

State of Florida



# Public Service Commission

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**DATE:** April 3, 2013  
**TO:** Ann Cole, Commission Clerk, Office of Commission Clerk  
**FROM:** Phillip O. Ellis, Engineering Specialist III, Division of Engineering  
 Kevin D. Dawkins, Engineering Specialist I, Division of Engineering (k)  
**RE:** 2013 Ten-Year Site Plan from Seminole Electric Cooperative, Inc.

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Attached is Seminole Electric Cooperative, Inc.'s 2013 Ten-Year Site Plan, submitted on April 1, 2013, consistent with Rule 25-22.071, Florida Administrative Code (F.A.C.). Please place this item in Docket No. 130000 – Undocketed Filings for 2013, as it relates to the annual undocketed staff Ten-Year Site Plan Review project.

If you have any additional questions, please contact me.

POE

Attachment

DOCUMENT NUMBER-DATE

01656 APR -4 2

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**Ten Year Site Plan**  
**2013 - 2022**  
**(Detail as of December 31, 2012)**  
**April 1, 2013**

**Submitted To:**  
**State of Florida**  
**Public Service Commission**



DOCUMENT NUMBER-DATE

01656 APR-4 2013

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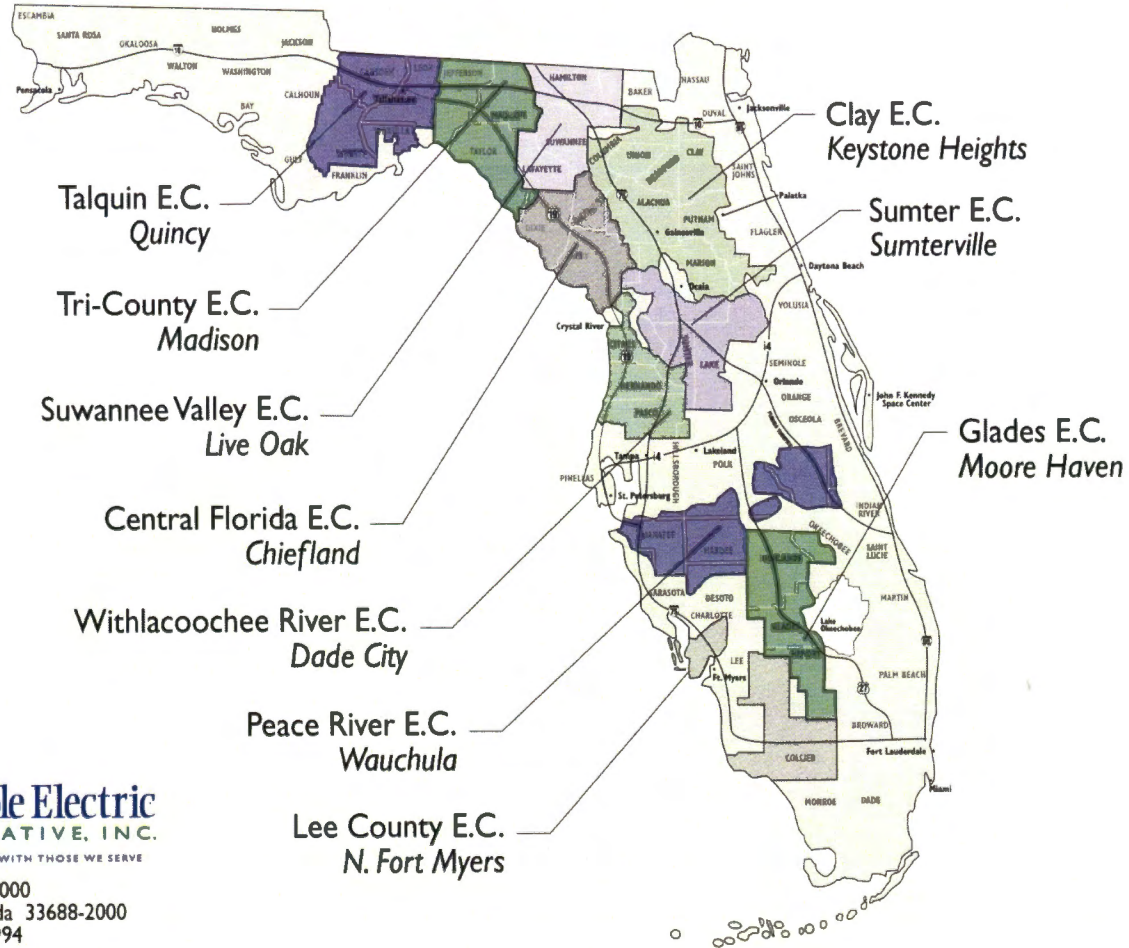
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# Seminole's Member Distribution Cooperatives

## FLORIDA



**Seminole Electric**  
COOPERATIVE, INC.  
IN PARTNERSHIP WITH THOSE WE SERVE  
P.O. Box 272000  
Tampa, Florida 33688-2000  
(813) 963-0994

## 1. DESCRIPTION OF EXISTING FACILITIES

### 1.1 Overview

Seminole Electric Cooperative, Inc. (Seminole) is a corporation organized and existing under the laws of the State of Florida for the purpose of providing reliable electric power at the lowest feasible cost to its ten distribution Members' systems. Seminole generates, transmits, purchases, and sells electric power and energy to its Member Cooperatives (Members), which are listed below:

- Central Florida Electric Cooperative, Inc.  
Chiefland, Florida
- Clay Electric Cooperative, Inc.  
Keystone Heights, Florida
- Glades Electric Cooperative, Inc.  
Moore Haven, Florida
- Lee County Electric Cooperative, Inc.  
North Fort Myers, Florida
- Peace River Electric Cooperative, Inc.  
Wauchula, Florida
- Sumter Electric Cooperative, Inc.  
Sumterville, Florida
- Suwannee Valley Electric Cooperative, Inc.  
Live Oak, Florida
- Talquin Electric Cooperative, Inc.  
Quincy, Florida
- Tri-County Electric Cooperative, Inc.  
Madison, Florida
- Withlacoochee River Electric Cooperative, Inc.  
Dade City, Florida

Each of Seminole's Members is engaged primarily in the distribution of retail electric power. Seminole supplies requirements power to each of its Members under the terms of long-term wholesale power contracts.<sup>1</sup> The map at the beginning of this section indicates the counties in which each Member of Seminole provides service.

## **1.2 Owned Resources**

### **1.2.1 Owned Generation**

Seminole serves its aggregate Member loads with a combination of owned and purchased power resources. Seminole Generating Station (SGS) Units 1 & 2, 650 MW class coal-fired units located in Putnam County, began commercial operation in February 1984 and December 1984, respectively. Midulla Generating Station (MGS) Units 1 – 3 comprise a 500 MW class gas-fired combined cycle plant located in Hardee County, which began commercial operation in January 2002. Also at the MGS site are Units 4 – 8 which comprise a 300 MW class peaking plant which began commercial operation in December 2006. Seminole also owns a 13 MW share of the Progress Energy Florida (PEF) Crystal River 3 nuclear generating unit which has been offline since 2009. PEF announced on February 5, 2013 its intentions to retire Crystal River 3; therefore, Seminole has removed Crystal River 3 from its available existing generating facilities. Seminole's owned generating facilities are shown in Schedule 1.1.

### **1.2.2 Transmission**

In 2012, Seminole served its Members' load primarily in three transmission areas: 6%

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<sup>1</sup> Seminole provided full requirements service to all of its Members through the end of 2009 with the only exception relating to contracts between four Members with the Southeastern Power Administration (SEPA), which provides 26 MW or 1% of the total energy required by all Members. In 2010, Seminole began serving only a portion (approximately 70%) of the load requirements of Lee County Electric Cooperative, Inc. (LCEC) and beginning January 1, 2014 will no longer serve any of LCEC's load.

directly through its own system (Seminole Direct Serve, or SDS), 64% through the PEF system, and 30% through the Florida Power & Light (FPL) system. Seminole's owned transmission facilities consist of 278 circuit miles of 230 kV and 141 circuit miles of 69 kV lines. Seminole's owned generating facilities are interconnected to the grid at twenty-one 230 kV transmission interconnections with the following utilities: FPL, JEA, City of Ocala, PEF, Hardee Power Partners, and Tampa Electric Company. Seminole's interconnections, all of which are at 230 kV, are shown in Schedule 1.2. Seminole contracts with FPL and PEF for firm network transmission service for its Member loads which connect to their respective transmission areas. Seminole has also acquired firm point-to-point transmission service from Tampa Electric Company to transmit a total of 58 MW from two waste-to-energy facilities located within Tampa Electric Company's balancing area.

### **1.3 Purchased Power Resources**

#### **1.3.1 Renewable Energy Purchases**

Seminole is among the leaders in Florida in regards to the amount of energy purchased from renewable energy facilities. In 2013, Seminole will receive energy output from 143 MW of renewable capacity under contract from the following sources:

- Lee County Resource Recovery - 55 MW of firm waste-to-energy capacity through December 2016. Seminole has an obligation to purchase energy from the facility through 2028.
- Hillsborough County Waste to Energy Facility - 38 MW of firm waste-to-energy capacity through February 2025.
- Telogia Power, LLC – 13 MW of firm capacity, through November 2023, from a

biomass (wood and paper waste) facility located in Liberty County.

- Landfill Energy Systems – 15 MW (total) of firm capacity from landfill gas-to-energy facilities in Seminole and Brevard Counties. These contracts extend through March 2018.
- Timberline Energy LLC – 1.6 MW of firm capacity from a landfill gas-to-energy facility in Hernando County, Florida. The contract extends through March 2020.
- City of Tampa McKay Bay Waste to Energy Facility - 20 MW of firm waste-to-energy capacity through July 2026.

### **1.3.2 Purchases from Unit or System Generating Resources**

In addition to the renewable resources described above, Seminole's capacity portfolio currently includes power acquired under firm purchased power agreements with the following electric utilities and independent power producers (all ratings are for winter unless otherwise noted):

- Progress Energy Florida (PEF)
  - PEF System Intermediate – up to 625 MW of firm system intermediate and/or combined cycle capacity in 2012, 450 MW in 2013, and 150 MW from January 2014 through December 2020.
  - PEF System Base – 150 MW of firm system base capacity from January 2012 through December 2013, 250 MW from January 2014 through May 2016, and 50 MW from June 2016 through December 2018.
  - PEF Seasonal Peaking – Up to 600 MW of firm summer/winter seasonal system peaking capacity from January 2014 through December 2020.

- PEF System Average – 150 MW of firm system average capacity from January 2014 through May 2016.
- PEF System Combined Cycle – Up to 500 MW of firm system intermediate capacity from June 2016 through December 2024.
- PEF Partial Requirements (PR) – Load following requirements service for Seminole's Member load in the PEF area in excess of Seminole's designated committed capacity. This arrangement provides Seminole some flexibility to modify the amount purchased in future years by modifying its committed capacity. PR service is primarily a peaking-type resource, with quantities varying by month based upon Seminole's committed capacity designations and actual monthly coincident demands. Seminole did not purchase PR capacity in 2012. This agreement terminates on December 31, 2013.
- GenOn Florida, L.P. (GenOn), (formerly RRI Energy Florida, LLC) – 546 MW of firm peaking capacity through May 2014, from GenOn's Osceola combustion turbine units in Osceola County.
- Oleander Power Project, L.P. (a subsidiary of Southern Power Company) – 546 MW of firm peaking capacity, through May 2021, from three combustion turbine units in Brevard County.
- Calpine Construction Finance Company, L.P. (Calpine) – up to 360 MW of firm intermediate capacity, through May 2014, from Calpine's gas-fired Osprey combined cycle plant in Polk County.
- City of Gainesville – Full Requirements service for a specified delivery point of

approximately 24 MW. This agreement terminated on December 31, 2012.

- Hardee Power Partners, Limited (a subsidiary of Invenergy LLC) –Up to 445 MW of firm capacity from the Hardee Power Station (HPS), of which 267 MW is combined cycle and/or intermediate capacity and 178 MW of peaking capacity. This agreement began in January 2013 and extends through December 2027. For the period January 1993 through December 2012, Seminole had first call reserve capacity from 356 MW of HPS to cover forced and scheduled outages of Seminole’s owned base load generation.
- Florida Power and Light Company (FPL) System Combined Cycle – 200 MW of firm system intermediate capacity from June 2014 to May 2021.

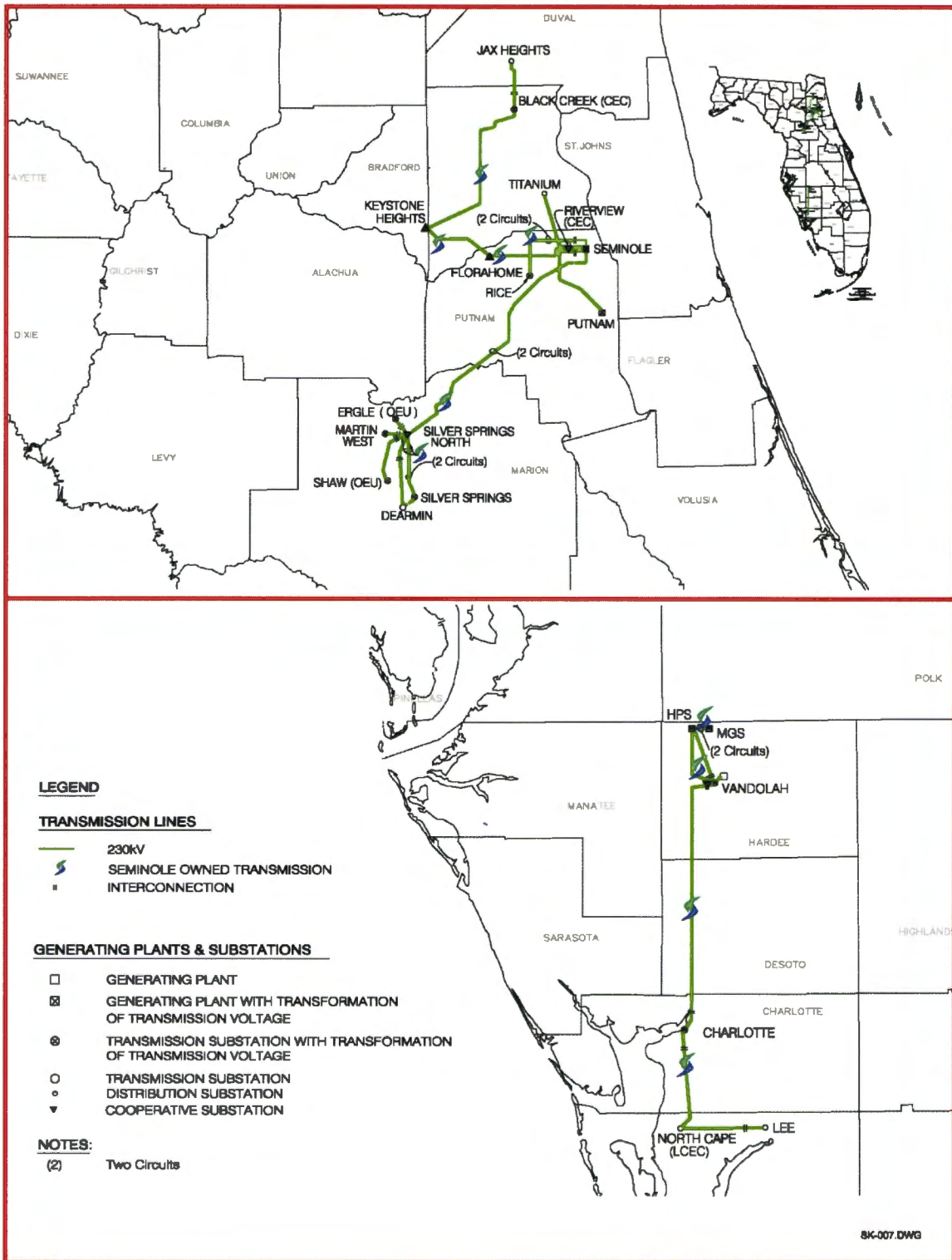
**Schedule 1.1  
Existing Generating Facilities as of December 31, 2012**

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
SGS	1	Putnam County	ST	BIT/PC	N/A	RR	N/A	N/A	02/84	Unk	736	652	664
SGS	2	Putnam County	ST	BIT/PC	N/A	RR	N/A	N/A	12/84	Unk	736	657	665
MGS	1-3	Hardee County	CC	NG	DFO	PL	TK	Unk	01/02	Unk	587	468	528
MGS	4-8	Hardee County	CT	NG	DFO	PL	TK	Unk	12/06	Unk	312	270	310
Crystal River*	3	Citrus County	ST	NUC	N/A	TK	N/A	N/A	03/77	2/13	890	13	13
Abbreviations:	<u>Unit Type</u> Unk – Unknown N/A – Not applicable ST - Steam Turbine, including nuclear CC - Combined Cycle CT – Combustion Turbine			<u>Fuel Type</u> BIT - Bituminous Coal NG - Natural Gas NUC – Nuclear PC – Petroleum Coke DFO - No. 2 Diesel Fuel Oil				<u>Fuel Transportation</u> PL – Pipeline RR – Railroad TK – Truck					
* Note:	The nameplate capacity for Crystal River Unit 3 is the total unit capability. Seminole’s share has been removed from future planning due to the announcement made on February 5, 2013 by Progress Energy Florida to retire Crystal River Unit 3.												



