Seminole Electric
COOPERATIVE, INC.
IN PARTNERSHIP WITH THOSE WE SERVE

April 2, 2018

Takira Thompson
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Dear Ms. Thompson:

In accordance with Section 186.801, Florida Statutes, Seminole Electric Cooperative, Inc. hereby submits our 2018 Ten Year Site Plan.

Please do not hesitate to call me if you have any questions or comments.

Sincerely,

Julia A. Diazgranados

Julia A. Diazgranados
Director of Treasury and Planning
813-739-1538 (office)
jdiazgranados@seminole-electric.com

Enclosure

cc: J. Fuller
L. Johnson

Seminole Electric is an equal opportunity provider and employer.

Ten Year Site Plan

2018 – 2027
(Detail as of December 31, 2017)
April 1, 2018

Submitted To:
State of Florida
Public Service Commission

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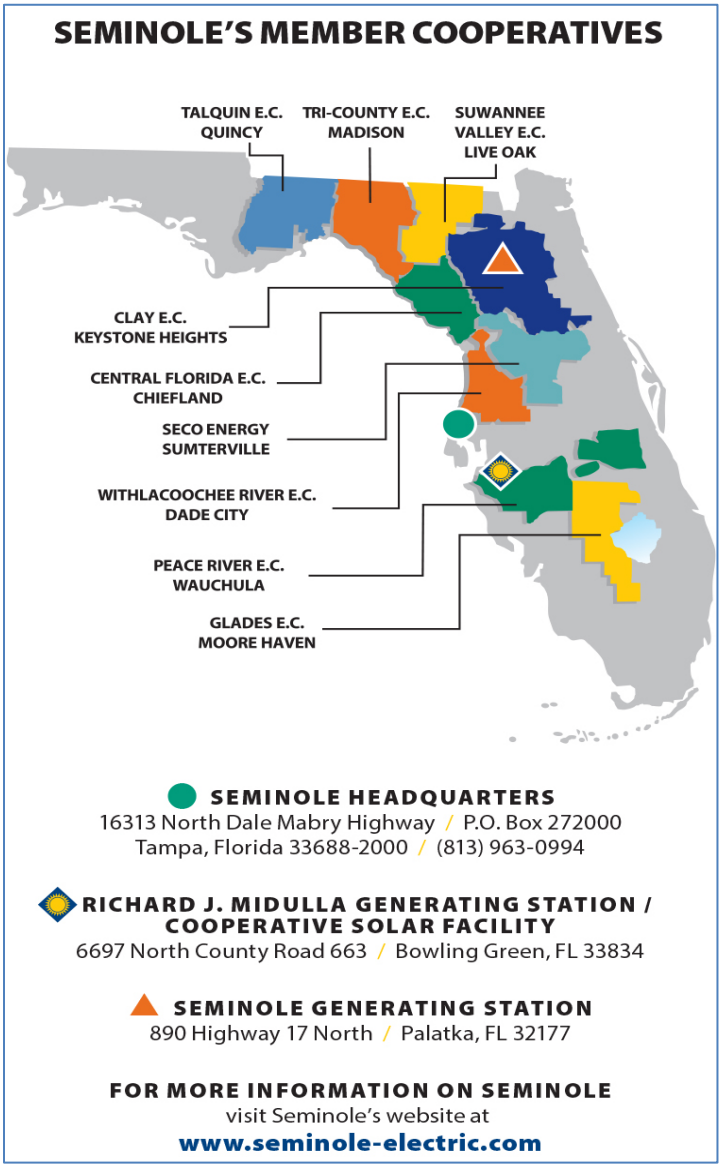
DESCRIPTION OF EXISTING FACILITIES

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 provides full requirements service to all of its Members with limited exceptions. 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 provides 26 MW or approximately 1% of the total energy required by all Members. These contracts also permit each Member to own or lease renewable generation and/or peak shaving generation up to 5% of their load requirements based on its average metered 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, 2017, Seminole had total summer capacity resources of approximately 3,700 MW consisting of owned, installed net capacity of 2,012 MW and the remaining capacity in firm purchased power. Additional information on Seminole's existing resources can be found 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 1,329 MW (winter) coal-fired plant located in Putnam County near Palatka, Florida.
2) Midulla Generating Station (MGS) Units 1–3 comprise a 539 MW (winter) gas-fired two-on-one combined cycle plant located in Hardee County, Florida; and,
3) MGS Units 4–8 comprise a 310 MW (winter) peaking plant consisting of five twin-pack gas turbines.

Schedule 1

Existing Generating Facilities as of December 31, 2017

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	587	482	539
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	664
SGS	2	Putnam County	ST	BIT	N/A	RR	N/A	N/A	12/84		735.9	634	665

Schedule Abbreviations:

General

Unk – Unknown
N/A – Not applicable

Unit Type	Fuel Type	Fuel Transportation
ST – Steam Turbine	BIT – Bituminous Coal	PL – Pipeline
CC – Combined Cycle Turbine	NG – Natural Gas	RR – Railroad
PV – Photovoltaic	DFO – Ultra low sulfur diesel	TK – Truck
	Sun – Solar Energy	

NOTE: 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 254 circuit miles of 230 kV and 125 circuit miles of 69 kV lines. Seminole's facilities are interconnected to the grid at nineteen (19) 230 kV transmission interconnections with the entities shown in Table 1.1.

Table 1.1

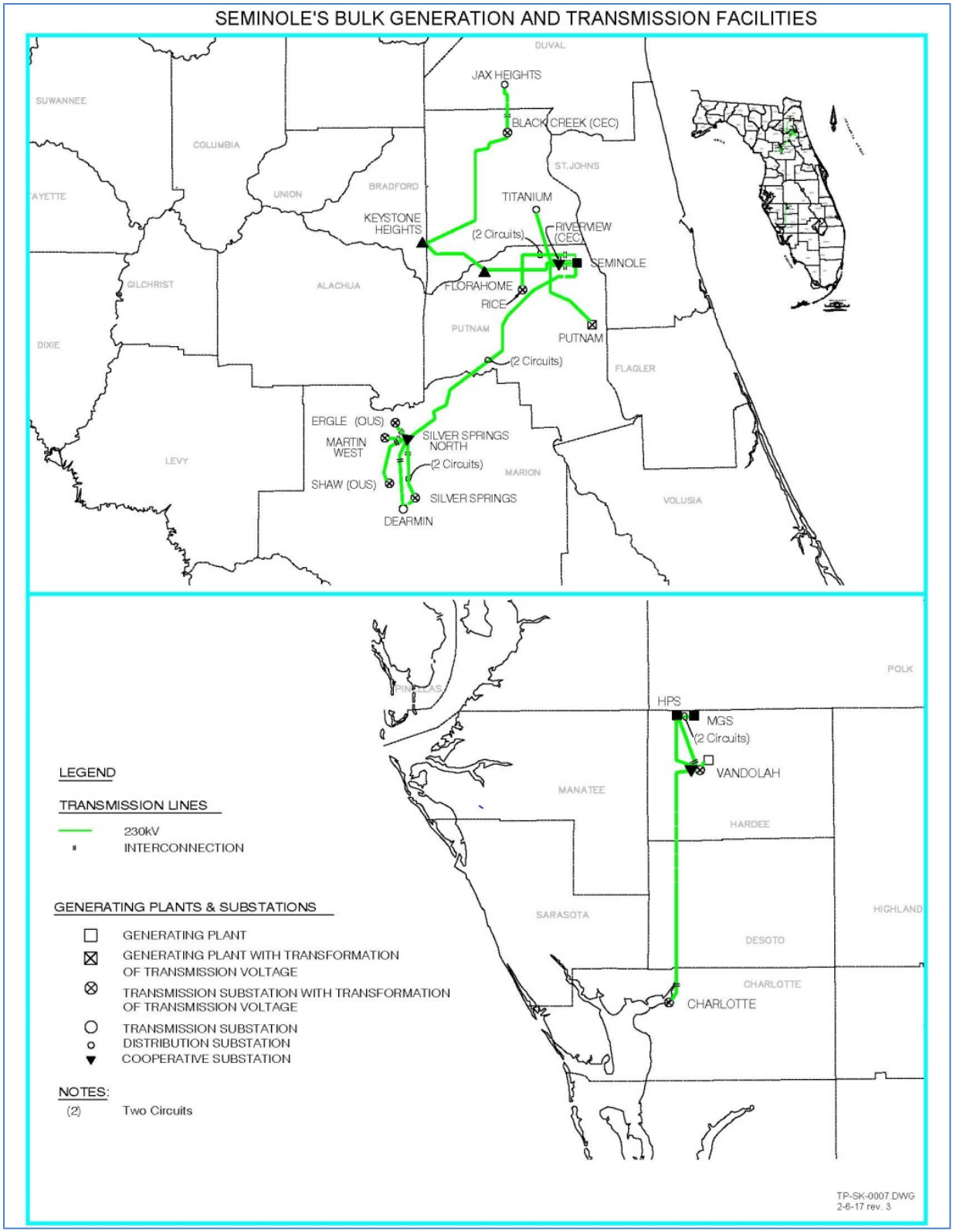
Transmission Grid Interconnections with Other Entities

Entity	Voltage (kV)	Number of Interconnections
Florida Power & Light	230	5
Duke Energy Florida	230	7
JEA	230	1
City of Ocala (OUS)	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 and interchange when required to serve loads. Map 2 below depicts Seminole's 230 kV transmission lines, including its interconnections with those entities identified in Table 1.1 above.

