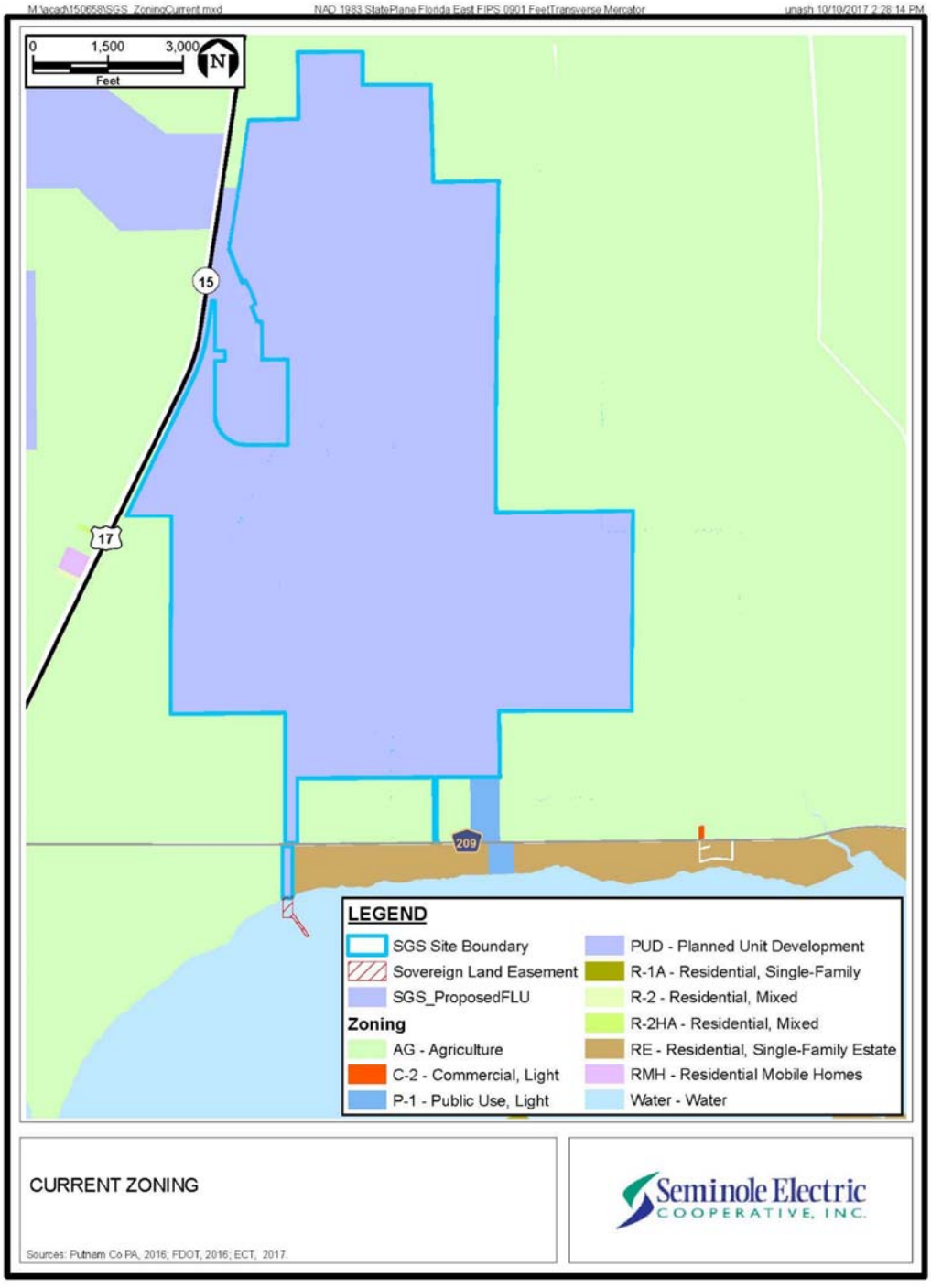
LEGEND
SGS Site Boundary
Sovereign Land Easement
Future Land Use
A2 - Agriculture II
CR - Commercial
IN - Industrial
PF - Public Facilities
RR - Rural Residential
CURRENT FUTURE LAND USE
Sources: Putnam Co PA, 2016; FDOT, 2016; ECT, 2017.
Seminole Electric
COOPERATIVE, INC.

Map 8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209
LEGEND
SGS Site Boundary
Sovereign Land Easement
SGS_ProposedFLU
Zoning
AG - Agriculture
C-2 - Commercial, Light
P-1 - Public Use, Light
PUD - Planned Unit Development
R-1A - Residential, Single-Family
R-2 - Residential, Mixed
R-2HA - Residential, Mixed
RE - Residential, Single-Family Estate
RMH - Residential Mobile Homes
Water - Water
CURRENT ZONING
Sources: Putnam Co PA, 2016; FDOT, 2016; ECT, 2017.
Seminole Electric
COOPERATIVE, INC.