<b>Schedule 1.2</b>		
<b>Transmission Grid Interconnections with Other Utilities</b>		
<b>Utility</b>	<b>Voltage (kV)</b>	<b>Number of Interconnections</b>
Florida Power & Light	230	6
Progress Energy Florida	230	7
JEA	230	1
City of Ocala	230	2
Tampa Electric Company	230	1
Hardee Power Partners	230	4
<p>Note: This table describes physical facility interconnections, which do not necessarily constitute contractual interconnections for purposes of transmission service or interconnections between control areas.</p>		

## SEMINOLE'S BULK GENERATION AND TRANSMISSION FACILITIES



## **1.4 Demand Side Management (DSM) and Energy Conservation**

As a generation and transmission rural electric cooperative that serves only wholesale customers, Seminole cannot offer conservation or DSM programs directly to retail consumers. However, Seminole promotes Member involvement in DSM and energy efficiency through its wholesale rates (including its coincident peak billing and time-of-use energy rates) and in conjunction with its Load Management Distributed Generation Program (DG Program) and its Coordinated Direct Control Load Management Program (Load Management Program). The majority of Seminole's Members are active in managing their peak demand via one or more of these programs. These programs are coordinated by Seminole and are designed to lower demands at the time of the Seminole system peak demand, or provide dispatchable peaking generation for the Seminole's system.

In 2008, Seminole and its Members took steps to further promote the use and expansion of demand-side resources, energy efficiency and demand-side management through the formation of the Energy Efficiency Working Group. The function of this group is to promote expansion of DSM and conservation programs through sharing of information, consumer education, training of Member staff by nationally certified trainers, and joint assessment of specific energy efficiency and DSM programs to mitigate growth in consumer usage.

Seminole's Members routinely evaluate the economic feasibility of maintaining, or enhancing, their current programs into the future. During each load forecast study Seminole evaluates the Members' DSM and energy conservation programs for anticipated future changes.

### **1.4.1 Seminole's Member Programs**

The demand management programs offered by Seminole's Members include residential load control, load management distributed generation, distribution system voltage reduction, and

alternative rate options for interruptible and curtailable service, and time of use. These programs provide an aggregate demand management capability of approximately 206 MW.

All Members promote energy conservation and energy efficiency. Most Members offer in-home energy audits at no cost, and all Members have promoted lighting efficiency by distributing compact fluorescent light bulbs at no cost. Member web sites are focused on educating consumers on the benefits of energy conservation and energy efficiency. Most web sites offer energy saving tips, offer on-site energy audits, provide tools for consumers to perform on-line energy audits, and provide links to Touchstone Energy's Home Energy Library. One Member offers consumer rebates for energy efficiency and improvements including ceiling insulation, HVAC efficiency upgrades, and solar hot water systems. As a part of Seminole's consumer-owned renewable generation program, Seminole's Members have over 400 photovoltaic systems and an agricultural waste digester connected to their distribution systems. Seminole's Members provide net metering service to their Member consumers associated with most of the output from these renewable generators. Over the past 15 years, Seminole's Members have significantly reduced their energy purchases from Seminole by upgrading their distribution system by moving to higher line voltages and improved equipment efficiency specifications. This has resulted in lowering their distribution system line losses. In aggregate, annual distribution line losses have been reduced approximately 3 percent over the past decade; a reduction in Seminole's total system energy requirements of over 500,000 MWh in the past decade.

#### **1.4.2 Seminole's DSM Programs**

Seminole's DG Program allows its Members to install distributed peaking generation resources on their system and/or to partner with their retail customers to install "behind the

meter" customer-based distributed generation (DG) to operate as dispatchable load management resources for Seminole's system, while providing load center based generation to improve system and customer reliability.

Under Seminole's Load Management Program, Seminole coordinates the Members' residential load control. The Members utilize its residential load control programs to directly control heating, cooling, water heating and pool pump usage.

Seminole coordinates both of these programs in order to reduce Seminole's peak demand. Seminole's load and energy forecast takes into account reductions of peak demands due to the Load Management and DG Programs.

None of Seminole's Members have finalized plans to change their load management programs at this time although several are evaluating the feasibility of both expanding and/or contracting these programs. In addition, at this time Seminole expects most if not all Members will modify their diesel generators to be compliant with the RICE rule that takes effect May 3, 2013. As a result, Seminole has not projected any further growth or decrease in either of these programs over the forecast period. However, Seminole will reassess projected growth in both programs each year when updating the load forecast.

### **1.4.3 Conservation**

Seminole's Members have implemented a range of energy efficiency and energy conservation programs which have reduced Seminole's total requirements for electric energy. Except as described specifically below, these reductions have not been specifically quantified or estimated but are reflected in Seminole's load history. As such, Seminole's load forecast effectively extrapolates the growth of past programs into the future.

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Additionally, the current load forecast has been adjusted to estimate the impact of two

expected influences on consumer energy use: (1) an estimate of the effects of the 2005 Energy Policy Act and (2) the Energy Independence and Security Act of 2007. An evaluation of the 2005 Energy Policy Act and the Energy Independence and Security Act of 2007 revealed that improved efficiency standards for new HVAC systems and improved lighting efficiency would have the most significant impact on future energy sales of Seminole's Members.

## **2. FORECAST OF ELECTRIC DEMAND AND ENERGY CONSUMPTION**

### **2.1 Consumer Base and Related Trends**

#### **2.1.1 Service Area Economy**

Seminole Members provide electric services to portions of 46 counties in Florida. The service area includes north, central and south regions of Florida, a length approximately 400 miles long. Florida's geography, weather and natural resources differ uniquely in each region and promote year round economic activity.

#### **2.1.2 Population and Consumers**

Population growth in Florida (including Seminole Members' service areas) is significantly influenced by migration from northern states. Therefore, national economic factors influencing migration have a large impact on population growth in areas served by Seminole's Members. Historically, Seminole's residential consumer growth rate has exceeded the rate of growth for Florida as a whole. For the 2002-2011 period, Seminole's residential customer growth rate was 1.8 percent, higher than the statewide growth rate of 1.3 percent.

#### **2.1.3 Income**

Statistics indicate that over 45percent of the income in Florida comes from non-wage sources such as dividends, interest, rent, and transfer payments. This is approximately 10 percentage points higher than national averages. This statistic is reflective of a higher population

concentration of retirees.

## **2.2 Forecast Results**

### **2.2.1 Overview**

The forecast projection reflects an improved economic outlook for Florida and the nation as a whole over the next few years. Although the impact of the housing bust was severe, the state still has the unique resources that make it a premier place to live, visit and trade. According to Moody's Analytics' "State Growth Rankings" from 2011 through 2016, Florida is projected to be 22<sup>nd</sup> in gross state product, 6<sup>th</sup> in non-farm employment and 3<sup>rd</sup> in population. This is a major improvement from Florida's actual performance in 2006 through 2011, when it ranked last in gross state product, last in non-farm employment, and 25<sup>th</sup> in population.

In 2010, Seminole began serving only a portion of the load requirements of Lee County Electric Cooperative (LCEC) and beginning January 1, 2014 will no longer serve any of LCEC's load. This has the effect of lowering Seminole's long-term energy and demand growth rates.

### **2.2.2 Population and Consumers**

Historical and forecasted population for Seminole Members' service area is shown on Schedules 2.1 through 2.3. Seminole's Members serve significant portions of the less urbanized areas of the state which are located adjacent to metropolitan areas. These cooperative-served areas are less saturated and are impacted by suburban growth around these urban centers. It is therefore reasonable to expect continued higher consumer growth rates for Seminole's Members than for Florida as a whole.

### **2.2.3 Usage per Consumer**

After nearly two decades of steady increases, beginning in 2003 residential energy usage per consumer for the Seminole system and Florida began to flatten and moderately decline. This

change in energy usage is supported by the Seminole's Residential Appliance Survey results shown in Schedule 1.3. The survey results show the Members reaching maximum saturations of larger homes, electric heating, electric water heating, and air conditioning. Reaching maximum saturations combined with higher energy efficiency of newer electric heating and air conditioning systems have the effect of lowering residential energy usage.

<b>Schedule 1.3</b>			
<b>Homes and Electric Appliance Saturations (%)</b>			
	<b>2005</b>	<b>2008</b>	<b>2011</b>
Single Family Homes	66	70	71
Homes > 2000 sq. ft.	26	27	27
Homes < 1200 sq. ft.	22	20	18
Primary Space Heating	87	89	90
Air Conditioning	97	98	97
Water Heater	91	91	85
Refrigerator	100	100	99
Computers	69	76	81
Electric Range	86	85	82
Microwave Oven	97	97	96
Dishwasher	73	76	73
Clothes Dryer	87	90	86
Pool Pump	16	15	17

SOURCE: "Residential Consumer Survey," Seminole Electric Cooperative, Inc., 2005, 2008 and 2011

In an effort to further this trend, Seminole and its Members are promoting expansion of demand-side programs and are targeting to mitigate the continued growth in consumer usage. However, further expansion of electro-technology in the home and the introduction of mass produced electric vehicles will be an important influence on future usage per consumer. In 2011, Seminole's annual average residential usage was 13,606 kWh while Florida as a whole averaged 13546 kWh.

Commercial annual average usage per consumer is much lower on the Seminole system



(55,389kWh in 2011) than in Florida as a whole (77,601 kWh). This difference is even starker considering that Seminole Members' commercial usage also includes industrial consumers, whereas the Florida average does not. Seminole's Member commercial sector is dominated by small commercial loads. Commercial/industrial usage per consumer is projected to increase at an average annual growth rate of 0.5 percent through 2022. This is lower than the average annual growth rate of 0.7 percent over the past ten years.

#### **2.2.4 Energy Sales and Purchases**

Residential energy sales are projected to grow at 1.7 percent annually between 2013 and 2022. The energy sales forecast reflects energy savings from historical conservation efforts, incremental conservation growth at the same rate of adoption, a conservation estimate based primarily on the 2005 Energy Policy Act, the Energy Independence and Security Act of 2007. Commercial energy sales are projected to grow at an annual average of 0.9 percent over the same period. These statistics for growth include the effect of the departure of LCEC from Seminole's load responsibility in 2014.

#### **2.2.5 Peak Demand**

Seminole's winter peak demand is projected to increase at an average annual rate of 1.0 percent over the 10-year planning horizon, while summer peak demand is projected to increase at an average annual rate of 1.3 percent over the same period. These growth statistics are significantly influenced by the departure of LCEC in 2014.

Seminole as a whole, as well as the majority of its Member systems, is expected to continue to be winter peaking. For the Seminole system, winter peaks are expected to minimally increase from approximately 20 percent higher to 23 percent higher than summer peaks. The continued winter-peaking nature of the Seminole system is due primarily to continued

prominence of electric space-heating saturation in the foreseeable future.

The peak demand in Seminole's current load forecast reflects no additional load management.

Seminole counts its consumer demand once and only once, on an aggregated and Member system basis, in developing its actual and forecast consumer demand values.

#### **2.2.6 Forecast Scenarios**

Seminole creates a high and low population growth scenario in addition to the base forecast. Because Seminole's system is primarily residential load, population is the primary driving force behind Seminole's load growth. Therefore, high and low population growth scenarios are developed for each Member system based on the University of Florida's Bureau of Economic Business Research's (BEBR) alternative scenarios.

Schedules 2.1, 2.2, and 2.3 summarize energy usage and Members' consumers by customer class. Schedules 3.1.1, 3.1.2, and 3.1.3 provide Seminole's total summer peak demand forecasts for base, high and low population scenarios. Schedules 3.2.1, 3.2.2, and 3.2.3 provide similar data for winter peak demand, and schedules 3.3.1, 3.3.2, 3.3.3, and 4 provide similar data for net energy for load.

Schedule 2.1 History and Forecast of Energy Consumption and Number of Customers by Customer Class					
Year	Estimated Population Served by Members	RESIDENTIAL			
		Customers Per Household	GWh	Avg. Number of Customers	Average kWh Consumption Per Customer
2003	1,481,522	2.16	10,019	686,121	14,602
2004	1,537,305	2.15	10,264	713,496	14,386
2005	1,599,910	2.15	10,807	744,617	14,514
2006	1,667,616	2.14	11,153	780,687	14,286
2007	1,716,841	2.14	11,444	803,957	14,235
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	1,728,682	2.25	9,948	769,708	12,924
2013	1,752,708	2.26	10,690	776,150	13,773
2014	1,433,058	2.15	9,368	665,580	14,075
2015	1,454,023	2.14	9,638	678,035	14,215
2016	1,480,084	2.14	9,955	692,576	14,374
2017	1,506,142	2.13	10,253	706,778	14,507
2018	1,532,201	2.13	10,529	720,907	14,605
2019	1,558,260	2.12	10,827	735,014	14,730
2020	1,584,321	2.11	11,124	749,161	14,849
2021	1,608,572	2.11	11,415	762,355	14,974
2022	1,632,825	2.11	11,718	775,552	15,109

NOTE: 1. Estimated Population Served by Members represents only the area supplied by Seminole. Schedules 2.1, 2.2 and 2.3 represent retail consumption and consumers of the ten distribution Member cooperatives served by Seminole.

