# ORIGINAL

Florida Municipal Power Agency

# Ten Year Site Plan

April 2000





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Florida Municipal Power Agency Ten Year Power Plant Site Plan 2000-2009

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Orlando, Florida April 1, 2000



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#### **EXECUTIVE SUMMARY**

The following information is provided in accordance with Florida Public Service Commission rules 25-22.070, 25-22.071, and 25-22.072 which requires certain electric utilities in the State of Florida to submit a Ten Year Site Plan. The plan is required to describe the estimated electric power generating needs and to identify the general location of any proposed power plant sites.

The Florida Municipal Power Agency is a project-oriented, joint-action agency where each project is, in essence, a separate utility. The aggregate ownership of operational generation facilities for five separate Agency projects at December 31, 1999 was 516 MW of which 254 MW are owned by the All-Requirements Project.

The FMPA generation plans for municipal systems included in this report are as follows:

2001	Combined Cycle at Cane Island	125 MW
2005	Fluidized-Bed Coal Unit in Lakeland	100 MW

FMPA's direct responsibility for power supply planning can be separated into two parts. For the All-Requirements Project, where the Agency has committed to supply all the power requirements of several cities, the Agency is solely responsible for power supply planning. For member systems which are not in the All-Requirements Project, the Agency's role has been to evaluate joint action opportunities and make the findings available to the membership where each member can elect whether or not to participate. This report presents information on the aggregate of the existing and planned generation for all of the established Agency projects. The specific descriptions of existing and planned facilities include the current status of the aggregate of all the Agency projects. The sections on load forecasts and conservation programs provide information on the All-Requirements Project participants only.

FMPA has added one additional member to the All-Requirements Project. The City of Ft. Meade joined the Project effective February 1, 2000. FMPA plans to add one additional member, the City of Lake Worth, in 2001. All of the firm power purchases and generating resources owned by Lake Worth will be incorporated into the All-Requirements Project as a purchased capacity-and-energy contract. As is done for its current All-Requirements members, FMPA will collectively plan for and provide all the power requirements (above certain excluded resources) for Lake Worth.



#### **DESCRIPTION OF FMPA**

#### General

The Florida Municipal Power Agency ("FMPA" or "Agency") was created on February 24, 1978, by the signing of the Interlocal Agreement among its 29 members, which agreement specified the purposes and authority of FMPA. FMPA was formed under the provisions of Article VII, Section 10 of the Florida Constitution; the Joint Power Act, which constitutes Chapter 361, Part II, as amended; and the Florida Interlocal Cooperation Act of 1969, which begins at Section 163.01 of the Florida Statutes, as amended. The Florida Constitution and the Joint Power Act provide the authority for municipal electric utilities to join together for the joint financing, construction, acquiring, managing, operating, utilizing, and owning of electric power plants. The Interlocal Cooperation Act authorizes municipal electric utilities to cooperate with each other on a basis of mutual advantage to provide services and facilities in a manner and in a form of governmental organization that will accord best with geographic, economic, population, and other factors influencing the needs and development of local communities.

#### **Organization and Management**

Each city commission, utility commission, or authority which is a signatory to the Interlocal Agreement has the right to appoint one member to FMPA's Board of Directors, the governing body of the Agency. The Board has the responsibility of developing and approving the Agency's budget, hiring a General Manager, and establishing both bylaws which govern how the Agency operates and policies which implement such bylaws. At its annual meeting, the Board elects a Chairman, Vice Chairman, Secretary-Treasurer, Assistant Secretary-Treasurer, and an Executive Committee. The Executive Committee consists of nine representatives elected by the Board plus the then-current Chairman and Vice Chairman of the Board. The Executive Committee meets regularly to control the Agency's day-to-day operations and approve expenditures and contracts. The Executive Committee is also responsible for assuring that budgeted expenditure levels are not exceeded and that authorized work is completed in a timely manner.

#### **Agency Projects**

FMPA currently has five power supply projects in operation: (i) the St. Lucie Project; (ii) the Stanton Project; (iii) the Tri-City Project; (iv) the All-Requirements Project and (v) the Stanton II Project.

**St. Lucie Project:** On May 12, 1983, the Agency purchased from Florida Power & Light Company (FPL) an 8.806 percent undivided ownership interest in St. Lucie Unit No. 2 (the St. Lucie Project), a nuclear generating unit with a summer Seasonal Net Capability of approximately 839 MW and a winter Seasonal Net Capability of approximately 853 MW. St. Lucie Unit No. 2 was declared in commercial operation on August 8, 1983, and in Firm Operation, as defined in the participation agreement, on August 14, 1983. Fifteen of the Agency's members are participants in the St. Lucie Project.

**Stanton Project:** On August 13, 1984, the Agency purchased from the Orlando Utilities Commission (OUC) a 14.8193 percent undivided ownership interest in Stanton Unit No. 1, a coal-fired electric generation unit with a nominally-rated net high dispatch capacity of 428 MW. Stanton Unit No. 1 went into commercial operation July 1, 1987. Six of the Agency's members are participants in the Stanton Project.

**Tri-City Project:** On March 22, 1985, the FMPA Board approved the agreements associated with the Tri-City Project. The Tri-City Project involves the purchase from OUC of an additional 5.3012 percent undivided ownership interest in Stanton Unit No. 1. Three of the Agency's members are participants in the Tri-City Project.

All-Requirements Project: Under the All-Requirements Project, the Agency currently serves all the power requirements (above certain excluded resources) for eleven of its members. In 1997, the cities of Vero Beach and Starke joined the All-Requirements Project. In January, 1998, Fort Pierce Utilities Authority became an All-Requirements member. Key West joined the Project in April, 1998 and the City of Ft. Meade joined in

February, 2000. The City of Lake Worth is anticipated to be included in the All-Requirements Project sometime in 2001. The current supply resources of the Project include: (i) the purchase of a 6.5060 percent undivided ownership interest in Stanton Unit No. 1 from OUC; (ii) the purchase from OUC of a 5.1724 percent undivided ownership interest in OUC's Stanton Unit No. 2 (iii) capacity and energy from FMPA's 39 percent undivided ownership interest in two 37 MW combustion turbines (Units A and B) at the OUC Indian River Plant; (iv) capacity and energy from FMPA's 21 percent undivided ownership interest in two 129 MW combustion turbines (Units C and D) at the OUC Indian River Plant; (v) capacity and energy from FMPA's 50 percent undivided ownership interest in a 30 MW combustion turbine (Cane Island Unit 1) and a 120 MW combined cycle (Cane Island Unit 2) at Kissimmee Utility Authority's (KUA) Cane Island Power Park; (vi) capacity and energy purchases from other utilities including OUC, Florida Power & Light Company (FPL), Florida Power Corporation (FPC), Tampa Electric Company (TECo), the City of Lake Worth, Gainesville Regional Utilities and others; (vii) necessary transmission arrangements; and (viii) required dispatching services. Additional capacity now available includes two reconditioned combustion turbines that have been installed in the Key West City Electric System. FMPA assumed ownership of these two 17.5 MW (each) units in June, 1999. With the addition of the four cities that joined the All-Requirements Project in 1997 and 1998, the supply resources of the All-Requirements Project include capacity and energy purchases from each of these cities for city-owned generation and/or firm power resources. FMPA will serve capacity and energy requirements of the City of Ft. Meade via the full-requirements Tampa Electric agreement currently in place. When the Ft. Meade/Tampa Electric agreement terminates, FMPA will serve Ft. Meade from the Project's portfolio of power-supply resources.

