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Dear Ms. Bayó:

Pursuant to Section 186.801, Florida Statutes and Rules 25-22.070-072 of Florida Administrative Code, Lakeland Electric hereby submits 25 printed copies of its 2009 Ten Year Site Plan.

If you have any questions please do not hesitate to contact us.

Sincerely,

John P. Guiseppi
System Planning Section

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**2009 Ten-Year Site Plan
For
Electrical Generating Facilities
And
Associated Transmission Lines**

April 2009

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1.0 Introduction

This report contains the 2009 Lakeland Electric Ten-Year Site Plan (TYSP) pursuant to Florida Statutes and as adopted by Order No. PSC-97-1373-FOF-EU on October 30, 1997. The Lakeland TYSP reports the status of the utility's resource plans as of December 31, 2008. The TYSP is divided into the following nine sections: Introduction, General Description of Utility, Forecast of Electrical Power Demand and Energy Consumption, Demand-Side Management Programs, Forecasting Methods and Procedures, Forecast of Facilities Requirements, Generation Expansion Analysis Results and Conclusions, Environmental and Land Use Information, and Ten-Year Site Plan Schedules. The contents of each section are summarized briefly in the remainder of this Introduction.

1.1 General Description of the Utility

Section 2.0 of the TYSP discusses Lakeland's existing generation and transmission facilities. The section includes a historical overview of Lakeland's system, and a description of existing power generating and transmission facilities. This section includes tables which show the source of the utility's current 953 MW of net winter generating capacity and 905 MW of net summer generating capacity (as of the end of calendar year 2008).

1.2 Forecast of Electrical Power Demand and Energy Consumption

Section 3.0 of the TYSP provides a summary of Lakeland's load forecast. Lakeland is projected to remain a winter peaking system throughout the planning period. The projected annual growth rates in peak demand for the winter and summer are 1.36 % and 1.27% percent, respectively, for 2009 through 2018.

Net energy for load is projected to grow at an average annual rate of 1.76% percent for 2009 through 2018. Projections are also developed for high and low load growth scenarios.

1.3 Demand-Side Management Programs

Section 4.0 provides descriptions of the existing conservation and demand-side management programs. Additional details regarding Lakeland's demand-side management programs are on file with the Florida Public Service Commission (FPSC).

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Lakeland's current conservation and demand management programs include the following programs for which demand and energy savings can readily be demonstrated:

- Commercial Programs:
 - Commercial Lighting Program.
 - Thermal Energy Storage Program.

Lakeland also currently conducts the following conservation and demand-side management programs which promote energy savings and efficiency:

- Residential Programs:
 - Energy Audit Program.
 - Public Awareness Program.
 - Speakers Bureau.
 - Informational Bill Inserts.
- Commercial Programs:
 - Commercial Audit Program.

Section 4.0 also contains discussions of Lakeland's solar technology programs. While these types of programs are not traditionally thought of as DSM, they have the same effect of conserving demand and energy normally generated by fossil fuels as DSM programs do by virtue of their avoidance of fossil fuels through the use of renewable energy.

1.4 Forecasting Methods and Procedures

Section 5.0 discusses the forecasting methods used for the TYSP and outlines the assumptions applied for system planning. This section also summarizes the integrated resource plan for Lakeland and provides planning criteria for the Florida Municipal Power Pool, of which Lakeland is a member. The integrated resource plan is fully incorporated in the TYSP and is discussed in further detail in Sections 6 and 7 of this report. Fuel price projections are provided for coal, natural gas, and oil; with brief descriptions of the methodology. Assumptions for the economic parameters and evaluation criteria which are being applied in the evaluation are also included in Section 5.0.

1.5 Forecast of Facilities Requirements

Section 6.0 integrates the electrical demand and energy forecast with the conservation and demand-side management forecast to determine Lakeland's require-

ments for the ten-year planning horizon. Application of the reserve margin criteria indicates no need for additional capacity during the current ten year reporting period.

1.6 Generation Expansion Analysis Results and Conclusions

Section 7.0 discusses the current status of any supply-side evaluation being undertaken by Lakeland to identify the best option for its system. It also discusses basic methodology used by Lakeland in its Generation Expansion Planning Process.

1.7 Environmental and Land Use Information

Section 8.0 discusses the land and environmental features of Lakeland's TYSP.

1.8 Ten-Year Site Plan Schedules

Section 9.0 presents the schedules required by the Florida Public Service Commission (FPSC) for the TYSP.

2.0 General Description of Utility

2.1 City of Lakeland Historical Background

2.1.1 Generation

The City of Lakeland was incorporated on January 1, 1885, when 27 citizens approved and signed the city charter. Shortly thereafter the original light plant was built by Lakeland Light and Power Company at the corner of Cedar Street and Massachusetts Avenue. This plant had an original capacity of 50 kW. On May 26, 1891, plant manager Harry Sloan threw the switch to light Lakeland by electricity for the first time with five arc lamps. Incandescent lights were first installed in 1903.

Public power in Lakeland was established in 1904, when foresighted citizens and municipal officials purchased the small private 50 kW electric light plant from owner Bruce Neff for \$7,500. The need for an expansion led to the construction of a new power plant on the north side of Lake Mirror in 1916. The initial capacity of the Lake Mirror Power Plant is estimated to have been 500 kW. The plant has since been expanded three times. The first expansion occurred in 1922 with the addition of 2,500 kW; in 1925, 5,000 kW additional capacity was added, followed by another 5,000 kW in 1938. With the final expansion, the removal of the initial 500 kW unit was required to make room for the addition of the 5,000 kW generating unit, resulting in a total peak plant capacity of 12,500 kW.

As the community continued to grow, the need for a new power plant emerged and the Charles Larsen Memorial Power Plant was constructed on the southeast shore of Lake Parker in 1949. The initial capacity of the Larsen Plant Steam Unit No. 4 completed in 1950 was 20,000 kW. The first addition to the Larsen Plant was Steam Unit No. 5 (1956) which had a capacity of 25,000 kW. In 1959, Steam Unit No. 6 was added and increased the plant capacity by another 25,000 kW. Three gas turbines, each with a nominal rating of 11,250 kW, were installed as peaking units in 1962. In 1966, a third steam unit capacity addition was made to the Larsen Plant. This was Steam Unit No. 7 having a nominal 44,000 kW capacity and an estimated cost of \$9.6 million. This brought the total Larsen Plant nameplate capacity up to a nominal 147,750 kW.

In the meantime, the Lake Mirror Plant, with its old and obsolete equipment, became relatively inefficient and hence was no longer in active use. It was kept in cold standby and then retired in 1971.

As the city continued to grow during the late 1960's, the demand for power and electricity grew at a rapid rate, making evident the need for a new power plant. A site was purchased on the north side of Lake Parker and construction commenced during

1970. Initially, two diesel units with a peaking capacity of a nominal rating 2,500 kW each were placed into commercial operation in 1970.

Steam Unit No. 1, with a nominal rating of 90,000 kW, was put into commercial operation on February 24, 1971, for a total cost of \$15.22 million. In June of 1976, Steam Unit No. 2 at Plant 3 was placed into commercial operation, with a nominal rated capacity of 114,707 kW and at a cost of \$25.77 million. This addition increased the total capacity of the Lakeland system to approximately 360,000 kW. At this time, Plant 3 was renamed the C. D. McIntosh, Jr. Power Plant in recognition of the former Electric and Water Department director.

On January 2, 1979, construction was started on McIntosh Unit No. 3, a nominal 334 MW coal fired steam generating unit which became commercial on September 1, 1982. The unit was designed to use low sulfur oil as an alternate fuel but an alternate fuel has never been used in the unit. The unit uses a minimal amount of natural gas or #2 diesel oil for flame stabilization during startups. Petroleum Coke has been used in recent years as a supplemental fuel to coal based on economics. The plant utilizes sewage effluent for cooling tower makeup water. This unit is jointly owned with the Orlando Utilities Commission (OUC) which has a 40 percent undivided interest in the unit.

As load continued to grow, Lakeland continually studied and reviewed alternatives for accommodating the additional growth. Alternatives included both demand- and supply-side resources. A wide variety of conservation and demand-side management programs were developed and marketed to Lakeland customers to encourage increased energy efficiency and conservation in keeping with the Florida Energy Efficiency and Conservation Act of 1980 (FEECA). Changes to the FEECA rules in 1993 exempted Lakeland from conservation requirements, but Lakeland has remained active in promoting and implementing cost-effective conservation programs. These programs are discussed in further detail in Section 4.0.

Although demand and energy savings arose from Lakeland's conservation and demand-side management programs, additional capacity was required in the early 1990's. Least cost planning studies resulted in the construction of Larsen Unit No. 8, a natural gas fired combined cycle unit with a nameplate generating capability of 124,000 kW. Larsen Unit No. 8 began simple cycle operation in July 1992, and combined cycle operation in November of that year.

In 1994, Lakeland made the decision to retire the first unit at Larsen Plant, Steam Unit No. 4. This unit, put in service in 1950 with a capacity of 20,000 kW, had reached the end of its economic life. In March of 1997, Lakeland retired, Larsen Unit No. 6, a 25 MW oil fired unit that was also nearing the end of its economic life. In October of 2004, Lakeland retired Larsen Unit 7, a 50MW oil fired steam unit. The capacity from

these units has been officially retired but no dismantlement of either unit has taken place. This leaves open the possibility of re-powering those units sometime in the future should the economics become advantageous to do so.

In 1999, the construction of McIntosh Unit No. 5 Simple Cycle combustion turbine was completed. The unit was released for commercial operation in May, 2001. Beginning in September 2001, the unit underwent conversion to a combined cycle unit through the addition of a nominal 120 MW steam turbine generator. Construction was completed in Spring 2002 with the unit being declared commercial in May 2002. The resulting combined cycle capacity of the unit is 322 MW summer and 371 MW winter.

During the summer of 2001, Lakeland took its first steps into the world of distributed generation with the groundbreaking of its Winston Peaking Station. The Winston Peaking Station, consists of 20 quick start reciprocating engines each driving a 2.5 MW electric generator. This provides Lakeland with 50 MW of peaking capacity that can be started and put on line at full load in ten minutes. The Station was declared commercial in late December 2002.

2.1.2 Transmission

The first phase of the Lakeland 69 kV transmission system was placed in operation in 1961 with a step-down transformer at the Lake Mirror Plant to feed the 4 kV bus, nine 4 kV feeders, and a new substation in the southwest section of town with two step-down transformers feeding four 12 kV feeders.

In 1966, a 69 kV line was completed from the northwest substation to the southwest substation, completing the loop around town. At the same time, the old tie to Bartow was reinsulated for a 69 kV line and placed in operation, feeding a new step-down substation in Highland City with four 12 kV feeders. In addition, a 69 kV line was completed from Larsen Plant around the southeast section of town to the southwest substation. By 1972, 20 sections of 69 kV lines, feeding a total of nine step-down substations, with a total of 41 distribution feeders, were completed and placed in service. By the fall of 1996, all of the original 4 kV equipment and feeders had been replaced and/or upgraded to 12 kV service. By 1998, 29 sections of 69 kV lines were in service feeding 20 distribution substations.

As the Lakeland system continued to grow, the need for additional and larger transmission facilities grew as well. In 1981, Lakeland's first 230 kV facilities went into service to accommodate Lakeland's McIntosh Unit No. 3 and to tie Lakeland into the State transmission grid at the 230 kV level. A 230 kV line was built from McIntosh Plant to Lakeland's west substation. A 230/69 kV autotransformer was installed at each of those substations to tie the 69 kV and 230 kV transmission systems together. In 1988, a

second 230 kV line was constructed from the McIntosh Plant to Lakeland's Eaton Park substation along with a 230/69 kV autotransformer at Eaton Park. That line was the next phase of the long-range goal to electrically circle the Lakeland service territory with 230 kV transmission to serve as the primary backbone of the system.

In 1999, Lakeland added generation at its McIntosh Power Plant that resulted in a new 230/69/12kV substation being built and energized in March of that year. The substation, Tenoroc, replaced the switching station called North McIntosh. In addition to Tenoroc, another new 230/69/12kV substation was built. The substation, Interstate, went on line June of 1999 and is connected by what was the McIntosh West 230 kV line. This station was built to address concerns about load growth in the areas adjacent to the I-4 corridor which were causing problems at both the 69kV and distribution levels in this area.

In 2001, Lakeland began the next phase of its 230kV transmission system with the construction of the Crews Lake 230/69kV substation. The substation was completed and placed in service in 2001. This project includes two 230kV ties and one 69kV tie with Tampa Electric, a 150MVA 230/69kV autotransformer and a 230kV line from Lakeland's Eaton Park 230kV substation to the Crews Lake substation.

Early transmission interconnections with other systems included a 69 kV tie at Larsen Plant with Tampa Electric Company (TECO), established in the mid 1960s. A second tie with TECO was later established at Lakeland's Highland City substation. A 115 kV tie was established in the 1970s with Florida Power Corporation (FPC) and Lakeland's west substation and was subsequently upgraded and replaced with the current two 230 kV lines to FPC in 1981. At the same time, Lakeland interconnected with Orlando Utilities Commission (OUC) at Lakeland's McIntosh Power Plant. In August 1987, the 69 kV TECO tie at Larsen Power Plant was taken out of service and a new 69 kV TECO tie was put in service connecting Lakeland's Orangedale substation to TECO's Polk City substation. In mid-1994, a new 69 kV line was energized connecting Larsen Plant to the Ridge Generating Station (Ridge), an independent power producer. Lakeland has a 30-year firm power-wheeling contract with Ridge to wheel up to 40 MW of their power to FPC. In early 1996, a new substation, East, was inserted in the Larsen Plant to the Ridge 69 kV transmission line. Later in 1996, the third tie line to TECO was built from East to TECO's Gapway substation. As mentioned above, in August of 2001, Lakeland completed two 230kV ties and one 69kV tie with TECO at Lakeland's Crews Lake substation. The multiple 230 kV interconnection configuration of Lakeland is also tied into the bulk transmission grid and provides access to the 500 kV transmission network via FPC, providing for greater reliability. At the present time, Lakeland has a

total of approximately 117 miles of 69 kV transmission and 28 miles of 230 kV transmission lines in service along with six 150 MVA 230/69 kV autotransformers.