**Schedule 2.2**

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

Year	COMMERCIAL			Other Sales (GWh)	Total Sales to Ultimate Consumers (GWh)
	GWh	Avg. Number of Customers	Average kWh Consumption Per Customer		
2003	3,876	70,264	55,163	147	14,042
2004	4,119	74,248	55,476	150	14,533
2005	4,370	77,548	56,352	140	15,317
2006	4,634	84,346	54,940	158	15,945
2007	4,839	88,304	54,799	165	16,448
2008	4,894	86,119	56,828	162	16,160
2009	4,776	84,317	56,643	167	16,236
2010	4,525	78,787	57,433	158	16,052
2011	4,366	78,828	55,386	160	14,938
2012	4,439	80,509	55,137	164	14,551
2013	4,619	81,986	56,339	167	15,476
2014	4,069	71,859	56,625	148	13,585
2015	4,203	73,252	57,377	151	13,992
2016	4,329	74,891	57,804	153	14,437
2017	4,446	76,527	58,097	157	14,856
2018	4,557	78,163	58,301	160	15,246
2019	4,667	79,797	58,486	162	15,656
2020	4,777	81,435	58,660	166	16,067
2021	4,884	82,973	58,863	169	16,468
2022	4,989	84,512	59,033	172	16,879

NOTE: Commercial class includes industrial customers; Other sales class includes lighting customers.

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

<b>Year</b>	<b>Sales for Resale (GWh)</b>	<b>Utility Use &amp; Losses (GWh)</b>	<b>Net Energy for Load (GWh)</b>	<b>Other Customers (Avg. Number)</b>	<b>Total Number of Customers</b>
2003	0	1,736	15,778	5,238	761,623
2004	0	1,880	16,413	5,307	793,051
2005	0	1,449	16,766	5,543	827,708
2006	0	1,410	17,355	5,100	870,133
2007	0	1,221	17,669	5,152	897,413
2008	0	1,171	17,331	5,077	900,122
2009	0	1,217	17,453	5,037	901,121
2010	0	1,294	17,346	4,957	845,737
2011	157	785	15,880	4,954	849,061
2012	134	1,084	15,769	5,078	855,295
2013	229	1,109	16,814	5,097	863,233
2014	98	937	14,620	5,022	742,461
2015	98	966	15,056	5,093	756,380
2016	0	997	15,434	5,178	772,645
2017	0	1,026	15,882	5,263	788,568
2018	0	1,053	16,299	5,347	804,417
2019	0	1,081	16,737	5,430	820,241
2020	0	1,110	17,177	5,514	836,110
2021	0	1,138	17,606	5,595	850,923
2022	0	1,166	18,045	5,674	865,738

Excludes Wholesale Interruptible Purchases

**Schedule 3.1.1  
History and Forecast of Summer Peak Demand (MW) - Base Case**

Year	Total	Wholesale	Retail	Interruptible Load	Distributed Generation	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2003	3,208	3,208	0	N/A	35	158	N/A	N/A	N/A	3,015
2004	3,336	3,336	0	N/A	35	74	N/A	N/A	N/A	3,227
2005	3,666	3,666	0	N/A	49	78	N/A	N/A	N/A	3,539
2006	3,839	3,839	0	N/A	51	130	N/A	N/A	N/A	3,658
2007	4,006	4,006	0	N/A	62	105	N/A	N/A	N/A	3,839
2008	3,778	3,778	0	N/A	48	100	N/A	N/A	N/A	3,630
2009	3,987	3,987	0	N/A	62	101	N/A	N/A	N/A	3,824
2010	3,714	3,714	0	N/A	67	99	N/A	N/A	N/A	3,548
2011	3,829	3,829	0	N/A	79	97	N/A	N/A	N/A	3,653
2012	3,557	3,557	0	N/A	16	97	N/A	N/A	N/A	3,444
2013	3,807	3,807	0	N/A	73	89	N/A	N/A	N/A	3,645
2014	3,342	3,342	0	22	73	53	N/A	N/A	N/A	3,194
2015	3,424	3,424	0	23	73	53	N/A	N/A	N/A	3,275
2016	3,470	3,470	0	32	73	53	N/A	N/A	N/A	3,312
2017	3,561	3,561	0	33	73	53	N/A	N/A	N/A	3,402
2018	3,647	3,647	0	34	73	53	N/A	N/A	N/A	3,487
2019	3,738	3,738	0	35	73	53	N/A	N/A	N/A	3,577
2020	3,827	3,827	0	35	73	53	N/A	N/A	N/A	3,666
2021	3,914	3,914	0	36	73	53	N/A	N/A	N/A	3,752
2022	4,003	4,003	0	36	73	53	N/A	N/A	N/A	3,841

Historical load management data is actual amount exercised at the time of the seasonal peak demand.

Forecast data is the maximum amount available and includes SEPA allocations.

Excludes Wholesale Interruptible Purchases

**Schedule 3.1.2**

**Forecast of Summer Peak Demand (MW) - High Case**

Year	Total	Wholesale	Retail	Interruptible Load	Distributed Generation	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2013	3,888	3,888	0	0	73	89	N/A	N/A	N/A	3,726
2014	3,461	3,461	0	22	73	53	N/A	N/A	N/A	3,313
2015	3,611	3,611	0	23	73	53	N/A	N/A	N/A	3,462
2016	3,686	3,686	0	32	73	53	N/A	N/A	N/A	3,528
2017	3,811	3,811	0	33	73	53	N/A	N/A	N/A	3,652
2018	3,930	3,930	0	34	73	53	N/A	N/A	N/A	3,770
2019	4,053	4,053	0	35	73	53	N/A	N/A	N/A	3,892
2020	4,177	4,177	0	35	73	53	N/A	N/A	N/A	4,016
2021	4,308	4,308	0	36	73	53	N/A	N/A	N/A	4,146
2022	4,440	4,440	0	36	73	53	N/A	N/A	N/A	4,278

Excludes Wholesale Interruptible Purchases

**Schedule 3.1.3**

**Forecast of Summer Peak Demand (MW) - Low Case**

Year	Total	Wholesale	Retail	Interruptible Load	Distributed Generation	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2013	3,682	3,682	0	0	73	89	N/A	N/A	N/A	3,520
2014	3,170	3,170	0	22	73	53	N/A	N/A	N/A	3,022
2015	3,202	3,202	0	23	73	53	N/A	N/A	N/A	3,053
2016	3,213	3,213	0	32	73	53	N/A	N/A	N/A	3,055
2017	3,268	3,268	0	33	73	53	N/A	N/A	N/A	3,109
2018	3,317	3,317	0	34	73	53	N/A	N/A	N/A	3,157
2019	3,369	3,369	0	35	73	53	N/A	N/A	N/A	3,208
2020	3,421	3,421	0	35	73	53	N/A	N/A	N/A	3,260
2021	3,465	3,465	0	36	73	53	N/A	N/A	N/A	3,303
2022	3,511	3,511	0	36	73	53	N/A	N/A	N/A	3,349

Excludes Wholesale Interruptible Purchases

**Schedule 3.2.1**  
**History and Forecast of Winter Peak Demand (MW) - Base Case**

Year	Total	Wholesale	Retail	Interruptible Load	Distributed Generation	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2002-03	4,288	4,288	0	N/A	38	95	N/A	N/A	N/A	4,155
2003-04	3,655	3,655	0	N/A	39	85	N/A	N/A	N/A	3,531
2004-05	4,082	4,082	0	N/A	40	91	N/A	N/A	N/A	3,951
2005-06	4,349	4,349	0	N/A	47	77	N/A	N/A	N/A	4,225
2006-07	4,178	4,178	0	N/A	43	109	N/A	N/A	N/A	4,026
2007-08	4,410	4,410	0	N/A	56	133	N/A	N/A	N/A	4,221
2008-09	4,946	4,946	0	N/A	58	150	N/A	N/A	N/A	4,738
2009-10	5,263	5,263	0	N/A	64	152	N/A	N/A	N/A	5,047
2010-11	4,476	4,476	0	N/A	55	106	N/A	N/A	N/A	4,315
2011-12	4,118	4,118	0	N/A	66	134	N/A	N/A	N/A	3,918
2012-13	3,611	3,611	0	N/A	11	115	N/A	N/A	N/A	3,485
2013-14	4,019	4,019	0	31	72	81	N/A	N/A	N/A	3,835
2014-15	4,134	4,134	0	32	72	81	N/A	N/A	N/A	3,949
2015-16	4,207	4,207	0	32	72	81	N/A	N/A	N/A	4,022
2016-17	4,332	4,332	0	33	72	81	N/A	N/A	N/A	4,146
2017-18	4,447	4,447	0	34	72	81	N/A	N/A	N/A	4,260
2018-19	4,565	4,565	0	35	72	81	N/A	N/A	N/A	4,377
2019-20	4,684	4,684	0	37	72	81	N/A	N/A	N/A	4,494
2020-21	4,799	4,799	0	38	72	81	N/A	N/A	N/A	4,608
2021-22	4,916	4,916	0	40	72	81	N/A	N/A	N/A	4,723
2022-23	5,034	5,034	0	40	72	81	N/A	N/A	N/A	4,841

Historical load management data is actual amount exercised at the time of the seasonal peak demand.

Forecast data is the maximum amount available and includes SEPA allocations.

Excludes Wholesale Interruptible Purchases



**Schedule 3.2.2**  
**Forecast of Winter Peak Demand (MW) - High Case**

Year	Total	Wholesale	Retail	Interruptible Load	Distributed Generation	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2013-14	4,702	4,702	0	31	72	81	N/A	N/A	N/A	4,518
2014-15	4,131	4,131	0	32	72	81	N/A	N/A	N/A	3,946
2015-16	4,269	4,269	0	32	72	81	N/A	N/A	N/A	4,084
2016-17	4,450	4,450	0	33	72	81	N/A	N/A	N/A	4,264
2017-18	4,618	4,618	0	34	72	81	N/A	N/A	N/A	4,431
2018-19	4,776	4,776	0	35	72	81	N/A	N/A	N/A	4,588
2019-20	4,937	4,937	0	37	72	81	N/A	N/A	N/A	4,747
2020-21	5,097	5,097	0	38	72	81	N/A	N/A	N/A	4,906
2021-22	5,263	5,263	0	40	72	81	N/A	N/A	N/A	5,070
2022-23	5,432	5,432	0	40	72	81	N/A	N/A	N/A	5,239

Excludes Wholesale Interruptible Purchases

**Schedule 3.2.3**  
**Forecast of Winter Peak Demand (MW) - Low Case**

Year	Total	Wholesale	Retail	Interruptible Load	Distributed Generation	Residential		Commercial		Net Firm Demand
						Load Mgmt.	Cons.	Load Mgmt.	Cons.	
2013-14	3,857	3,857	0	31	72	81	N/A	N/A	N/A	3,673
2014-15	3,894	3,894	0	32	72	81	N/A	N/A	N/A	3,709
2015-16	3,915	3,915	0	32	72	81	N/A	N/A	N/A	3,730
2016-17	3,993	3,993	0	33	72	81	N/A	N/A	N/A	3,807
2017-18	4,063	4,063	0	34	72	81	N/A	N/A	N/A	3,876
2018-19	4,134	4,134	0	35	72	81	N/A	N/A	N/A	3,946
2019-20	4,207	4,207	0	37	72	81	N/A	N/A	N/A	4,017
2020-21	4,271	4,271	0	38	72	81	N/A	N/A	N/A	4,080
2021-22	4,333	4,333	0	40	72	81	N/A	N/A	N/A	4,140
2022-23	4,396	4,396	0	40	72	81	N/A	N/A	N/A	4,203

Excludes Wholesale Interruptible Purchases

**Schedule 3.3.1**

**History and Forecast of Annual Net Energy for Load (GWh) - Base Case**

Year	Total	Conservation		Retail	Total Sales Including Winter Park	Utility Use & Losses	Net Energy for Load	Load Factor %
		Residential	Commercial					
2003	15,778	N/A	N/A	0	14,042	1,736	15,778	43.3
2004	16,413	N/A	N/A	0	14,533	1,880	16,413	53.1
2005	16,766	N/A	N/A	0	15,317	1,449	16,766	48.4
2006	17,355	N/A	N/A	0	15,945	1,410	17,355	46.9
2007	17,670	1	N/A	0	16,448	1,221	17,669	50.1
2008	17,332	1	N/A	0	16,160	1,171	17,331	46.7
2009	17,454	1	N/A	0	16,236	1,217	17,453	42.1
2010	17,347	1	N/A	0	16,052	1,294	17,346	39.2
2011	15,881	1	N/A	0	15,095	785	15,880	42.0
2012	15,770	1	N/A	0	14,685	1,084	15,769	45.8
2013	16,918	104	N/A	0	15,705	1,109	16,814	55.1
2014	14,714	94	N/A	0	13,683	937	14,620	43.5
2015	15,190	134	N/A	0	14,090	966	15,056	43.5
2016	15,611	177	N/A	0	14,437	997	15,434	43.7
2017	16,104	222	N/A	0	14,856	1,026	15,882	43.7
2018	16,568	269	N/A	0	15,246	1,053	16,299	43.7
2019	17,027	290	N/A	0	15,656	1,081	16,737	43.7
2020	17,488	311	N/A	0	16,067	1,110	17,177	43.5
2021	17,939	333	N/A	0	16,468	1,138	17,606	43.6
2022	18,400	355	N/A	0	16,879	1,166	18,045	43.6

Excludes Wholesale Interruptible Purchases

Schedule 3.3.2								
Forecast of Annual Net Energy for Load (GWh) - High Case								
Year	Total	Conservation		Retail	Total Sales Including Winter Park	Utility Use & Losses	Net Energy for Load	Load Factor %
		Residential	Commercial					
2013	17,033	104	N/A	0	15,821	1,108	16,929	43.6
2014	15,035	94	N/A	0	13,995	946	14,941	37.8
2015	15,787	134	N/A	0	14,662	991	15,653	45.3
2016	16,367	177	N/A	0	15,158	1,032	16,190	45.1
2017	17,016	222	N/A	0	15,723	1,071	16,794	45.0
2018	17,636	269	N/A	0	16,259	1,108	17,367	44.7
2019	18,250	290	N/A	0	16,814	1,146	17,960	44.7
2020	18,869	311	N/A	0	17,373	1,185	18,558	44.5
2021	19,516	333	N/A	0	17,958	1,225	19,183	44.6
2022	20,180	355	N/A	0	18,559	1,266	19,825	44.6

Excludes Wholesale Interruptible Purchases

Schedule 3.3.3								
Forecast of Annual Net Energy for Load (GWh) - Low Case								
Year	Total	Conservation		Retail	Total Sales Including Winter Park	Utility Use & Losses	Net Energy for Load	Load Factor %
		Residential	Commercial					
2013	16,169	104	N/A	0	15,015	1,050	16,065	45.8
2014	13,750	94	N/A	0	12,794	862	13,656	42.4
2015	13,956	134	N/A	0	12,949	873	13,822	42.5
2016	14,204	177	N/A	0	13,134	893	14,027	42.8
2017	14,521	222	N/A	0	13,389	910	14,299	42.9
2018	14,810	269	N/A	0	13,615	926	14,541	42.8
2019	15,092	290	N/A	0	13,860	942	14,802	42.8
2020	15,374	311	N/A	0	14,104	959	15,063	42.7
2021	15,618	333	N/A	0	14,312	973	15,285	42.8
2022	15,872	355	N/A	0	14,528	989	15,517	42.8

Excludes Wholesale Interruptible Purchases

**Schedule 4**

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

Month	2012 Actual		*2013 Forecast		2014 Forecast	
	Peak Demand MW	NEL GWh	Peak Demand MW	NEL GWh	Peak Demand MW	NEL GWh
January	3,918	1,262	2,719	1,421	3,835	1,242
February	3,868	1,069	3,485	1,249	3,246	1,081
March	2,316	1,166	2,662	1,126	2,362	968
April	2,739	1,179	2,796	1,244	2,444	1,068
May	3,305	1,445	3,311	1,503	2,880	1,285
June	3,342	1,431	3,496	1,602	3,066	1,385
July	3,444	1,619	3,545	1,731	3,111	1,503
August	3,284	1,593	3,645	1,777	3,194	1,537
September	3,292	1,453	3,277	1,537	2,869	1,326
October	2,900	1,271	2,819	1,260	2,515	1,109
November	2,634	1,081	2,497	1,095	2,274	976
December	3,154	1,200	3,098	1,269	2,840	1,140
ANNUAL		15,769		16,814		14,620
*January & February 2013 is estimated actual Demand						
Excludes Wholesale Interruptible Purchases						

## **2.3 Forecast Assumptions**

### **2.3.1 Economic and Demographic Data**

Seminole's economic and demographic data base has four principal sources: (1) population from the "Florida Population Studies" furnished by the BEBR, (2) housing permits, income, and employment data furnished by Moody's Economy.com (3) electricity price data from Seminole's Member cooperatives "Financial and Operating Report- Electronic Distributions" (Previously referred to as the RUS Form 7), and (4) appliance and housing data from the "Residential Appliance Surveys" conducted by Seminole and its Member systems since 1980.