Map 2


SEMINOLE'S BULK GENERATION AND TRANSMISSION FACILITIES
DUVAL
JAX HEIGHTS
BLACK CREEK (CEC)
SUWANNEE
COLUMBIA
ST.JOHNS
AYETTE
UNION
BRADFORD
TITANIUM
KEYSTONE HEIGHTS
(2 Circuits)
RIVERVIEW (CEC)
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
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
2-6-17 rev. 3

1.3 Purchased Power Resources

Table 1.2 below sets forth Seminole's purchased power resources.

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	360	445	NG	YES	Hardee CC1, CT 2A, & CT 2B
Oleander Power Project	12/1/2022	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	12/31/2018	50	50	System [4]	YES	System Base
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 [3]	2.2 [3]	SUN	YES	MGS Solar Facility
Shady Hills Energy Center	12/1/2021	11/30/2051	546	573	NG	YES	New Shady Hills Facility
Shady Hills Power Company	6/1/2024	5/31/2039	328	346	NG	YES	Shady Hills CTs 2-3
Southern Company Services	6/1/2021	5/31/2026	100-150	100-150	UNK	YES	System Intermediate
Tillman Solar Center	6/1/2021	5/31/2041	40 [3]	40 [3]	SUN	YES	Tillman Facility
Telogia Power, LLC	7/1/2009	11/30/2023	13	13	WDS	YES	Telogia Facility
Seminole Energy, LLC	10/1/2007	3/31/2018	6.2	6.2	LFG	YES	Seminole Landfill
Brevard Energy, LLC	4/1/2008	3/31/2018	9	9	LFG	YES	Brevard Landfill
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	122	122	DFO	YES	Member Distributed Generation

Notes:
1) 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.
2) Solar Units subject to 0.05% yearly degradation
3) Represents solar nameplate rating. Seminole assumes 60% capacity towards summer reservemargin and 0% capacity towards winter reserve margin.
4) System PPAs are not tied to one specific resource or fuel type although they are primaliry 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 1.4 percent from 2018 through 2027. 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 1.2 percent, and commercial energy sales are projected to grow at an average annual rate of 1.7 percent from 2018 through 2027. 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)
2008	1,740,705	2.15	11,104	808,926	13,727
2009	1,748,408	2.15	11,293	811,767	13,912
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	1,623,434	2.45	8,808	662,626	13,293
2015	1,649,377	2.45	9,068	673,215	13,470
2016	1,668,160	2.44	9,310	683,672	13,618
2017	1,690,204	2.44	9,097	692,707	13,133
2018	1,703,018	2.42	9,518	703,726	13,525
2019	1,723,167	2.41	9,497	715,007	13,282
2020	1,743,841	2.40	9,533	726,600	13,120
2021	1,763,366	2.39	9,626	737,810	13,047
2022	1,781,939	2.38	9,757	748,714	13,032
2023	1,807,814	2.38	9,900	759,586	13,033
2024	1,825,813	2.37	10,037	770,385	13,029
2025	1,842,702	2.36	10,164	780,806	13,017
2026	1,858,250	2.35	10,298	790,745	13,023
2027	1,872,699	2.34	10,433	800,299	13,036

Notes:
1) 2018 Sales include actual data for January.
2) Actual value for 2013 and prior includes Lee County Electric Cooperative
3) Includes Sales from SEPA

Schedule 2.2

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

Year	Commercial[1] GWh	Commercial[1] Average Number of Customers	Commercial[1] Average Consumption Per Customer (kWh)	Other Sales (GWh)[2]	Total Member Sales to Ultimate Consumers (GWh)[3]
2008	4,894	86,121	56,827	163	16,161
2009	4,776	84,318	56,643	167	16,236
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	76,107	56,788	144	13,563
2018	4,440	76,926	57,718	138	14,096
2019	4,486	78,101	57,438	134	14,117
2020	4,571	79,168	57,738	132	14,236
2021	4,650	80,176	57,997	132	14,408
2022	4,738	81,283	58,290	132	14,627
2023	4,824	82,427	58,525	132	14,856
2024	4,904	83,450	58,766	132	15,073
2025	4,982	84,426	59,010	132	15,278
2026	5,062	85,366	59,298	132	15,492
2027	5,142	86,268	59,605	132	15,707

NOTES:
1) Includes Industrial and Interruptible Customers.
2) Includes Lighting Customers.
3) Excludes Sales for Resale.
4) 2018 Sales include actual data for January.
5) Actual value for 2013 and prior includes Lee County Electric Cooperative.
6) Includes Sales from SEPA.

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 (GWh)
2008	0	1,171	17,332	5,075	900,122
2009	0	1,217	17,453	5,036	901,121
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	65	697	14,325	5,523	774,337
2018	20	725	14,841	5,455	786,107
2019	23	680	14,820	5,475	798,583
2020	26	686	14,948	5,497	811,265
2021	7	679	15,094	5,524	823,510
2022	0	679	15,306	5,553	835,550
2023	0	687	15,543	5,579	847,592
2024	0	701	15,774	5,603	859,438
2025	0	712	15,990	5,628	870,860
2026	0	724	16,216	5,650	881,761
2027	0	730	16,437	5,671	892,238

Notes:
1) 2018 Sales include actual data for January.
2) Actual value for 2013 and prior includes Lee County Electric Cooperative
3) 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 1.5 percent from the 2018/2019 season through the 2027/2028 season. Summer net firm demand is estimated to increase by 1.3 percent from 2018 through 2027. Net Energy for Load is projected to grow at an average annual rate of 1.1 percent from 2018 through 2027. 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 Load Mgmt.[3]	Residential Cons.	Commercial Load Mgmt.	Commercial Cons.	Net Firm Demand
2008	3,778	3,778	0	0	48	100	N/A	N/A	N/A	3,630
2009	3,987	3,987	0	0	62	101	N/A	N/A	N/A	3,824
2010	3,714	3,714	0	0	67	99	N/A	N/A	N/A	3,548
2011	3,829	3,829	0	0	79	97	N/A	N/A	N/A	3,653
2012	3,525	3,525	0	0	0	97	N/A	N/A	N/A	3,428
2013	3,665	3,665	0	0	0	99	N/A	N/A	N/A	3,566
2014	3,155	3,155	0	0	0	67	N/A	N/A	N/A	3,088
2015	3,072	3,072	0	0	0	51	N/A	N/A [4]	N/A	3,021
2016	3,299	3,299	0	0	0	56	N/A	N/A [4]	N/A	3,243
2017	3,168	3,168	0	0	0	54	N/A	N/A [4]	N/A	3,114
2018	3,317	3,317	0	36	67	56	N/A	17	N/A	3,141
2019	3,365	3,365	0	36	67	57	N/A	17	N/A	3,188
2020	3,416	3,416	0	35	67	58	N/A	17	N/A	3,239
2021	3,425	3,425	0	32	67	58	N/A	17	N/A	3,251
2022	3,472	3,472	0	32	67	59	N/A	17	N/A	3,297
2023	3,519	3,519	0	32	67	60	N/A	17	N/A	3,343
2024	3,570	3,570	0	36	67	61	N/A	17	N/A	3,389
2025	3,612	3,612	0	36	67	62	N/A	17	N/A	3,430
2026	3,656	3,656	0	35	67	63	N/A	17	N/A	3,474
2027	3,695	3,695	0	32	67	63	N/A	17	N/A	3,516

NOTES:
1) Excludes wholesale interruptible purchases.
2) Distributed generation reflects customer-owned self-service generation.
3) Actual values for 2013 and prior includes Lee County Electric Cooperative.
4) 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 Load Mgmt.	Residential Cons.	Commercial Load Mgmt.	Commercial Cons.	Net Firm Demand
2018	3,420	3,420	0	36	67	57	N/A	17	N/A	3,243
2019	3,466	3,466	0	36	67	57	N/A	17	N/A	3,289
2020	3,517	3,517	0	35	67	58	N/A	17	N/A	3,340
2021	3,529	3,529	0	32	67	59	N/A	17	N/A	3,354
2022	3,575	3,575	0	32	67	60	N/A	17	N/A	3,399
2023	3,623	3,623	0	32	67	61	N/A	17	N/A	3,446
2024	3,670	3,670	0	36	67	61	N/A	17	N/A	3,489
2025	3,715	3,715	0	36	67	62	N/A	17	N/A	3,533
2026	3,759	3,759	0	35	67	63	N/A	17	N/A	3,577
2027	3,799	3,799	0	32	67	64	N/A	17	N/A	3,619

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 Load Mgmt.	Residential Cons.	Commercial Load Mgmt.	Commercial Cons.	Net Firm Demand
2018	3,217	3,217	0	36	67	56	N/A	17	N/A	3,041
2019	3,267	3,267	0	36	67	57	N/A	17	N/A	3,090
2020	3,316	3,316	0	35	67	57	N/A	17	N/A	3,140
2021	3,327	3,327	0	32	67	58	N/A	17	N/A	3,153
2022	3,373	3,373	0	32	67	59	N/A	17	N/A	3,198
2023	3,421	3,421	0	32	67	60	N/A	17	N/A	3,245
2024	3,471	3,471	0	36	67	61	N/A	17	N/A	3,290
2025	3,514	3,514	0	36	67	61	N/A	17	N/A	3,333
2026	3,556	3,556	0	35	67	62	N/A	17	N/A	3,375
2027	3,596	3,596	0	32	67	63	N/A	17	N/A	3,417