2.2 General Description: Lakeland Electric

2.2.1 Existing Generating Units

This section provides additional detail on Lakeland's existing units and transmission system. Lakeland's existing generating units are located at the two existing plant sites: Charles Larsen Memorial (Larsen) and C.D. McIntosh Jr. (McIntosh). Both plant sites are located on Lake Parker in Polk County, Florida. The two plants have multiple units with different technologies and fuel types. The following paragraphs provide a summary of the existing generating units for Lakeland. Table 2-1 summarizes the environmental considerations for Lakeland's steam turbine generators and Table 2-2 provides other physical characteristics of all Lakeland generating units.

The Larsen site is located on the southeast shore of Lake Parker in Lakeland. The site has three units. The total net winter (summer) capacity of the plant is 148 MW (121 MW). Units 2 and 3, General Electric combustion turbines, have a combined net winter (summer) rating of 27 MW (19 MW). The units burn natural gas as a primary fuel with diesel as a backup. Historically, Larsen Unit No. 5 consisted of a boiler for steam generation and steam turbine to convert the steam to electrical power. When the boiler began to show signs of degradation beyond economical repair, a gas turbine with a heat recovery steam generator, Unit No. 8, was added to the facility. This allowed the gas turbine (Unit No. 8) to generate electricity and the waste steam from the turbine to be injected into the former Unit No. 5 steam turbine for a combined cycle configuration. The former Unit No. 5 steam turbine currently has a net winter (summer) rating of 31 MW (29 MW) and is referred to as Unit No. 8 Steam Turbine from this point on in this document and in the reporting of this unit. The Unit No. 8 combustion turbine has a net winter (summer) rating of 90 MW (73 MW).

The McIntosh site is located in the City of Lakeland along the northeastern shore of Lake Parker and encompasses 513 acres. Electricity generated by the McIntosh units is stepped up in voltage by generator step-up transformers to 69 kV and 230 kV for transmission via the power grid. The McIntosh site currently includes seven units in commercial operation having a total net winter and summer capacity of 755 MW and 734 MW, respectively. Unit CT1 consists of a General Electric combustion turbine with a net winter (summer) output rating of 19 MW (16 MW). Unit No. 1 is a natural gas/oil fired General Electric steam turbine with a net winter and summer output of 80 MW. Unit No. 2 is a natural gas/oil fired Westinghouse steam turbine with a winter and summer output of 106 MW. Unit No. 3 is a 342 MW pulverized coal fired unit owned 60

percent by Lakeland and 40 percent by OUC. Lakeland's share of the unit yields net winter and summer output of 205 MW. Technologies used for Unit 3 are very innovative making it a very environmentally friendly coal unit. Unit No. 3 was one of the first "zero-discharge" plants built, meaning no waste water products leave the plant site untreated. Unit No. 3 also includes a wet flue gas scrubber for SO₂ removal and uses treated sewage water for cooling water. Two small diesel units with a net output of 2.5 MW each are also located at the McIntosh site.

McIntosh Unit No. 5, a Westinghouse 501G combined cycle unit, was initially built and operated as a simple cycle combustion turbine that was placed into commercial operation May, 2001. The unit was taken off line for conversion to combined cycle starting in mid September 2001 and was returned to commercial service in May 2002 as a combined cycle unit with a rating of 368 MW winter and 322 MW summer. The unit is equipped with a Selective Catalytic Reduction (SCR) module for NO_x control.

Lakeland Electric constructed a 50-megawatt electric peaking station adjacent to its Winston Substation in 2001. The purpose of the peaking plant was to provide additional quick start generation for Lakeland's system during times of peak loads. This is Lakeland's first experience with distributed generation.

The station consists of twenty (20) EMD 20 cylinder reciprocating engines driving 2.5 MW generators. The units are currently fueled by #2 fuel oil but have the capability to burn a mix of 5% #2 oil and 95% natural gas. Lakeland currently does not have natural gas service to the site.

The plant has remote start/run capability for extreme emergencies at times when the plant is unmanned. The station does not use open cooling towers. This results in minimal water or wastewater requirements. Less than three quarters of the six (6) acre site was developed leaving considerable room for water retention.

The engines are equipped with hospital grade noise suppression equipment on the exhausts. Emission control is achieved by Selective Catalytic Reduction (SCR) using 19% aqueous ammonia. The SCR system will allow the plant to operate within the Minor New Source levels permitted by the Florida Department of Environmental Protection (DEP).

This was Lakeland's first venture into distributed generation. Winston Peaking Station (WPS) was constructed adjacent to Lakeland's Winston Distribution Load Substation. Power generated at WPS goes directly into Winston Substation at the 12.47kV distribution level of the substation and has sufficient capacity to serve the substation loads. Winston Substation serves several of Lakeland's largest and most critical accounts. Should Winston lose all three 69kV circuits to the substation, the WPS can be on line and serving load within ten minutes. In addition to increasing the

substation's reliability, this arrangement will allow Lakeland to delay the installation of a third 69kV to 12.47kV transformer by several years and also contributes to lowering loads on Lakeland's transmission system.

2.2.2 Capacity and Power Sales Contracts

Lakeland has no firm power sales contract in place as of December 31, 2008.

Lakeland shares ownership of the C. D. McIntosh Unit 3 with OUC. The ownership breakdown is a 60 percent share for Lakeland and a 40 percent ownership share for OUC. The energy and capacity delivered to OUC from McIntosh Unit 3 is not considered a power sales contract because of the OUC ownership share.

2.2.3 Capacity and Power Purchase Contracts

Lakeland currently has no long term firm power purchase contracts.

2.2.4 Planned Unit Retirements

Lakeland currently has no set retirement plans in place for its units due to the current economic conditions of the electric utility industry and the uncertainty that those conditions present. When that is combined with an ample reserve margin, Lakeland deems that its most prudent decision for the moment is to continue to put all expansion and retirement plans into abeyance until market conditions encourage a change. Lakeland is currently in the midst of an Integrated Resource Planning Process that is identifying optimal solutions for supply and demand side needs and resources.

2.2.5 Load and Electrical Characteristics

Lakeland's load and electrical characteristics have many similarities with those of other peninsular Florida utilities. The peak demand has historically occurred during the winter months. Lakeland's actual total peak demand (Net Integrated) in the winter of 2007/08 was 684 MW which occurred on January 3rd. The actual summer peak in 2008 was 613MW and occurred on July 27th. Lakeland normally is winter peaking and expects to continue to do so in the future based on expected normal weather. Lakeland's historical and projected summer and winter peak demands are presented in Section 3.0.

Lakeland is a member of the Florida Municipal Power Pool (FMPP), along with Orlando Utilities Commission (OUC) and the Florida Municipal Power Agency's (FMPPA) All-Requirements Project. The FMPP operates as an hourly energy pool with all FMPP capacity from its members committed and dispatched together. Commitment and dispatch services for FMPP are provided by OUC. Each member of the FMPP retains the

responsibility of adequately planning its own system to meet native load and Florida Reliability Coordinating Council (FRCC) reserve requirements.

2.3 Service Area

Lakeland's electric service area is shown on Figure 2-1 and is entirely located in Polk County. Lakeland serves approximately 246 square miles of which approximately 199 square miles is outside of Lakeland's city limits.

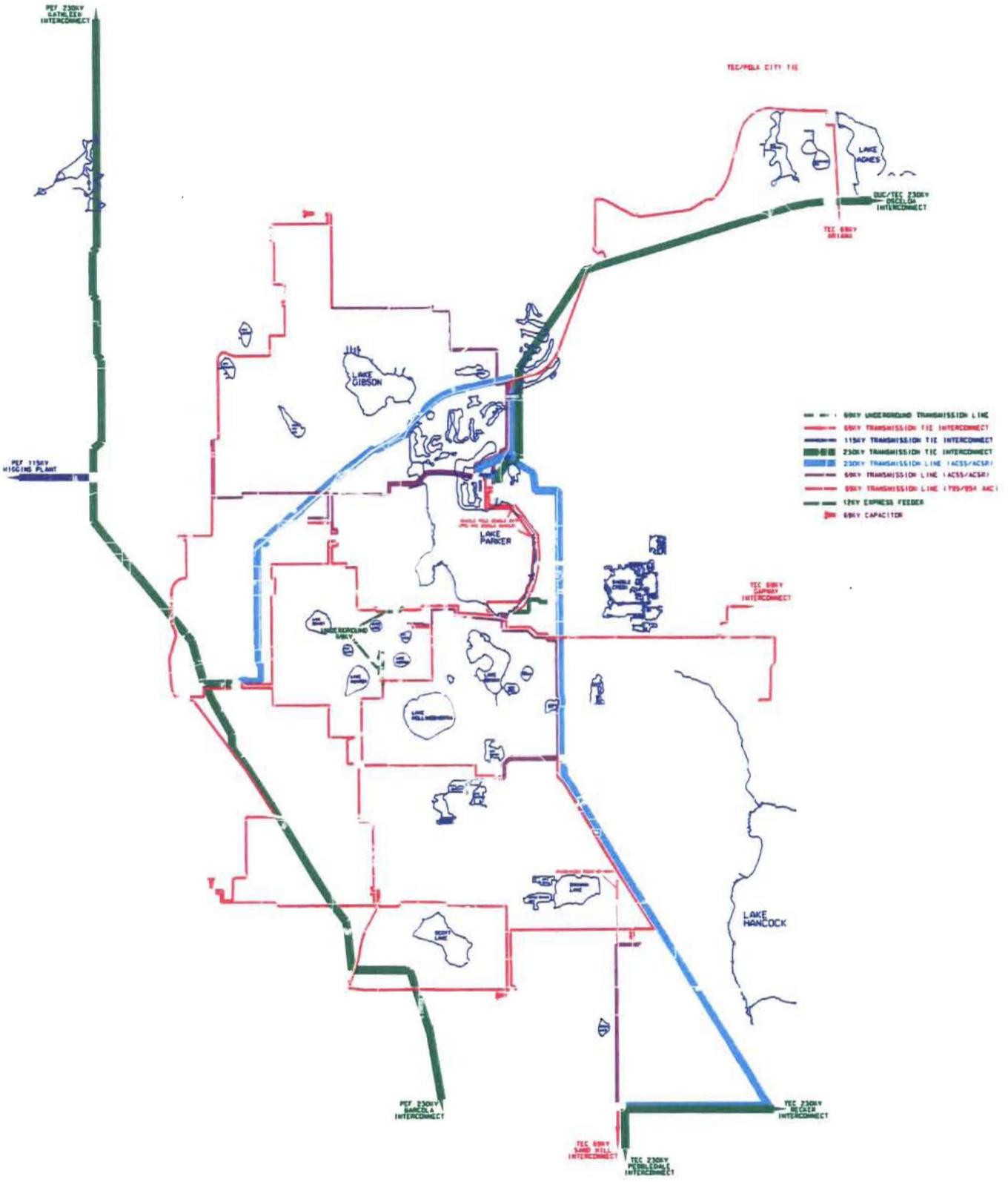
Table 2-1 Lakeland Electric Existing Generating Facilities Environmental Considerations for Steam Generating Units					
Plant Name	Unit	Particulate	Flue Gas Cleaning		Type
			SO _x	NO _x	
Charles Larsen Memorial	8ST	N/A	N/A	N/A	OTF
C. D. McIntosh, Jr.	1	None	None	None	OTF
	2	None	LS	FGR	WCTM
	3	EP	S	LNB	WCTM
	5ST	N/A	N/A	N/A	WCTM
<p>FGR = Flue gas recirculation LNB = Low NO_x burners EP = Electrostatic precipitators LS = Low sulfur fuel S = Scrubbed OTF = Once-through flow WCTM = Water cooling tower mechanical N/A = Not applicable to waste heat applications</p>					
Source: Lakeland Environmental Staff					

Table 2-2a
Lakeland Electric Existing Generating Facilities

Plant Name	Unit No.	Location	Unit Type ³	Fuel ⁴		Fuel Transport ⁵		Alt Fuel Days Use ²	Commercial In-Service Month/Year	Expected Retirement Month/Year	Gen. Max. Nameplate kW	Net Capability	
				Pri	Alt	Pri	Alt					Summer MW	Winter MW
Charles Larsen Memorial	2	16-17/28S/24E	GT	NG	DFO	PL	TK	---	11/62	Unknown	11,500	10	14
	3		GT	NG	DFO	PL	TK	---	12/62	Unknown	11,500	9	13
	8		CA	WH	---	---	---	---	04/56	Unknown	25,000	29	31
	8		CT	NG	DFO	PL	TK	---	07/92	Unknown	101,520	73	90
Plant Total												121	148
² Lakeland does not maintain records of the number of days that alternate fuel is used.													
³ Unit Type				⁴ Fuel Type				⁵ Fuel Transportation Method					
CA	Combined Cycle Steam Part			DFO	Distillate Fuel Oil			PL	Pipeline				
CT	Combined Cycle Combustion Turbine			RFO	Residual Fuel Oil			TK	Truck				
GT	Combustion Gas Turbine			BIT	Bituminous Coal			RR	Railroad				
ST	Steam Turbine			WH	Waste Heat								
				NG	Natural Gas								

Table 2-2b
Lakeland Electric Existing Generating Facilities

Plant Name	Unit No.	Location	Unit Type ³	Fuel ⁴		Fuel Transport ⁵		Alt Fuel Days Use ²	Commercial In-Service Month/Year	Expected Retirement Month/Year	Gen. Max. Nameplate kW	Net Capability	
				Pri	Alt	Pri	Alt					Summer MW	Winter MW
Winston Peaking Station	1-20	21/28S/23E	IC	NG	DFO	PL	TK	NR	12/01	Unknown	2,500 each	50	50
Plant Total												50	50
C.D. McIntosh, Jr.	D1	4-5/28S/24E	IC	DFO	---	TK	---	NR	01/70	Unknown	2,500	2.5	2.5
	D2		IC	DFO	---	TK	---	NR	01/70	Unknown	2,500	2.5	2.5
	GT1		GT	NG	DFO	PL	TK	NR	05/73	Unknown	26,640	16	19
	1		ST	NG	RFO	PL	TK	NR	02/71	Unknown	103,000	80	80
	2		ST	NG	RFO	PL	TK	NR	06/76	Unknown	126,000	106	106
	3 ¹		ST	BIT	---	RR	TK	NR	09/82	Unknown	363,870	205	205
	5		CT	NG	DFO	PL	TK	NR	05/01	Unknown	292,950	207	228
	5		CA	WH	---	---	---	NR	05/02	Unknown	135,000	115	112
Plant Total												734	755
System Total												905	953
¹ Lakeland's 60 percent portion of joint ownership with Orlando Utilities Commission.													
² Lakeland does not maintain records of the number of days that alternate fuel is used.													
³ Unit Type				⁴ Fuel Type				⁵ Fuel Transportation Method					
CA	Combined Cycle Steam Part			DFO	Distillate Fuel Oil			PL	Pipeline				
CT	Combined Cycle Combustion Turbine			RFO	Residual Fuel Oil			TK	Truck				
GT	Combustion Gas Turbine			BIT	Bituminous Coal			RR	Railroad				
ST	Steam Turbine			WH	Waste Heat								
				NG	Natural Gas								



3.0 Forecast of Electrical Power Demand and Energy Consumption

Lakeland routinely develops a detailed short-term (1-yr) electric load and energy forecast for budget purposes and a longer-term (20-yr) forecast for use in its planning studies. This is undertaken on a fiscal year basis with each year ending September 30th. Lakeland forecasts monthly data and then summarizes annually.