Population is the main explanatory variable in the residential and commercial/industrial consumer models. Historical population data by county is obtained for the 46 counties served by Seminole Member systems. Combining the county forecasts yields a population forecast for each Member. Three sets of population forecasts for each county are provided by the BEBR: low, medium, and high scenarios. Historical population growth trends are analyzed to determine the most appropriate combination of scenarios for each Member system. Low and high population scenarios are also developed for each Member.

Real Per Capita Income (RPCI) is an explanatory variable in the residential and commercial/industrial usage per consumer models. The Consumer Price Index for All Urban Consumers (CPI-U) published by the U.S. Bureau of Labor Statistics is used to convert historical nominal income to real values. Total non-farm employment (EMPL) is also used in the commercial/industrial energy usage model. County forecasts of RPCI and EMPL are taken from Moody's Economy.com long-term economic forecast.

The real price of electricity is used in the residential and commercial/industrial energy models. The real price is calculated by dividing kWh sales for each consumer class into the corresponding revenue, and then by deflating the result by the CPI-U. For the forecast, the real price of electricity is assumed to increase in the future based on system-wide historical retail rates.

Appliance saturations and housing data are obtained from Seminole's Residential Appliance Survey. The information from the surveys is combined with the residential consumer forecast to produce weighted appliance stock variables for space-conditioning appliances which are used in the residential energy usage model and the peak demand load factor model.

### **2.3.2 Weather Data**

Seminole obtains hourly weather data from the National Oceanic and Atmospheric Administration (NOAA) for six weather stations located in or around Seminole's Member service area. To better reflect weather conditions in each Member's service territory, different weather stations are assigned to individual Member systems based on geographic proximity.

Monthly heating degree hours (HDH) and cooling degree hours (CDH) are used in the energy usage models, while the peak demand models use HDH and CDH on Seminole's peak days. Seminole uses different temperature cut-off points for air conditioning and space heating demand. In addition, there are different winter cut-off values for Members in the northern versus the southern regions.

### **2.3.3 Sales and Hourly Load Data**

Monthly operating statistics dating back to 1970 have been furnished by the Member systems. Included in this data are statistics by class on number of consumers, kWh sales, and revenue. This data is the basis for consumer and energy usage models. Hourly loads for each

Member and the Seminole system, as well as the Members' monthly total energy purchases from Seminole, are collected from 191 delivery points. Such data, taken from January 1979 to the present, is a basis for hourly load profile forecasts and modeling peak demand.

## **2.4 Forecast Methodology**

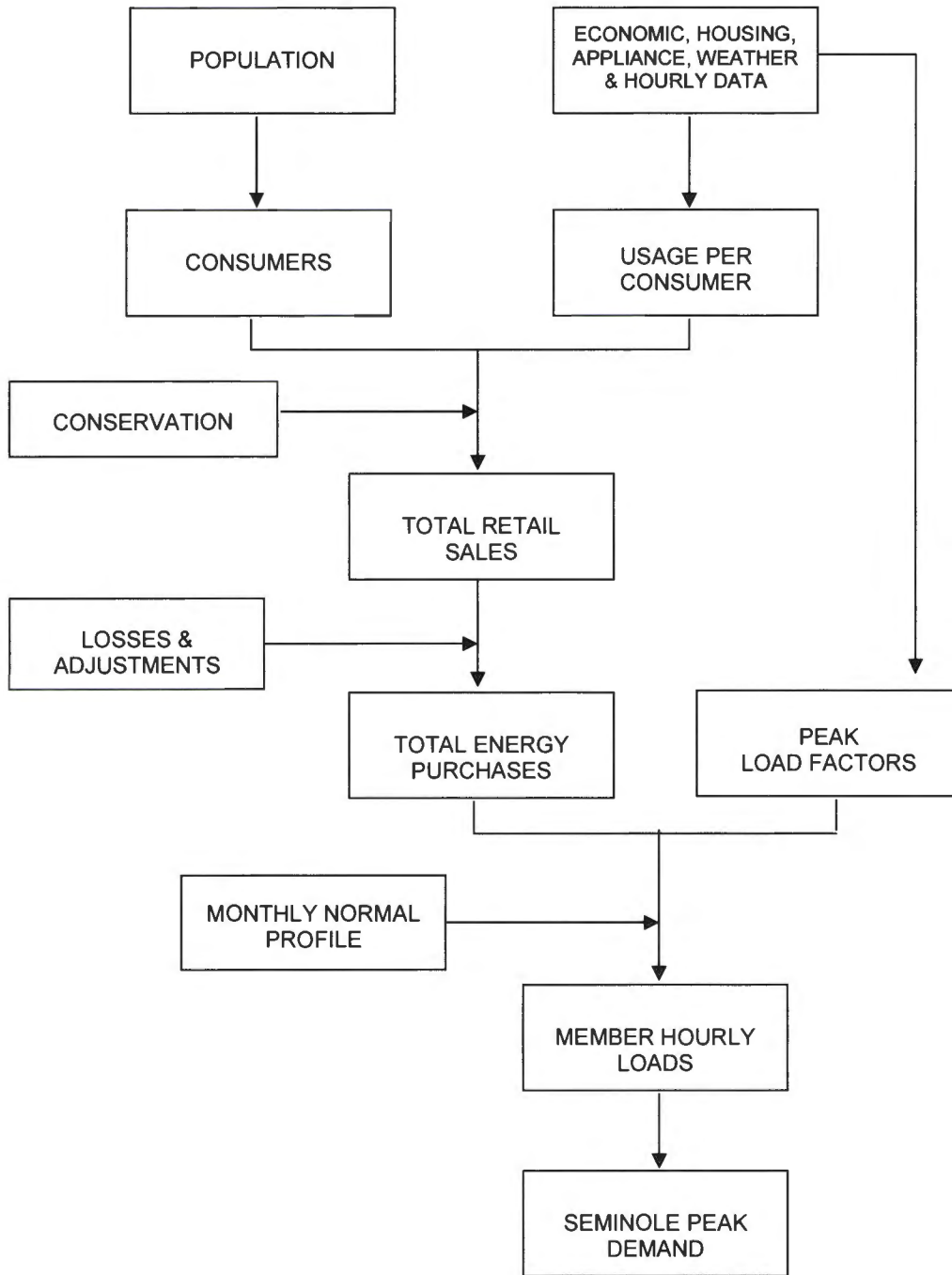
Seminole's Integrated Forecasting System consists of the following sub-models:

- (1) Residential Consumer Model
- (2) Appliance Model
- (3) Commercial/Industrial Consumer Model
- (4) Other Class Consumers Model
- (5) Residential Energy Usage Model
- (6) Commercial/Industrial Energy Usage Model
- (7) Other Class Energy Usage Model
- (8) Peak Demand Load Factor Model
- (9) Hourly Load Profiles and Load Management

Each model consists of ten sub-models because each Member system is modeled and forecast separately. Individual Member model results are aggregated to derive the Seminole forecast. Figure 1 on the following page shows the Integrated Forecasting System.

Figure 1

Integrated Forecasting System





### **2.4.1 Consumer Models**

For each Member, annual consumers are a function of the Member's service area population, with a first-order auto-regressive correction used when necessary. The amount of new residential housing permits was found to be a significant variable in six of the Members' residential consumer models. Forecasts are benchmarked using 2012 estimated/actual data. Seasonally adjusted monthly forecasts are developed from annual data. Expected new large commercial consumers are included.

Other consumer classes generally include irrigation, street and highway lighting, public buildings, and sales for resale, which represent less than 2 percent of Seminole's Members' total energy sales. A few Member systems include some of these classes in the commercial/industrial sector. For the others, annual consumer forecasts are projected using regression analysis against population, or a trending technique.

### **2.4.2 Appliance Model**

The Appliance Model combines the results of the Residential Consumer Model with data from the Residential Appliance Survey to yield forecasts of space-heating and air-conditioning stock variables which are used in the Residential Energy Usage Model and the Peak Demand Load Factor Model. Annual forecasts of the shares for the following home types are produced: single-family, mobiles, and multi-family homes. Each home type is segregated into four age groups. Next, annual forecasts of space-conditioning saturations are created. Finally, the air-conditioning saturations and the space-heating saturations are combined with housing type share information, resulting in weather-sensitive stock variables for heating and cooling.

### **2.4.3 Energy Usage Model**

The Residential Energy Usage Model is a combination of econometric and end-use methods. For each Member system, monthly residential usage per consumer is a function of heating and cooling degree variables weighted with space-conditioning appliances, real price of electricity, and real per capita income. Forecasts are benchmarked against weather-normalized estimated energy in 2012, the last year of the analysis period. The usage per consumer forecast is multiplied by the consumer forecast to produce monthly residential energy sales forecasts.

For each Member system, monthly commercial/industrial usage per consumer is a function of heating and cooling degree variables, real price of electricity, real per capita income, total non-farm employment, and dummy variables to explain abrupt or external changes. A first order auto-regressive correction is used when necessary. Forecasts of energy usage per consumer are benchmarked to 2012 estimates, the last year of the historical period. Energy usage per consumer forecasts are combined with the consumer forecasts to produce monthly commercial/industrial energy sales forecasts. Expected new large commercial loads are included in the forecast.

Historical patterns of energy usage for other classes have been quite stable for most Members and usage is held constant for the forecast period. Trending methodology is used for the Members with growth in this sector.

### **2.4.4 Total Energy Sales and Energy Purchases**

Residential, Commercial/Industrial, and Other class energy sales forecasts are summed to create total retail energy sales forecasts for each Member system. Retail energy sales forecasts are converted to Member energy purchases from Seminole at the delivery point using historical averages of the ratio of calendar month purchases to retail billing cycle sales for each Member.

Therefore, these adjustment factors represent both energy losses and billing cycle sales and calendar month purchases differences. The latter, as a function of weather and billing days, often changes erratically.

#### **2.4.5 Peak Demand Load Factor Model**

The Seminole peak demand forecast is derived after the Member monthly peak demands and hourly load forecasts have been created. Member peak demands are derived by combining the forecasts of monthly load factors with energy purchases from Seminole. Monthly peak demand load factors are a function of heating and cooling degree variables, precipitation, air-conditioning and space-heating saturations, and heating and cooling degree hours at the time of the Member's peak demand. Two seasonal equations for each Member system are developed: one for the winter months (November through March) and the other for the summer months (April through October). The forecasted monthly load factors are combined with the energy purchases from Seminole forecasts to produce forecasts of monthly peaks by Member.

#### **2.4.6 Hourly Load Profiles**

Hourly demand forecasts are created using an algorithm that contains the following inputs: normal monthly hourly profiles, maximum and minimum monthly demands, and energy. This algorithm produces monthly hourly load forecasts by Member. Seminole peak demands are derived by summing the Members' hourly loads and identifying the monthly coincident maximum demands.

#### **2.4.7 Scenarios**

In lieu of economic scenarios, Seminole creates a high and low population growth scenario in addition to the base population forecast. Because Seminole's system is primarily residential load, population is the primary driving force behind Seminole's load growth.

Therefore, high and low population growth scenarios are developed for each Member system based on the BEBR's alternative scenarios.

### **3. FUEL REQUIREMENTS AND ENERGY SOURCES**

Seminole's nuclear, coal, oil, and natural gas requirements for owned and future generating units are shown on Schedule 5 on the next page. Seminole's 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.

Seminole has additional requirements for capacity in the 2019 and beyond time frame. Seminole has reflected capacity additions which are assumed to be from a portfolio of resources such as gas/oil, nuclear, and renewable resources.

**Schedule 5  
Fuel Requirements For Seminole Generating Resources**

Fuel Requirements		Units	Actual		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
			2011	2012										
Nuclear*		Trillion BTU	1	0	0	0	0	0	0	0	0	0	0	0
Coal		1000 Tons	3474	3194	3548	3541	3578	3619	3669	3707	3720	3805	3813	3845
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	85	41	40	40	41	41	42	42	42	43	43	44
	Steam	1000 BBL	54	37	40	40	41	41	42	42	42	43	43	44
	CC	1000 BBL	15	0	0	0	0	0	0	0	0	0	0	0
	CT	1000 BBL	16	4	0	0	0	0	0	0	0	0	0	0
Natural Gas	Total	1000 MCF	20138	22517	17227	14779	13509	14571	15485	16112	15689	16582	26525	28610
	Steam	1000 MCF	0	0	0	0	0	0	0	0	0	0	0	0
	CC	1000 MCF	17547	18934	15171	12903	11823	12491	12807	13732	13704	13710	23656	24058
	CT	1000 MCF	2591	3583	2056	1876	1686	2080	2678	2380	1985	2872	2869	4552

NOTE: Above fuel is for existing and future-owned generating resources (excluding purchased power contracts).  
 Totals may not add due to rounding.  
 \* Nuclear reflects replacement power for Crystal River 3

**Schedule 6.1  
Energy Sources (GWh)**

Energy Sources		Units	Actual		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
			2011	2012										
Inter-Regional Interchange		GWh	0	0	0	0	0	0	0	0	0	0	0	0
Nuclear*		GWh	128	0	0	0	0	0	0	0	0	0	0	0
Coal		GWh	8663	7754	8691	8738	8906	8914	9008	9115	9126	9357	9386	9476
Residual	Total	GWh	0	0	2	0	0	0	0	0	0	0	0	0
	Steam	GWh	0	0	0	0	0	0	0	0	0	0	0	0
	CC	GWh	0	0	2	0	0	0	0	0	0	0	0	0
	CT	GWh	0	0	0	0	0	0	0	0	0	0	0	0
Distillate	Total	GWh	86	66	67	52	55	58	66	66	62	66	59	61
	Steam	GWh	60	24	23	23	24	24	24	25	25	25	25	26
	CC	GWh	6	38	0	0	0	0	0	0	0	0	0	0
	CT	GWh	20	4	44	29	31	34	42	41	37	41	34	35
Natural Gas	Total	GWh	6310	7000	6881	4651	4917	5203	5976	6383	6843	7058	7468	7818
	Steam	GWh	1137	0	0	0	0	0	0	0	0	0	0	0
	CC	GWh	4475	6244	6411	4134	4337	4568	5159	5568	6206	6283	7147	7380
	CT	GWh	697	756	465	515	579	636	817	814	638	775	322	437
NUG		GWh	0	0	0	0	0	0	0	0	0	0	0	0
Renewables		GWh	850	949	1032	1035	1033	1112	686	590	559	550	546	545
Other		GWh	0	0	153	153	153	153	153	153	153	153	153	153
Net Energy for Load		GWh	16037	15769	16814	14620	15056	15434	15882	16299	16737	17177	17606	18045

NOTE: Net interchange, unit power purchases and PEF and FPL system purchases are included under source fuel categories.