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 Load Mgmt.[3]	Residential Cons.	Commercial Load Mgmt.	Commercial Cons.	Net Firm Demand
2008-09	4,946	4,946	0	0	58	150	N/A	N/A	N/A	4,738
2009-10	5,263	5,263	0	0	64	152	N/A	N/A	N/A	5,047
2010-11	4,476	4,476	0	0	55	106	N/A	N/A	N/A	4,315
2011-12	4,118	4,118	0	0	66	134	N/A	N/A	N/A	3,918
2012-13	3,839	3,839	0	0	0	132	N/A	N/A	N/A	3,707
2013-14	3,333	3,333	0	0	0	93	N/A	N/A	N/A	3,240
2014-15	3,672	3,672	0	0	0	61	N/A	18	N/A	3,593
2015-16	3,377	3,377	0	0	0	56	N/A	14	N/A	3,307
2016-17	3,069	3,069	0	0	0	51	N/A	N/A [4]	N/A	3,018
2017-18	4,010	4,010	0	0	0	67	N/A	N/A [4]	N/A	3,943
2018-19	3,645	3,645	0	34	67	61	N/A	17	N/A	3,466
2019-20	3,712	3,712	0	35	67	62	N/A	17	N/A	3,531
2020-21	3,765	3,765	0	30	67	63	N/A	17	N/A	3,588
2021-22	3,820	3,820	0	29	67	64	N/A	17	N/A	3,643
2022-23	3,876	3,876	0	28	67	65	N/A	17	N/A	3,699
2023-24	3,933	3,933	0	34	67	66	N/A	17	N/A	3,749
2024-25	3,988	3,988	0	35	67	67	N/A	17	N/A	3,802
2025-26	4,045	4,045	0	36	67	68	N/A	17	N/A	3,857
2026-27	4,093	4,093	0	30	67	69	N/A	17	N/A	3,910
2027-28	4,137	4,137	0	29	67	69	N/A	17	N/A	3,955

NOTES:

1) Excludes wholesale interruptible purchases.
2) Distributed generation reflects customer-owned self-service generation.
3) Actual values for 2013 and prior includes Lee County Electric Cooperative.
4) 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.	
2018-19	4,102	4,102	0	34	67	62	N/A	17	N/A	3,922
2019-20	4,167	4,167	0	35	67	63	N/A	17	N/A	3,985
2020-21	4,216	4,216	0	30	67	64	N/A	17	N/A	4,038
2021-22	4,269	4,269	0	29	67	65	N/A	17	N/A	4,091
2022-23	4,323	4,323	0	28	67	66	N/A	17	N/A	4,145
2023-24	4,379	4,379	0	34	67	67	N/A	17	N/A	4,194
2024-25	4,431	4,431	0	35	67	68	N/A	17	N/A	4,244
2025-26	4,487	4,487	0	36	67	69	N/A	17	N/A	4,298
2026-27	4,535	4,535	0	30	67	70	N/A	17	N/A	4,351
2027-28	4,581	4,581	0	29	67	71	N/A	17	N/A	4,397

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	Distributed Generation	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2018-19	3,309	3,309	0	34	67	60	N/A	17	N/A	3,131
2019-20	3,380	3,380	0	35	67	61	N/A	17	N/A	3,200
2020-21	3,434	3,434	0	30	67	62	N/A	17	N/A	3,258
2021-22	3,490	3,490	0	29	67	63	N/A	17	N/A	3,314
2022-23	3,547	3,547	0	28	67	64	N/A	17	N/A	3,371
2023-24	3,605	3,605	0	34	67	65	N/A	17	N/A	3,422
2024-25	3,662	3,662	0	35	67	66	N/A	17	N/A	3,477
2025-26	3,719	3,719	0	36	67	67	N/A	17	N/A	3,532
2026-27	3,768	3,768	0	30	67	68	N/A	17	N/A	3,586
2027-28	3,814	3,814	0	29	67	68	N/A	17	N/A	3,633

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					
2008	17,332	N/A	N/A	0	16,161	1,171	17,332	46.7
2009	17,453	N/A	N/A	0	16,236	1,217	17,453	42.1
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	54.7
2017	14,325	N/A	N/A	0	13,628	697	14,325	52.5
2018	14,841	N/A	N/A	0	14,116	725	14,841	43.1
2019	14,820	N/A	N/A	0	14,140	680	14,820	49.8
2020	14,948	N/A	N/A	0	14,262	686	14,948	49.3
2021	15,094	N/A	N/A	0	14,415	679	15,094	48.9
2022	15,306	N/A	N/A	0	14,627	679	15,306	48.9
2023	15,543	N/A	N/A	0	14,856	687	15,543	48.9
2024	15,774	N/A	N/A	0	15,073	701	15,774	48.9
2025	15,990	N/A	N/A	0	15,278	712	15,990	48.9
2026	16,216	N/A	N/A	0	15,492	724	16,216	48.8
2027	16,437	N/A	N/A	0	15,707	730	16,437	48.8

NOTES:
1) Actual value for 2013 and prior includes Lee County Electric Cooperative.
2) 2018 includes actual data for January.

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					
2018	15690	N/A	N/A	0	14,965	725	15690	45.6
2019	15,796	N/A	N/A	0	15,116	680	15,796	46.0
2020	15,917	N/A	N/A	0	15,231	686	15,917	45.6
2021	16,066	N/A	N/A	0	15,387	679	16,066	45.4
2022	16,273	N/A	N/A	0	15,594	679	16,273	45.4
2023	16,508	N/A	N/A	0	15,821	687	16,508	45.5
2024	16,737	N/A	N/A	0	16,036	701	16,737	45.6
2025	16,950	N/A	N/A	0	16,238	712	16,950	45.6
2026	17,175	N/A	N/A	0	16,451	724	17,175	45.6
2027	17,394	N/A	N/A	0	16,664	730	17,394	45.6

Notes: 1) 2018 includes actual data for January.

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					
2018	14,257	N/A	N/A	0	13,532	725	14,257	41.4
2019	14,126	N/A	N/A	0	13,446	680	14,126	51.5
2020	14,251	N/A	N/A	0	13,565	686	14,251	50.8
2021	14,402	N/A	N/A	0	13,723	679	14,402	50.5
2022	14,616	N/A	N/A	0	13,937	679	14,616	50.3
2023	14,850	N/A	N/A	0	14,163	687	14,850	50.3
2024	15,081	N/A	N/A	0	14,380	701	15,081	50.3
2025	15,296	N/A	N/A	0	14,584	712	15,296	50.2
2026	15,525	N/A	N/A	0	14,801	724	15,525	50.2
2027	15,746	N/A	N/A	0	15,016	730	15,746	50.1

Notes: 1) 2018 includes actual data for January.

2.3 Monthly Peak Demand and Net Energy for Load

Schedule 4.1-4.3 shows peak demand and net energy actuals for load by month for 2017 and January 2018 and forecasts thereafter.

Schedule 4

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

	2017 Actual		2018 Actual / Forecast		2019 Forecast	
Month	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)
January	3,018	1,065	3,943	1,409	3,466	1,188
February	2,194	898	3,034	1,020	3,077	1,043
March	2,696	1,045	2,488	1,038	2,531	1,058
April	2,954	1,124	2,465	1,066	2,511	1,085
May	3,098	1,320	2,859	1,284	2,902	1,302
June	3,010	1,312	2,984	1,381	3,028	1,397
July	3,114	1,477	3,045	1,487	3,083	1,501
August	3,085	1,512	3,141	1,495	3,188	1,512
September	2,948	1,286	2,921	1,350	2,959	1,368
October	2,874	1,217	2,625	1,148	2,669	1,166
November	1,992	955	2,504	1,022	2,549	1,041
December	2,992	1,114	2,746	1,141	2,786	1,159
ANNUAL		**14,325**		**14,841**		**14,820**

Schedule 4.1

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

Month	2017 Actual		2018 Actual / Forecast		2019 Forecast	
	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)
January			3,943	1,409	3,922	1,315
February			3,230	1,090	3,270	1,113
March			2,706	1,124	2,748	1,143
April			2,619	1,144	2,665	1,164
May			3,023	1,351	3,066	1,369
June			3,138	1,451	3,181	1,467
July			3,195	1,556	3,235	1,571
August			3,243	1,544	3,289	1,561
September			3,013	1,387	3,053	1,405
October			2,820	1,239	2,864	1,257
November			2,654	1,105	2,697	1,124
December			3,133	1,290	3,171	1,307
ANNUAL				**15,690**		**15,796**

Schedule 4.2

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

Month	2017 Actual		2018 Actual / Forecast		2019 Forecast	
	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)	Net Firm Demand (MW)	NEL (GWh)
January			3,943	1,409	3,131	1,074
February			2,872	963	2,915	987
March			2,403	1,002	2,445	1,022
April			2,398	1,031	2,443	1,051
May			2,668	1,207	2,710	1,225
June			2,886	1,336	2,928	1,352
July			2,943	1,440	2,982	1,455
August			3,041	1,416	3,090	1,433
September			2,793	1,299	2,832	1,317
October			2,504	1,092	2,547	1,110
November			2,439	986	2,484	1,006
December			2,589	1,076	2,629	1,094
ANNUAL				**14,257**		**14,126**

2.4 Fuel Requirements

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

Schedules 5

Actual & Base Case Fuel Requirements For Seminole Generating Resources

Fuel Requirements		Units	Actual 2016	Actual 2017	Forecast 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Nuclear		Trillion BTU	0	0	0	0	0	0	0	0	0	0	0	0
Coal		1000 Tons	2,997	3,081	3,091	3,086	2,992	2,962	2,704	1,252	1,118	1,258	1,126	1,278
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	32	30	35	35	34	34	31	18	14	14	13	14
	Steam	1000 BBL	32	30	35	35	34	34	31	14	13	14	13	14
	CC	1000 BBL	0	0	0	0	0	0	0	3	1	0	0	0
	CT	1000 BBL	0	0	0	0	0	0	0	1	0	0	0	0
Natural Gas	Total	1000 MCF	24,856	25,635	29,296	28,416	30,099	28,834	23,412	58,872	61,157	62,821	65,618	65,356
	Steam	1000 MCF	0	0	0	0	0	0	0	0	0	0	0	0
	CC	1000 MCF	23,177	23,216	28,193	27,458	29,251	27,395	22,769	58,584	60,714	62,297	64,876	64,674
	CT	1000 MCF	1,679	2,419	1,103	958	848	1,439	643	288	443	524	742	682

NOTES: 1) Above fuel is for existing and future owned generating resources (excludes purchased power contracts).