**Stanton II Project:** On June 6, 1991, the Agency, under the Stanton II Project, purchased from OUC a 23.2 percent undivided ownership interest in OUC's Stanton Unit No. 2, a coal-fired unit virtually identical to Stanton Unit No. 1. The unit commenced commercial operation in June, 1996. Seven of the Agency's members are participants in the Stanton II Project. Table I-1 gives a summary of member participation by project as of April 1, 2000.

#### Summary of Project Participants Table I-1

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Agency Member	St. Lucie Project	Stanton Project	Tri-City Project	All-Requirements Project	Stanton II Project
City of Alachua	x				
City of Bartow					
City of Bushnell		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	x	
City of					
Chattahoochee					
City of Clewiston	x			x	
City of Ft Meade	Х			x	
Ft Pierce Utilities	х	x	X	x	х
Authority					
Gainesville					
Regional Utilities					
City of Green Cove Springs	х			x	
Town of Havana		····· ··· ···			
City of Homestead	x	x	x		x
City of Jacksonville	x			x	
Beach					
Key West City			x	x	x
Electric System					
Kissimmee Utility Authority	x	х			х
City of Lakeland					
Electric & Water					
City of Lake Worth	x	x		P (2001)	
City of Leesburg	x			x	
City of Moore	x				
Haven	~				
City of Mt Dora					
City of Newberry	x		······		
City of New	x				
Smyrna Beach					
City of Ocala				x	
Orlando Utilities					
Commission					
City of Quincy					
City of St. Cloud					x
City of Starke	X	x		X	x
City of Vero Beach	x	х		x	X
City of Wauchula					
City of Williston					



# DESCRIPTION OF EXISTING FACILITIES

Section II contains a map showing the location of FMPA members and descriptive data for FMPA generating facilities.

Page 8 - FMPA Member Location Map

Page 9 - Schedule 1 - Existing Generating Facilities





# \* All-Requirements Project Members

Schedule 1
<b>Existing Generating Facilities</b>
As of December 31, 1999

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Plant Name	Unit No.	Location	Unit Type	Fuel Primary	Alternate	Fuel T	ransport Alternate	Alt. Fuel Days Use	Commercial In-Service Month/Year	Expected Retirement Month/Vear	Gen Max Nameplate kW	Net Caj Summer MW	pability Winter MW
	-		- )   ~	1 1 i i i i i i i i i i i i i i i i i i				030	Monte I car		R.W.		
St. Lucie	2	12-111	NP	UR		TK			8/83	UNK	839,000	74.0	75.0
Stanton	1	12-095	BIT	BIT		RR			7/87	UNK	464,580	115.0	115.0
Energy Center	2	12-095	BIT	BIT		RR			6/96	UNK	464,580	122.0	122.0
Indian River	CT A	12-009	GT	NG	FO2	PL	TK		6/89	UNK	41,400	14.5	18.5
Indian River	CT B	12-009	GT	NG	FO2	PL	TK		7/89	UNK	41,400	14.5	18.5
Indian River	CT C	12-009	GT	NG	FO2	PL	TK		8/92	UNK	112,040	22.0	27.0
Indian River	CT D	12-009	GT	NG	FO2	PL	TK		10/92	UNK	112,040	22.0	27.0
Cane Island	1		GT	NG	FO2	PL	TK		1/95	UNK	40,000	15.2	15.2
Cane Island	2		CC	NG	FO2	PL	TK		6/95	UNK	122,000	54.4	60.2
Stock Island	CT 2		CT	FO2	FO2	ТК	TK		6/99	UNK	21,000	17.5	17.5
Stock Island	CT 3		СТ	FO2	FO2	ТК	TK		6/99	UNK	21.000	17.5	17.5

# Section III

Forecast of Demand and Energy for the All-Requirements Power Supply Project



#### FORECAST OF DEMAND AND ENERGY FOR THE ALL-REQUIREMENTS POWER SUPPLY PROJECT

#### Introduction

The basis for any determination of additional capacity commitments is the load forecast. This necessitates that great care be exercised when projecting future demand and energy requirements. FMPA is responsible for preparing load and energy projections for each of the All-Requirements Project participants. The forecast process includes existing ARP member cities and identifies future cities that are likely to become Project members. Forecasts are prepared on an individual city basis and then aggregated into projections of FMPA demand and energy requirements.

Compared to more simplistic linear trend forecasting models, statistical models such as those used by FMPA are more costly to implement but allow the analyst greater insight into the factors that actually drive the demand for electricity. The type of forecasting processes used by FMPA strikes an appropriate balance between cost and the level of sophistication required to adequately plan for future power supply requirements. The tools utilized by FMPA allow great flexibility in assessing the impact of numerous driving factors on electric load growth and provide the ability to assess alternative growth scenarios.

#### Methodology

In preparing forecasts, FMPA analyzes and projects the major driving factors that are related to the demand for electricity by its members. These factors include demographic factors (population and customer growth), weather impacts on loads, economic conditions, conservation programs and significant incremental changes (new cities) which may impact the forecast. FMPA projects energy required for load using recognized modeling techniques and then estimates winter and summer peak demands using load factor analysis.

To estimate All-Requirements Project member energy requirements, several relatively standardized techniques are utilized including:

- Econometric modeling of member customer class requirements
- Aggregate econometric modeling of system requirements
- Statistical Analysis Techniques (Time Series, Multiple Regression, Autoregression, Box Jenkins)
- Incremental load analysis
- □ Informed Judgement.

In analyzing the relationship between energy requirements and driving variables, FMPA utilizes a commercially available software package to perform statistical analysis and

prepare standardized tests of statistical significance to evaluate alternative forecast models. Once a model is selected, energy forecasts are prepared using the selected model and forecast assumptions for driving variables used by the model (customers, weather, economics, etc.). Forecasted energy is then analyzed for reasonableness, compared to historical patterns and modified as appropriate using informed judgement and appropriate incremental load additions or reductions.

As part of the forecasting process, FMPA evaluates standardized statistical measurements to assess:

- The overall significance of the forecast model
- The statistical significance of individual driving variables
- The relative explanatory performance of the model
- The validation of model structure for complexity and dynamics
- The utilization of these types of tests to permit the development of forecast models which are statisitically valid and appropriate for use in forecasting.

It is important to note that no matter how sophisticated and reliable a model appears to be based upon historical relationships and statistical validation, a model is a simplification of the actual process and cannot capture every nuance of cause and effect relations. Thus, differences between load forecasts and actual realized loads will always be present. Additionally, since we live in a dynamic world that is constantly changing, the occurrence of forecasting error is unavoidable. However, every effort is be made to minimize error through the use of sensitivity or uncertainty analysis.