Totals may not add due to rounding.

\* Nuclear reflects replacement power for Crystal River 3

**Schedule 6.2  
Energy Sources (Percent)**

Energy Sources		Units	Actual		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
			2011	2012										
Inter-Regional Interchange		%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Nuclear*		%	0.80%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Coal		%	54.02%	49.17%	51.69%	59.77%	59.15%	57.75%	56.72%	55.92%	54.53%	54.47%	53.31%	52.51%
Residual	Total	%	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.00%
	Steam	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	CC	%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.02%	0.00%
	CT	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Distillate	Total	%	0.54%	0.42%	0.40%	0.36%	0.37%	0.38%	0.42%	0.40%	0.37%	0.38%	0.34%	0.34%
	Steam	%	0.38%	0.15%	0.14%	0.16%	0.16%	0.16%	0.15%	0.15%	0.15%	0.15%	0.14%	0.14%
	CC	%	0.04%	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	CT	%	0.13%	0.03%	0.26%	0.20%	0.21%	0.22%	0.26%	0.25%	0.22%	0.24%	0.19%	0.19%
Natural Gas	Total	%	39.34%	44.39%	40.89%	31.80%	32.65%	33.72%	37.63%	39.16%	40.89%	41.09%	42.42%	43.32%
	Steam	%	7.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	CC	%	27.91%	39.60%	38.13%	28.27%	28.81%	29.60%	32.48%	34.16%	37.08%	36.58%	40.60%	40.90%
	CT	%	4.35%	4.79%	2.77%	3.52%	3.85%	4.12%	5.14%	4.99%	3.81%	4.51%	1.83%	2.42%
NUG		%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Renewables		%	5.30%	6.02%	6.14%	7.08%	6.86%	7.20%	4.32%	3.62%	3.34%	3.20%	3.10%	3.02%
Other		%	0.00%	0.00%	0.87%	1.00%	0.97%	0.95%	0.92%	0.90%	0.87%	0.85%	0.83%	0.81%
Net Energy for Load		%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

NOTE: Net interchange, unit power purchases and PEF and FPL system purchases are included under source fuel categories.

Totals may not add due to rounding.

\* Nuclear reflects replacement power for Crystal River 3

#### 4. FORECAST OF FACILITIES REQUIREMENTS

Seminole's load is located primarily within three control areas: PEF, FPL, and SDS. Seminole is obligated to serve all Member loads within these control areas. Seminole must also supply appropriate reserves for the load it is responsible for serving. Seminole meets its total committed load obligation using a combination of owned generation and purchased capacity resources.

Schedules 7.1, 7.2, and 8 include the addition of approximately 2,200 MW of capacity by 2023. Such capacity is needed to replace expiring purchased power contracts and to serve increased Member load requirements while maintaining Seminole's reliability criteria. These needs are specified for planning purposes and represent the most economical mix of resource types for Seminole's needs.

Seminole's capacity expansion plan includes the need for seven 232 MW class combustion turbine units and one 456 MW combined cycle plant which are all currently assumed to be installed at Seminole's site in Gilchrist County (See Schedule 9). The first of these units is scheduled to enter service in December, 2019, the next two units by December 2020, followed by four additional units in December 2021. In addition, by December 2020, Seminole also has a need for 456 MW of combined cycle capacity. A final decision as to whether Seminole will construct and own these additional facilities will be based upon future economic studies. These studies will analyze purchased power alternatives acquired through Seminole's competitive bidding process and/or bilateral discussions with power suppliers and will allow Seminole to further optimize the amount, type, and timing of such capacity. The inclusion of these units in Seminole's capacity expansion plan does not represent at this time a commitment for construction by Seminole.



Seminole also has a FERC-filed qualifying facility (QF) program which complies with the requirements of the Public Utility Regulatory Policies Act (PURPA). When competitively bidding for power supplies, Seminole continues to solicit proposals from QF and renewable energy facilities. Seminole also evaluates all unsolicited QF and renewable energy proposals for applicability to the cooperative's needs. As a result of its market interactions, Seminole has signed several purchased power contracts for renewable energy (see Section 1.3.1). These renewable resources are projected to serve approximately 6% of Seminole's total energy requirements in 2013.

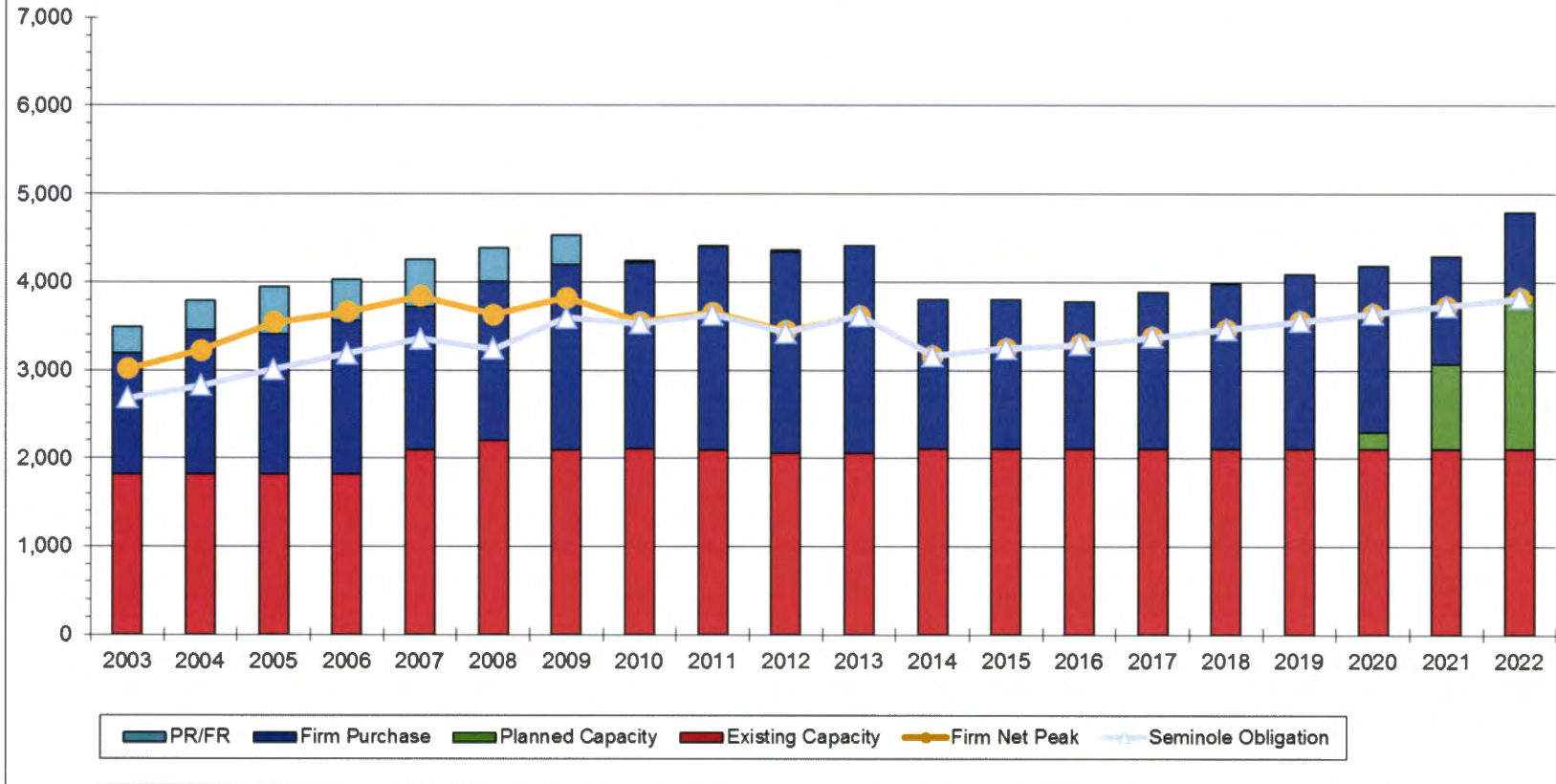
**Schedule 7.1  
Forecast of Capacity, Demand and Scheduled Maintenance at Time of Summer Peak**

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	Other Purchases	Total			Total	Less PR and FR	Total	Obligation	MW	% of Pk		MW	% of Pk
2013	2,047	0	2,362	2,362	0	0	4,409	4,409	3,618	3,618	791	21.8%	0	791	21.8%
2014	2,047	0	1,752	1,752	0	0	3,799	3,799	3,164	3,164	635	20.1%	0	635	20.1%
2015	2,047	0	1,752	1,752	0	0	3,799	3,799	3,245	3,245	554	17.1%	0	554	17.1%
2016	2,047	0	1,733	1,733	0	0	3,780	3,780	3,287	3,287	493	15.0%	0	493	15.0%
2017	2,047	0	1,835	1,835	0	0	3,882	3,882	3,376	3,376	506	15.0%	0	506	15.0%
2018	2,047	0	1,934	1,934	0	0	3,981	3,981	3,462	3,462	519	15.0%	0	519	15.0%
2019	2,047	0	2,035	2,035	0	0	4,082	4,082	3,550	3,550	532	15.0%	0	532	15.0%
2020	2,245	0	1,942	1,942	0	0	4,187	4,187	3,641	3,641	546	15.0%	0	546	15.0%
2021	3,025	0	1,260	1,260	0	0	4,285	4,285	3,726	3,726	559	15.0%	0	559	15.0%
2022	3,817	0	981	981	0	0	4,798	4,798	3,816	3,816	982	25.7%	0	982	25.7%

- NOTES: 1. Total installed capacity and the associated reserve margins are based on Seminole's current base case plan and are based on a 15% reserve margin criterion.
2. Firm Capacity Import/Other Purchases include a firm purchase power contract from Hardee Power Partners, through December 31, 2012, for 287 MW of first-call capacity from the Hardee Power Station to back up 1,240 MW of Seminole Generating Station and Crystal River Unit 3.
3. Firm Capacity Import/PR and FR includes partial requirements and full requirements purchases.
4. Total Installed Capacity does not include SEPA.
5. Seminole's firm obligation demand does not include PR and FR purchases.
6. Seminole is not responsible for supplying reserves for FR and PR purchases. Percent reserves are calculated at 15% of Seminole's obligation and include any surplus capacity.
7. Excludes Seminole's ownership share of CR3 due to PEF announcement to decommission CR3.

See Figure 2 for graphical representation.

**Figure 2: History and Forecast Of Total Resources And Peak Demand Summer**



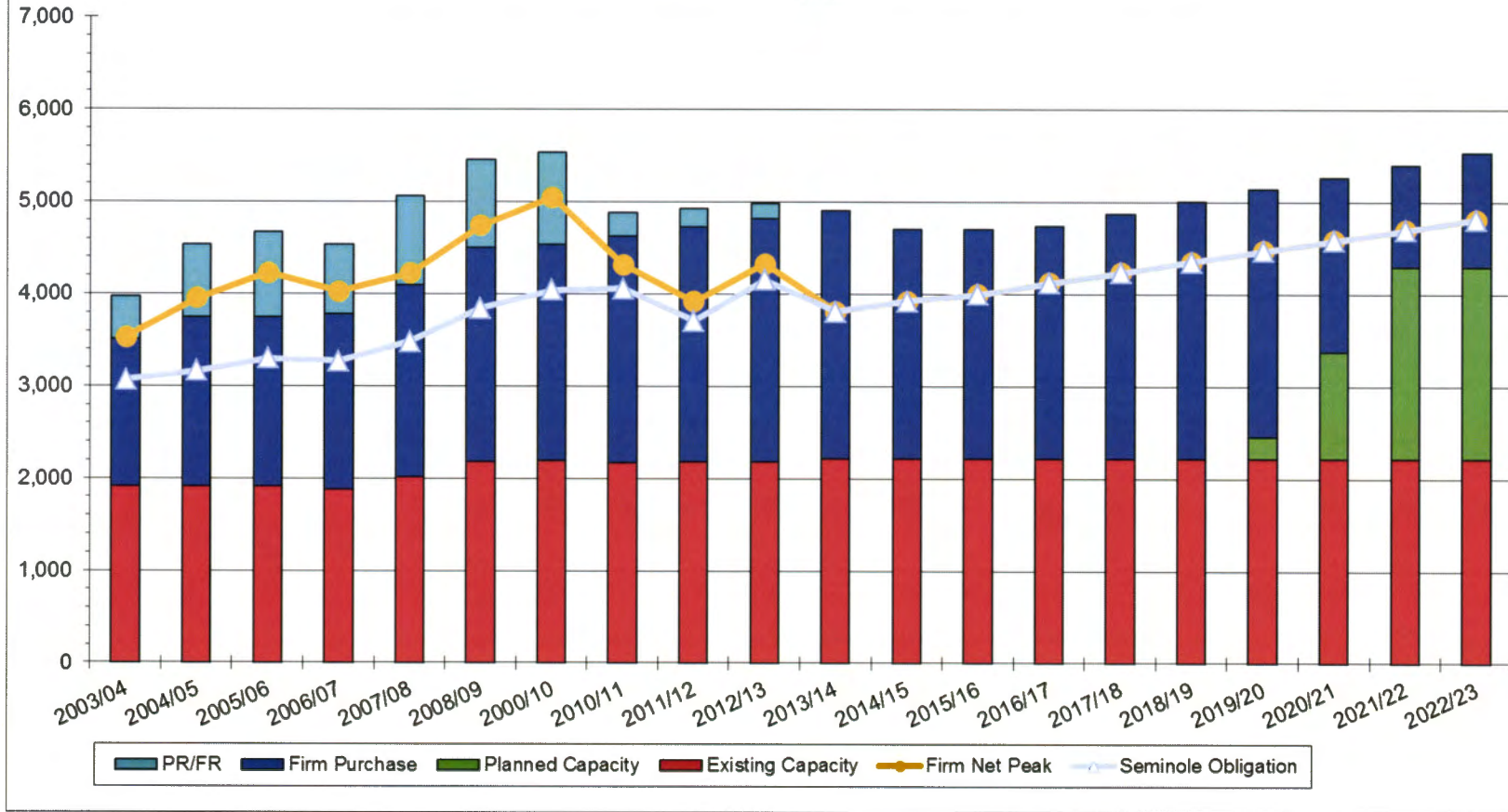
**Schedule 7.2**  
**Forecast of Capacity, Demand and Scheduled Maintenance at Time of Winter Peak**

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
2013/14	2,167	0	2,735	2,735	0	0	4,902	4,902	3,809	3,809	1,093	28.7%	0	1,093	28.7%
2014/15	2,167	0	2,534	2,534	0	0	4,701	4,701	3,924	3,924	777	19.8%	0	777	19.8%
2015/16	2,167	0	2,534	2,534	0	0	4,701	4,701	3,997	3,997	704	17.6%	0	704	17.6%
2016/17	2,167	0	2,570	2,570	0	0	4,737	4,737	4,119	4,119	618	15.0%	0	618	15.0%
2017/18	2,167	0	2,703	2,703	0	0	4,870	4,870	4,235	4,235	635	15.0%	0	635	15.0%
2018/19	2,167	0	2,836	2,836	0	0	5,003	5,003	4,351	4,351	653	15.0%	0	653	15.0%
2019/20	2,399	0	2,739	2,739	0	0	5,138	5,138	4,468	4,468	670	15.0%	0	670	15.0%
2020/21	3,319	0	1,950	1,950	0	0	5,269	5,269	4,582	4,582	687	15.0%	0	687	15.0%
2021/22	4,247	0	1,154	1,154	0	0	5,401	5,401	4,696	4,696	704	15.0%	0	704	15.0%
2022/23	4,247	0	1,291	1,291	0	0	5,538	5,538	4,815	4,815	722	15.0%	0	722	15.0%

- NOTES:
1. Total installed capacity and the associated reserve margins are based on Seminole's current base case plan and are based on a 15% reserve margin criterion.
  2. Firm Capacity Import/Other Purchases include a firm purchase power contract from Hardee Power Partners, through December 31, 2012, for 356 MW of first-call capacity from the Hardee Power Station to back up 1,240 MW of Seminole Generating Station and Crystal River Unit 3.
  3. Firm Capacity Import/PR and FR includes partial requirements and full requirements purchases.
  4. Total Installed Capacity does not include SEPA.
  5. Seminole's firm obligation demand does not include PR and FR purchases.
  6. Seminole is not responsible for supplying reserves for FR and PR purchases. Percent reserves are calculated at 15% of Seminole's obligation and include any surplus capacity.
  7. Excludes Seminole's ownership share of CR3 through November 2014 due to extended forced outage.