2) 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. Generation listed under 'Other – Firm Interchange Renewable' reflects the renewable units output from which Seminole may sell a portion of the associated renewable energy credits to third parties. The third parties can use the credits to meet mandatory or voluntary renewable requirements. Seminole's additional requirements for capacity beyond 2021 are assumed to be from resources with natural gas as the primary fuel. Due to concerns over proposed environmental regulations that would negatively impact coal units, future coal generation is not considered a viable resource option.

Schedule 6.1

Energy Sources (GWh)

Energy Sources		Units	Actual 2016	Actual 2017	Forecast 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Inter-Regional Interchange		GWh	-	-	-	-	-	156	106	26	27	24	11	-
Nuclear		GWh	-	-	-	-	-	-	-	-	-	-	-	-
Coal		GWh	7,439	7,508	7,598	7,595	7,319	7,242	6,475	2,955	2,643	2,981	2,673	3,040
Residual	Total	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	Steam	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	CC	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	CT	GWh	-	-	-	-	-	-	-	-	-	-	-	-
Distillate	Total	GWh	18	17	21	21	20	20	18	11	7	8	7	8
	Steam	GWh	18	17	21	21	20	20	18	8	7	8	7	8
	CC	GWh	-	-	-	-	-	-	-	2	-	-	-	-
	CT	GWh	-	-	-	-	-	-	-	1	-	-	-	-
Natural Gas	Total	GWh	3,199	3,299	4,273	3,908	4,132	3,922	3,230	8,955	9,289	9,517	9,911	9,863
	Steam	GWh	-	-	-	-	-	-	-	-	-	-	-	-
	CC	GWh	3,056	3,084	4,178	3,825	4,059	3,799	3,175	8,930	9,251	9,472	9,848	9,805
	CT	GWh	143	215	95	83	73	123	55	25	38	45	63	58
NUG		GWh	-	-	-	-	-	-	-	-	-	-	-	-
Renewables *		GWh	-	-	-	-	-	-	-	-	-	-	-	-
Other		GWh	3,815	3,501	2,949	3,296	3,477	3,754	5,477	3,595	3,808	3,460	3,614	3,526
Firm Interchange Renewables Biomass		GWh	100	90	99	99	99	99	99	90	-	-	-	-
Firm Interchange Renewables Landfill Gas		GWh	94	82	39	13	3	-	-	-	-	-	-	-
Firm Interchange Renewables MSW		GWh	737	408	422	422	422	421	422	420	422	180	85	-
Firm Interchange Renewables Solar		GWh	-	1	5	5	5	67	113	113	113	113	113	113
Firm Interchange Base		GWh	49	20	5	-	-	-	-	-	-	-	-	-
Firm Interchange Intermediate		GWh	2,698	2,816	2,160	2,564	2,816	2,935	4,815	2,963	3,225	3,106	3,289	3,298
Firm Interchange Peaking		GWh	137	84	219	193	132	232	28	9	48	61	127	115
Net Energy for Load		GWh	14,471	14,325	14,841	14,820	14,948	15,094	15,306	15,542	15,774	15,990	16,216	16,437

NOTES: 1) Net interchange, unit power purchases and DEF and FPL system purchases are included under source fuel categories.

2) Totals may not add due to rounding.

3) 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 2016	Actual 2017	Forecast 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Inter-Regional Interchange		GWh	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.7%	0.2%	0.2%	0.2%	0.1%	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	51.4%	52.4%	51.2%	51.2%	49.0%	48.0%	42.3%	19.0%	16.8%	18.6%	16.5%	18.5%
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%	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%
	Steam	GWh	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	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	22.1%	23.0%	28.8%	26.4%	27.6%	26.0%	21.1%	57.6%	58.9%	59.5%	61.1%	60.0%
	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	21.1%	21.5%	28.2%	25.8%	27.2%	25.2%	20.7%	57.5%	58.6%	59.2%	60.7%	59.7%
	CT	GWh	1.0%	1.5%	0.6%	0.6%	0.5%	0.8%	0.4%	0.2%	0.2%	0.3%	0.4%	0.4%
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	26.4%	24.4%	19.9%	22.2%	23.3%	24.9%	35.8%	23.1%	24.1%	21.6%	22.3%	21.5%
Firm Interchange Renewables Biomass		GWh	0.7%	0.6%	0.7%	0.7%	0.7%	0.7%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%
Firm Interchange Renewables Landfill Gas		GWh	0.6%	0.6%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Firm Interchange Renewables MSW		GWh	5.1%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.7%	2.7%	1.1%	0.5%	0.0%
Firm Interchange Renewables Solar		GWh	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Firm Interchange Base		GWh	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Firm Interchange Intermediate		GWh	18.6%	19.7%	14.6%	17.3%	18.8%	19.4%	31.5%	19.1%	20.4%	19.4%	20.3%	20.1%
Firm Interchange Peaking		GWh	0.9%	0.6%	1.5%	1.3%	0.9%	1.5%	0.2%	0.1%	0.3%	0.4%	0.8%	0.7%
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: 1) Net interchange, unit power purchases and DEF and FPL system purchases are included under source fuel categories.

2) Totals may not add due to rounding.

3) 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), and 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. Future distributed generation impacts were estimated by first obtaining irradiance data from an online calculator for each Member

territory, and subsequently interacting irradiance values with normalized sunshine-per-hour statistics created from 30 years of localized weather history, to adjust for each territory's typical weather profile. Member-submitted customer-owned renewable generation records were analyzed and trended to produce solar capacity growth rates, which, along with end-use solar capacity forecasts published in the EIA's Annual Energy Outlook, were used to generate forecasts of incrementally installed solar capacity for each Member. The weather-adjusted irradiance values were applied to the solar capacity forecasts in order to produce hourly estimates of solar output. These values were adjusted to account for losses, and to incorporate expectations regarding future inverter and panel efficiencies, as well as the gradual degradation of installed equipment over time. The hourly solar output forecasts were utilized to reduce Seminole's coincident demand and total energy requirements.

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 U.S. Energy Information Administration's (EIA) Annual Energy Outlook (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:

- 2016 and 2017 Annual Energy Outlook (AEO), U.S. Energy Information Administration (EIA)
- 2016 Residential and Commercial Statistically Adjusted End-Use Spreadsheets, Itron
- 2016 Member Residential Appliance Saturation Survey
- Arizona State University Solar Power Lab
- Talquin Electric Cooperative Solar Dashboard

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 forecasts include the addition of approximately 1,650 MW of capacity by 2027. 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.

Seminole's capacity expansion plan includes the need for an new advanced, large-frame two-on-one natural gas combined cycle unit to be constructed adjacent to the existing Seminole Generation Site. 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. The Seminole Combined Cycle Facility (SCCF) is scheduled to begin construction in December 2019 and commence service in December 2022, coinciding with the removal of a Seminole coal unit from service. At this time, Seminole is evaluating which coal unit will be removed from service.

In addition to the SCCF, Seminole's capacity expansion plan also includes a number of new power purchase agreements to fulfill its growing needs. Seminole has executed agreements for a new natural gas one-on-one combined cycle facility, existing combustion turbines, system power and a newly constructed solar facility. 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 573 MW (winter) one-on-one combined cycle with duct burners, and is scheduled to commence commercial operations in December 2021. Seminole is also purchasing 346 MW (winter) of dual fueled combustion turbines from the same Shady Hills site, slated to begin June 2024. Other 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 also agreed to purchase 40 MW of photovoltaic solar energy from Tillman Solar Center, with commercial operation scheduled for June 2021.

Schedule 7.1

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

		Firm Capacity Import (MW)					Capacity Available (MW)		System Firm Summer Peak Demand (MW)		Reserve Margin Before Maintenance			Reserve Margin After Maintenance	
Year	Total Installed Capacity (MW)	PR and FR	Other Purchases	Total	Firm Capacity Export (MW)	QFs (MW)	Total	Less PR and FR	Total	Obligation	MW	% of Pk	Scheduled Maintenance (MW)	MW	% of Pk
2018	2,012	0	1,648	1,648	0	0	3,660	3,660	3,141	3,141	519	17%	0	519	17%
2019	2,012	0	1,898	1,898	0	0	3,910	3,910	3,188	3,188	722	23%	0	722	23%
2020	2,012	0	1,896	1,896	0	0	3,908	3,908	3,239	3,239	669	21%	0	669	21%
2021	2,012	0	1,737	1,737	0	0	3,749	3,749	3,251	3,251	498	15%	0	498	15%
2022	2,012	0	1,823	1,823	0	0	3,835	3,835	3,297	3,297	538	16%	0	538	16%
2023	2,494	0	1,473	1,473	0	0	3,967	3,967	3,343	3,343	624	19%	0	624	19%
2024	2,494	0	1,788	1,788	0	0	4,282	4,282	3,389	3,389	893	26%	0	893	26%
2025	2,494	0	1,550	1,550	0	0	4,044	4,044	3,430	3,430	614	18%	0	614	18%
2026	2,494	0	1,511	1,511	0	0	4,005	4,005	3,474	3,474	531	15%	0	531	15%
2027	2,494	0	1,560	1,560	0	0	4,054	4,054	3,516	3,516	538	15%	0	538	15%

NOTE: 1. 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.