The primary method for dealing with load forecast uncertainty is to prepare alternative forecasts by assuming different scenarios of events that will impact the forecast. FMPA has chosen to capture the potential levels of forecast uncertainty by establishing bandwidths around the base case demand and energy forecasts. This procedure corresponds with statistical theory that indicates that, in absolute terms, the level of forecast uncertainty will increase as the forecast progresses into future years. For example, in 2000 the one-sigma uncertainty range for the FMPA/ARP summer peak load is 106 MW (from high to low). By 2009 the uncertainty range has grown to 394 MW.

#### Results

FMPA forecasts continued population growth for the service territory based largely on the projected growth in the County population as determined by the University of Florida Bureau of Economic and Business Research, and published in the Florida Statistical Abstract, 1998. Inflation is projected to remain at low levels and the price of electricity is expected to remain constant throughout the forecast period. Normal weather conditions are assumed for this forecast. Final forecast results give the All-Requirements Project an average annual compounded growth of 2.7% (2000 to 2009) for Net Energy for Load and 2.7% for Summer Peak Demand (including Lake Worth as of May, 2001).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Rural and R	esidential				Commercial	
				Average	Average kWh		Average	Average kWh
		Members per		No. of	Consumption		No. of	Consumption
Year	Population	Household	GWh	Customers	Per Customer	GWh	Customers	Per Customer
1990								
1991								
199 <b>2</b>			857	72,303	11.86	1,000	13,082	76.44
1993			910	73,460	12,39	1,044	13,259	78,71
1994			962	74,817	12.86	1,091	14,179	76.96
1995			1,041	76,070	13.69	1,146	13,766	83.25
1996			1,072	77,423	13.84	1,163	14,141	82.21
1997			1,234	103,507	11.92	1,380	19,723	69.96
1998			1,878	141,969	13.23	1,919	27,302	70,28
1999			1,977	149,171	13.25	2,355	28,402	82.92
2000			2,035	150,898	13.49	2,409	28,788	83,68
2001			2,316	174,817	13.25	2,621	32,437	80,80
2002			2,356	176,726	13.33	2,681	32,900	81.49
2003			2,398	178,778	13.41	2,739	33,349	82,13
2004			2,440	180,764	13.50	2,795	33,783	82.73
2005			2,480	182,627	13,58	2,848	34,188	83.30
2006			2,517	184,363	13.65	2,898	34,570	83.83
2007			2,553	186,035	13.72	2,946	34,936	84.33
2008			2,588	187,635	13.79	2,992	35,282	84,80
2009			2.622	189.170	13.86	3.035	35.611	85.23

Schedule 2.1 History and Forecast of Energy Consumption and Number of Customers by Customer Class All-Requirements Project

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# Schedule 2.2 History and Forecast of Energy Consumption and Number of Customers by Customer Class All-Requirements Project

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(1)	(2)	(3) Industrial	(4)	(5)	(6) Street &	(7) Other Sales	(8) Total Sales
		Average No. of	Average kWh Consumption	Railroads and Railways	Highway Lighting	to Public Authorities	to Ultimate Consumers
Year	GWh	Customers	Per Customer	GWh	GWh	GWh	GWh
1990							0
1991							0
1992					52	7	1,916
1993					48	9	2,011
1994					59	10	2,122
1995					65	11	2,263
1996					<b>7</b> 6	10	2,321
1997					62	14	2,690
1998					65	15	3,877
1999					70	16	4,418
2000					71	16	4,531
2001					77	16	5,030
2002					78	16	5,131
2003					79	16	5,232
2004					81	16	5,332
2005					82	16	5,426
2006					83	16	5,514
2007					84	16	5,599
2008					85	16	5,681
2009					86	16	5,759

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(1)	(2)	(3)	(4)	(5)	(6)
	Sales for	Utility Use	Net Energy	Other	Total
	Resale	& Losses	for Load	Customers	No. of
Year	GWh	GWh	GWh	(Average No.)	Customers
1990			0		0
1991			0		0
1992		127	2,043		85,385
1993		134	2,145		86,719
1994		66	2,188		88,996
1995		80	2,343		89,836
1996		84	2,405		91,564
1997		160	2,850		123,230
1998		680	4,557		169,271
1999		256	4,674		177,573
2000		310	4,841		179,686
2001		224	5,254		207,254
2002		351	5,482		209,626
2003		359	5,591		212,127
2004		365	5,697		214,547
2005		372	5,798		216,815
2006		379	5,893		218,933
2007		385	5,984		220.971
2008		391	6.072		222.917
2009		397	6.156		224,781
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Schedule 2.3 History and Forecast of Energy Consumption and Number of Customers by Customer Class All-Requirements Project

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Schedule 3.1
History and Forecast of Summer Peak Demand
All-Requirements Project - Base Case

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Residential		Comm/Ind	Comm/Ind	
					Load	Residential	Load	Load	Net Firm
Year	Total	Wholesale	Retail	Interruptible	Management	Conservation	Management	Conservation	Demand
1990	405								405
1991	418								418
1992	451								451
1993	468								468
1994	454								454
1995	504								504
1996	509								509
1997	644								644
1998	946								946
1999	981								981
2000	996				4.0				992
2001	1,101				4.2				1,096
2002	1,123				4.5				1,118
2003	1,146				4.7				1,141
2004	1,168				4.8				1,163
2005	1,189				5.0				1,184
2006	1,209				5.1				1,203
2007	1,228				5.2				1,222
2008	1,246				5.3				1,241
2009	1,263				5.3				1,258

Schedule 3.2
History and Forecast of Winter Peak Demand
All-Requirements Project - Base Case