See Figure 3 for graphical representation.

**Figure 3: History and Forecast Of Total Resources And Peak Demand Winter**



**Schedule 8  
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								
Crystal River *	3	Citrus	ST	NUC	---	TK	---	(1)		TBA		(13)	(13)		
Unnamed CT	1	Gilchrist	CT	NG	DFO	PL	TK	(2)	12/2019	Unk	232	198	232	P	
Unnamed CT	2	Gilchrist	CT	NG	DFO	PL	TK	(2)	12/2020	Unk	232	198	232	P	
Unnamed CT	3	Gilchrist	CT	NG	DFO	PL	TK	(2)	12/2020	Unk	232	198	232	P	
Unnamed CT	4	Gilchrist	CT	NG	DFO	PL	TK	(2)	12/2021	Unk	232	198	232	P	
Unnamed CT	5	Gilchrist	CT	NG	DFO	PL	TK	(2)	12/2021	Unk	232	198	232	P	
Unnamed CT	6	Gilchrist	CT	NG	DFO	PL	TK	(2)	12/2021	Unk	232	198	232	P	
Unnamed CT	7	Gilchrist	CT	NG	DFO	PL	TK	(2)	12/2021	Unk	232	198	232	P	
Unnamed CC	1	Gilchrist	CC	NG	DFO	PL	TK	(2)	12/2020	Unk	228	192	228	P	
Unnamed CC	2	Gilchrist	CC	NG	DFO	PL	TK	(2)	12/2020	Unk	228	192	228	P	
Abbreviations:	Unk A	Unknown Generating unit capability increased (re-rated or re-licensed)						P TBA	Planned, but not under construction To Be Announced						
NOTES:	(1) Existing resources whose capacity rating is expected to decrease. (2) Future resource which may be existing or new as determined by future Request for Proposal results. (*) Crystal River 3 is expected to be retired per Progress Energy's February 5th 2013 press release..														

## **5. OTHER PLANNING ASSUMPTIONS AND INFORMATION**

### **5.1 Plan Economics**

Power supply alternatives are compared against a base case scenario which is developed using the most recent load forecast, fuel forecast, operational cost assumptions, and financial assumptions. Various power supply options are evaluated 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).

### **5.2 Fuel Price Forecast**

#### **5.2.1 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, generating station retirements, coal supply/demand imbalances, coal transportation availability/pricing and world energy markets affect US coal prices. The underlying value of coal at the mine will continue to be driven by changing domestic demand, 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 federal rules and legislative changes and fuel oil markets, 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 cost increases. However in

2012, lower natural gas prices created an opportunity for electric utilities to swap natural gas for coal fired generations and this situation may have reduce 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.

### **5.2.2 Fuel Oil**

Due to price volatility in the world energy market for crude oil and refined products, the price for fuel oils will continue to reflect such volatility. In 2012, the Southeast U.S. refined product supplies were impacted by several domestic and international refinery closures. Due to reduced demand for such refined products, the market impact has been minimized, but could increase price volatility in the future as demand increases. Additional upward pressure to market pricing will result from any new governmental rules and laws for improved fuel qualities. Federal mandate required refiners to convert their production by 2013 so that all diesel fuel oil would be ultra-low sulfur oil. Seminole is only purchasing ultra low sulfur fuel oil for its generating stations.

### **5.2.3 Natural Gas**

Current natural gas prices remain at low levels despite rebounding from historical lows seen in the first half of 2012. Domestic natural gas prices are forecasted to increase steadily over the next ten years although in Seminole's base case, nominal Henry Hub prices are projected to remain below \$6.50 per mmBtu through the ten-year study period based upon the NYMEX forward curve on January 11, 2013

### **5.2.4 Coal/Gas Price Differential**

The current natural gas and coal markets continue to reflect a significant narrowing of the



price spread that existed over the prior ten years primarily due to soft gas prices. This spread is expected to widen throughout the study period as gas prices are projected to increase at a faster pace than coal prices.

Seminole's base fuel price forecast for this Ten-Year Site Plan does not take into account potential federal carbon emission initiatives, such as taxation or emission credits, that if approved would impact the market prices for all fuels. If legislation that penalizes carbon emissions is enacted in future years, Seminole's costs to use all fossil fuels will rise since all fossil fuels emit carbon dioxide when burned. Further, the price of natural gas and fuel oil relative to coal may rise because of the associated carbon emissions penalty imposed on coal, the competing fuel.

### **5.3 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.

### **5.4 Financial Assumptions**

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

### **5.5 Generation 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. Seminole's optimization process for resource selection is based primarily on total revenue requirements. For a not-for-profit cooperative, revenue requirements translate directly into rates to our Member distribution cooperatives. The plan with the lowest revenue requirements is generally selected,

assuming that other factors such as reliability impact, initial rate impact, 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 in Figure 4.

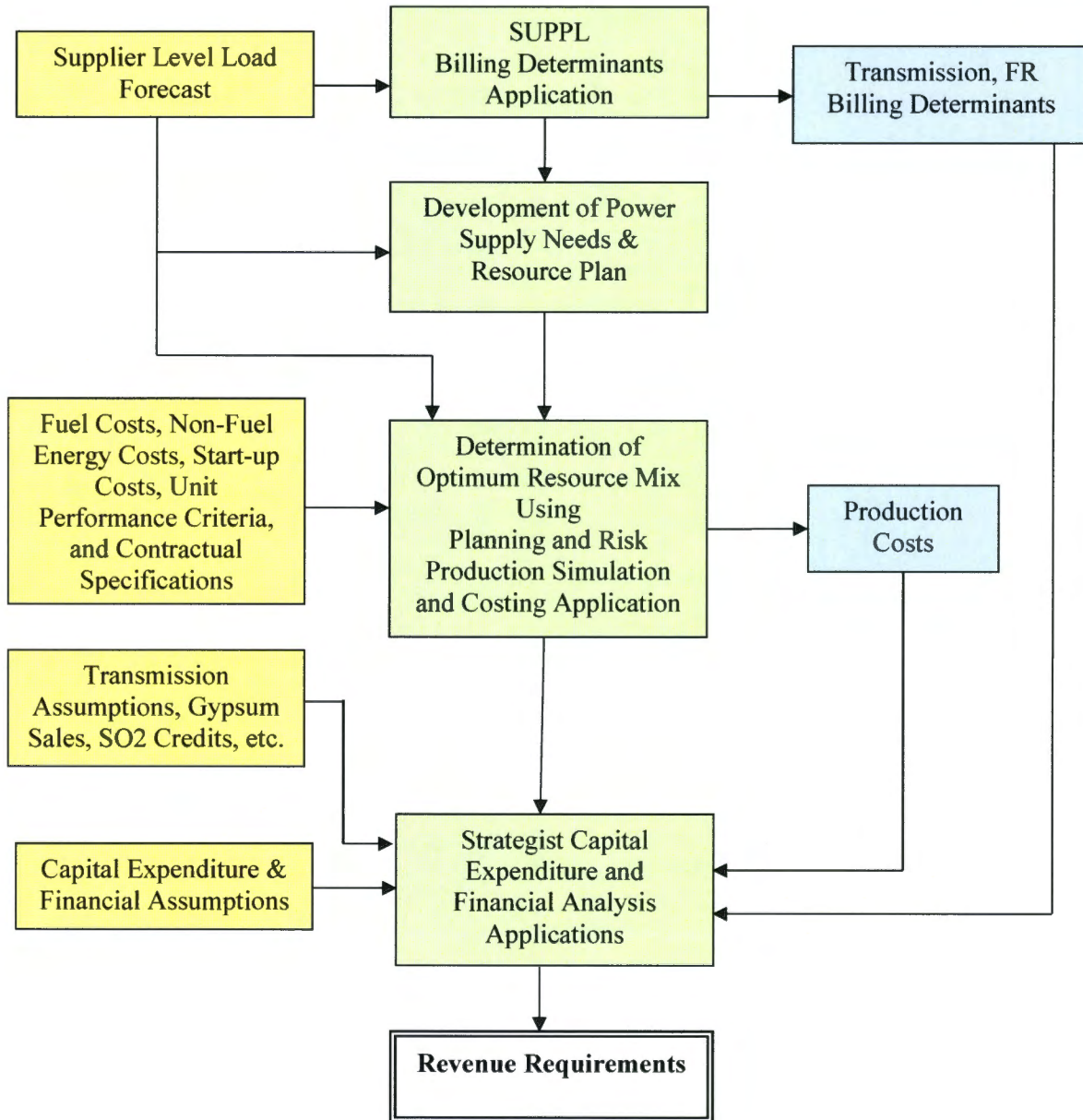
The impact of DSM and conservation in Seminole's planning process is included in the load forecast. DSM reduces peak demand and Seminole resource needs to meet the demands in Seminole's direct serve area, the FPL area, and the PEF area. .

Seminole considers cost effective energy efficiency and conservation resources as a priority resource option in meeting future expansion needs. Seminole has committed to work jointly with its Members to assess the feasibility and effectiveness of demand-side resources.

## **5.6 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 has two principal reliability criteria: (1) a minimum reserve margin of 15% during the peak season, and (2) a 1% expected unserved energy (EUE) limitation. Both the minimum reserve margin and EUE criteria serve to ensure that Seminole has adequate generating capacity to provide reliable service to its Members and to limit Seminole's reliance on interconnected neighboring systems for emergency purchases.

**Figure 4  
Resource Planning Process**



## 5.7 Strategic Concerns

In the current rapidly changing utility industry, strategic and risk related issues are becoming increasingly important and will continue to play a companion role to economics in Seminole's power supply planning decision process.

Seminole values resource flexibility as a hedge against a variety of risks, as evidenced by a generation portfolio which includes approximately the same amount of purchased capacity as owned capacity. Both owned and long-term purchased resources contribute stability to a power supply plan while shorter term purchase arrangements add flexibility. For purchased power agreements, the decision to acquire system-type capacity versus unit-specific power is also a consideration. System capacity, which is sourced from many generating units, is more reliable, and agreements can be structured to reduce Seminole's reserve requirements. 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 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.

The ongoing debate over the further need to regulate carbon emissions, mercury emissions and/or whether to establish renewable resource mandates has introduced new risks for electric utilities – among them is the risk that the most cost-effective fuels and associated technologies under current environmental regulations could change via new federal or state emissions rules. Using the best available information, Seminole is addressing these risks through its evaluation of a range of scenarios to assess what constitutes the best generation plan to ensure adequate and competitively priced electric service to its Members. Given the current regulatory

environment, Seminole has assumed that all future generation will be fueled with natural gas.

**5.8 Procurement of Supply-Side Resources**

In making decisions on future procurement of power supply, Seminole compares its self-build alternatives with purchased power alternatives. Seminole solicits purchased power proposals from utilities, independent power producers, QFs, renewable energy providers, and power marketers. Seminole’s evaluation of its options includes an assessment of economic life cycle cost, reliability, strategic concerns and risk elements.

**5.9 Transmission Plans**

The following table lists all 69 kV and above projects for new, upgraded, or reconfigured transmission facilities planned by Seminole over the ten-year planning horizon that are required for new generation facilities.

Status	Line Terminals		Circuits	Line Miles	Commercial In-Service Date	Nominal Voltage (kV)	Capacity (MVA)
	From	To					
New	Gilchrist Plant	Gilchrist East Switching Station	2	10	2019	230	1195

**5.9.1 Transmission Facilities for Gilchrist Generating Station**

The following transmission system additions would tentatively be required for the addition of the Gilchrist units:<sup>2</sup>

- Construction of a new Gilchrist East switching station along the existing PEF Ft. White – Newberry 230 kV transmission line.

<sup>2</sup> Note, at the time of this filing Seminole had not submitted a network service request to designate these new units as designated network resources to serve Member load in the PEF area.

- Construction of two new 230 kV circuits (rated at 3000 Amps), ten miles in length a piece, to connect the Gilchrist generating station to the new Gilchrist East switching station.