2. Total Installed Capacity does not include SEPA or Solar.

3. 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

		Firm Capacity Import (MW)			Firm Capacity Export (MW)		Capacity Available (MW)		System Firm Winter Peak Demand (MW)		Reserve Margin Before Maintenance		Scheduled Maintenance (MW)	Reserve Margin After Maintenance	
	Total Installed Capacity (MW)	PR and FR	Other Purchases	Total		QFs (MW)	Total	Less PR and FR	Total	Obligation	MW	% of Pk		MW	% of Pk
2018/19	2,178	0	2,319	2,319	0	0	4,497	4,497	3,466	3,466	1031	30%	0	1031	30%
2019/20	2,178	0	2,569	2,569	0	0	4,747	4,747	3,531	3,531	1216	34%	0	1216	34%
2020/21	2,178	0	1,977	1,977	0	0	4,155	4,155	3,588	3,588	567	16%	0	567	16%
2021/22	2,178	0	2,022	2,022	0	0	4,200	4,200	3,643	3,643	557	15%	0	557	15%
2022/23	2,636	0	1,628	1,628	0	0	4,264	4,264	3,699	3,699	565	15%	0	565	15%
2023/24	2,636	0	1,686	1,686	0	0	4,322	4,322	3,749	3,749	573	15%	0	573	15%
2024/25	2,636	0	1,714	1,714	0	0	4,350	4,350	3,802	3,802	548	14%	0	548	14%
2025/26	2,636	0	1,814	1,814	0	0	4,450	4,450	3,857	3,857	593	15%	0	593	15%
2026/27	2,636	0	1,871	1,871	0	0	4,507	4,507	3,910	3,910	597	15%	0	597	15%
2027/28	2,636	0	1,923	1,923	0	0	4,559	4,559	3,955	3,955	604	15%	0	604	15%

NOTES:
1. 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.
2. Total Installed Capacity does not include SEPA or Solar.
3. 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.

Schedule 8

Planned and Prospective Generating Facility Additions and Changes

Plant Name	Unit No	Location	Unit Type	Fuel Pri	Fuel Alt	Transportation Pri	Transportation Alt	Const. Start Date	Comm. In-Service Date	Expected Retirement Date	Max Nameplate	Summer MW	Winter MW	Status
SEMINOLE CC FACILITY	TBD	Putnam County	CC	NG		PL		12/2019	12/2022		1116	1108	1122	L
SEMINOLE GENERATING STATION	TBD	Putnam County	ST	BIT		RR				01/2023	-735.9	See Note 2	See Note 2	P

NOTES: 1) Abbreviations – See Schedule 1

2) 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.

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
2	Capacity	
	a. Summer (MW):	1108
	b. Winter (MW):	1116
	c. ISO (MW):	1122
3	Technology Type:	Combined Cycle
4	Anticipated Construction Timing	
	a. Field construction start-date[1]:	December 2019
	b. Commercial in-service date:	December 2022
5	Fuel	
	a. Primary fuel:	Natural Gas
	b. Alternate fuel:	None
6	Air Pollution Control Strategy	Dry Low-NOx burners, SCR, and Oxidation Catalyst
7	Cooling Method:	Wet Cooling Tower with Forced Draft Fans
8	Total Site Area:	SGS
9	Construction Status:	Planned
10	Certification Status:	Planned
11	Status With Federal Agencies	N/A
12	Projected Unit Performance Data	
	Planned Outage Factor (POF):	4.00
	Forced Outage Factor (FOF):	3.00
	Equivalent Availability Factor (EAF):	93.00
	Resulting Capacity Factor (%):	79%
	Average Net Operating Heat Rate (ANOHR):	6328 Btu/kWh (HHV) - ISO Rating
13	Projected Unit Financial Data ($2022)	
	Book Life (Years):	30
	Total Installed Cost (In-Service Year $/kW)[2]:	648
	Direct Construction Cost ($/kW):	608
	AFUDC Amount ($/kW):	40
	Escalation ($/kW):	Included in values above
	Fixed O&M ($/kW-Yr):	15
	Variable O&M ($/Run Hour):	-
	Variable O&M ($/MWH):	0.114
	K Factor:	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 Associated Transmission Lines

1	Point of Origin and Termination:	Unknown
2	Number of Lines:	To be determined
3	Right-of-Way	To be determined
4	Line Length:	To be determined
5	Voltage:	To be determined
6	Anticipated Construction Timing:	To be determined
7	Anticipated Capital Investment:	To be determined
8	Substation:	To be determined
9	Participation with Other Utilities:	N/A

Note: None

OTHER PLANNING ASSUMPTIONS AND INFORMATION

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:

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

[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. As long-term rail transportation contracts come up for renewals, the railroads have placed upward pressure on delivered coal costs to increase revenues to overcome operating cost increases and reduced demand. However, since 2012, lower natural gas prices have created an opportunity for electric utilities to swap natural gas for coal-fired generation and this price arbitrage may have reduced the railroads' near-term ability to apply upward pricing pressure during contract renewals. 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 oils will continue to reflect the price volatility of the world energy market for crude oil and refined products. In late 2014 and through early 2016, the price for fuel oil moved down significantly across the globe before stabilizing and then trending higher over the second half of 2017. Seminole is currently only purchasing ultra-low sulfur fuel oil for its generating stations. 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

At year-end 2017, natural gas prices remained flat around $3.00 per mmBtu in response to increased gas production, moderate winter weather, and new pipeline capacity. Henry Hub gas prices for 2018 were $2.84per mmBtu. Beyond 2018, nominal gas prices are projected to remain below $3.00 per mmBtu through 2024 before increasing to $3.35 per mmBtu at the end of the ten-year study period.

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 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 (e.g. projected volatility of gas prices), 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 2017 and 2018 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 projected to invert, with natural gas prices below that of coal, beginning in 2019 and remain that way 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.

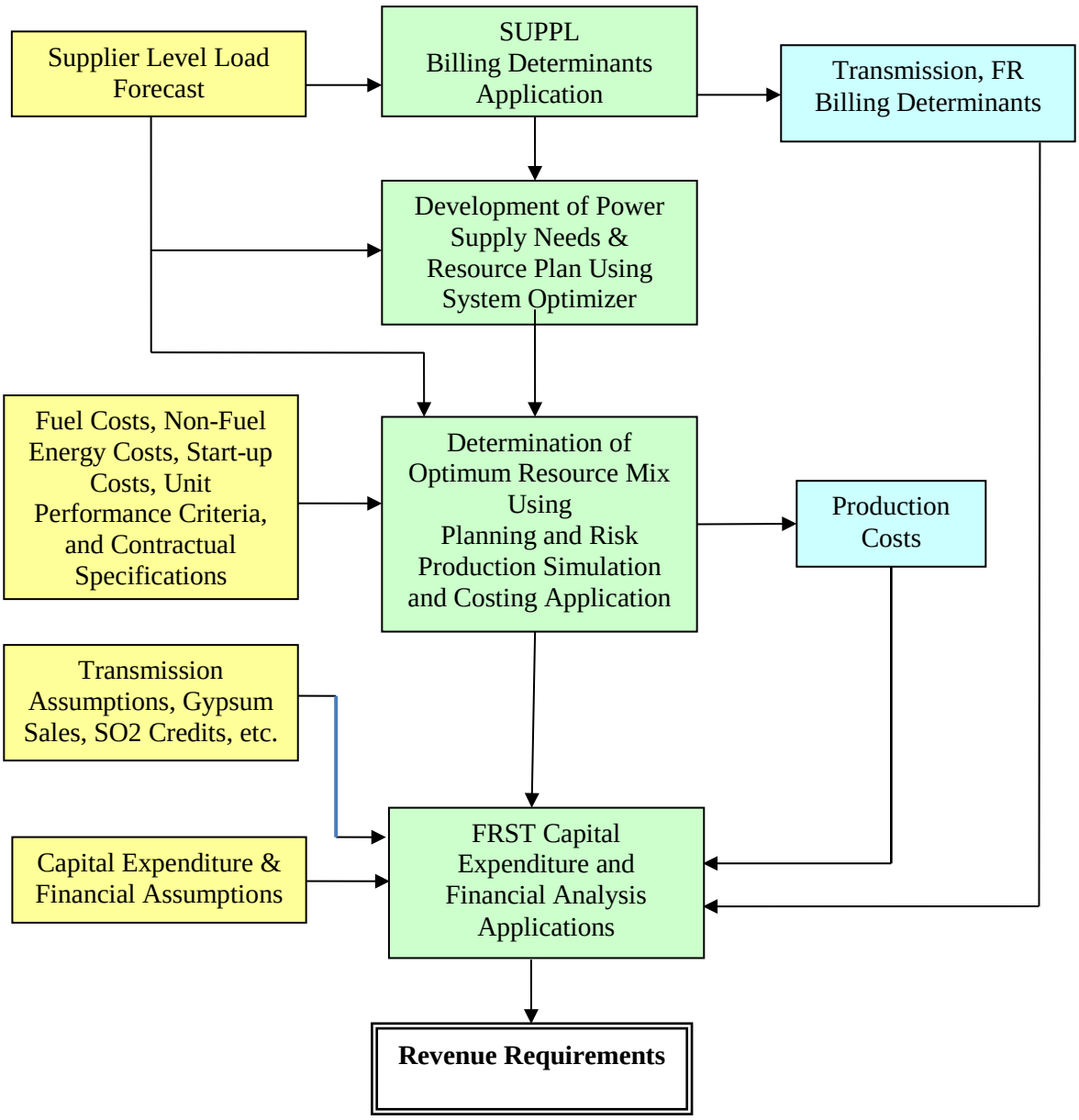
5.6 Financial Assumptions

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

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 behind end-use meters 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 participating end-use member-consumers with free energy-efficient 10 Watt (W) LED or 13W compact fluorescent light ("CFL") bulbs to replace their existing 60W 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 light emitting diode ("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.