In January 2009, Lakeland amended its 2008 Load and Energy Forecast to include actual billing data through December 2008 and to reflect the current economic downturn. In order to meet the April 1st deadline for the TYSP the forecast data presented here are the results of the amended budget forecast and not an updated long-term Load and Energy Forecast. The updated long-term projections will be available later this year.

In 2006, Lakeland began using an advanced statistical program called MetrixND for analysis and forecasting time series data such as number of customers, energy and demand consumption. Short-term and long-term forecasts are generated using the same forecasting software. The software allows Lakeland to incorporate economic, demographic, price, elasticity's, end-use saturations and efficiencies, and various weather variables into the forecast.

MetrixND is well known and used in the forecasting industry. Many utilities use MetrixND to produce their short and long-term forecasts.

The economic and demographic variables used in this forecast were purchased from Moody's Economy.com. Economy.com is a leading independent provider of economic, financial, and industry research.

The most current economic and demographic data available is used to develop the forecast. The current forecast is based on the December 2008 quarterly update from Economy.com.

Many variables were evaluated for the forecast, but the variables used in the current forecast include: gross regional product, manufacturing employment, non-manufacturing employment, and total employment, disposable personal income per household, household size, household growth, structural changes (appliance saturation and efficiency trends) and weather. Binary variables were also used to explain outliers in historical billing data, trend shifts, monthly seasonality, rate migration between classes, etc...

The real price of electricity was developed using a 12-month moving average of real average revenue. The historical price data along with the Consumer Price Index (CPI) was used to develop a price forecast for use in the MetrixND structure. Price was evaluated in this forecast; however, it was not used in any of the models. The inclusion of the price variable yielded spurious and inconsistent results. Due to time constraints these results were not able to be fully explained and thus price was not included. Work will continue this year to better understand the impacts of the price variable on the model results.

All of the models of the forecast are developed using historical 20-year normal weather. The Utility owns and operates its own weather stations. The weather stations are strategically placed throughout the service territory to provide the best estimate of overall temperature for the Lakeland service area.

Heating and cooling degrees days are variables that attempt to explain a customer's behavior to either hot or cold weather. The industry standard for calculating degree days is: (Average Daily Temperature – 65 degrees = Heating or Cooling Degree Day). If the Average Daily Temperature is higher than 65 degrees then it is a Cooling Degree Day (CDD). Example: 75 - 65 = 10 CDD. If the Average Daily Temperature is lower than 65 degrees then it is a Heating Degree Day (HDD). Example: 55 – 65 = 10 HDD.

Base temperatures of HDD-Base 65°, HDD-Base 60°, CDD-Base 60°, CDD-Base 65° and CDD- Base 75° were also evaluated during model development in 2006. This analysis was performed to further refine the appropriate breaks for defining HDD and CDD.

Techniques employed to generate the forecasts include econometric and multiple regression modeling, study of historical relationships and growth rates, trend analysis, and exponential smoothing. Lakeland also reviews the forecasts for reasonableness, compares projections to historical patterns, and modifies the results as needed using informed judgment.

MetrixND also incorporates a forecasting approach called SAE (Statistically Adjusted End-Use) modeling. This approach allows for appliance saturations and efficiencies among other variables to be incorporated into an interactive equation for use in a regression for sales models. Included in this equation are: end-use saturation and efficiency trends, HDD, CDD, price, elasticities, income and household size.

Regression models are estimated in MetrixND to forecast monthly sales by class. The results of all classes are summed to create a total sales forecast. A loss-factor (based on 4-years of historical monthly data) is applied to convert total sales into energy (NEL).

Regression models are estimated in MetrixND to forecast monthly peaks, which are driven by the monthly energy and actual peak-producing weather conditions. The forecast is generated under assumptions of "normal" peak-producing weather conditions.

The winter peak forecast has been developed under the assumption that its occurrence will be on a January weekday. Winter temperatures at peak ranging from 28.5° to 32.8° have typically occurred on January to March weekdays between 7 and 8 a.m. Lakeland Electric remains a winter peaking utility with projected winter demand increases averaging 8 MW per year over the forecast horizon.

Summer temperatures at peak ranging from 94.1° to 96.1° have typically occurred on August weekdays between 3 and 6 p.m. Over the 10-year forecast, an average 9 MW summer demand increase per year is expected.

Twenty-four hourly regression models and one daily energy neural network model were developed in MetrixND to generate the 20-year hourly load profile. Each of these models relates weather (dry bulb temperature, dew point temperature, etc) and calendar-conditions (day-of-week, month, holidays, etc.) to load. The un-calibrated hourly load shape is then scaled to the energy forecast and the peak forecast using MetrixLT. The result is an hourly load shape that is calibrated to the system energy and system peak forecasts. Forecasts are generated with these models by using assumptions of "normal" daily weather conditions.

In August of 2005, the United States Congress passed the Energy Policy Act, which changes the dates of both the start and end of daylight savings time (DST). This went into effect in March 2007. DST will begin three weeks earlier and will end one week later than what has traditionally occurred. The calendar data used internally in the models was modified to reflect this change.

The Energy Independence and Security Act (EISA) of 2007 was signed into law in December 2007. The EISA of 2007 requires light bulbs to use about 20 to 30 percent less energy than most current incandescent bulbs; the phase-in period for these standards is between 2012 and 2014. By 2020, it is estimated that light bulbs will be required to use at least 50 percent less energy than today. EISA also highlights standard efficiency ratings for other household appliances like dishwashers, washing machines etc...Lakeland's energy sales models reflect the impacts that these efficiency standards will have on future energy consumption through the SAE (Statistically Adjusted End-Use) modeling approach. This approach allows for appliance saturations and efficiencies among other variables to be incorporated into an interactive equation for use in a regression for sales models.

Lakeland Electric currently does not have any demand side management, and therefore, does not assume any deductions in peak load for demand side management.

The reader may notice some inconsistencies in the forecast when comparing one year or one month to another. This can be explained by the following reasons: some actual data was used in the models to generate the Fiscal Year 2009 Forecast. Therefore, October 2008 – December 2008 is actual data and *not* predicted values based on normal weather.

There may also be some inconsistencies seen in the projected data for the commercial sector (Industrial and GSD classes). This is due to rate migration. All of Lakeland's commercial accounts now on the Contract rate (28 accts) will migrate into the GSLD (19 accts), ELDC (2 accts) and GSD (7 accts) classes. The contracts began expiring in Fiscal Year 2007 and will continue to expire at different months through the end of Fiscal Year 2010. Additionally, Lakeland has ten industrial accounts on the Interruptible rate which will also migrate into the GSLD (7 accts) and GSD (3 accts) classes. These accounts also began migrating in Fiscal Year 2007 and will all be moved by the end of Fiscal Year 2010.

3.1 Service Territory Population Forecast

The electric service territory population estimate for the City of Lakeland for Fiscal Year 2008 is 252,731 persons. The Economy.com December 2008 estimate for population in the Lakeland/Winter-Haven MSA is 577,822 persons.

Lakeland's electric service territory population is projected to increase at a 1.42% average annual growth rate (AAGR) from Fiscal Year 2009 through Fiscal Year 2018. Polk County's population (Lakeland/Winter-Haven MSA) is growing at 1.51% AAGR for the ten-year forecast horizon.

3.2 Customer Forecasts

Lakeland forecasts the number of accounts for the following categories and subcategories:

- Residential
- Commercial
 - General Service
 - General Service Demand
- Industrial
 - General Service Large Demand
 - Contract
 - Interruptible
 - ELDC
- Other
 - Private Area Lighting
 - Roadway Lighting
 - Electric
 - Water
 - Municipal

3.2.1 Residential Accounts

Regression analysis was used to develop the residential account forecast. Total residential accounts were projected as a function of the number of households. Historical data suggests that a strong correlation exists between the population growth in Polk County (Lakeland Winter-Haven MSA) and the number of new residential accounts in the Lakeland service territory. The number of residential accounts for outside the city limits was developed using an exponential smoothing model.

Projected AAGR for total residential accounts is 1.4% for Fiscal Year 2009 through Fiscal Year 2018.

3.2.2 Commercial Accounts

The General Service (GS) projections for the number of new accounts are a function of residential accounts. The general assumption is that, as more people move into the area the demand for small commercial businesses will increase.

General Service accounts are expected to increase at an AAGR of 0.9% from Fiscal Year 2009-2018.

Total General Service Demand (GSD) accounts for inside and outside city limits were developed using historical relationships and growth rates. These forecasts were exogenous forecasts built outside of MetrixND.

The GSD total account class is expected to grow at a rate of 0.5 % from Fiscal Year 2009-2018.

Commercial (GS and GSD) accounts are projected to increase by an AAGR of 0.9% for the 10-year reporting period.

3.2.3 Industrial Accounts

Industrial accounts represent the combination of General Service Large Demand (GSLD), Contract, Interruptible and ELDC accounts.

Projections for the industrial customers were modeled independently of MetrixND. Each customer was evaluated to account for their expected future energy and demand consumption. Special consideration was also given to new major commercial and industrial development projects.

Additional load was added to the forecast to account for several new industrial customers coming on-line during the forecast period. G-Tech is expected to come on-line in December 2008 with an additional demand of 1,000 kwd in Fiscal Year 2009 and ramping up to an additional 3,000 kwd by the end of Fiscal Year 2011. The City of

Lakeland is also building a new Waste load Reduction Facility which is expected to come on-line February 2009. Their load is expected to be 1,700 kwd. The forecast also includes additional demand for a new 3-story Watson Clinic building which is expected to come on-line in January 2009. Their load is expected to be an additional 1,400 kwd on the system. Lastly, additional load for the remodeling of the existing Wal-Mart Store to a superstore was also added to the forecast. This added an additional 668 kwd of load to the system.

3.2.4 Other Accounts

Other accounts are comprised of accounts within the municipal, electric and water departments, private area lighting and roadway lighting. Historical data for these classes is very inconsistent and difficult to model. Therefore, the account projections for this category were based on time trends, historical growth rates and knowledge of future projects and developments. Most of these models were exogenous forecasts built outside of MetrixND and were added to the other customer forecasts to generate the Total Account Forecast.

The Other Account category is expected to increase at 0.10% AAGR over the 10-year reporting period.

3.2.5 Total Accounts

The Total Account Forecast for the City of Lakeland is the sum of individual forecasts provided above. Total accounts are expected to increase at 1.30% AAGR over the 10-year reporting period.

3.3 Energy Sales Forecast

Lakeland forecasts energy sales for the following categories and subcategories:

- Residential
- Commercial
 - General Service
 - General Service Demand

- Industrial
 - General Service Large Demand
 - Contract
 - Interruptible
 - ELDC
- Other
 - Electric
 - Water
 - Municipal
 - Unmetered
 - Private Area Lighting
 - Roadway Lighting

The energy sales models are based on an approach developed by Itron, for use in MetrixND, called SAE (Statistically Adjusted End-Use) modeling. This approach allows for appliance saturations and efficiencies among other variables to be incorporated into an interactive equation for use in a regression for sales models.

3.3.1 Residential Energy Sales Forecast

Personal disposable income, persons per household, price, weather, employment, appliance saturations and efficiencies etc... are all variables that impact the average energy use of a residential customer. Customer growth is driven primarily by number of households and population.

For these reasons, residential sales models for inside and outside the city limits were broken down into two separate forecast models; a customer model and an average use model.

The equation used to develop residential energy sales is as follows:

$$Res\ Sales_t = Cust_t \times AvgUse_t$$

Customer projections are a function of the number of households in the Lakeland/Winter-Haven MSA area.

The average use regression model was based on the following average use equation:

$$AvgUse_t = B_0 + B_1XCool_t + B_2XHeat_t + B_3XOther_t + e_t$$

Where:

XCOOL = AC saturation (central, room AC), AC efficiency, thermal efficiency, home size, income, average household size, price and cooling degree days (CDD).

$$XCool_{y,m} = CoolIndex_y \times CoolUse_{y,m}$$

$$CoolIndex_y = StructuralIndex_y \times \sum_{Type} Weight_y^{Type} \times \frac{\left(\frac{Sat_y^{Type}}{Eff_y^{Type}} \right)}{\left(\frac{Sat_{01}^{Type}}{Eff_{01}^{Type}} \right)}$$

$$CoolUse_{y,m} = \left(\frac{CDD_{y,m}}{CDD_{01}} \right) \times \left(\frac{HSize_{y,m}}{HSize_{01}} \right)^{0.20} \times \left(\frac{Income_{y,m}}{Income_{01}} \right)^{0.20} \times \left(\frac{Price_{y,m}}{Price_{by}} \right)^{-0.20}$$

XHEAT = Heating saturation (resistance, heat pump), heating efficiency, thermal efficiency, home size, income, household size, price and heating degree days (HDD).

$$XHeat_{y,m} = HeatIndex_y \times HeatUse_{y,m}$$

$$HeatIndex_y = StructuralIndex_y \times \sum_{Type} Weight_y^{Type} \times \frac{\left(\frac{Sat_y^{Type}}{Eff_y^{Type}} \right)}{\left(\frac{Sat_{01}^{Type}}{Eff_{01}^{Type}} \right)}$$

$$HeatUse_{y,m} = \left(\frac{HDD_{y,m}}{HDD_{01}} \right) \times \left(\frac{HSize_{y,m}}{HSize_{01}} \right)^{0.20} \times \left(\frac{Income_{y,m}}{Income_{01}} \right)^{0.20} \times \left(\frac{Price_{y,m}}{Price_{01}} \right)^{-0.20}$$

XOTHER = saturation levels (water heat, appliances, lighting densities, plug loads), appliance efficiency, income, household size, price and number of billing days.