YearTotalWholesaleRetailInterruptibleLoadResidentialComm/IndComm/IndLoadNet Firm1990453643	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VerTotalWholesaleRetailInterruptibleManagementConservationManagementConservationManagementConservationManagementConservationMemand1990 $453$ $373$ $373$ $373$ $373$ $373$ $373$ $373$ $373$ $373$ $373$ $373$ $373$ $410$ $426$ $426$ $426$ $426$ $426$ $426$ $426$ $426$ $410$ 1994 $442$ $533$ </th <th></th> <th></th> <th></th> <th></th> <th></th> <th>Residential</th> <th></th> <th>Comm/Ind</th> <th>Comm/Ind</th> <th></th>						Residential		Comm/Ind	Comm/Ind	
YearTotalWholesaleRetailInterruptibleManagementConservationManagementConservationDemand1990 $453$ $453$ $453$ 1991 $373$ $453$ $373$ 1992 $426$ $410$ 1993 $410$ $410$ 1994 $442$ $412$ 1995 $503$ 5031996 $553$ $503$ 1997 $499$ $866$ 1999 $927$ $866$ 1999 $927$ $866$ 1999 $927$ $866$ 1999 $927$ $866$ 1999 $927$ $866$ 1999 $927$ $866$ 1999 $927$ $866$ 1999 $927$ $866$ 1999 $927$						Load	Residential	Load	Load	Net Firm
1990 $453$ $$ $453$ $1991$ $373$ $$ $373$ $1992$ $426$ $$ $426$ $1993$ $410$ $$ $410$ $1994$ $442$ $$ $503$ $1995$ $503$ $$ $503$ $1996$ $553$ $$ $553$ $1997$ $499$ $$ $686$ $1999$ $927$ $$ $686$ $1999$ $927$ $$ $686$ $2000$ $936$ $68$ $929$ $2000$ $936$ $68$ $929$ $2001$ $1,026$ $7,2$ $1,018$ $2002$ $1,047$ $7,6$ $1,039$ $2003$ $1,068$ $7,9$ $1,060$ $2004$ $1,089$ $8,2$ $1,100$ $2005$ $1,109$ $8,7$ $1,119$ $2007$ $1,145$ $8,9$ $1,136$ $2008$ $1,162$ $9,0$ $1,170$	Year	Total	Wholesale	Retail	Interruptible	Management	Conservation	Management	Conservation	Demand
1991 $373$ $$ $373$ 1992 $426$ $$ $426$ 1993 $410$ $$ $410$ 1994 $442$ $$ $442$ 1995 $503$ $$ $503$ 1996 $553$ $$ $553$ 1997 $499$ $$ $686$ 1999 $927$ $$ $686$ 1999 $927$ $$ $927$ 2000 $936$ $6.8$ $929$ 2001 $1,026$ $7.2$ $1,018$ 2002 $1,047$ $7.6$ $1,039$ 2003 $1,068$ $7.9$ $1,060$ 2004 $1,089$ $8.2$ $1,001$ 2005 $1,109$ $8.7$ $1,100$ 2006 $1,127$ $8.7$ $1,119$ 2007 $1,145$ $8.9$ $1,136$ 2008 $1,162$ $9.0$ $1,170$ 2009 $1,179$ $9.0$ $1,170$	1990	453								453
1992 $426$ $$ $426$ 1993 $410$ $$ $410$ 1994 $442$ $$ $442$ 1995 $503$ $$ $503$ 1996 $553$ $$ $553$ 1997 $499$ $$ $686$ 1998 $686$ $$ $686$ 1999 $927$ $$ $927$ 2000 $936$ $6.8$ $929$ 2001 $1,026$ $7.2$ $1,018$ 2002 $1,047$ $7.6$ $1,039$ 2003 $1,068$ $7.9$ $1,060$ 2004 $1,089$ $8.2$ $1,081$ 2005 $1,109$ $8.5$ $1,100$ 2006 $1,127$ $8.7$ $1,119$ 2007 $1,145$ $8.9$ $1,136$ 2008 $1,162$ $9,0$ $1,170$	1991	373								373
1993 $410$ $$ $410$ 1994 $442$ $$ $442$ 1995 $503$ $$ $503$ 1996 $553$ $$ $553$ 1997 $499$ $$ $499$ 1998 $686$ $$ $686$ 1999 $927$ $$ $927$ 2000 $936$ $6.8$ $929$ 2001 $1,026$ $7.2$ $1,018$ 2002 $1,047$ $7.6$ $1,039$ 2003 $1,068$ $7.9$ $1,060$ 2004 $1,089$ $8.2$ $1,100$ 2005 $1,109$ $8.7$ $1,119$ 2006 $1,127$ $8.9$ $1,136$ 2007 $1,145$ $8.9$ $1,136$ 2008 $1,162$ $9,0$ $1,170$	1992	426								426
1994 $442$ $$ $442$ $1995$ $503$ $$ $503$ $1996$ $553$ $$ $499$ $1998$ $686$ $$ $686$ $1999$ $927$ $$ $927$ $2000$ $936$ $6.8$ $929$ $2001$ $1,026$ $7.2$ $1,018$ $2002$ $1,047$ $7.6$ $1,039$ $2003$ $1,068$ $7.9$ $1,060$ $2004$ $1,089$ $8.2$ $1,100$ $2005$ $1,109$ $8.5$ $1,100$ $2006$ $1,127$ $8.7$ $1,136$ $2007$ $1,145$ $8.9$ $1,136$ $2008$ $1,162$ $9.0$ $1,170$	1993	410								410
1995 $503$ $$ $503$ 1996 $553$ $$ $593$ 1997 $499$ $$ $499$ 1998 $686$ $$ $686$ 1999 $927$ $$ $927$ 2000 $936$ $6.8$ $929$ 2001 $1,026$ $7.2$ $1,018$ 2002 $1,047$ $7.6$ $1,039$ 2003 $1,068$ $7.9$ $1,060$ 2004 $1,089$ $8.2$ $1,000$ 2005 $1,109$ $8.5$ $1,100$ 2006 $1,127$ $8.7$ $1,136$ 2007 $1,145$ $8.9$ $1,136$ 2008 $1,162$ $9.0$ $1,170$	1994	442				<b>-</b>				442
1996 $553$ $$ $553$ 1997499 $$ 4991998 $686$ $$ $686$ 1999927 $$ 9272000936 $6.8$ 9292001 $1,026$ $7.2$ $1,018$ 2002 $1,047$ $7.6$ $1,039$ 2003 $1,068$ $7.9$ $1,060$ 2004 $1,089$ $8.2$ $1,081$ 2005 $1,109$ $8.5$ $1,100$ 2006 $1,127$ $8.7$ $1,136$ 2007 $1,145$ $8.9$ $1,136$ 2008 $1,162$ $9.0$ $1,170$	1995	503								503
19974994991998686686199992792720009366.892920011,0267.21,01820021,0477.61,03920031,0687.91,06020041,0898.21,08120051,1098.51,10020061,1278.71,11920071,1458.91,13620081,1629.01,170	1996	553								553
1998 $686$ $$ $686$ 1999927 $$ $927$ 2000936 $6.8$ $929$ 2001 $1,026$ $7.2$ $1,018$ 2002 $1,047$ $7.6$ $1,039$ 2003 $1,068$ $7.9$ $1,060$ 2004 $1,089$ $8.2$ $1,081$ 2005 $1,109$ $8.5$ $1,100$ 2006 $1,127$ $8.7$ $1,119$ 2007 $1,145$ $8.9$ $1,136$ 2008 $1,162$ $9,0$ $1,170$	1997	499								499
19999279272000936 $6.8$ 9292001 $1,026$ $7.2$ $1,018$ 2002 $1,047$ $7.6$ $1,039$ 2003 $1,068$ $7.9$ $1,060$ 2004 $1,089$ $8.2$ $1,081$ 2005 $1,109$ $8.5$ $1,100$ 2006 $1,127$ $8.7$ $1,136$ 2007 $1,145$ $8.9$ $1,136$ 2008 $1,162$ $9.0$ $1,170$	1998	686								686
20009366.892920011,0267.21,01820021,0477.61,03920031,0687.91,06020041,0898.21,08120051,1098.51,10020061,1278.71,11920071,1458.91,13620081,1629.01,15320091,1799.01,170	1999	927								927
20011,0267.21,01820021,0477.61,03920031,0687.91,06020041,0898.21,08120051,1098.51,10020061,1278.71,11920071,1458.91,13620081,1629.01,170	2000	936				6.8				929
20021,0477.61,039 $2003$ 1,0687.91,060 $2004$ 1,0898.21,081 $2005$ 1,1098.51,100 $2006$ 1,1278.71,119 $2007$ 1,1458.91,136 $2008$ 1,1629.01,170 $2009$ 1,1799.01,170	2001	1,026				7.2				1,018
20031,0687.91,06020041,0898.21,08120051,1098.51,10020061,1278.71,11920071,1458.91,13620081,1629.01,15320091,1799.01,170	2002	1,047				7.6				1,039
20041,0898.21,08120051,1098.51,10020061,1278.71,11920071,1458.91,13620081,1629.01,15320091,1799.01,170	2003	1,068				7.9				1,060
20051,1098.51,10020061,1278.71,11920071,1458.91,13620081,1629.01,15320091,1799.01,170	2004	1,089				8.2				1,081
20061,1278.71,11920071,1458.91,13620081,1629.01,15320091,1799.01,170	2005	1,109				8.5				1,100
20071,1458.91,13620081,1629.01,15320091,1799.01,170	2006	1,127				8.7				1,119
2008         1,162         9.0         1,153           2009         1,179         9.0         1,170	2007	1,145				8.9				1.136
<b>2009</b> 1,179 9.0 1,170	2008	1,162				9.0				1,153
****	2009	1,179				9.0				1,170