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

1	Plant Name & Unit Number	Gilchrist Generating Station Unit 1
2	Capacity a. Summer (MW): b. Winter (MW):	198 232
3	Technology Type:	GE 7FA Combustion Turbine
4	Anticipated Construction Timing a. Field construction start-date: b. Commercial in-service date:	December 2017 December 2019
5	Fuel a. Primary fuel: b. Alternate fuel:	Natural Gas
6	Air Pollution Control Strategy	Dry Low NOx Burner
7	Cooling Method:	Air
8	Total Site Area:	Approximately 530 acres
9	Construction Status:	Planned
10	Certification Status:	Planned
11	Status With Federal Agencies	N/A
12	Projected Unit Performance Data Planned Outage Factor (POF): Forced Outage Factor (FOF): Equivalent Availability Factor (EAF): Resulting Capacity Factor (%): Average Net Operating Heat Rate (ANOHR):	1.4 1.5 97.1 5% 9762Btu/kWh (HHV) - ISO Rating
13	Projected Unit Financial Data (\$2017) Book Life (Years): Total Installed Cost (In-Service Year \$/kW): Direct Construction Cost (\$/kW): AFUDC Amount (\$/kW): Escalation (\$/kW): Fixed O&M (\$/kW-Yr): Variable O&M (\$/MWH): K Factor:	30 638 613 25 Included in values above 12.12 5.77* N/A *Variable O&M does not include start up charge of \$6,052 per start

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

1	Plant Name & Unit Number	Gilchrist Generating Station Unit 2-3
2	Capacity a. Summer (MW): b. Winter (MW):	198 (each) 232 (each)
3	Technology Type:	GE 7FA Combustion Turbine
4	Anticipated Construction Timing a. Field construction start-date: b. Commercial in-service date:	December 2018 December 2020
5	Fuel a. Primary fuel: b. Alternate fuel:	Natural Gas
6	Air Pollution Control Strategy	Dry Low NOx Burner
7	Cooling Method:	Air
8	Total Site Area:	Approximately 530 acres
9	Construction Status:	Planned
10	Certification Status:	Planned
11	Status With Federal Agencies	N/A
12	Projected Unit Performance Data Planned Outage Factor (POF): Forced Outage Factor (FOF): Equivalent Availability Factor (EAF): Resulting Capacity Factor (%): Average Net Operating Heat Rate (ANOHR):	1.4 1.5 97.1 5% 9762 Btu/kWh (HHV) - ISO Rating
13	Projected Unit Financial Data (\$2018) Book Life (Years): Total Installed Cost (In-Service Year \$/kW): Direct Construction Cost (\$/kW): AFUDC Amount (\$/kW): Escalation (\$/kW): Fixed O&M (\$/kW-Yr): Variable O&M (\$/MWH): K Factor:	30 652 627 25 Included in values above 12.36 5.90* N/A *Variable O&M does not include start up charge of \$6,186 per start



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

1	Plant Name & Unit Number	Gilchrist Generating Station Units 4-7
2	Capacity a. Summer (MW): b. Winter (MW):	198 (each) 232 (each)
3	Technology Type:	GE 7FA Combustion Turbine
4	Anticipated Construction Timing a. Field construction start-date: b. Commercial in-service date:	December 2019 December 2021
5	Fuel a. Primary fuel: b. Alternate fuel:	Natural Gas
6	Air Pollution Control Strategy	Dry Low NOx Burner
7	Cooling Method:	Air
8	Total Site Area:	Approximately 530 acres
9	Construction Status:	Planned
10	Certification Status:	Planned
11	Status With Federal Agencies	N/A
12	Projected Unit Performance Data Planned Outage Factor (POF): Forced Outage Factor (FOF): Equivalent Availability Factor (EAF): Resulting Capacity Factor (%): Average Net Operating Heat Rate (ANOHR):	1.4 1.5 97.1 5% 9762 Btu/kWh (HHV) - ISO Rating
13	Projected Unit Financial Data (\$2019) Book Life (Years): Total Installed Cost (In-Service Year \$/kW): Direct Construction Cost (\$/kW): AFUDC Amount (\$/kW): Escalation (\$/kW): Fixed O&M (\$/kW-Yr): Variable O&M (\$/MWH): K Factor:	30 667 641 26 Included in values above 12.60 5.77* N/A *Variable O&M does not include start up charge of \$6,325 per start

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

1	Plant Name & Unit Number	Gilchrist Generating Station CC Units 1-2
2	Capacity a. Summer (MW): b. Winter (MW):	192 (each) 228 (each)
3	Technology Type:	GE 7FA Combined Cycle
4	Anticipated Construction Timing a. Field construction start-date: b. Commercial in-service date:	December 2017 December 2020
5	Fuel a. Primary fuel: b. Alternate fuel:	Natural Gas #2 Oil
6	Air Pollution Control Strategy	SCR, DLN Burner, CO Catalyst
7	Cooling Method:	Wet Cooling Tower with Forced Air Draft Fans
8	Total Site Area:	Approximately 530 acres
9	Construction Status:	Planned
10	Certification Status:	Planned
11	Status With Federal Agencies	N/A
12	Projected Unit Performance Data Planned Outage Factor (POF): Forced Outage Factor (FOF): Equivalent Availability Factor (EAF): Resulting Capacity Factor (%): Average Net Operating Heat Rate (ANOHR):	3.00 2.50 94.50 50% 6630 Btu/kWh (HHV) - ISO Rating
13	Projected Unit Financial Data (\$2019) Book Life (Years): Total Installed Cost (In-Service Year \$/kW): Direct Construction Cost (\$/kW): AFUDC Amount (\$/kW): Escalation (\$/kW): Fixed O&M (\$/kW-Yr): Variable O&M (\$/MWH): K Factor:	30 858 791 67 Included in values above 12.96 1.08* N/A *Variable O&M does not include start up charge of \$6,186 per CT

**Schedule 10**  
**Status Report and Specifications of Proposed Associated Transmission Lines**

1	Point of Origin and Termination:	Originating at SECI's Gilchrist plant site; terminating at SECI's Gilchrist East Switching Station
2	Number of Lines:	Two
3	Right-of-Way	To be determined
4	Line Length:	10 miles each
5	Voltage:	230 kV
6	Anticipated Construction Timing:	Start: January 2018 Completion: May 2019
7	Anticipated Capital Investment:	\$24 million (total)
8	Substation:	The Gilchrist Interconnection will require a new Seminole Gilchrist East switching station on the PEF Ft. White - Newberry 230 kV transmission line
9	Participation with Other Utilities:	N/A

## 6. ENVIRONMENTAL AND LAND USE INFORMATION

### 6.1 Seminole Generating Station (SGS) - Putnam County, Florida

SGS is located in a rural unincorporated area of Putnam County approximately 5 miles north of the City of Palatka. The site is 1,978 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 650 MW class coal fired electric generating units, SGS Units 1 & 2.

Units 1 and 2 went into commercial operation in February and December of 1984, respectively. The area around the SGS site includes mowed and maintained grass fields and upland pine flatwoods. Areas further away from the existing units include live oak hammocks, wetland conifer forest, wetland hardwood/conifer forest, and freshwater marsh. A small land parcel located on the St. Johns River is the site for the water intake structure, wastewater discharge structure, and pumping station to supply the facility with cooling and service water.

The primary water uses for SGS Units 1 and 2 are for cooling water, wet flue gas desulfurization makeup, steam cycle makeup, and process service water. Cooling and service water is pumped from the St. Johns River and groundwater supplied from on-site wells is for steam cycle makeup and potable use. The site is not located in an area designated as a Priority Water Resource Caution Area by the St. Johns River Water Management District.

State-listed species that are likely to occur on the site include the bald eagle, the indigo snake, and the gopher tortoise. No known listed plants occur on the site. The site has not been listed as a natural resource of regional significance by the regional planning council.

The local government future land use for the area where the existing units are located is designated as industrial use.

Water conservation measures that are incorporated into the 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 primary fuel for SGS is bituminous coal. No. 2 (distillate) fuel oil is used for startups and flame stabilization. Coal is delivered to the site by unit trains and fuel oil is delivered by truck. Coal for SGS is stored at the site. Coal pile stormwater is collected and treated. The plant maintains sufficient secondary containment for all storage tanks.

SGS is designed so that solid waste from the Flue Gas Desulfurization (FGD) system will be treated to produce wallboard grade synthetic gypsum and sold for use in producing wallboard. Most bottom ash is currently sold to recyclers with flyash currently being disposed of in the onsite lined landfill.

SGS Units 1 and 2 completed a major air pollution control upgrade project in 2011 costing approximately \$282 million. These upgrades included low NOx burners, overfired air ports and selective catalytic reduction (SCR) systems for NOx control, FGD improvements to increase SO2 removal efficiency from 88% to 92%, and an alkali(lime) injection system for sulfuric acid control. The existing electrostatic precipitator (ESP) is fully operational and removes 99.7% of the flue gas particulate matter. The combination of these technologies removes approximately 90% of the mercury contained in the flue gas.

Noise generated during operation of SGS does not result in sound levels in excess of the Putnam County Noise Control Ordinance.

## **6.2 Midulla Generating Station (MGS) – Hardee County, Florida**

MGS is located in Hardee and Polk Counties about nine miles northwest of Wauchula, 16 miles south-southwest of Bartow, and 40 miles east of Tampa Bay. The site is bordered by County Road 663 on the east, CF Industries on the south, and Mosaic, Inc. on the north and west. Payne Creek flows along the sites south and southwestern borders. The site was originally strip-mined for phosphate and was reclaimed as pine flatwoods, improved pasture, and a cooling reservoir with a marsh littoral zone. A more detailed description of environmental and land use is available in the site certification application PA-89-25SA.

## **6.3 Gilchrist Generating Station Site – Gilchrist County, Florida**

The Gilchrist Generating Station site is approximately 530 acres in size. The site is located in the central portion of Gilchrist County, approximately 8 miles north of the City of Trenton and is a suitable site for advanced natural gas facilities, peaking units, and renewable energy resources. 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 that have been recently 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.

The initial site evaluation included wetland occurrence information documented on National Wetland Inventory (NWI) map(s) from the U.S. Fish and Wildlife Service (USFWS), soils maps and 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) Web site. The following discussion summarizes the results of the ecological survey.

### **6.3.1 Vegetation/Land Use**

There are eight vegetation or land use types on the Site. These were classified using the Florida Land Use Cover and Forms Classification system (FLUCFCS) published by the Florida Department of Transportation in 1999. The following are brief descriptions of each of the vegetation/land use types identified. For convenience, the descriptions are broadly classified as uplands and wetlands.

### **6.3.2 Upland Vegetation**

Coniferous Plantations (FLUCFCS 441) - Approximately 337.5-acres or 63.7 percent of the Site are classified as upland pine plantation. These areas are periodically harvested on a 20- to 30-year cycle. Planted pine stands ranged in age from mature stands on the eastern portion of the Site, 3- to 4-year-old stands in the southern portion to recently cleared and replanted lands on the far east side, and 8- to 10-year-old pine near the focus area in the western portion of the Site. Typical species are longleaf pine and some slash pine in the canopy, scattered saw palmetto, blackberry, gallberry, Chapman's oak, myrtle oak, and shiny blueberry in the shrub layer and wiregrass, earleaf greenbrier, fennel, broomsedges, and yankeeweed in the understory.

Longleaf Pine – Xeric Oak (FLUCFCS 412) - Within the Site boundary, there are approximately 131.5 acres, or 24.8 percent, that are classified as Longleaf Pine – Xeric Oak. This community predominantly exists in the north-central portion of the Site on well-drained sandhill. These areas have been used for pine cultivation in the past; remnant scrub oaks and a few

remnant pines have resulted in a community that is similar to a relatively undisturbed sandhill community. The remaining vegetative community after logging is mostly intact and diverse in some areas of the Site. The canopy consists of longleaf and slash pines with xeric oaks including sand live oak and turkey oak, Myrtle oak, saw palmetto staggerbush, winged sumac, pawpaw, sand blackberry, fetterbush, and less commonly Chapman's oak and Florida rosemary occur in the shrub layer. Common species in the herb stratum include yankeeweed, wiregrass, little bluestem, reindeer moss, prickly-pear cactus, gopher apple, goldenasters, witchgrasses, bracken fern, blackroot, chaffhead, blazing stars, and whitetassels.

Xeric Oak (FLUCFCS 421) - Approximately 40 acres or 7.6 percent of the Site is classified as xeric oak. This community consists predominantly of clusters of turkey oak and/or sand live oak. This community is similar to the Longleaf Pine – Xeric oak community except pine trees are absent from the community and the oak canopy is dense. Shrub and herb species are similar to those occurring in the Longleaf Pine – Xeric oak community.

Roads – Unpaved Logging Roads (FLUCFCS 814) - This designation is used for logging roads found throughout the site that are clearly visible in aerial photography. All these roads are unpaved, and one of the roads used for access is an abandoned railway line. They are unvegetated and periodically maintained and passable. Roads cover approximately 10.7 acres or 2 percent of the Site area.

### **6.3.3 Wetland Vegetation**

All wetlands and/or surface waters in Florida are regulated by the Florida Department of Environmental Protection (FDEP), and Waters of the United States (streams, rivers, etc., and wetlands connected or exhibiting a significant nexus thereto) are regulated by the U.S. Army Corps of Engineers (USACE). Any disturbance to any wetland on the Site will require a permit



from FDEP; disturbance to wetlands connected to Waters of the United States will also require a permit or approval from USACE for any proposed impacts. Impacts usually require mitigation of some sort.

Approximately 10.1 acres of the Site (1.9 percent) consist of various categories of vegetation types classified as wetlands. When the property was surveyed, many of the wetland communities were dry, likely as a result of the recent significant drought in Florida. The Site predominantly consists of well-drained soils supporting no wetlands, except in the far eastern portion of the Site where soil and geological differences support a higher frequency of wetlands. No wetlands are found near the focus area in the northwestern portion of the Site. The following is a classification and brief description of each wetland type on the Site.

Cypress (FLUCFCS 621) - Within the Site boundary there was one 2.6-acre cypress wetland. Besides pond cypress, the canopy consists of red maple, sweet bay, and tupelo with a dense shrub layer of titi, dahoon holly, highbush blueberry, and fetterbush and a minimal understory due to shading. Scattered individuals of maidencane, Virginia chain fern, laurel greenbrier, and yellow-eyed grasses comprise the herb stratum. Although, the wetland had been logged in the past and the area surrounding the wetland had recently been clear-cut, the quality of this particular wetland was high. Minimal disturbance was evident, cypress recruitment as evidenced by the presence of several age classes was observed, and there were lots of titi seedlings. The wetland was dry when observed, and no indicators of ponding were evident.

Wet Prairie (FLUCFCS 643) - There were four wetlands comprising 6.7 acres that are classified as wet prairies. These marshes tended to be low diversity and were usually dominated by maidencane and redroot and fringed by a few red maple, buttonbush, and titi. Due to the dry conditions, many of these wetlands were becoming dominated by yankeeweed (*Eupatorium*

*compositifolium*) in all but the center of the wetland. Few hydrologic indicators were observed in these dessicated wetlands, and many of the soils consisted of a thin veneer of dried peat over sandy soils. These wetlands were all impacted by minor hydrologic alterations due to a variety of factors including spoil mounds on the perimeter and furrowing associated with pine plantation bedding, which disrupts inflow from surrounding uplands. The two wet prairies that are adjacent to or within clear-cut stands were of the lowest quality with regard to hydrology, vegetation, and water resources. Only one wet prairie was of relatively good quality.

Freshwater Marshes with Shrubs, Brush, and Vines (FLUCFCS 6417) - One wetland comprising 0.8 acre is classified as a freshwater shrub marsh. This small, isolated wetland is dominated by a thick shrub layer of predominantly titi, with red maples, dahoon holly, swamp bay, and gallberry also present. The quality is low.

#### **6.3.4 Soils**

There are seven soil types on the Site according to the 2006 Soil Survey of Gilchrist County published by the U.S. Department of Agriculture (USDA)-NRCS. These include the excessively drained Entisols, Penney, and Kershaw Fine Sand; the moderately well-drained Entisol, Ortega Fine Sand; the somewhat poorly drained Spodosol, Hurricane Fine Sand; and the poorly drained Lynnhaven and Allenton mucky fine sands, depressional (a hydric soil type). Most of the soils, even within pine plantations, have not been thoroughly disturbed by bedding or other large-scale land moving activities.

#### **6.3.5 Wildlife (Overview)**

Species assemblages were determined from the site visit in November, 2010 and using information on typical species found in these habitats from literature. Pedestrian and vehicular surveys were conducted over the entire Site. A more thorough wildlife analysis was conducted in

the focus area in the western portion of the Site, mostly to ascertain the density of gopher tortoises. All species or signs observed (such as tracks, scats, nests, burrows, etc.) were recorded and are discussed in the following sections.

Due in large part to the dry conditions of the Site, there were few wildlife sightings or signs. Wildlife that were observed or signs thereof include the white-tailed deer, red-shouldered hawk, American kestrel, fence lizard, gopher tortoise, turkey vulture, black vulture, ground dove, and wild turkey.