- Nonweather-sensitive end-use saturation and efficiency trends
- Number of billing days
- Hours of light
- Household size and income
- Water temperature
- Prices

The Total Residential Energy Sales Forecast is projected to increase at 1.9% AAGR over the 10-year reporting period.

3.3.2 Commercial Energy Sales

General Service (GS) and General Service Demand (GSD) energy sales were projected for both inside and outside the city limits. A separate model was developed for each using the SAE modeling approach. Binary variables were also used to help explain fluctuations in historical billing data due to rate migrations etc...

$$Sales_m = a + b_c \times XCool_m + b_h \times XHeat_m + b_o \times XOther_m + e_m$$

Commercial energy sales (GS and GSD) are expected to increase at 2.0% AAGR over the 10-year reporting period. A substantial portion of this anticipated growth is due to rate migration from the Contract and Interruptible rate classes.

3.3.3 Industrial Energy Sales

Total GSLD energy sales were projected on an individual basis to determine future expected demand and energy requirements. Close contact was made with the Account Managers on all accounts. Large Industrial customer, demand and energy sales forecasts were modeled independently of MetrixND and later imported into the model to generate the Total Sales Forecast.

Total GSLD energy sales are projected to increase at a 0.3% AAGR over the 10-year reporting period. Energy sales for the Industrial class is lower this forecast horizon due to the Contract and Interruptible customers that migrated into the GSD rate class.

3.3.4 Other Sales

Other energy sales are comprised of sales for the municipal, electric and water departments, private area lighting, roadway lighting, and unmetered (street lighting) energy sales. Models are very difficult to develop for these rate classes due to the large fluctuations in the historical billing data. Therefore, the projections for this category were based on historical trends and growth rates. Special consideration was given to account for new projects and developments.

Other energy sales are expected to increase at 0.90% AAGR over the 10-year reporting period.

3.3.5 Total Sales

The Total Energy Sales Forecast for the City of Lakeland is the sum of the individual forecasts provided above. Total energy sales are projected to grow at 1.6% AAGR over the 10-year reporting period.

3.4 Net Energy for Load Forecast

Net energy for load is defined as the electricity generated by a system's own generating plants in addition to energy purchased from others, less that delivered for resale.

The Net Energy for Load Forecast was developed through MetrixND. Regression models are estimated in MetrixND to forecast monthly sales by class (Res, GS, GSD, etc). The results of all classes are summed to create a total sales forecast. A loss-factor is applied to convert total sales into energy. Electric losses, the energy loss as a percentage of total system energy (NEL) were estimated using four years of historical monthly data.

Net energy for load is projected to increase at 1.5% AAGR over the 10-year reporting period.

3.5 Peak Demand

Lakeland is typically, and expects to continue to be, a winter peaking utility. However, it is important to note that historical peaks over the past ten years indicate that Lakeland has been a summer peaking Utility three out of the last ten years.

Lakeland Electric's winter season is defined as November through March; and summer season is defined as April through October.

Regression models are estimated in MetrixND to forecast monthly peaks, which are driven by the monthly energy and actual peak-producing weather conditions. The forecast is generated under assumptions of "normal" peak-producing weather conditions.

Historical load data was adjusted for the hurricanes of 2004.

Interruptible accounts have the potential load reduction of 8 MW in winter and 8 MW in summer.

The Total Annual Peak Demand Forecast is expected to increase at approximately 8 MW's a year over the 10-year reporting period. The Summer Peak Demand Forecast is expected to increase at 9 MW's over the 10-year reporting period.

Table 3-1
Historical and Projected
Heating and Cooling Degree Days

YEAR	HDD 65	CDD 65
1999	442	3,096
2000	526	2,934
2001	841	2,934
2002	449	3,435
2003	749	3,302
2004	620	3179
2005	563	3211
2006	516	3,474
2007	412	3415
2008	305	3426
2009	572	3,198
2010	572	3,198
2011	572	3,198
2012	572	3,198
2013	572	3,198
2014	572	3,198
2015	572	3,198
2016	572	3,198
2017	572	3,198
2018	572	3,198

Table 3-2
Historical Monthly Peaks and Date

	2006		2007		2008	
Jan	522	8-Jan	565	30-Jan	684	03-Jan
Feb	680	14-Feb	596	17-Feb	533	28-Feb
Mar	434	20-Mar	471	6-Mar	445	16-Mar
Apr	541	21-Apr	510	26-Apr	483	03-Apr
May	559	31-May	558	4-May	563	31-May
Jun	594	21-Jun	571	25-Jun	615	05-Jun
Jul	613	26-Jul	633	18-Jul	613	21-Jul
Aug	628	2-Aug	648	9-Aug	613	27-Aug
Sep	580	25-Sep	616	12-Sep	587	11-Sep
Oct	537	20-Oct	562	22-Oct	526	08-Oct
Nov	474	21-Nov	442	27-Nov	494	19-Nov
Dec	434	8-Dec	489	18-Dec	532	03-Dec

3.6 Sensitivity Cases

3.6.1 High & Low Load Sensitivity

A high and low case scenario forecast was generated for the following forecast categories: system net energy for load and system peak demands. The forecast scenarios were based on a 95% confidence interval around the base forecast.

Table 3-3 Summer Peak Demand (MW)			
Year	Low	Base	High
2009	596	642	687
2010	604	650	696
2011	610	655	701
2012	616	662	662
2013	621	667	713
2014	629	675	721
2015	638	684	731
2016	649	696	742
2017	660	707	754
2018	672	719	767
AAGR	1.34%	1.27%	1.23%

Table 3-4 Winter Peak Demand (MW)			
Year	Low	Base	High
2008/09	633	680	727
2009/10	640	687	687
2010/11	647	694	741
2011/12	652	699	746
2012/13	658	705	752
2013/14	666	713	761
2014/15	676	723	771
2015/16	687	734	782
2016/17	697	745	793
2017/18	708	756	804
AAGR	1.25%	1.18%	1.12%

Table 3-5 Net Energy for Load (GWH)			
Year	Low	Base	High
2009	2886	3023	3161
2010	2939	3130	3320
2011	2982	3172	3361
2012	3027	3217	3406
2013	3052	3241	3430
2014	3093	3282	3471
2015	3146	3336	3526
2016	3212	3404	3595
2017	3272	3466	3660
2018	3339	3536	3733
AAGR	1.63%	1.76%	1.87%

Model Evaluation and Statistics

Several steps are taken to ensure the best models are used for determining future customer, demand and energy requirements. The first step is to determine the forecast drivers. Once the drivers are determined, the model statistics are evaluated. MetrixND calculates the following list of statistical tests for use in determining the best model:

- Adjusted R-Squared*
- Durbin Watson Statistic*
- F-Statistic*
- Probability (F-Statistic)*
- Mean Absolute Deviation (MAD)*
- Mean Absolute Percent of Error (MAPE)*

Data Sources

*Bureau of Economic and Business Research (BEBR) Annual Forecast, June 2008
Forecast, University of Florida.*

City of Lakeland Florida, 2007 Electric Rate Study, January 24, 2007

Coincident Peak Information, Lakeland Electric Load Research, 2008.

Current List of Large Customers, Lakeland Electric.

Customer Statistics Reports, Lakeland Electric.

Economy.com, Quarterly Update for Florida Counties, December 2008.

Historical Billing Information, CIBS Database & UMS.

Historical Hourly Loads, XA-21 Report, Lakeland Electric.

Load & Energy Forecast (2007/2008), Lakeland Electric.

Load Generation Summary, Lakeland Electric.

Monthly Peak Record, Lakeland Electric.

Municipal Breakdown Report, Lakeland Electric.

Temperature, Rainfall and Humidity Data, Lakeland Electric.

4.0 Demand - Side Management Programs

Lakeland Electric is committed to the efficient use of electric energy and is committed to providing cost-effective conservation and demand reduction programs for all its consumers. Lakeland is not subject to FEECA rules but has in place several Demand-Side Management (DSM) programs and remains committed to utilizing cost-effective conservation and DSM programs that will benefit its customers. Presented in this section are the currently active programs.

This section also includes a brief description of Lakeland's advances in solar technology and a new LED traffic light retrofit program. Lakeland has been a pioneer in the deployment and commissioning of solar energy devices and continues to support and look for opportunities to promote solar energy technologies.

4.1 Existing Conservation and Demand-Side Management Programs

Lakeland has the following conservation and demand-side management programs that are currently available and address two major areas of demand-side management:

- Reduction of energy needs on a per customer basis.
- Movement of energy to off-peak hours when it can be generated at a lower cost.

4.1.1 *Non-Measurable Demand and Energy Savings*

The programs outlined in this section cannot directly be measured in terms of demand and energy savings, but are very important in that they have been shown to influence public behavior and thereby help reduce energy requirements. Lakeland considers the following programs to be an important part of its objective to cost-effectively reduce energy consumption:

- Residential Programs:
 - Energy Audit Program.
 - Public Awareness Program.
 - Speakers Bureau.
 - Informational Bill Inserts.
- Commercial Programs:
 - Commercial Audit Program.

4.1.1.1 Residential Programs.

4.1.1.1.1 Residential Energy Audits.

The Energy Audit Program promotes high energy-efficiency in the home and gives the customer an opportunity to learn about other utility conservation programs. The program provides Lakeland with a valuable customer interface and a good avenue for increased customer awareness.

4.1.1.1.2 Public Awareness Program.

Lakeland believes that an informed public aware of the need to conserve electricity is the greatest conservation resource. Lakeland's public awareness programs provide customers with information to help them reduce their electric bills by being more conscientious in their energy use.

4.1.1.1.3 Speakers Bureau.

Lakeland provides speakers to local group meetings to help inform the public of new energy efficiency technologies and ways to conserve energy in the commercial and residential sectors.

4.1.1.1.4 Informational Bill Inserts.

Monthly billing statements provide an excellent avenue for communicating timely energy conservation information to its customers. In this way, Lakeland conveys the message of better utilizing their electric resources on a regular basis in a low cost manner.

4.1.1.2 Commercial Programs.

4.1.1.2.1 Commercial Energy Audits.

The Lakeland Commercial Audit Program includes educating customers about high efficiency lighting and thermal energy storage analysis for customers to consider in their efforts to reduce costs associated with their electric usage.

4.1.2 Demand-Side Management Technology Research

Lakeland has made a commitment to study and review promising technologies in the area of conservation and demand-side management. Some of these efforts are summarized below.

4.1.2.1 Direct Expansion Ground Source Heat Pump Study.

In cooperation with ECR Technologies of Lakeland, Lakeland Electric was given the Governor's Energy Award for work in the evaluation and analysis of direct expansion ground source heat pump (GSHP) technology. This technology reduces weather sensitive loads and promotes greater energy efficiency. A study of the demand and energy savings associated with this technology was completed in an effort to establish its cost-effectiveness for new construction, as well as retrofitting the technology to existing homes. The original units were installed in the 1980's and are still in service. There is

little customer interest due to the cost of the units. Currently, no new sites are being developed.

4.1.2.2 Whole House Demand Controller Study/Real Time Pricing.

The concept of this technology is to control multiple appliances in the customer's home. The initial study was designed such that when a customer's demand reached a pre-set level, no additional appliances would be allowed to turn on. There has been no customer interest in this program as initially offered.

4.1.2.3 Time-of-Day Rates.

Lakeland is currently offering a time of day program and plans to continue as this makes consumers aware of the variation in costs during the day. To date, there has been limited interest by Lakeland's customers in this demand-side management program.

4.1.3 New Conservation Programs 2008

In keeping with Lakeland Electric's plan to promote retail conservation programs, the utility is launching the following Energy Efficiency & Conservation Programs during 2008:

Residential

- Insulation rebate - \$100 rebate for adding attic insulation to achieve R30 total. Certificate issued to resident at energy audit/visit and redeemed to Insulation Contractor. Can be homeowner installed
- Energy Saving Kits – giveaway at audits contains weather-stripping, outlet gaskets, low flow showerhead, CFL, etc.
- HVAC Maintenance Incentive - \$50 rebate for residential customers that have A/C maintenance done.
- Low-Income Seniors Weatherization – home fix up includes weather-stripping, caulking, wrap water heater, etc. up to \$500 per home, 50 homes per year
- Compact Fluorescent Lighting – giveaway at audits, up to 3 per residence
- On-line Energy Audit – March 08

Commercial

- Energy Audits – rebate of up to \$2000 (1/2 the cost) for GSLD, Contract, and Interruptible customers to have audit done by Energy Services Company. Promoted by Account Executives
- Compact Fluorescent/LED Lighting – rebate up to \$200 per customer for CFL/LED lighting upgrades
- Vending Miser Incentive - \$75 rebate (1/2 the cost) for commercial customers that install vending miser. Limit of 3 per customer.

Expected Results

- 700 kw demand reduction and over 3,000,000 kwh

4.2 Solar Program Activities

Lakeland Electric views solar energy devices as distributed generators whether they interconnect to the utility grid or not. Solar also contributes to reducing both peak demand and energy linking it to demand side management. As such they can potentially fill the much-desired role that an electric utility needs to avoid future costs of building new (and/or re-working existing) supply side resources and delivery systems.

4.2.1 Solar Powered Street Lights.

Distributed generation produces the energy in end use form at the point of load by the customer, thereby eliminating many of the costs, wastes, pollutants, environmental degradation, and other objections to central station generation.

Solar powered streetlights offer a reliable, cost-effective solution to remote lighting needs. As shown in Figure 4-1, they are completely self-contained, with the ability to generate DC power from photovoltaic modules and batteries. During daylight hours solar energy is stored in the battery bank used to power the lights at night. By installing these self sufficient, stand-alone solar lighting products, Lakeland Electric was able to avoid the construction costs related to expansion of its distribution system into remote areas. These avoided costs are estimated to be approximately \$40,000.

For 13 years Lakeland had 20 solar powered streetlights in service. Each of these lights offset the need for a traditional 70 watt fixture that Lakeland typically would use in this type of application and displaced the equivalent amount of energy that the 70 watt fixture would use on an annual basis. The primary application for this type of lighting is for remote areas as stated above. In 2006, Lakeland's distribution system was developed in the areas where the solar powered streetlights were installed. Lakeland has chosen to phase-out the solar powered streetlights due to their age. Lakeland installed these 20 lights in mid-1994 in a grant program with the cooperation of the Florida Solar Energy Center (FSEC).