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Residential	Comm/Ind			Utility Use	Net Energy	Load
Year	Total	Conservation	Conservation	Retail	Wholesale	& Losses	for Load	Factor %
1990	1,846						1,846	47%
1991	1,980						1,980	54%
1992	2,043						2,043	52%
1993	2,145						2,145	52%
1994	2,188						2,188	55%
1995	2,343						2,343	53%
1996	2,405						2,405	50%
1997	2,845						2,845	50%
1998	4,457						4,457	54%
1999	4,656						4,656	57%
2000	4,831						4,831	59%
2001	5,362						5,362	60%
2002	5,470						5,470	60%
2003	5,579						5,579	60%
2004	5,684						5,684	60%
2005	5,786						5,786	60%
2006	5,880						5,880	60%
2007	5,971						5,971	60%
2008	6,059						6,059	60%
2009	6,143						6,143	59%

Schedule 3.3 History and Forecast of Annual Net Energy for Load - GWh All-Requirements Project - Base Case

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Schedule 3.1
History and Forecast of Summer Peak Demand
All Requirements Project - High Case

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(1)	(2)	(3)	(4)	(5)	(6) Residential	(7)	(8) Comm/Ind	(9) Comm/Ind	(10)
					Load	Residential	Load	Load	Net Firm
Year	Total	Wholesale	Retail	Interruptible	Management	Conservation	Management	Conservation	Demand
1989									
1990									
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000	1,053				4.1				1,049
2001	1,186				4.3				1,181
2002	1,231				4.6				1,226
2003	1,276				4.8				1,271
2004	1,320				4.9				1,316
2005	1,362				5.1				1,357
2006	1,402				5.2				1,397
2007	1,440				5.3				1,435
2008	1,477				5.4				1,471
2009	1,512				5.4				1,506

Schedule 3.2
History and Forecast of Winter Peak Demand
All Requirements Project - High Case

(1)	(2)	(3)	(4)	(5)	(6) Residential	(7)	(8) Comm/Ind	(9) Comm/Ind	(10)
					Load	Residential	Load	Load	Net Firm
Year	Total	Wholesale	Retail	Interruptible	Management	Conservation	Management	Conservation	Demand
1989				-			U		
1990									
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000	1,055				6.9				1,048
2001	1,096				7.3				1,088
2002	1,221				7.8				1,213
2003	1,264				8.1				1,256
2004	1,306				8.4				1,298
2005	1,345				8.7				1,337
2006	1,383				8.9				1,374
2007	1,419				9.1				1,409
2008	1,453				9.2				1,444
2009	1,486				9.2				1,477

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Total	<b>Residential</b> <b>Conservation</b>	Comm/Ind Conservation	Retail	Wholesale	Utility Use & Losses	Net Energy for Load	Load Factor %
1989								
1990								
1991								
1992								
1993								
1994								
1995								
1996								
1997								
1998								
1999								
2000							5,144	56%
2001							5,622	59%
2002							5,964	56%
2003							6,182	56%
2004							6,394	56%
2005							6,596	56%
2006							6,784	56%
2007							6,968	56%
2008							7,144	56%
2009							7,312	56%

Schedule 3.3 History and Forecast of Annual Net Energy for Load - GWh All-Requirements Project - High Case

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Schedule 3.1
History and Forecast of Summer Peak Demand
All-Requirements Project - Low Case

(1)	(2)	(3)	(4)	(5)	(6) Residential Load	(7) Residential	(8) Comm/Ind Load	(9) Comm/Ind Logd	(10) Not Firm
Year	Total	Wholesale	Retail	Interruptible	Management	Conservation	Management	Conservation	Demand
1990				•					
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000	947				3.9				943
2001	1,037				4.1				1,032
2002	1,048				4.4				1,043
2003	1,059				4.6				1,055
2004	1,070				4.7				1,066
2005	1,081				4.9				1,076
2006	1,091				5.0				1,086
2007	1,100				5.1				1,095
2008	1,109				5.2				1,104
2009	1,118				5.2				1.113

Schedule 3.2
History and Forecast of Winter Peak Demand
All-Requirements Project - Low Case

(1)	(2)	(3)	(4)	(5)	(6) Residential Load	(7) Residential	(8) Comm/Ind Load	(9) Comm/Ind Load	(10) Net Firm
Year	Total	Wholesale	Retail	Interruptible	Management	Conservation	Management	Conservation	Demand
1990				-			U		
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000	823				6.7				816
2001	833				7.1				826
2002	912				7.4				905
2003	923				7.7				915
2004	934				8.0				926
2005	944				8.3				935
2006	953				8.5				944
2007	962				8.7				953
2008	971				8.8				962
2009	979				8.8				970

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Total	<b>Residential</b> Conservation	Comm/Ind Conservation	Retail	Wholesale	Utility Use & Losses	Net Energy for Load	Load Factor %
1990								<b>-</b>
1991								
1992								
1993								
1994								
1995								
1996								
1997								
1998								
1999								
2000							4,622	64%
2001							4,995	68%
2002							5,166	65%
2003							5,221	65%
2004							5,274	64%
2005							5,325	64%
2006							5,372	64%
2007							5,418	64%
2008							5,462	64%
2009							5,504	64%

Schedule 3.3 History and Forecast of Annual Net Energy for Load - GWh All-Requirements Project - Low Case

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Actual -	1999	Forecast -	- 2000	Forecast -	- 2001
	Peak Demand	NEL	Peak Demand	NEL	Peak Demand	NEL
Month	MW	GWh	MW	GWh	MW	GWh
January	927	349	936	367	1,026	404
February	755	308	840	331	921	365
March	652	329	721	356	795	393
April	810	371	731	354	810	393
May	831	395	825	418	915	464
June	855	420	931	452	1,031	502
July	965	490	962	494	1,064	549
August	981	493	996	498	1,101	554
September	874	429	917	449	1,017	501
October	800	392	822	401	898	447
November	666	325	712	344	789	383
December	699	354	754	367	817	407

Schedule 4
Previous Year and 2-Year Forecast of Retail Peak Demand and Net Energy for Load by Month
All-Requirements Project

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#### **CONSERVATION PROGRAMS**

#### Introduction

FMPA's demand side programs are designed to improve efficiency, implement direct control of residential appliances, encourage time-of-use rates, and achieve additional conservation through commercial and industrial audits.