Seminole is currently working with Members to evaluate pilot programs. One of the measures of particular interest to Seminole and its Members are Smart Thermostat Incentives. According to estimates from the 2016 Member Residential Appliance Saturation Survey, there are approximately 24,000 Smart Thermostats already installed in member households.

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 help quantify the energy efficiency and DSM savings achieved by Seminole's Members. Schedules 3.1 and 3.2 reflect the estimated savings from residential and commercial load management programs since 2015.

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 and transmission interconnection is also a consideration 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. Given the current regulatory environment, Seminole has assumed that all future large generation additions will be primarily fueled with natural gas. Seminole is also reviewing the possibility of additional renewable generation, such as solar.

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 is currently working with its Transmission Service Provider to evaluate the transmission system to support these future resources.

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 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 included the Sherman's fox squirrel (state species of special concern) and gopher tortoise (state threatened) burrows.

At such time as Seminole has determined 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 ninety-six (1,996) 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 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 Land Uses of Site and Adjacent Areas

The existing land use 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, and one Sherman's fox squirrel was also observed. No listed plant species have been identified in the areas to be impacted. Gopher tortoises are a state-designated threatened species, and the Sherman's fox squirrel is a state species of special concern. Neither species is federally listed. Seminole will comply with current (FWC) gopher tortoise permitting and relocation rules prior to commencing construction of the SCCF. With regard to the Sherman's fox squirrel, suitable habitat exists outside of the potential area to be impacted. In addition, Seminole will conduct pre-clearing surveys to avoid adverse impacts to any listed species. For these reasons, no adverse impacts to threatened or endangered species are anticipated as a result of the 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 (nominal net), 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 9, all of the SGS site is currently designated PF on the Putnam County Future Land Use Map. The PF land use category 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): 0.412 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. At this time, Seminole is in negotiations 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.

q. Noise Emissions and Control Systems

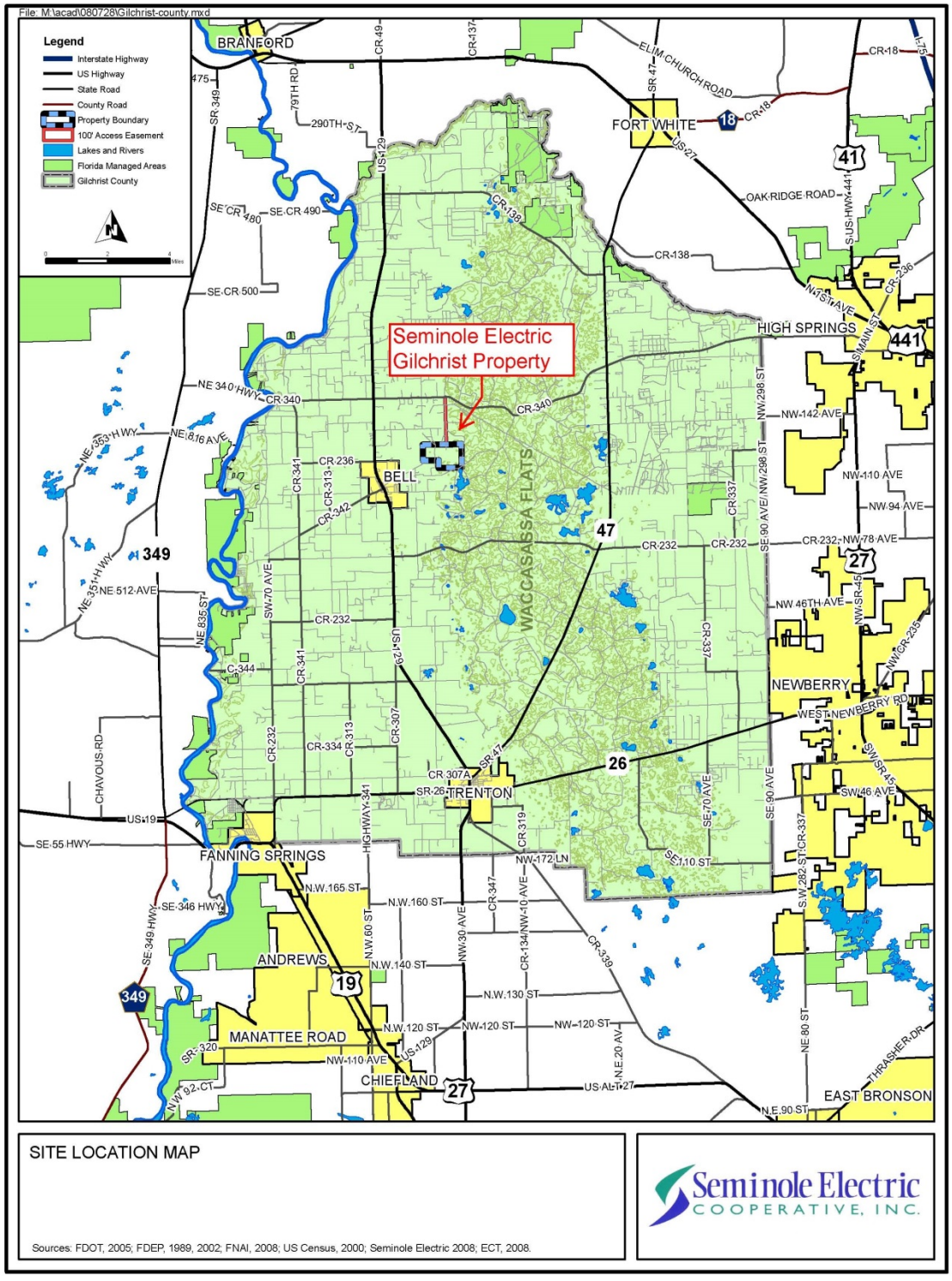
Off-site noise impacts from the SCCF unit are expected to be minimal given that the site has been in operation for electrical generation for decades. Further, the area to be impacted on-site is more than 1,300 feet from the site boundary and over 2,000 feet from the nearest residence.

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 an application for a Prevention of Significant Deterioration (PSD) air construction permit with the Florida Department of Environmental Protection (FDEP) on December 8, 2017. SECI filed a Petition for Determination of Need for the SCCF on December 21, 2017. Applications will also be made to FDEP to revise the existing