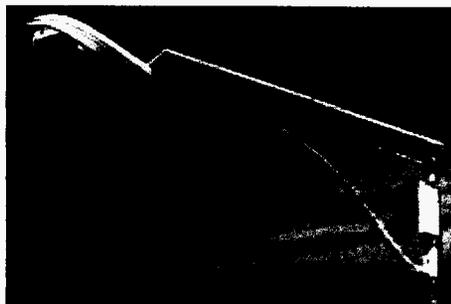


Figure 4-1
Solar Powered Streetlight

4.2.2 Solar Thermal Collectors for Water Heating.

The most effective application for solar energy is the heating of water for domestic use. Solar water heating provides energy directly to the end-user and results in a high level of end-user awareness. The sun's energy is stored directly in the heated water itself, reducing the effect of converting the energy to other forms.

Lakeland presently owns and operates 57 solar water heaters. Lakeland recently chose a second type of solar water heater with a simpler connection and metering setup. Two of these new units are currently installed and data is being gathered to compare their efficiency to the 55 installed in prior years. All units are installed on the roofs of residential customers' homes, i.e. – at the point of consumption. Since this method of energy delivery bypasses the entire transmission and distribution system, there are other benefits than only avoided generation costs.

In Lakeland's program, each solar water heater remains the property of the utility, thereby allowing the customer to avoid the financial cost of the purchase. Lakeland's return on this investment is realized through the sale of the solar generated energy as a separate line item on the customer's monthly bill. This energy device is monitored by using a utility-quality Btu meter calibrated to read in kWh.

One of the purposes of this program is to demonstrate that solar thermal energy can be accurately metered and profitably sold to the everyday residential end-user of hot water. Lakeland Electric's fleet of 57 solar thermal energy generators displaces over 2,000 kWh per year per installation on average.

Lakeland Electric is also the first utility to successfully trade Renewable Energy Credits (REC's) that were produced by these solar water heaters. In 2004 a transaction took place between Lakeland and two REC buyers: Keys Energy Services of Key West and the Democratic National Convention in Boston. Keys Energy needed the REC's for its retail Green Pricing program. The Democratic National Convention used the REC's to offset the emissions produced during that convention.

4.2.3 Utility Expansion of Solar Water Heating Program

During November, 2007 Lakeland Electric issued a Request for Proposals for the expansion of its Residential Solar Water Heating Program. In this solicitation Lakeland sought the services of a venture capital investor who would purchase, install, own, operate and maintain 3,000 – 10,000 solar water heaters on Lakeland Electric customers' residences in return for a revenue-sharing agreement. Lakeland Electric would provide customer service and marketing support, along with meter reading, billing and collections. During December, 2007 a successful bidder was identified and notified. Lakeland Electric is currently in discussions to arrive at a long-term agreement with that

vendor. Annual projected energy savings from this project will range between 7,500 and 25,000 megawatt-hours. These solar generators will also produce Renewable Energy Credits that will contribute toward Florida's expected mandate for renewable energy as a part of the utility's energy portfolio.

4.2.4 Utility-Interactive Residential Photovoltaic Systems

This project is a collaborative effort between the Florida Energy Office (FEO), FSEC, Lakeland Electric, and Shell Solar Industries. The primary objective of this program is to develop approaches and designs that integrate photovoltaic (PV) arrays into residential buildings, and to develop workable approaches to interconnection of PV systems into the utility grid. Lakeland originally installed 3 PV systems, all of which were directly interconnected to the utility grid. These systems have an average nominal power rating of approximately 2.6 kilowatts peak (kwp) and are displacing approximately 2900 kWh per year per installation at standard test conditions. During 2005 title to these systems was transferred to those homeowners in return for their extended voluntary participation.

Lakeland owned, operated, and maintained the systems for at least 7 years. FSEC conducted periodic site visits for testing and evaluation purposes. System performance data was continuously collected via telephone modem line during those years and, at one site, continues to do so. Lakeland and FSEC will continue to analyze the results of utility and systems simulation tests and prepare recommendations for appropriate interconnection requirements for residential PV systems. FSEC prepared technical reports on system performance evaluation, onsite utilization, coincidence of PV generation with demand profiles, and utilization of PV generated electricity as a demand-side management option.

Four additional photovoltaic systems have been privately purchased in the Lakeland Electric service territory. These newer systems generate a total of 16.6 kw of electric capacity. Lakeland Electric has allowed the interconnection of these systems in "net meter" fashion. Lakeland Electric is now the hosting utility to 7 privately-owned, grid-connected solar photovoltaic generators. An eighth system (6.5 kw) is scheduled for installation during March, 2007. This will be the first non-residential PV system in Lakeland. It will serve the pumping and other electrical loads at a commercial tropical fish breeding facility.

4.2.5 Utility-Interactive Photovoltaic Systems on Polk County Schools

Lakeland is also actively involved in a program called "Portable Power." The focus of the program is to install Photovoltaic Systems on portable classrooms in the Polk County School District. This program is a partnership including Lakeland Electric, Polk County School District, Shell Solar Industries, Florida Solar Energy Research and Education Foundation, Florida Solar Energy Center and the Solar Electric Power Association, formerly known as the Utility Photovoltaic Group. It will allow seventeen portable classrooms to be enrolled in former President Clinton's "Million Solar Roofs Initiative." With the installation of the photovoltaic systems 80 percent of the electricity requirements for these classrooms will be met.

Along with the photovoltaic systems, a specially designed curriculum on solar energy appropriate to various grade levels has been developed. An education package has been delivered to the schools for their teachers' use in the explanation of solar sciences. By addressing solar energy technologies in today's public school classrooms, Lakeland is informing the next generation of the environmental and economic need for alternate forms of energy production.

The "Portable Power" in the schools, shown in Figure 4-2, consists of installing 1.8kWp photovoltaic systems on 17 portable classrooms. In addition to the educational awareness benefits of photovoltaic programs in schools, there are several practical reasons why portable classrooms are most appropriate as the platforms for photovoltaics. They have nearly flat roofs and are installed in open spaces, so final orientation is of little consequence. Another reason is the primary electric load of the portable classroom is air conditioning, which is reduced by the shading effect of the panels on their short stand-off mounts. Most important, the total electric load on the portable classroom has high coincidence with the output from the PV system. The hot, sunny day which results in the highest cooling requirements also produce the maximum PV output.

Of extreme value to the photovoltaic industry, Lakeland Electric, in a partnership with the FSEC, provided on-site training sessions while installing the solar equipment on these school buildings. Attendees from other electric utilities were enrolled and given a hands-on opportunity to develop the technical and business skills needed to implement their own solar energy projects. The training classes covered all aspects of the solar photovoltaic experience from system design and assembly, safety and reliability, power quality, and troubleshooting to distributed generation and future requirements of deregulation.

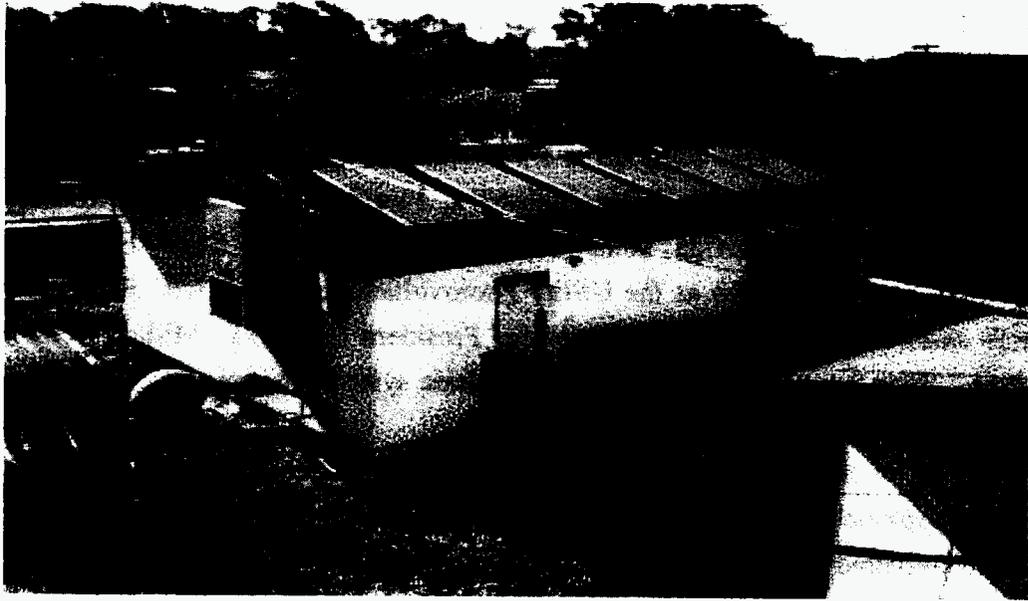


Figure 4-2
Portable Classroom Topped by PV Panels

Lakeland owns, operates, and maintains the systems that are installed on these classrooms. Lakeland monitors the performance and FSEC conducts periodic testing of the equipment. Through the cooperative effort of the partnership, different ways to use photovoltaics efficiently and effectively in today's society are being evaluated.

As a result of aging, several portable classrooms have been retired. And, where shifting populations have caused school officials to relocate some classrooms to schools that are outside Lakeland's service territory, Lakeland has removed the PV systems from those classrooms. Because the equipment is still capable of generating, budgets are being created that would have these systems re-installed on buildings owned by the City of Lakeland.

4.2.6 Integrated Photovoltaic's for Florida Residences

Lakeland's existing integrated photovoltaic program supports former President Clinton's "Million Solar Roofs Initiative". The Department of Energy granted five million dollars for solar electric businesses in addition to the existing privately funded twenty-seven million dollars, for a total of thirty-two million dollars for the program. Through the Utility Photovoltaic Group, the investment supported 1,000 PV systems in 12 states and Puerto Rico with hopes to bring photovoltaics to the main market. The 1,000 systems were part of the 500,000 commitments received for the initiative to date.

The goal is to have installed solar devices on one million roofs by the year 2010. Lakeland is helping to accomplish this national goal.

This program provides research in the integration of photovoltaic's in newly constructed homes. Two new homes, having identical floor plans, were built in "side-by-side" fashion. The dwellings were measured for performance under two conditions: occupied and unoccupied. Data is being collected for end-use load and PV system interface. As a research project, the goal is to see how much energy could be saved without factoring in the cost of the efficiency features.

The first solar home was unveiled May 28, 1998, in Lakeland, Florida. The home construction includes a 4 kW photovoltaic system, white tiled roof, argon filled windows, exterior wall insulation, improved interior duct system, high performance heat pump and high efficiency appliances. An identical home with strictly conventional construction features was also built as a control home. The homes are 1 block apart and oriented in the same direction as shown in Figure 4-3. For the month of July 1998, the occupied solar home air conditioning consumption was 72 percent lower than the unoccupied control house. Living conditions were simulated in the unoccupied home. With regard to total power, the solar home used 50 percent less electricity than the air conditioning consumption of the control home. The solar home was designed to provide enough power during the utility peak that it would not place a net demand on the grid. If the solar home produces more energy than what is being consumed on the premises, the output of the photovoltaic system could be sent into the utility grid. The objective was to test the feasibility of constructing a new, single family residence that was engineered to reduce air conditioning loads to an absolute minimum so most of the cooling and other daytime electrical needs could be accomplished by the PV component.



Figure 4-3
Solar House and Control House

4.2.7 Utility-Scale Solar Photovoltaic Program

During November, 2007 Lakeland Electric issued a Request for Proposal seeking an investor to purchase and install investor-owned PV systems totaling 24 megawatts on customer-owned sites as well as City of Lakeland properties. During December, 2007 a successful bidder was identified. Lakeland Electric is now in discussions with that vendor with the expectation of arriving at a mutually agreeable long-term contract during 2008. Projected reduction in annual fossil-fuel generation is expected to be 31,800 megawatt-hours. This project will not only offset future energy generation, but will also produce highly valuable Renewable Energy Credits in anticipation of a Florida mandate to produce renewable energy as a part of the utility's overall portfolio.

4.3 Green Pricing Program

Because no long-term budgets have been established for the deployment of solar energy devices, many utilities are dependent on infrequent, somewhat unreliable sources of funding for their solar hardware purchases. To provide for a more regularly available budget, a number of utilities are looking into the voluntary participation of their customers. Recent market studies performed in numerous locations and among diverse population groups reveal a public willingness to pay equal or even slightly higher energy prices knowing that their payments are being directed towards renewable fuels.

The Florida Municipal Electric Association (FMEA) has assembled a workgroup called "Sunsmart". This workgroup is a committee composed of member utilities. Its purpose is to raise environmental awareness and implement "Green Pricing" programs that would call for regular periodic payments from customers who wish to invest in renewables. The Florida Solar Energy Center (FSEC) co-hosts this effort by providing meeting places and website advertising to recruit from statewide responses. A grant from the State of Florida Department of Community Affairs, Florida Energy Office has been appropriated to encourage utility involvement with Green Pricing. Lakeland Electric is an active member of this committee and is investigating the marketability and public acceptance of a Green Pricing Program in its service territory.

4.4 LED Traffic Light Retrofit Program

The City of Lakeland is responsible for the operation and maintenance of 3,411 traffic lights at over 171 intersections. Historically, these traffic signals have used incandescent bulbs which are replaced every 18 months and use approximately 135 watts of electricity per bulb. This amounts to an annual electrical consumption of 1,633,525 kwh for all 12" red and green signals, arrow signals and pedestrian crossing signals.

This project retrofitted the existing bulbs with highly efficient Light Emitting Diodes (LEDs). The LEDs use approximately 10 watts of energy which is more than a 90% decrease in energy consumption as compared to their incandescent counterparts and have a longer life span, up to seven years, which reduces maintenance costs as well.

The Florida Department of Transportation (FDOT) agreed to help fund Lakeland's project to retrofit the signals. The FDOT contributed \$50,000 for these new LED traffic lamps on all roadways within Lakeland's city limits. The FDOT views this as a "good neighbor policy" since FDOT depends on city crews to maintain the signals on its roads and highways within the city's limits.

The project began in December, 2002 and was completed in June 2003. The project is expected to save the City of Lakeland \$150,000 per year in maintenance and electricity costs.

As a next step, Lakeland Electric added backup power supply equipment at 14 critical intersections earmarked for FDOT-funded LED signals. These improvements were limited to those intersections that are located on state-funded roadways. The UPS systems will improve safety by keeping traffic signals operating during power outages and accidents. Emergency vehicles in Lakeland will see the added benefit of having easier access to desired areas such as fire and medical locations. Lakeland anticipates being one of the first cities in Florida to have the UPS systems applied to the LED signals.