FMPA's members promote their conservation programs by providing speakers on energy conservation matters to radio talk shows, civic clubs, churches, schools, and so forth. These presentations are given both in person and on video tape. Additionally, bill inserts are utilized to keep customers aware of available conservation programs. FMPA will continue to expand services as needed to assist members in increasing the promotion and use of conservation programs to retail customers and will assist all of its members in the evaluation of any new programs to ensure their cost effectiveness.

FMPA is also assisting in the development of renewable energy resources by participating in the Utility Photovoltaic Group (UPG). UPG is a non-profit organization formed to accelerate the commercialization of photovoltaic systems for the benefit of electric utilities and their customers.

#### **Existing Conservation Programs**

FMPA's All-Requirements Participants offer some or all of the following conservation programs:

 Residential Energy Audits Program: This Program offers a walk-through audit to identify energy savings opportunities. Energy Star program has been offered since October 1999.

- High-Pressure Sodium Outdoor Lighting Conversion: This program replaces mercury-vapor street lights with highpressure sodium lights.
- Assistance for Commercial/Industrial Audits: Free on-site audits are conducted for all interested customers and recommendations are made for energy efficiency improvements. ESCO referral is also provided upon request.
- Commercial Time-of-Use Program: Time-of-use rates are offered to commercial and industrial customers with the intention of shifting demand from peak to off-peak periods.
- 5) Natural Gas Promotion: During Energy Audits, recommend the conversion of old, inefficient electric heat and water heaters to natural gas when the conversion would benefit the customer.
- 6) Residential Load Management Program: This program is offered to customers with central electric heating, central air conditioning and electric water heating. The utility is allowed to control some or all of these appliances during periods of peak demand and the customer receives a fixed monthly credit on their bill for each device under control. The following table indicates the amount of summer and winter peak demand reduction and total net energy reduction attributable to this program.
- Fix-Up Program for the Elderly and Handicapped: Weatherization measures that target low-income housing.



### FORECAST OF FACILITIES REQUIREMENTS

For member cities not involved in the All-Requirements Project, the responsibility for planning their future generation and transmission requirements lies ultimately with the individual utility. For the FMPA St. Lucie, Stanton, Stanton II and Tri-City Projects, FMPA has no power supply planning responsibility. However, FMPA periodically reviews the supply plans that might be worthwhile for FMPA or the cities to consider.

FMPA's planning process involves evaluating new generating capacity, along with new purchased power options, if appropriate, and conservation measures that are planned and implemented by the All-Requirements Project participants. The planning process has also included periodic Requests for Proposals in an effort to consider all possible options. FMPA normally performs its generation expansion planning on a least-cost basis considering both new purchased-power options, as well as, options on construction of generating capacity. The generation expansion plan optimizes the planned mix of possible supply-side resources by simulating their dispatch for each year of the study period while considering variables including fixed and variable resource costs, fuel costs, planned maintenance outages, terms of purchase contracts, minimum reserve requirements and options for future resources. FMPA plans on an annual reserve level of approximately 18% of the summer peak, which is in compliance with the reserve margin criteria of the Florida Public Service Commission.

Currently, the Agency on behalf of the All-Requirements Project, is planning to add additional capacity in 2001 and 2005. With the ability to add generation at the Cane Island Power Park, a portion of the future new capacity will consist of 125 MW from a 250 MW "F" class combined cycle unit in 2001. FMPA is actively working with the Kissimmee Utility Authority (KUA) on the construction of the combined cycle unit which is expected to commence commercial operation in June, 2001. In a joint project with the City of Lakeland, 100 MW from a 288 MW pressurized fluidized-bed coal unit is planned for 2005. FMPA is currently in negotiation with Lakeland officials on this project.

FMPA is continually reviewing its options, seeking joint participation when feasible, and may change the megawatts required, the year of installment, the type of generation, and/or the site as conditions change.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Fuel Requirements		Units	Actual 1998	Actual 1999	2000	000 2001	2002	2003	2004	2005	2006	2007	2008	2009
(1)	Nuclear (a)		<b>Trillion BTU</b>	7,955	0	3,487	5,887	4,769	5,887	4,785	5,887	4,769	5,887	5,120	5,887
(2)	Coal		1000 Ton	678	0	452	481	481	481	483	759	761	763	768	766
(3)	Residual	Total	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(4)		Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	Ő	Õ
(5)		CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(6)		СТ	1000 BBL	0	0	0	0	0	0	0	0	0	0	Õ	0
(7)		Diesel	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	Ő
(8)	Distillate	Total	1000 BBL	23	0	12	16	24	42	48	51	83	108	118	134
(9)		Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(10)		CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	Ō
(11)		СТ	1000 BBL	23	0	2	0	1	6	3	1	3	8	6	9
(12)		Diesel	1000 BBL	0	0	11	16	23	36	45	49	80	100	111	125
(13)	Natural Gas	Totai	1000 MCF	3,573	0	6.901	10.513	12.776	13.671	14 891	10 477	11 759	12 406	14 4 16	15 016
(14)		Steam	1000 MCF	0	0	656	618	553	771	1 359	420	1 107	1.062	1 960	2 2 2 2
(15)		CC	1000 MCF	2.478	0	5.006	9 009	11 487	11 938	12 130	9 462	9.676	10.058	10 734	10 888
(16)		СТ	1000 MCF	1,095	0	1,238	885	735	961	1,402	594	975	1,285	1,723	1,791

Schedule 5 Fuel Requirements - All-Requirements Project

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(17) Other (Specify)

**Trillion BTU** 

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(a) Nuclear generation is not part of the All-Requirements Project power supply. It is owned directly by some Project participants.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 1998	Actual 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(1)	Annual Firm Interchang	<i>z</i> e	GWh	1,700		2,544	2,236	2,107	2,010	2,107	1,943	2,015	1,920	1,865	1,821
(2)	Nuclear (a)		GWh	740		324	548	444	548	445	548	444	548	476	548
(3) (4) (5) (6) (7)	Residual	Total Steam CC CT Diesel	GWh GWh GWh GWh GWh	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(8) (9) (10) (11)	Distillate	Total Steam CC CT	GWh GWh GWh GWh	4	0	2.6 0.3	3.5 0.1	5.1 0.2	8.8 1.1	10.3 0.6	10.9 0 0 0.3	17.7 0 0 0.6	22.9 0 0 1.3	25.1 0 0 1.1	28.5 0 0 1.6
(12)		Diesel	GWh			2.3	3.5	4.9	7.7	9.7	10.7	17.2	21.6	24.0	27.0
(13) (14) (15) (16)	Natural Gas	Total Steam CC CT	GWh GWh GWh GWh	427 354 73	0	852 55 715 83	1,398 52 1,287 59	1,736 46 1,641 49	1,834 64 1,705 64	1,940 113 1,733 93	1,426 35 1,352 40	1,540 92 1,382 65	1,611 89 1,437 86	1,812 163 1,533 115	1,870 195 1,555 119
(17)	Other (Coal)		GWh	1,661		1,108	1,179	1,179	1,179	1,183	1,858	1,865	1,870	1,882	1,877
(18)	Net Energy for Load		GWh	4,532	0	4,831	5,363	5,471	5,580	5,685	5,787	5,881	5,971	6,060	6,144