### **6.3.6 Listed Species (Overview)**

A list of all rare, threatened, endangered or commercially exploited plants known to occur in Gilchrist County was compiled from records available online on the Web sites of FNAI ([www.fnai.org](http://www.fnai.org)) and the *Atlas of Florida Vascular Plants* developed by the Institute of Systematic Botany at the University of South Florida ([www.plantatlas.usf.edu](http://www.plantatlas.usf.edu)). The plants included as threatened or endangered for *Gilchrist County in the Atlas of Florida Vascular Plants* are derived from the Regulated Plant Index contained within Chapter 5B-40, Florida Administrative Code (F.A.C.), amended February 17, 2003, and administered by the Florida Department of Agriculture and Consumer Affairs Division of Plant Industry. Information on listed wildlife species that could occur in Gilchrist County in habitats that occur on the Site is available online from FNAI and the FWC. Remnant sandhill and xeric oak communities are found on the Site. This natural community has a state listing of S3, indicating that it is rare or uncommon in the state. Due to the presence of remnant xeric habitats, the Site provides habitat that has a moderate to high potential for the occurrence of listed species, particularly animals adapted to sandhill communities.

### 6.3.7 Listed Plants

Based on available records from FNAI, no federally listed plants are known in Gilchrist County. Several state-listed endangered and threatened plants are known in Gilchrist County. The only state-listed plants that have the potential to occur onsite are the state-endangered incised agrimony and sandhill spiny pod. These plants are distinctive in their morphology and were not seen during the field survey. Therefore, the potential for their occurrence on the Site is considered low.

### 6.3.8 Listed Wildlife

Listed wildlife species are those formally classified as endangered, threatened, or of special concern by FWC or as endangered or threatened by USFWS. One listed species, the gopher tortoise, was observed onsite and found within the focus area. Gopher tortoise burrows provide suitable habitat for many commensal animals, many of which are listed species including the Florida mouse, eastern indigo snake, gopher frog, short-tailed snake, and the Florida pine snake. In addition, a kestrel was observed near the focus area. Due to the time of year, it is unknown if the bird was the resident kestrel that is a state-listed species.

This initial survey indicates that gopher tortoise burrows are present throughout the Site and in moderate to high densities in portions of the Site. The focus area had a sufficiently high population of gopher tortoise burrows to indicate that a full survey would be necessary before construction activities. Due to current management guidelines for gopher tortoises, the impacts would likely require relocation onsite as a preference of FWC. There is abundant habitat on the Site for relocation.

Other animal species recorded for Gilchrist County that have the potential to occur in the Site vicinity, according to FNAI, include gopher frog (*Rana capito*), eastern indigo snake

(*Drymarchon couperi*), Florida pine snake (*Pituophis melanoleucus mugitus*), Florida mouse (*Podomys floridamus*), short-tailed snake (*Stilosoma extenuatum*), Florida burrowing owl (*Athene cunicularia floridana*), and Sherman's fox squirrel (*Sciurus niger shermani*).

While only the kestrel and gopher tortoise were observed on the Site, Figure 5 discusses the likelihood of occurrence for other listed animal species on the Site. It should be noted that while a kestrel was observed at this time of the year, it is possible it is the migratory subspecies and not listed. However, the habitat preference of the listed resident subspecies is identical, so it could be present onsite.

In summary, there appear to be no fatal flaws to the development of the Site from an ecological perspective. Gopher tortoises were observed in moderate to high densities in every upland habitat found on the Site, including the focus area. Any activities planned that could impact their habitat will require thorough gopher tortoise surveys and tortoise relocation. Since wetlands onsite can easily be avoided by careful planning and layout of facilities, onsite wetland impacts are not expected to be an issue.

Figure 5. Potential for Occurrence for Listed Wildlife Species on the SECI Gilchrist Site

Common Name	Scientific Name	Status		Preferred Habitat	Likelihood of Occurrence
		FWC	USFWS		
<b><u>Amphibians</u></b>					
Gopher frog	<i>Rana capito</i>	SSC	None	Longleaf pine-turkey oak communities, usually in gopher tortoise burrows, near wetlands for breeding	Moderate—Habitats are available onsite; minimal presence of wetlands near suitable habitat
<b><u>Reptiles</u></b>					
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	Wide range of habitats in Florida, usually found near gopher tortoise burrows	High—Presence of gopher tortoise burrows
Gopher tortoise	<i>Gopherus polyphemus</i>	T	None	Xeric habitats with sandy soils	Present—Observed
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	SSC	None	Xeric habitats, usually sandhill communities, also found in association with gopher tortoises	High—Sandhill and xeric habitats found and gopher tortoise burrows; found in Gilchrist County
Short-tailed snake	<i>Stilosoma extenuatum</i>	T	None	Dry upland habitats, principally sandhill, xeric hammock, and sand pine scrub	High—Suitable habitats present

Figure 5. Potential for Occurrence for Listed Wildlife Species on the SECI Gilchrist Site (Continued, Page 2 of 3)

Common Name	Scientific Name	Status		Preferred Habitat	Likelihood of Occurrence
		FWC	USFWS		
<b><u>Birds</u></b>					
Limpkin	<i>Aramus guarauna</i>	SSC	None	Freshwater marshes, swamps, springs and spring runs. Also lake margins in peninsular Florida	Low—Minimal presence of wetland habitat
Florida burrowing owl	<i>Athene cunicularia floridana</i>	SSC	None	High, sparsely vegetated, sandy ground; dry prairies and sandhill	High—Suitable habitat and presence in county
Little blue heron	<i>Egretta caerulea</i>	SSC	None	Forested wetlands for nesting; shallow wetlands for foraging	Low—Minimal presence of wetland habitat
Snowy egret	<i>Egretta thula</i>	SSC	None	Many kinds of seasonal and permanently inundated wetlands	Low—Minimal presence of wetland habitat
Tricolored heron	<i>Egretta tricolor</i>	SSC	None	Many kinds of seasonal and permanently inundated wetlands	Low—Minimal presence of wetland habitat
White ibis	<i>Eudocimus albus</i>	SSC	None	Forested wetlands, wet prairies and swales	Low—Minimal presence of wetland habitat
Southeastern American kestrel	<i>Falco sparverius paulus</i>	T	None	Dry open pine habitats, utilize cavities excavated by woodpeckers	High—Possibly observed on property; sable habitat present
Florida sandhill crane	<i>Grus Canadensis pratensis</i>	T	None	Wet prairies, emergent wetlands	Low—Minimal presence of wetland habitat

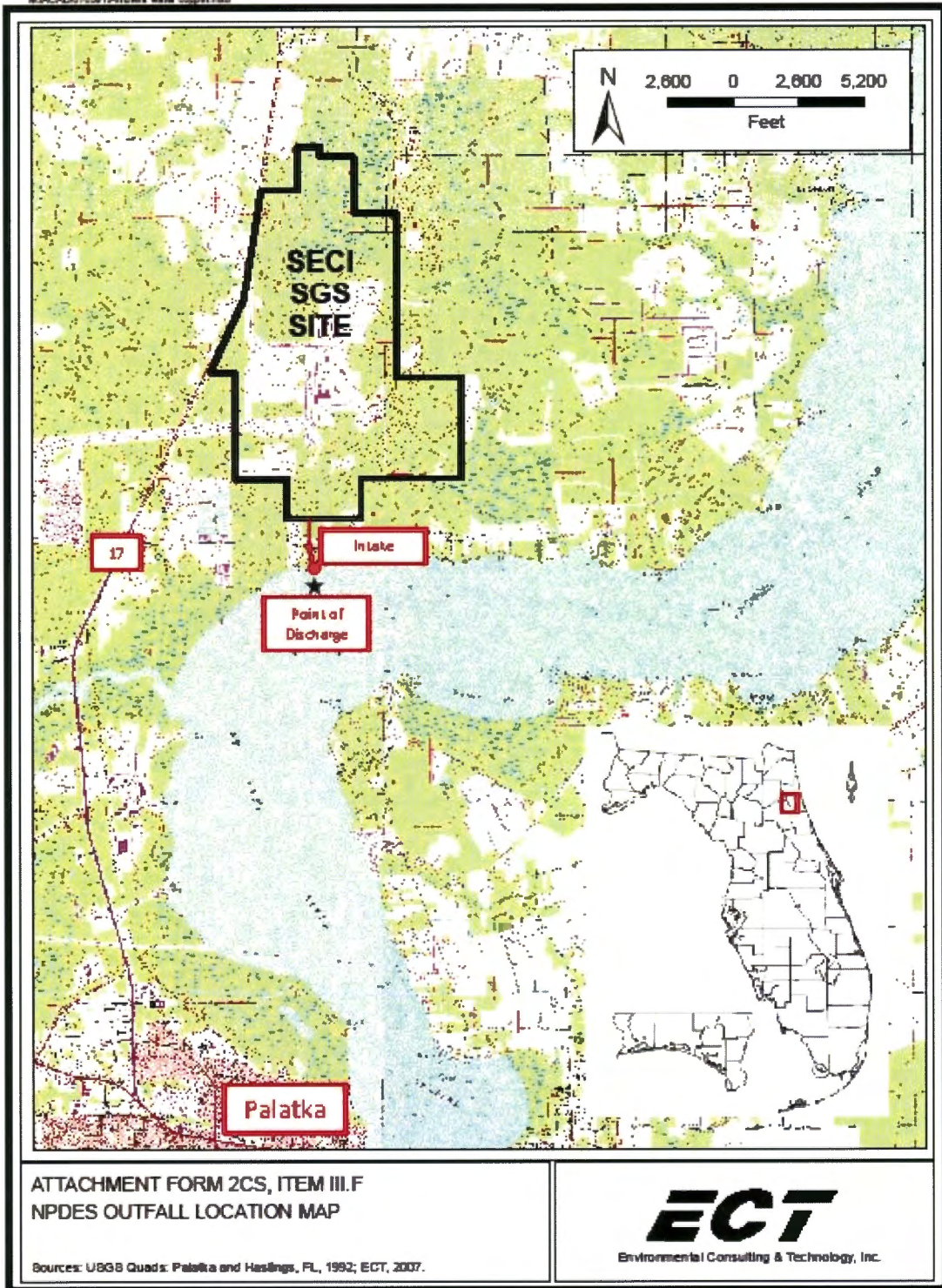
Figure 5. Potential for Occurrence for Listed Wildlife Species on the SECI Gilchrist Site (Continued, Page 3 of 3)

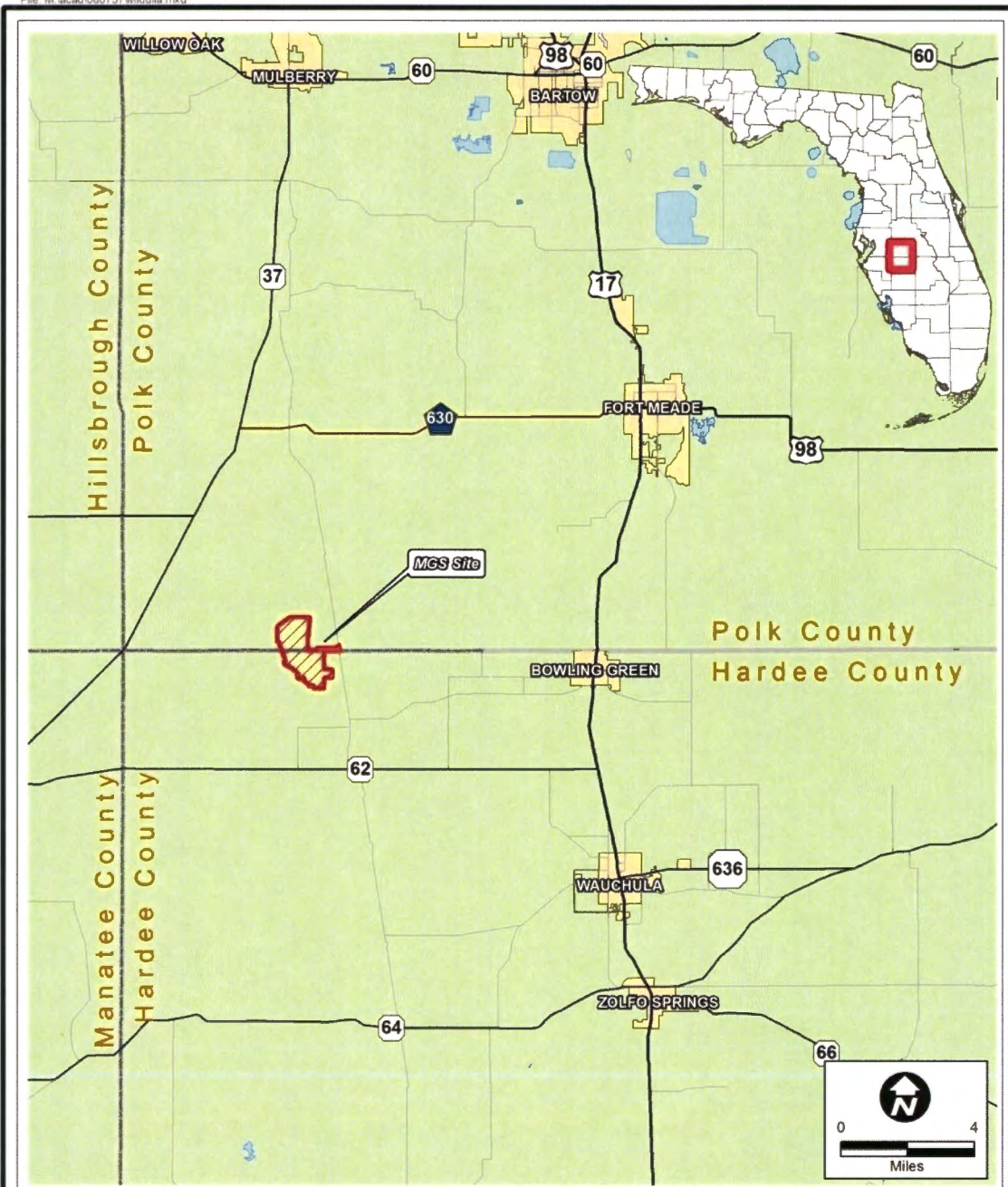
Common Name	Scientific Name	Status		Preferred Habitat	Likelihood of Occurrence
		FWC	USFWS		
Bald eagle	<i>Haliaeetus leucocephalus</i>	***	***	Tall trees (usually pines) near open water for foraging	Low—No significant open water areas for foraging
Wood stork	<i>Mycteria americana</i>	E	E	Nesting habitat is forested wetlands with standing water, foraging habitat is shallow wetlands, ditches	Low—Minimal presence of wetland habitat
<b><u>Mammals</u></b>					
Florida mouse	<i>Podomys floridamus</i>	SSC	None	Prefers fire-maintained xeric habitats and is a commensal with gopher tortoises	High—Gopher tortoise burrows found. Suitable habitat
Sherman’s fox squirrel	<i>Sciurus niger shermani</i>	SSC	None	Mature flatwoods, sandhill communities	High—Sandhill community habitat present
Florida black bear	<i>Ursus americanus floridanus</i>	T	None	Flatwoods with hardwood swamps, usually prefers thick habitats	Low—Minimal amount of thick habitat or swamps. Not found in county

\*\*\* While the bald eagle has been both state and federally delisted, it is still governed by the state bald eagle rule and the federal Bald and Golden Eagle Protection Act (see [http://myfwc.com/docs/WildlifeHabitats/Eagle\\_Plan\\_April\\_2008.pdf#page=35](http://myfwc.com/docs/WildlifeHabitats/Eagle_Plan_April_2008.pdf#page=35))

Sources: FWC, 2008,2010  
ECT, 2007







LOCATION OF MIDULLA GENERATING STATION

Source: ESRI, 2009; US Census, 2000; ECT, 2009.