4.5 Renewable Resources

4.5.1 Energy and Demand

This year the Florida Reliability Coordination Council (FRCC) received a request from the Florida Public Service Commission (FPSC) to help in determining the amount of energy and demand derived from renewable resources. The FRCC asked members this year to supply the information and sent out a template for consistency. The following tables represent the information Lakeland Electric supplied to the FRCC this year.

Table 4-1

Existing FIRM Capacity and Energy by Primary Fuel Type

Base Year: 2008		Utility: Lakeland Electric				Net Energy For Load	
Generation by Primary Fuel		Gross (MW) Capability				GWh	%
		Summer (MW)	Summer (%)	Winter (MW)	Winter (%)		
1	Coal	219.0	23.3%	219.0	22.3%	1,570.0	51.8%
2	Nuclear						
3	Residual	196.0	20.9%	191.0	19.5%	2.0	0.1%
4	Distillate	55.0	5.9%	55.0	5.6%	2.0	0.1%
5	Natural Gas	469.0	49.9%	515.0	52.6%	898.0	29.6%
6	Renewables (Purchases)						
7	Renewable (Owned)						
8	Purchases (Other)					559.0	18.4%
9	Total	939.0	100.0%	980.0	100.0%	3,031.0	100.0%

Coal from above ~ Jointly owned LAK 60% of 365MW = 219.0MW Lakeland Electric

Notes

- > Capacities requested are Gross MW.
- > NEL is annual for 2008 calendar year.

Table 4-2

Existing FIRM Renewable Report by Fuel Type

Base Year: 2008		Utility: Lakeland Electric					
Renewable Fuel Type*	Gross (MW) Capability				Net Energy For Load		
	Summer (MW)	Summer (%)	Winter (MW)	Winter (%)	MWh	%	
1	Biomass						
2	Landfill Gas						
3	Hydro						
4	Geothermal						
5	Biofuels						
6	Solar						
7	Ocean Energy						
8	Wind						
9	Other						
10	Total	0	0	0	0	0	0

* Based on values contained in Row 6 (Line 13) and Row 7 (Line 14) of Table A1.

Table 4-2b

Existing NON-FIRM Renewable Report by Fuel Type

Base Year: 2008		Utility: Lakeland Electric					
Renewable Fuel Type*	Gross (MW) Capability				Net Energy For Load		
	Summer (MW)	Summer (%)	Winter (MW)	Winter (%)	MWh	%	
1	Biomass						
2	Landfill Gas						
3	Hydro						
4	Geothermal						
5	Biofuels						
6	Solar	0.3	100.0%	0.3	100.0%	573.0	100.0%
7	Ocean Energy						
8	Wind						
9	Other						
10	Total	0.3	100.0%	0.3	100.0%	573.0	100.0%

Notes

> Capacities requested are Gross MW.

Table 4-3

Existing NON-FIRM Self-Service Renewable Generation Facilities

Base Year: 2008	Utility: Lakeland Electric						
Facility Name	Unit No.	Gross MW	Net MW	Fuel Type	Self-Service MW	Self-Service MWh	In-Service Date
Solar Hot Water (Fleet of 57)		0.1	0.1	Sunlight			1998-2002
Solar Photovoltaic (Fleet of 16)		0.1	0.1	Sunlight			1998-2008

Notes

> Capacities requested are Gross MW. Enter WINTER capacities.

5.0 Forecasting Methods and Procedures

This section describes and presents Lakeland's long-term integrated resource planning process, the economic parameter assumptions, plus the fuel price projections being used in the current evaluation process.

5.1 Integrated Resource Planning

Lakeland selects its capacity resources through an integrated resource planning process. Lakeland's planning process considers conservation, demand-side management measures, and supply-side resources along with the needs of the T&D system. The integrated resource planning process employed by Lakeland continuously monitors supply and demand-side alternatives. As promising alternatives emerge, they are included in the evaluation process.

5.2 Florida Municipal Power Pool

Lakeland is a member of the Florida Municipal Power Pool (FMPP) along with the Orlando Utilities Commission (OUC) and the All-Requirements Project of the Florida Municipal Power Agency (FMPA). The three utilities operate as one control area. All FMPP capacity resources are committed and dispatched together from the OUC Operations Center.

The FMPP is not a capacity pool meaning that each member must plan for and maintain sufficient capacity to meet their own individual demands and reserve obligations. Any member of the FMPP can withdraw from FMPP with 1 year written notice. Lakeland, therefore, must ultimately plan to meet its own load and reserve requirements as reflected in this document.

5.3 Economic Parameters and Evaluation Criteria

This section presents the assumed values adopted for economic parameters and inputs used in Lakeland's planning process. The assumptions stated in this section are applied consistently throughout this document. Subsection 5.3.1 outlines the basic economic assumptions. Subsections 5.3.2 and 5.3.3 outline the constant differential fuel forecasts, and base case, high and low.

5.3.1 Economic Parameters

This section presents the values assumed for the economic parameters currently being used in Lakeland's least-cost planning analysis.

5.3.1.1 Inflation and Escalation Rates

The general inflation rate applied is assumed to be 3.0 percent per year based on the US forecasted Producer Price Index. A 2.5 escalation rate is applied to operation and maintenance (O&M) expenses. Fuel price escalation rates are discussed below in Section 5.3.2.

5.3.1.2 Bond Interest Rate

Consistent with the traditional tax exempt financing approach used by Lakeland, the self-owned supply-side alternatives assume 100 percent debt financing. Lakeland's long-term tax exempt bond interest rate is assumed to be 5.1 percent.

5.3.1.3 Present Worth Discount Rate

The present worth discount rate used in the analysis is set equal to Lakeland's assumed bond interest rate of 5.1 percent.

5.3.1.4 Interest During Construction

During construction of the plant, progress payments will be made to the EPC contractor and interest charges will accrue on loan draw downs. The interest during construction rate is assumed to be 5.1 percent.

5.3.1.5 Fixed Charge Rates

The fixed charge rate is the sum of the project fixed charges as a percent of the project's total initial capital cost. When the fixed charge rate is applied to the initial investment, the product equals the revenue requirements needed to offset fixed costs for a given year. A separate fixed charge rate can be calculated and applied to each year of an economic analysis, but it is most common to use a Levelized Fixed Charge Rate that has the same present value as the year by year fixed charged rates. Included in the fixed charged rate calculation is an assumed 2.0 percent issuance fee, a 1.0 percent annual insurance cost, and a 6-month debt reserve fund earning interest at a rate equal to the bond interest rate.

5.3.2 Fuel Price Projections

This section presents the fuel price projections for coal, natural gas and oil. This year's fuel price forecast for natural gas has been prepared with the assistance of The Energy Authority (TEA) for Lakeland Electric. The fuel price forecast for solid fuels and oils has been prepared by Lakeland Electric's staff.

5.3.2.1 Natural Gas

Natural gas is a colorless, odorless fuel that burns cleaner than many other traditional fossil fuels. Natural gas can be used for heating, cooling, and production of electricity, and other industry uses.

Natural gas is found in the Earth's crust. Once the gas is brought to the surface, it is refined to remove impurities such as water, sand, and other gases. The natural gas is then transmitted through pipelines and delivered to the customer either directly from the pipeline or through a distribution company or utility. When natural gas reaches its destination through a pipeline, it is sometimes stored prior to distribution.

	McIntosh 3 Coal ¹	Natural Gas ¹	High Sulfur #6 Oil ¹	Low Sulfur #6 Oil ¹	#2 Diesel Oil ¹
2009	3.99	4.92	9.00	10.00	10.41
2010	4.44	6.33	9.22	10.42	11.66
2011	4.55	7.29	9.46	10.99	12.63
2012	4.66	7.04	9.69	11.37	13.09
2013	4.78	7.20	9.93	11.62	13.44
2014	4.90	7.35	10.18	12.01	13.94
2015	5.02	7.40	10.44	12.29	14.57
2016	5.15	7.49	10.70	12.46	16.20
2017	5.28	7.65	10.97	14.05	18.20
2018	5.41	7.83	11.24	16.02	20.25
Average Annual Growth Rate	3.44%	5.30%	2.50%	5.38%	7.67%

¹Prices represent delivered prices.

5.3.2.1.1 Natural gas supply and availability

Natural gas reserves exist both in the United States and North American mainland and coastal regions. Natural gas reserves are mostly dependent on domestic production. Increasing demand for natural gas as a fuel for both home and heating and new power generation projects is contributing to the price volatility seen in recent years. Liquefied Natural Gas (LNG) feasibility is currently being explored by two projects proposing pipelines into Florida, and several projects in the Gulf of Mexico along the Louisiana coast.

5.3.2.1.2 Natural gas transportation

There are now two transportation companies serving Peninsular Florida, Florida Gas Transmission Company (FGT) and Gulfstream. Lakeland Electric has interconnections and service agreements with both companies to provide diversification and competition in delivery.

5.3.2.1.2.1 Florida Gas Transmission Company

FGT is an open access interstate pipeline company transporting natural gas for third parties through its 5,000-mile pipeline system extending from South Texas to Miami, Florida.

The FGT pipeline system accesses a diversity of natural gas supply regions, including:

- Anadarko Basin (Texas, Oklahoma, and Kansas).
- Arkona Basin (Oklahoma and Arkansas).
- Texas and Louisiana Gulf Areas (Gulf of Mexico).
- Black Warrior Basin (Mississippi and Alabama).
- Louisiana – Mississippi – Alabama Salt Basin.
- Mobile Bay

FGT's total receipt point capacity is in excess of 3.0 billion cubic feet per day and includes connections with 10 interstate and 10 intrastate pipelines to facilitate transfers of natural gas into its pipeline system. FGT reports a current delivery capability to Peninsular Florida in excess of 2.0 billion cubic feet per day.

5.3.2.1.2.2 Florida Gas Transmission market area pipeline system

The FGT multiple pipeline system corridor enters the Florida Panhandle in northern Escambia County and runs easterly to a point in southwestern Clay County, where the pipeline corridor turns southerly to pass west of the Orlando area. The mainline corridor then turns to the southeast to a point in southern Brevard County, where it turns south generally paralleling Interstate Highway 95 to the Miami area. A major lateral line (the St. Petersburg Lateral) extends from a junction point in southern Orange County westerly to terminate in the Tampa, St Petersburg, Sarasota area. A major loop corridor (the West Leg Pipeline) branches from the mainline corridor in southeastern Suwannee County to run southward through western Peninsular Florida to connect to the St. Petersburg Lateral system in northeastern Hillsborough County. Each of the above major corridors includes stretches of multiple pipelines (loops) to provide flow redundancy and transport capability. Numerous lateral pipelines extend from the major corridors to serve major local distribution systems and industrial/utility customers. FGT is currently marketing its Phase VIII Expansion Project. Phase VIII Expansion Project will consist of approximately 483.2 miles of multi diameter pipeline in Alabama, Mississippi and Florida with approximately 365.8 miles built parallel to existing pipelines. The project will add 213,600 horsepower of additional mainline compression with one new compressor station to be built in Highlands County, Fla. The project will provide an annual average of 820,000 MMbtu/day of additional firm transportation capacity. Currently, Lakeland has no plans to purchase additional pipeline capacity.

5.3.2.1.2.3 Gulfstream pipeline

The Gulfstream pipeline is a 744-mile pipeline originating in the Mobile Bay region and crossing the Gulf of Mexico to a landfall in Manatee County (south Tampa Bay). The pipeline has the capability to supply Florida with 1.1 billion cubic feet of gas per day serving existing and prospective electric generation and industrial projects in southern Florida. Figure 5-1 shows the route for the Gulfstream pipeline. Phase I of the pipeline has been completed and ends in Polk County, Florida. The pipeline will be extended to FP&L's Martin Plant. Construction for the Gulfstream pipeline began in 2001 and was placed in service in May, 2002. Phase II was completed in 2005.

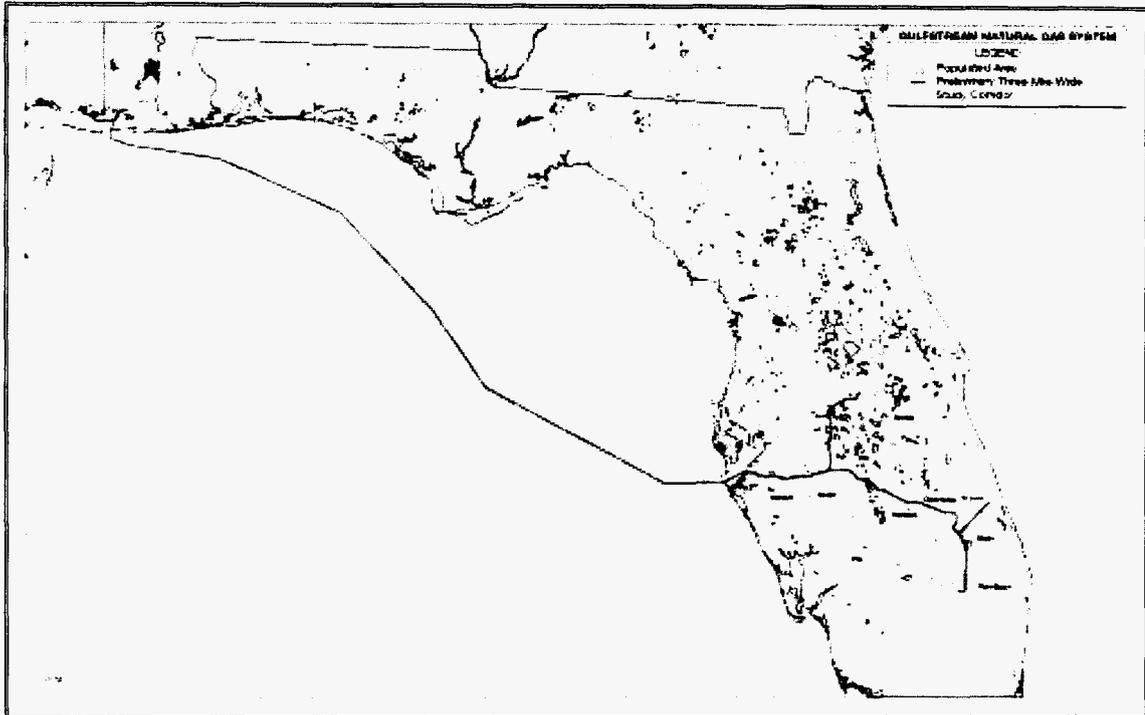


Figure 5-1
Gulfstream Natural Gas Pipeline

5.3.2.1.3 Natural gas price forecast

The price forecast for natural gas is based on historical experience and future expectations for the market. The forecast takes into account the fixed long term contracts that Lakeland has in place for a portion of its gas along with new or spot purchases of gas to meet its needs. The cost of reservation is not included in the price of natural gas in Table 5-1. All other fuel types in the table are delivered prices. As previously stated, natural gas prices have been extremely volatile in recent years. To address this volatility, Lakeland Electric initiated a formal fuels hedging program in 2003. The Energy Authority (TEA), a company located in Jacksonville, FL, is Lakeland's consultant assisting in the administration and adjustment of policies and procedures as well as the oversight of the program.