Schedule 6.1 Energy Sources - All-Requirements Project

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a) Nuclear generation is not part of the All-Requirements Project power supply. It is owned directly by some Project participants.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 1998	Actual 1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(1)	Annual Firm Interchange		%	37.5%		52.7%	41.7%	38.5%	36.0%	37.1%	33.6%	34.3%	32.1%	30.8%	29.6%
(2)	Nuclear (a)		%	16.3%		6.7%	10.2%	8.1%	9.8%	7.8%	9.5%	7.5%	9.2%	7.9%	8.9%
(3)	Residuat	Total	%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(4)		Steam	%												
(5)		CC	%												
(6)		СТ	%												
(7)		Diesel	%												
(8)	Distillate	Total	%	0.1%	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.4%	0.5%
(9)		Steam	%												
(10)		CC	%												
(11)		СТ	%	0.1%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
(12)		Diesel	%	0.0%		0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.4%
(13)	Natural Gas	Total	%	9.4%	0.0%	17.6%	26.1%	31.7%	32.9%	34.1%	24.6%	26.2%	27.0%	29.9%	30.4%
(14)		Steam	%	0.0%		1.1%	1.0%	0.8%	1.2%	2.0%	0.6%	1.6%	1.5%	2.7%	3.2%
(15)		CC	%	7.8%		14.8%	24.0%	30.0%	30.6%	30.5%	23.4%	23.5%	24.1%	25.3%	25.3%
(16)		СТ	%	1.6%		1.7%	1.1%	0.9%	1.1%	1.6%	0.7%	1.1%	1.4%	1.9%	1.9%
(17)	Other (Coal)		%	36.7%		22.9%	22.0%	21.6%	21.1%	20.8%	32.1%	31.7%	31.3%	31.1%	30.6%

Schedule 6.2 Energy Sources - All-Requirements Project 1

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(a) Nuclear generation is not part of the All-Requirements Project power supply. It is owned directly by some Project participants.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Total	Firm	Firm		Total	System Firm					
	Installed	Capacity	Capacity		Capacity	Summer Peak	Reserve	Margin (1)	Scheduled	Reserve	Margin (1)
	Capacity (2)	Import	Export	QF	Availability	Demand	before N	<b>faintenance</b>	Maintenance	after M	aintenance
Year	MW	MW	MW	MW	MW	MW	MW	% of Peak	MW	MW	% of Peak
2000	378	801	0	0	1,179	996	183	19.7	0	183	19.7
2001	527	790	0	0	1,317	1,101	217	19.8	0	217	19.8
2002	527	806	0	0	1,333	1,123	210	19.3	0	210	19.3
2003	527	820	0	0	1,347	1,146	201	18.0	0	201	18.0
2004	527	847	0	0	1,374	1,168	206	18.0	0	206	18.0
2005	627	773	0	0	1,400	1,189	211	18.1	0	211	18.1
2006	627	796	0	0	1,423	1,209	214	18,1	0	214	18.1
2007	627	817	0	0	1,444	1,228	216	18.0	0	216	18.0
2008	627	855	0	0	1,482	1,246	236	18.1	0	236	18.1
2009	627	874	0	0	1,501	1,264	238	18.0	0	238	18.0

Schedule 7.1 Forecast of Capacity, Demand and Scheduled Maintenance at Time of Summer Peak All-Requirements Project

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(1) Reserve Margin includes resrves associated with partial requirements purchases.

(2) Includes nuclear capacity owned directly by some Project participants.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Total Installed Capacity (2)	Firm Capacity Import	Firm Capacity Export	QF	Total Capacity Availability	System Firm Winter Peak Demand	Reserve before M	Margin (1) Iaintenance	Scheduled Maintenance	Reserve N after Ma	Aargin (1) intenance
Year	MW	MW	MW	MW	MW	MW	MW	% of Peak	MW	MW	% of Peak
2000							· · · · · · · · ·		••••		• • • • • • • • •
2001	433	906	0	0	1,339	1,026	313	30.9	0	313	30.9
2002	553	747	0	0	1,300	1,047	253	23.1	0	253	23.1
2003	553	758	0	0	1,311	1,048	263	23.3	0	263	23.3
2004	553	713	0	0	1,266	1,089	177	16.0	0	177	16.0
2005	553	726	0	0	1,279	1,109	170	15.0	0	170	15.0
2006	653	670	0	0	1,323	1,127	196	17.2	0	196	17.2
2007	653	669	0	0	1,322	1.145	177	15.0	0	177	15.0
2008	653	700	0	0	1,353	1,162	191	15.0	ŷ	191	15.0
2009	653	719	0	0	1,372	1,179	193	15.0	õ	193	15.0

Schedule 7.2 Forecast of Capacity, Demand and Scheduled Maintenance at Time of Winter Peak All-Requirements Project

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Reserve Margin includes resrves associated with partial requirements purchases.
 Includes nuclear capacity owned directly by some Project participants.

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## SITE AND FACILITY DESCRIPTIONS

#### Cane Island Unit 3

The planned Cane Island combined cycle unit will be located at Kissimmee's Cane Island Power Park south and west of the Kissimmee Utility Authority's (KUA) service area.

#### Environmental Considerations

The environmental impact of the Cane Island #3 unit will be minimal. The combined cycle plant will have emissions controlled to limit the impact on ambient air quality. Dry low NOx technology will be employed via selective catalytic reduction (SCR) for control of nitrogen oxides. The increase in groundwater use should be minimal.

A detailed description of existing environmental conditions at the Cane Island site, along with environmental impacts and mitigation measures is presented in the "Need for Power" and "Site Certification" applications previously submitted for Cane Island #3 to the FPSC by KUA and FMPA. Cane Island Units 1 and 2 are in commercial operation at this site. Unit 1 is a 40 MW (nameplate) simple-cycle combustion turbine. Unit 2 is a 120 MW (nameplate) combined cycle. The site is suitable for approximately 1,000 MW of capacity.

#### McIntosh Unit 4

The planned McIntosh PFBC coal unit #4 will be located at the existing McIntosh power plant site in the City of Lakeland's service area. The proposed commercial operating date for this facility is June of 2005.

For purposes of this Ten Year Site Plan, McIntosh Unit 4 is assumed to be a jointly owned (with Lakeland) 288 MW PFBC consisting of three P200 modules with petroleum coke as the primary fuel and coal as the secondary fuel. Lakeland and FMPA plan to file Need for Power and Site Certification Applications in the summer of 2000 which will contain additional details.

#### Environmental Considerations

Emissions will be minimized through the use of highly efficient pressurized fluidized bed clean fuel technology. Irrespective of fuel quality or sulfur content, the PFBC produces very low emissions. This is due to the advantage of burning fuel in a fluidized bed under pressure at temperatures of less than 900 degrees. The low burn temperature deters the production of thermal  $NO_x$ . Also, a lower excess air level means that  $NO_x$  developing from fuel bound nitrogen is lower than for conventional boilers. The PFBC's firing

temperature encourages the calcium in the sorbent to be extremely reactive and remove up to 99 percent of the sulfur.