National Pollutant Discharge Elimination System (NPDES) permit

Map 3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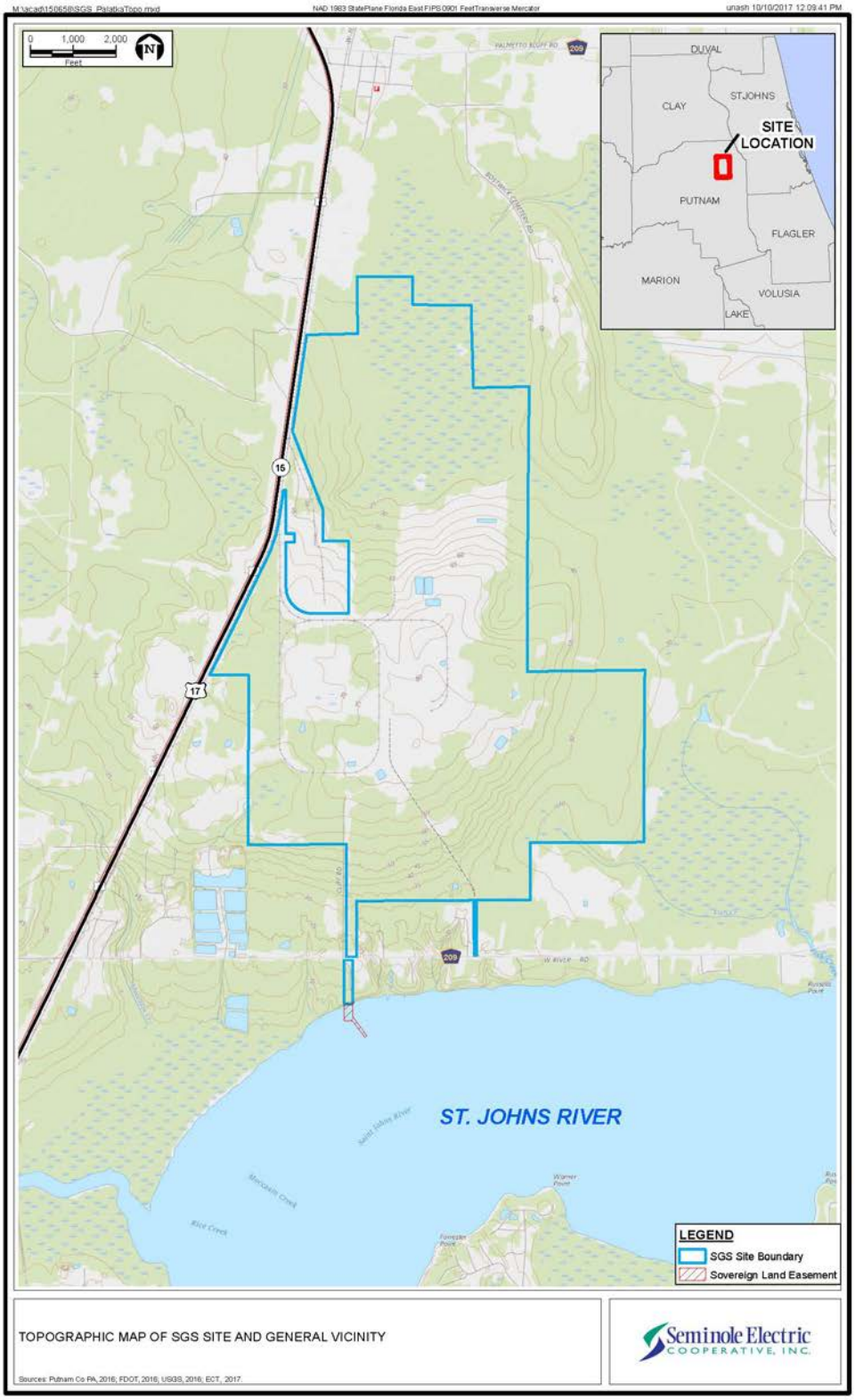
Legend
Interstate Highway
US Highway
State Road
County Road
Property Boundary
100' Access Easement
Lakes and Rivers
Florida Managed Areas
Gilchrist County
Seminole Electric
Gilchrist Property
BRANFORD
FORT WHITE
HIGH SPRINGS
BELL
TRENTON
NEWBERRY
FANNING SPRINGS
ANDREWS
MANATTEE ROAD
CHIEFLAND
EAST BRONSON
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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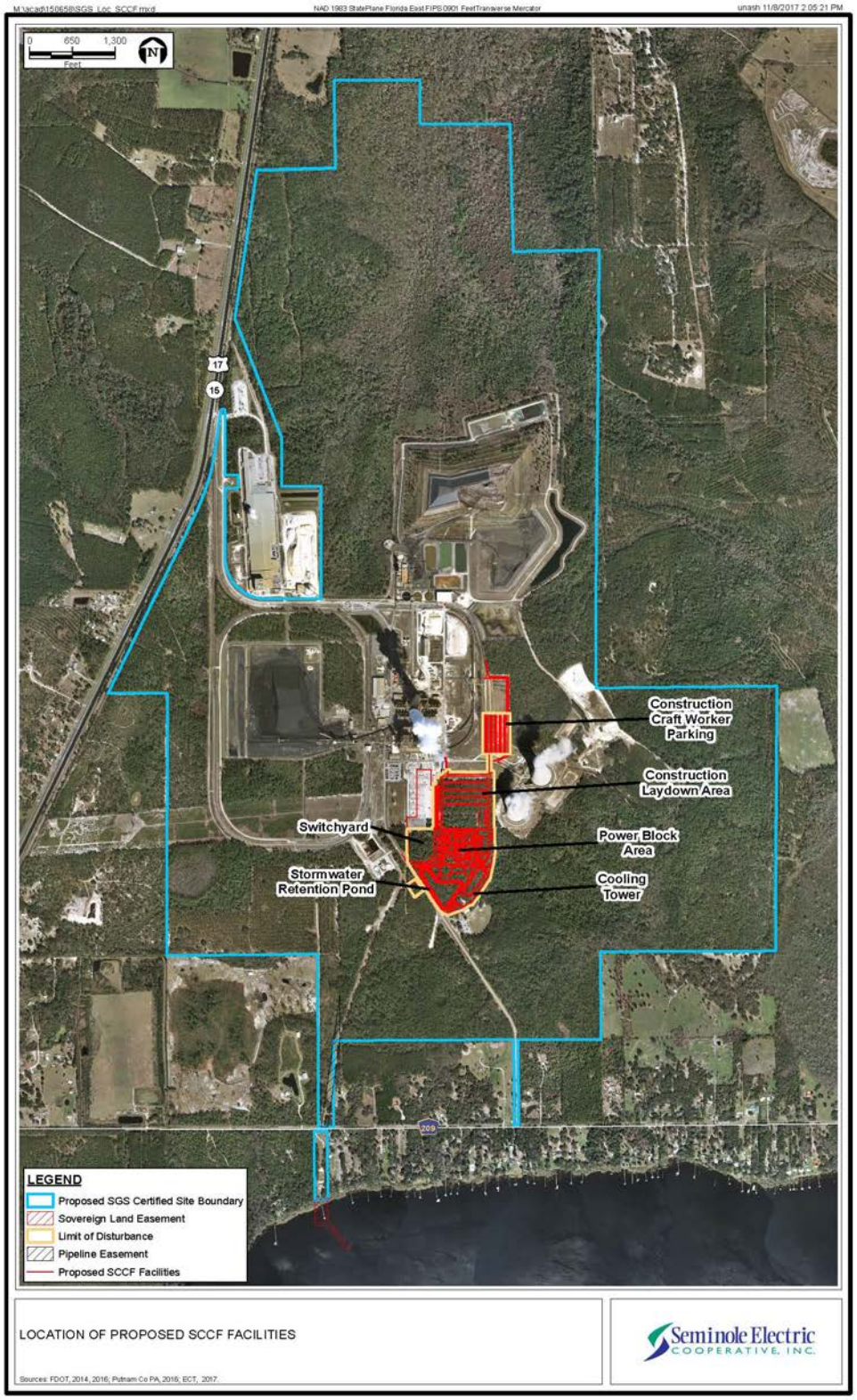
ST. JOHNS RIVER
LEGEND
SGS Site Boundary
Sovereign Land Easement
TOPOGRAPHIC MAP OF SGS SITE AND GENERAL VICINITY
Sources: Putnam Co PA, 2016; FDOT, 2016; USGS, 2016; ECT, 2017.
Seminole Electric COOPERATIVE, INC.

Map 5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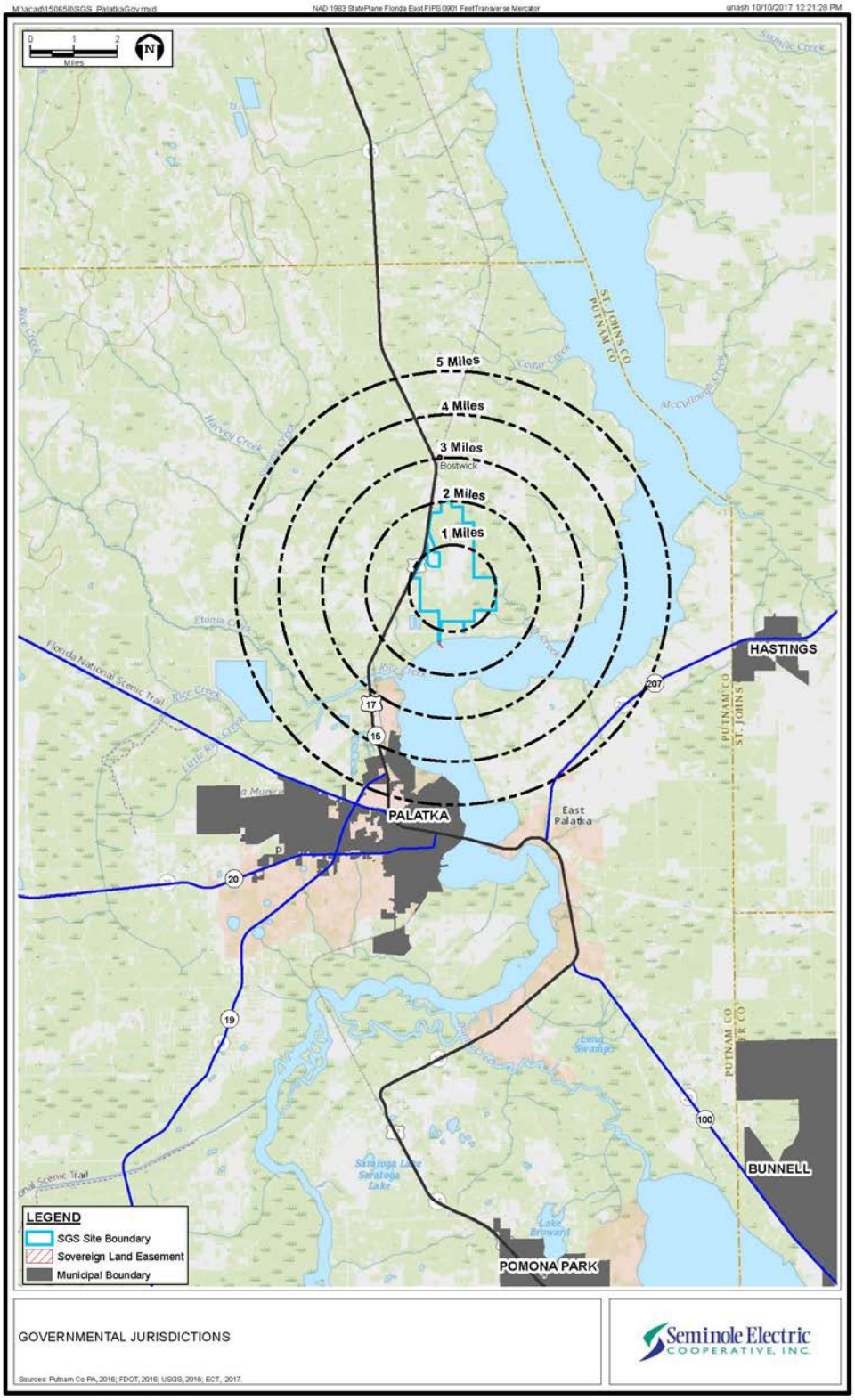
Construction Craft Worker Parking
Construction Laydown Area
Switchyard
Power Block Area
Stormwater Retention Pond
Cooling Tower
LEGEND
Proposed SGS Certified Site Boundary
Sovereign Land Easement
Limit of Disturbance
Pipeline Easement
Proposed SCCF Facilities
LOCATION OF PROPOSED SCCF FACILITIES
Sources: FDOT, 2014, 2016; Putnam Co PA, 2016; ECT, 2017.
Seminole Electric COOPERATIVE, INC.