Lakeland currently has a ten-year contract (through May, 2011) with British Gas (assigned to BG by El Paso) for the supply of natural gas for a portion of Lakeland's base natural gas requirements. Lakeland has entered into a pre-paid agreement with Florida Gas Utility (FGU) for approximately 6% of its average gas needs that commenced on December 1, 2008, and runs until September 2026. Lakeland purchases "seasonal" gas to supplement the base requirement and purchase "as needed" daily gas to round out its supply needs.

Natural gas transportation from FGT is currently supplied under two tariffs, FTS-1 and FTS-2. Rates in FTS-1 are based on FGT's Phase II expansion and rates in FTS-2 are based on the Phase III expansion. The Phase III expansion was extensive and rates for FTS-2 transportation are significantly higher than FTS-1. Rates for any future expansions will be set by the Federal Energy Regulatory Commission (FERC) rate cases at the completion of the projects. Current FTS-1 and FTS-2 transportation rates along with FGT's interruptible transportation rate ITS-1 are shown in Table 5-2.

Table 5-2 Natural Gas Tariff Transportation Rates				
Rates And Surcharges	Rate Schedules			
	FGT FTS-1 w/surcharges (cents/DTH)*	FGT FTS-2 w/surcharges (cents/DTH)*	FGT ITS-1	Gulfstream FTS-1
Reservation	40.25	76.90	59.31	55.0
Usage	7.54	4.79	0.00	2.17
Total	47.79	81.69	59.31	57.17
Fuel Charge (%)	3.25%	3.25%	3.25%	1.36%

* A DTH is equivalent to 1 mmbtu or 1 mcf

For purposes of projecting delivered gas prices, transportation charges of \$0.61/mmbtu were applied for existing units as this is the average cost for Lakeland to obtain natural gas transportation for those units. This average rate is realized through a current mix of FTS-1, FTS-2 and Gulfstream FTS transportation, including consideration of Lakeland's ability to relinquish FTS-2 transportation and acquire other firm and interruptible gas transportation on the market.

5.3.2.2 Coal

Coal has been used as an energy source for hundreds of years and provided the energy which fueled the Industrial Revolution of the 19th Century and it was a primary fuel of the electric era in the 20th Century. Lakeland's McIntosh Unit #3 is a 365 mega watt coal burning generator that was placed into service in the early 1980's.

5.3.2.2.1 Coal supply and availability

Lakeland's current coal purchase contracts are approximately 50 percent long-term and 50 percent spot purchases. Spot purchases can extend from several months to one year in length. Lakeland maintains a 20 – 30 day coal supply reserve (60,000 – 90,000 tons).

5.3.2.2.2 Coal transportation

McIntosh Unit 3 is Lakeland's only unit burning coal. Lakeland projects McIntosh Unit 3 will burn approximately 1,000,000 tons of coal/petroleum coke per year. The coal sources are located in eastern Kentucky, which affords Lakeland a single rail line haul via CSX Transportation. Lakeland also imports a portion of its coal needs from South American sources. A new coal transportation contract was signed with CSX in late 2008. The contract period is from January 1, 2009 through December 31, 2013.

5.3.2.2.3 Coal price forecast

Currently, Lakeland's long-term purchase of coal for McIntosh 3 is under two contracts which extend through 2010. Lakeland's coal costs will most likely increase due to the expiration of two lower-priced contracts at the end of 2009.

5.3.2.3 Fuel Oil

5.3.2.3.1 Fuel oil supply and availability

The City of Lakeland currently obtains all of its fuel oil through spot market purchases and has no long-term contracts. This strategy provides the lowest cost for fuel oil consistent with usage, current price stabilization, and on-site storage. Lakeland's Fuels Section continually monitors the cost-effectiveness of spot market purchasing.

5.3.2.3.2 Fuel oil transportation

Although the City of Lakeland is not a large consumer of fuel oils, a small amount is consumed during operations for backup fuel and diesel unit operations. Fuel oil is transported to Lakeland by truck.

5.3.2.3.3 Fuel oil price forecast

Recent world events appear to have placed oil prices at a new level in the world market. Lakeland has adjusted its oil price forecast to reflect current market pricing and what the anticipated future price may be.

5.3.3 Fuel Forecast Sensitivities

Lakeland is not presenting specific forecasted fuel price sensitivities. In the 2005 IRP study, fuel price sensitivity cases were run for natural gas and coal. Natural gas price sensitivity cases included: + \$1.00/mmbtu, + \$2.00/mmbtu, + \$3.00/mmbtu and - \$1.00/mmbtu from the base case price forecast. Coal price sensitivities included +/- \$0.50/mmbtu from the base case price forecast. No price sensitivities were run on oil fuels as they only make up a very small part of total energy production and cost in the forecast period.

6.0 Forecast of Facilities Requirements

6.1 Need for Capacity

This section addresses the need for additional electric capacity to serve Lakeland's electric customers in the future. The need for capacity is based on Lakeland's load forecast, reserve margin requirements, power sales contracts, existing generating and unit capability and scheduled retirements of generating units.

6.1.1 Load Forecast

The load forecast described in Section 3.0 is used to determine the need for capacity. A summary of the load forecast for winter and summer peak demand for base, high, and low projections are provided in Tables 3-3 and 3-4.

6.1.2 Reserve Requirements

Prudent utility planning requires that utilities secure firm generating resources over and above the expected peak system demand to account for unanticipated demand levels and supply constraints. Several methods of estimating the appropriate level of reserve capacity are used. A commonly used approach is the reserve margin method, which is calculated as follows:

$$\frac{\text{system net capacity} - \text{system net peak demand}}{\text{system net peak demand}}$$

Lakeland has looked at probabilistic approaches to determine its reliability needs in the past. These have included indices such as LOLP and EUE. Lakeland has found that due to the strength of its transmission system, assisted LOLP or EUE values were so small that reserves based on those measures would be nearly non-existent. Conversely, isolated probabilistic values come out overly pessimistic calling for excessively high levels of reserves due to approximately 50% of Lakeland's capacity being made up by only two units. As a result, Lakeland has stayed with the reserve margin method based on the equation presented above. When combined with regular review of unit performance at times of peak, Lakeland finds reserve margin to be the proper reliability measure for its system.

Generation availability is reviewed annually and is found to be within industry standards for the types of units that Lakeland has in its fleet, indicating adequate and prudent maintenance is taking place. Lakeland's winter and summer reserve margin target is currently 15%. This complies with the FRCC reserve margin criteria for the FRCC Region. As Lakeland's needs and fleet of resources continue to change through time, reserve margin levels will be reviewed and adjusted as appropriate.

6.1.3 Additional Capacity Requirements

By comparing the load forecast plus reserves with firm supply, the additional capacity required on a system over time can be identified. Lakeland's requirements for additional capacity are presented in Tables 6-1 through 6-4 which show the projected reliability levels for winter and summer base cases, and winter high and low load demands, respectively. Lakeland's capacity requirements are driven by the base winter peak demand forecasts.

The last column of Table 6-1 indicates that using the base winter forecast, Lakeland will not need any additional capacity in the current ten year planning cycle.

Pace Global Energy Services, LLC was contracted by the City of Lakeland's Electric to conduct a risk integrated resource plan ("RIRP") and evaluation of the future resource needs of LE. This study is designed to guide LE in making strategic decisions regarding the timing and type of future build decisions necessary to meet the future load growth in the City of Lakeland and Polk County.

Pace's unique approach to resource planning -- Pace RIRPSM explicitly incorporates market volatility, the relationship between commodity prices for natural gas, coal, power, and the utilities relationship to load, thereby improving traditional IRP approaches. Pace's RIRPSM approach further analyzes the regulatory and environmental risk elements that subject utilities to a variety of threats that can undermine its attempts at achieving environmental and financial goals while maintaining rate stability and price competitiveness. These specific risk categories include regulatory changes, CO₂ environmental regulatory regimes, market structure changes and increased costs in project development and construction. Pace RIRPSM allows for evaluating a wide range of portfolios across the complete spectrum of utility risks in an appropriate, logical, and compelling way.

Covering the period from 2008 through 2028 (“Study Period”), this Report includes a brief summary of the components of the RIRP that Pace provided LE throughout the process.

These include;

- A review of LE’s planning objectives and major risks.
- Pace’s Reference Case assumptions that reflect the main fundamental drivers of our market view, as well as the simulation methodology used to develop an integrated market pricing forecast for the relevant power market.
- An assessment of the Supply/Demand balance of LE.
- A review of capacity alternatives available to LE under current regulatory conditions in the state of Florida.
- A presentation of LE’s risk profile and portfolio options.

Lakeland received the final report March 17, 2008. As previously mentioned, absent any retirements, Lakeland does not need additional capacity in the current ten year planning horizon. Results of the RIRP do indicate the need for additional capacity shortly beyond the current ten year planning horizon and therefore Lakeland has moved into a second phase of that study to identify the best alternative(s) for Lakeland and its customers based on factors such as least cost, risk avoidance and other strategic concerns. Lakeland has concluded from Phase I of the RIRP that additional fuel diversity is in the best interests of Lakeland and its customers. Further study is taking place regarding the potential disposition of two existing Lakeland resources. Possible scenarios include but are not limited to retirements, fuel conversion strategies, fuel diversification strategies, and long term capacity replacement based on fuel savings or combinations of any of these. Depending on the outcome of that analysis, the need for new capacity could be shifted to occur in the current ten year planning horizon.

As Lakeland expects to continue to be a winter peaking utility, Table 6-2 also indicates that no additional capacity is needed during the summer peak seasons for the current ten year planning cycle. Tables 6-3 and 6-4 show the high and low winter load forecasts for Lakeland.

Table 6-1 Projected Reliability Levels - Winter / Base Case										
Year	Net Generating Capacity (MW)	Net System Purchases (MW)	Net System Sales (MW)	Net System Capacity (MW)	System Peak Demand		Reserve Margin		Excess/ (Deficit) to Maintain 15% Reserve Margin	
					Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)	Before Interruptible and Load Management (%)	After Interruptible and Load Management (%)	Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)
2009/2010	953	0	0	953	680	680	40.1	40.1	171	171
2010/2011	953	0	0	953	687	687	38.7	38.7	163	163
2011/2012	953	0	0	953	694	694	37.3	37.3	155	155
2012/2013	953	0	0	953	699	699	36.3	36.3	149	149
2013/2014	953	0	0	953	705	705	35.2	35.2	142	142
2014/2015	953	0	0	953	713	713	33.7	33.7	133	133
2015/2016	953	0	0	953	723	723	31.8	31.8	122	122
2016/2017	953	0	0	953	734	734	29.8	29.8	109	109
2017/2018	953	0	0	953	745	745	27.9	27.9	96	96
2018/2019	953	0	0	953	756	756	26.1	26.1	84	84

Table 6-2 Projected Reliability Levels - Summer / Base Case										
Year	Net Generating Capacity (MW)	Net System Purchases (MW)	Net System Sales (MW)	Net System Capacity (MW)	System Peak Demand		Reserve Margin		Excess/ (Deficit) to Maintain 15% Reserve Margin	
					Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)	Before Interruptible and Load Management (%)	After Interruptible and Load Management (%)	Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)
2009	905	0	0	905	642	642	41.0	41.0	167	167
2010	905	0	0	905	650	650	39.2	39.2	158	158
2011	905	0	0	905	655	655	38.2	38.2	152	152
2012	905	0	0	905	662	662	36.7	36.7	144	144
2013	905	0	0	905	667	667	35.7	35.7	138	138
2014	905	0	0	905	675	675	34.1	34.1	129	129
2015	905	0	0	905	684	684	32.3	32.3	118	118
2016	905	0	0	905	696	696	30.0	30.0	105	105
2017	905	0	0	905	707	707	28.0	28.0	92	92
2018	905	0	0	905	719	719	25.9	25.9	78	78

Table 6-3
Projected Reliability Levels - Winter / High Case

Year	Net Generating Capacity (MW)	Net System Purchases (MW)	Net System Sales (MW)	Net System Capacity (MW)	System Peak Demand		Reserve Margin		Excess/ (Deficit) to Maintain 15% Reserve Margin	
					Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)	Before Interruptible and Load Management (%)	After Interruptible and Load Management (%)	Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)
					2009/2010	953	0	0	953	727
2010/2011	953	0	0	953	687	687	38.7	38.7	163	163
2011/2012	953	0	0	953	741	741	28.6	28.6	101	101
2012/2013	953	0	0	953	746	746	27.7	27.7	95	95
2013/2014	953	0	0	953	752	752	26.7	26.7	88	88
2014/2015	953	0	0	953	761	761	25.2	25.2	78	78
2015/2016	953	0	0	953	771	771	23.6	23.6	66	66
2016/2017	953	0	0	953	782	782	21.9	21.9	54	54
2017/2018	953	0	0	953	793	793	20.2	20.2	41	41
2018/2019	953	0	0	953	804	804	18.5	18.5	28	28

Table 6-4
Projected Reliability Levels - Winter / Low Case

Year	Net Generating Capacity (MW)	Net System Purchases (MW)	Net System Sales (MW)	Net System Capacity (MW)	System Peak Demand		Reserve Margin		Excess / (Deficit) to Maintain 15% Reserve Margin	
					Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)	Before Interruptible and Load Management (%)	After Interruptible and Load Management (%)	Before Interruptible and Load Management (MW)	After Interruptible and Load Management (MW)
2009/2010	953	0	0	953	633	633	50.6	50.6	225	225
2010/2011	953	0	0	953	640	640	48.9	48.9	217	217
2011/2012	953	0	0	953	647	647	47.3	47.3	209	209
2012/2013	953	0	0	953	652	652	46.2	46.2	203	203
2013/2014	953	0	0	953	658	658	44.8	44.8	196	196
2014/2015	953	0	0	953	666	666	43.1	43.1	187	187
2015/2016	953	0	0	953	676	676	41.0	41.0	176	176
2016/2017	953	0	0	953	687	687	38.7	38.7	163	163
2017/2018	953	0	0	953	697	697	36.7	36.7	151	151
2018/2019	953	0	0	953	708	708	34.6	34.6	139	139

7.0 Generation Expansion Analysis Results and Conclusions

With the addition of McIntosh 5 in 2002, LE's generation profile shifted towards more exposure to natural gas. Pace recommends that LE attempt to pursue a course of action that attempts to limit its exposure to natural gas and attempts to add additional base load units. This course of action will be very difficult to accomplish give the regulatory and political environment that presently exists in Florida. This course of action is further complicated by the reliance LE must have on third parties to initiate and gain approval for such resources and for LE to successfully contract for equity shares or operating partnerships.