Reclaimed water from treated sewage effluent is assumed for supply of the Unit 4 cooling towers. Use of reclaimed water will conserve valuable water resources. It is assumed that cooling tower blowdown will be treated for reuse as part of the design features of Unit 4. Return of wastewater to the City Wastewater Treatment Facility may be possible which would reduce costs but there is limited additional capacity for this alternative. Existing fuel handling and storage facilities will be used, eliminating additional environmental impacts from these facilities.

McIntosh 4 is required to comply with the Clean Air Act and the current Florida air quality requirements stemming from the Act. Lakeland's Authority to Construct (ATC) permit for the unit will be obtained through the Site Certification Process. One aspect of the ATC permit will be the determination of Best Available Control Technology (BACT). Major criteria pollutants included in the BACT analysis are SO<sub>2</sub>, NO<sub>x</sub>, VOC, CO, and PM/PM10. Lakeland and FMPA believe that the inherently low emission profile characteristic of PFBC technology will meet BACT with no additional treatment requirements.

McIntosh Unit 4 is expected to burn 100 percent petroleum coke. The secondary fuel will be the same coal as McIntosh Unit 3 burns. The choice of the secondary fuel saves in the cost of an additional fuel storage space. Unit trains will deliver the petroleum coke and coal. The coal is presently delivered by unit train to the site.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	[]nit		Unit	End				Alt. Fuel	Commercial	Expected	Gen Max	Net Ca	pability	
Plant Name	No	T + + - 4!	Unit	Fuel		FuelTr	ansport	Days	In-Service	Retirement	Nameplate	Summer	Winter	
TARLIVANC	190.	Location	Туре	Primary	Alternate	Primary	Alternate	Use	Month/Year	Month/Year	kW	MW	MW	Status
Cane Island	3	Osceola Co.	сс	NG	FO2	PL	TK		6/01	UNK	250,000	120.0	125.0	Р
MacIntosh	4	Polk Co.	ST	PC	Coal	RR	ТК		6/05	UNK	288,000	100.0	100.0	Р

Schedule 8 Planned and Prospective Generating Facility Additions and Changes All-Requirements Project

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Schedule 9.1

Status Report and Specifications of Proposed Generating Facilities - All-Requirements Project

(Preliminary Information) (1) Plant Name and Unit Number: Cane Island Unit 3 (2) Capacity a. Summer: 244 (95 F) b. Winter: 262 (59 F) (3) Technology Type: Combined Cycle (4) Anticipated Construction Timing a. Field construction start date: 10-01-99 b. Commercial in-service date: 6-01-01 (5) Fuel a. Primary fuel: Natural Gas b. Alternate fuel: No. 2 oil (6) Air Pollution Control Strategy: Dry NOx (7) Cooling Method: Mechanical Cooling Towers (8) Total Site Area: 1,024 acres (9) Construction Status: Not started (10) Certification Status: Application approved by FPSC (11) Status with Federal Agencies: Permitted for Units 1 & 2 (12) Projected Unit Performance Data Planned Outage Factor (POF): 4.3% Forced Outage Factor (FOF): 4.1% **Equivalent Availability Factor (EAF):** 91.8% **Resulting Capacity Factor:** 88.0% Average Net Operating Heat Rate (ANOHR): 6815 BTU/kWh (13) Projected Unit Financial Data Book Life (Years): 30 Total Installed Cost (In-service year \$/kW): 449 Direct Construction Cost (\$/kW): 320 AFUDC Amount (\$/kW): 21 Escalation (\$/kW): - - -Fixed O&M (\$kW-Yr): 2.27 Variable O&M (\$/MWh): 2.82 K Factor: NA

# Schedule 9.2

Status Report and Specifications of Proposed Generating Facilities - All-Requirements Project						
(Preliminary Information)						

Plant Name and Unit Number:	McIntost Unit 4
Capacity	
a. Summer:	288 MW (FMPA share is 100 MW)
b. Winter:	288 MW (FMPA share is 100 MW)
Technology Type:	Pressurized Fluidized Bed Combined Cycle
Anticipated Construction Timing	
a. Field construction start date:	06-01-02
b. Commercial in-service date:	06-01-05
Fuel	
a. Primary fuel:	Petroleum Coke
b. Alternate fuel:	Coal
Air Pollution Control Strategy:	SNCR, limestone, fabric filters or
	electrostatic precipitators for particulates
Cooling Method:	Cooling Tower
Total Site Area:	513 acres
Construction Status:	None
) Certification Status:	Filing planned summer 2000
) Status with Federal Agencies:	No status
) Projected Unit Performance Data	
Planned Outage Factor (POF):	7.67%
Forced Outage Factor (FOF):	12.0%
Equivalent Availability Factor (EAF):	81.0%
Resulting Capacity Factor:	81.00%
Average Net Operating Heat Rate (ANOHR):	8,452 BTU/kWh
Projected Unit Financial Data	
Book Life (Years):	30
Total Installed Cost (In-service year \$/kW):	1,617
Direct Construction Cost (\$/kW):	1,317
AFUDC Amount (\$/kW):	135
Escalation (\$/kW):	165
Fixed O&M (\$kW-Yr):	20.76
Variable O&M (\$/MWh):	4.53 (includes limestone)
	<ul> <li>Plant Name and Unit Number:</li> <li>Capacity <ul> <li>Summer:</li> <li>Summer:</li> <li>Winter:</li> </ul> </li> <li>Technology Type:</li> <li>Anticipated Construction Timing <ul> <li>Field construction start date:</li> <li>Commercial in-service date:</li> </ul> </li> <li>Fuel <ul> <li>Primary fuel:</li> <li>Alternate fuel:</li> </ul> </li> <li>Air Pollution Control Strategy:</li> <li>Cooling Method:</li> <li>Total Site Area:</li> <li>Construction Status:</li> <li>Certification Status:</li> <li>Status with Federal Agencies:</li> <li>Projected Unit Performance Data <ul> <li>Planned Outage Factor (POF):</li> <li>Forced Outage Factor (FOF):</li> <li>Equivalent Availability Factor (EAF):</li> <li>Resulting Capacity Factor:</li> <li>Average Net Operating Heat Rate (ANOHR):</li> </ul> </li> <li>Projected Unit Financial Data <ul> <li>Book Life (Years):</li> <li>Total Installed Cost (In-service year S/kW):</li> <li>Direct Construction Cost (S/kW):</li> <li>AFUDC Amount (S/kW):</li> <li>Fixed O&amp;M (S/MWh):</li> </ul> </li> </ul>

## Schedule 10 Status Report and Specifications of Proposed Directly Associated Transmission Lines All-Requirements Project

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(1)	Point of Origin and Termination:	Cane Island Plant to Intercession City Plant (FPC)
(2)	Number of Lines:	one
(3)	Right-of-Way:	see map
(4)	Line Length:	3.0 miles
(5)	Voltage:	230 kV
(6)	Anticipated Construction Timing:	begin const 6/2000
(7)	Anticipated Capital Investment:	\$6 million including substation work
(8)	Substations:	see above
(9)	Participation with Other Utilities:	KUA



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