Map 6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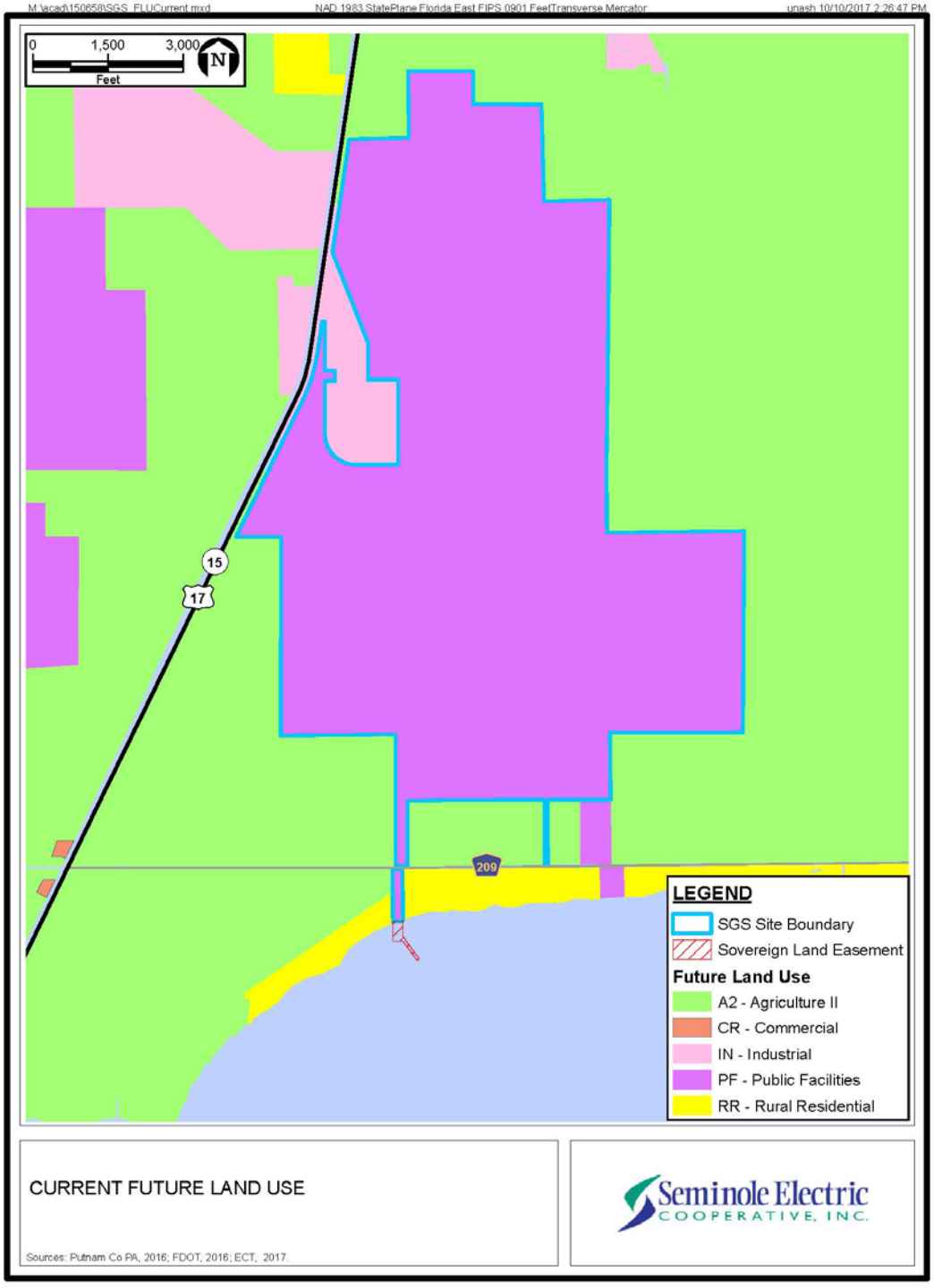
4 Miles
3 Miles
2 Miles
1 Miles
Bostwick
PALATKA
East Palatka
HASTINGS
BUNNELL
POMONA PARK
ST. JOHNS CO
PUTNAM CO
Florida National Scenic Trail
Rice Creek
Little Rice Creek
Etonia Creek
Harvey Creek
Cedar Creek
McCullough Creek
Sunrise Creek
Long Swamp
Saratoga Lake
Lake Brisard
LEGEND
SGS Site Boundary
Sovereign Land Easement
Municipal Boundary
GOVERNMENTAL JURISDICTIONS
Sources: Putnam Co PA, 2016; FDOT, 2016; USGS, 2016; ECT, 2017.
Seminole Electric COOPERATIVE, INC.

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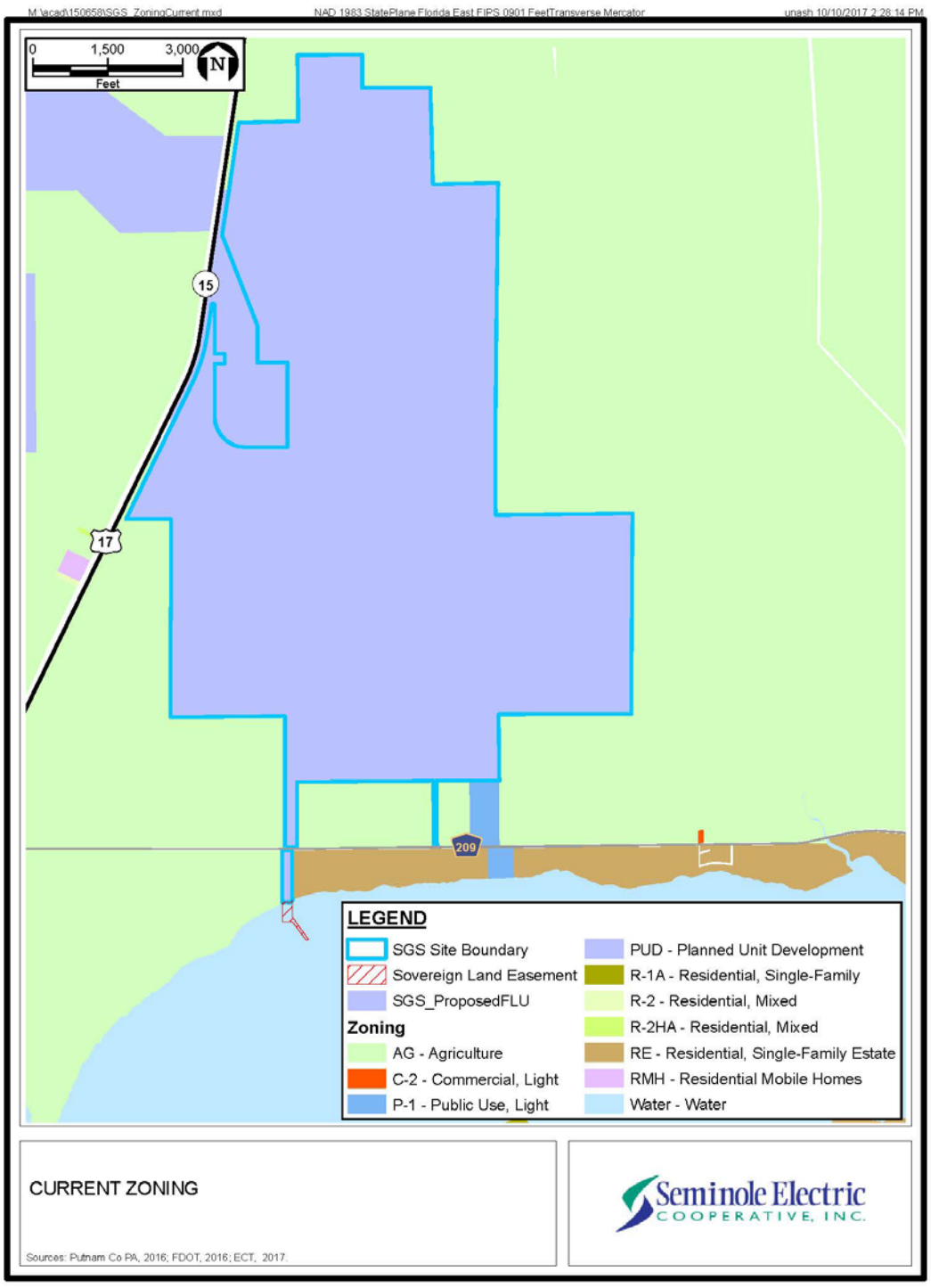
LEGEND
SGS Site Boundary
Sovereign Land Easement
Future Land Use
A2 - Agriculture II
CR - Commercial
IN - Industrial
PF - Public Facilities
RR - Rural Residential
CURRENT FUTURE LAND USE
Sources: Putnam Co PA, 2016; FDOT, 2016; ECT, 2017.
Seminole Electric
COOPERATIVE, INC.

Map 8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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.