Regardless of the resource plan that LE develops, there is tremendous price risk from the volatility of natural gas that will pervade LE's supply portfolio for the foreseeable future. Robust commodity and price risk management programs are imperative to managing these costs. Proactively managing these risks over the near to medium term through well managed and controlled risk management programs can help LE mitigate the fuel and market volatility risks.

7.1 Supply-Side Economic Analysis

KEY FINDINGS: MARKET RISK

As stated previously LE desires to reduce the expected utility cost and narrow the distribution of possible outcomes. Pace concludes that additional base load capacity is essential in accomplishing that goal. Purchasing or constructing IGCC, nuclear or even renewable capacity is necessary for achieving this outcome.

Of the four base-load capacity resource options available to LE; IGCC appears to be superior, making plan 1¹ (Hold & Buy IGCC) the lowest in expected costs and volatility of possible outcomes. Nuclear power stations reduce both total expected utility cost and volatility of LE's utility cost. Uranium markets have been, and are expected to be more stable than natural gas markets. Therefore, market risk in this portfolio is reduced. The combination of the four baseload options in Plan 9 (Hold & Buy Renew / IGCC / Nuc) provides portfolio performance that is extremely close in terms of reduced volatility of possible outcomes when compared to the status quo risk profile.

¹ Again we note the current situation in Florida where the IGCC projects have either been delayed indefinitely or cancelled outright in response to the regulatory and permitting approval uncertainty.

However, an additional consideration in procuring nuclear and IGCC capacity is the capital cost risk. Recently, there has been a heavy run up capital costs in completing baseload resources. It is possible that if the costs to complete a nuclear or IGCC facility could escalate far beyond Pace's estimate, fixed costs of these facilities could become stranded or rates could rise to levels that could drive away economic growth in Lakeland.

The combination of additional mid-merit combined-cycle and peaking combustion turbine gas-fired units provides no benefit to LE. Additional assets of these types will not reduce market risk or lower expected system cost. Acquiring additional gas-fired assets does not materially improve LE's risk profile beyond the status quo case.

7.1.1 Operational Risk

In terms of operational risks, modern IGCC and advanced technology next-generation nuclear facilities represent relatively unproven options due to the lack of operating stations in the US. Currently, only two small scale operational IGCC facilities exist in the US (including the nearby facility operated by Tampa Electric Company).

Due to the historical operational problems of current US nuclear fleet, in addition to the advanced technology expected to be used on the next generation of reactors operational risk in being part of the ownership of additional nuclear plants is also unknown. Therefore, it is possible the availability of the unit could be low in the early years of its operational life. In addition, as a minority partner LE would not be the operator of any nuclear facility in which it acquires capacity. The availability of the plant would depend heavily on the primary owner of the facility and the design performance of the nuclear technology. Mitigating part of this concern is the exceptional performance of the nuclear fleets in France, Japan and Korea.

The operational risks of constructing additional CC and CT facilities are minimal; as the operational characteristics of CT and CC generating units are well known to LE. In addition, LE already is the operator of the McIntosh 3 unit, and therefore is fully informed of the operational risks of investing in the remaining capacity.

7.1.2 Regulatory Risk

The regulatory risk considered within this RIRP analysis considers the impact of a more stringent global warming reduction program beyond what Pace has considered its reference case. Reducing this risk is best done by acquiring renewable and nuclear facilities. Purchasing the remaining capacity of McIntosh 3, or building even an IGCC facility increases this risk factor (assuming that the IGCC option does not entail back-end carbon capture and sequestration).

The plan with the lowest regulatory risk is Plan 11 (Sell Mc3 & Buy CC / Nuc), which involves the sale of LE's capacity in the McIntosh 3 coal-fired unit. The benefits of this portfolio if a carbon emissions cost program is initiated at either the state or federal level that is greater than the reference case forecast is more pronounced than any other plan. Of the plans considered in this study, Plan 11 reduces the reliance on coal and increases LE's holdings of natural gas-fired capacity, limiting LE's emissions of CO₂. In addition, plans that contained renewable or nuclear plants also showed some mitigation of LE's regulatory risk.

7.1.3 Future Capacity Additions Investment Decisions

Lakeland Electric requires 423 MW of additional capacity by the end of the Study Period. Pace's analysis of the resources available to LE suggests that Advanced Nuclear Reactors, Biomass, Municipal Solid Waste, Gas-fired Combined Cycle and Combustion Turbine are available to LE for future development.

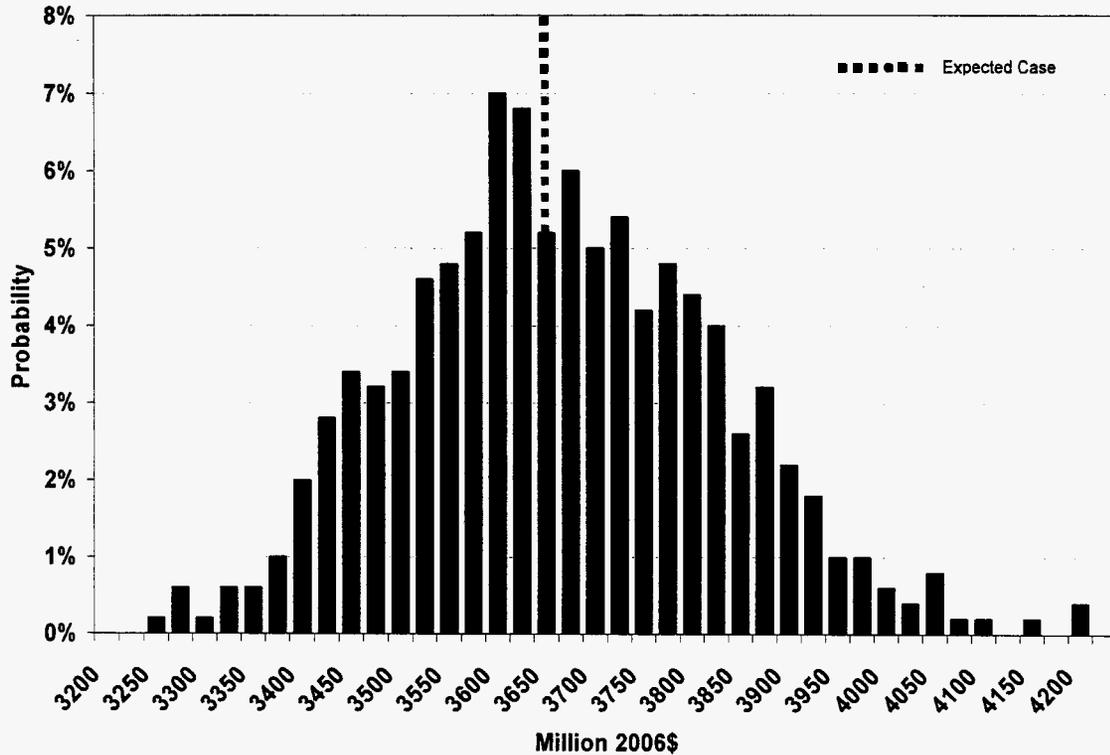
LE's status quo option is to maintain with its current resource base, while buying needed energy in the spot FMPP and FRCC markets. This plan results in a risk profile as seen in Exhibit 7.1. This is the risk profile that LE's decisions on future capacity investments should attempt to mitigate and improve.

The final decision on future investment lies with Lakeland Electric, and its views on balancing its primary planning objectives. Balancing competing and sometimes conflicting objectives requires an excellent understanding of current and future market conditions.

LE's net present value risk profile has an expected value of \$3.6 billion, with a standard deviation of \$164 million. The range between the maximum and minimum value is \$0.95

billion. The distribution of possible outcomes results from the volatility in the fuel and power markets modeled in this RIRP analysis.

Exhibit 7.1: Net Present Value Utility Cost Risk Profile – 2008 - 2028



Note: Assumes a 2.5% Real Discount Rate
Source: Pace

Increasing the utility’s base load capacity would reduce total system utility cost as well as cost volatility. Even accounting for the recent run ups in uranium prices, the markets for U₃O₈ and coal are notably lower and less volatile than natural gas and fuel oil. While increasing IGCC and nuclear base load resources reduces volatility and system cost, these base load alternatives in Florida will be extremely difficult to permit and construct and neither can be pursued alone by LE. LE should actively network and engage partnership or equity share participation in potential base load project developments. LE should give strong political support to nuclear and IGCC at the state level. This should be done to prevent the current regimes regulatory push towards a gas-only future. LE should attempt to influence state-level regulators in order to inform them of the risks and costs of their actions as current policies push the state in this direction.

When comparing the IGCC to nuclear build decision, neither type presents a solid case of superiority over the other and ultimately comes down to which technology can be constructed in the state. Both provide stability and reduced utility costs by taking advantage of the coal and uranium markets, respectively. However, nuclear facilities provide lower and more stable energy through a larger capital requirement. When considering regulatory carbon compliance risk, IGCC facilities produce significant amounts of CO₂ and would require significant additional capital to install carbon capture equipment; a technology which remains commercially unproven. On the other hand, capital expense of nuclear facilities is a large unknown due to the lack of any recent history of constructing such facilities on US soil. Furthermore, the utilities in Florida will be hard pressed to have the first nuclear facility online prior to 2020. Therefore, if a nuclear plant is chosen by LE as a future expansion resource, the additional lead time would result in greater volatility due to the time LE would remain exposed to the volatility in the spot energy markets. Given the evolving regulatory conditions in the state of Florida, the nuclear build addition appears the more credible of the two options.

Biomass, MSW, or alternative technologies such as plasma gasification may provide options in the future for “base load like” supply, i.e. low price fuels that are similar to the economics of nuclear and IGCC. LE should consider evaluating projects similar to those recently proposed and under construction in the state of Florida. These projects can reduce expected utility cost volatility to levels similar to other base load generation types.

A natural gas-fired capacity expansion future represents the highest-cost, highest-risk outcome for LE. Additional natural gas-fired capacity does not reduce future market and only partially mitigates carbon related regulatory risk. With these resources, LE does not substantially reduce its risk profile beyond the status quo case. This is due to the large amount of gas-fired capacity already in the FMPP and FRCC market that regularly sets the marginal price of energy.

As shown in Section 6 and again in the Tables in Section 9, Lakeland does not have an immediate capacity need in the current ten year planning horizon. This gives Lakeland the ability to continue, in a timely but unhurried manner, its evaluation of resource options along with existing resources and what the proper mix of existing and/or new resources should be, if any. Options being considered have included but were not limited to remaining in or leaving the generation business, diversification of existing resource portfolio, retirements, environmental compliance strategies, fuel switching and proper fuel diversification of future resource portfolio's. As no final decision has been made at

the time of this writing, all resources are assumed available over the planning cycle meaning no planned retirements of existing facilities being proposed for the current ten year planning cycle. The demand and capacity analysis presented in Section 6 indicates that this position is feasible and achievable for the current planning cycle.

7.2 Demand-Side Economic Analysis

Lakeland continues to actively monitor Demand-Side Options to find the most cost-effective way to meet our customers' needs. To date, no traditional cost-effective DSM measures have been identified. Lakeland was able to demonstrate its solar thermal water heating program cost-effective through the use of the PSC approved FIRE model in the 2005 IRP. The main driver for this program being cost-effective is because it has its own self-sustaining rate, meaning there is no revenue loss to the utility and other customers do not subsidize the program. Participants are billed for the thermal energy used at a separate rate from their normal KWH consumption. As a result Lakeland is developing a business plan to present to its management to increase the penetration of its solar thermal hot water program. This program has been highly successful in its R&D stage and should be considered a hybrid between DSM and distributed generation. It should be noted that despite this program being cost-effective, even the most aggressive implementation of this program would not meet all of the future capacity needs of the system.

7.3 Sensitivity Analysis

In Lakeland's normal course of analysis a preferred option would be selected. Lakeland would then perform several sensitivity analyses to measure the impact of important assumptions on the option(s) selected. The sensitivity analyses may include but not be limited to the following:

- High load and energy growth.
- Low load and energy growth.
- High fuel price escalation.
- Low fuel price escalation.
- Constant differential between oil/gas and coal prices over the planning horizon.
- Carbon tax

For each sensitivity analysis, a best plan over the planning horizon would be identified. The sensitivity analyses have been performed by Pace over the same planning period used throughout the economic evaluations, with a projection of annual costs and cumulative present worth costs.

7.4 Transmission and Distribution

All options selected would be analyzed for impacts to the transmission and distribution systems and the costs of any upgrades would be factored into the final analysis and decision.

8.0 Environmental and Land Use Information

Lakeland's 2009 Ten-Year Site Plan has no capacity additions in it and thus no additional environmental or land use information is required at this time. All existing units are fully permitted and meet all permitted requirements. Any future additions would comply with all applicable environmental and land use requirements.

9.0 Ten-Year Site Plan Schedules

The following section presents the schedules required by the Ten-Year Site Plan rules for the Florida Public Service Commission. Lakeland has attempted to provide complete information for the FPSC whenever possible.

9.1 Abbreviations and Descriptions

The following abbreviations are used throughout the Ten-Year Site Plan Schedules.

<u>Abbreviation</u>	<u>Description</u>
Unit Type	
CA	Combined Cycle Steam Part
GT	Combustion Gas Turbine
ST	Steam Turbine
CT	Combined Cycle Combustion Turbine
IC	Internal Combustion Engine
Fuel Type	
NG	Natural Gas
DFO	Distillate Fuel Oil
RFO	Residual Fuel Oil
BIT	Bituminous Coal
WH	Waste Heat
Fuel Transportation Method	
PL	Pipeline
TK	Truck
RR	Railroad
Unit Status Code	
RE	Retired
SB	Cold Standby (Reserve)
TS	Construction Complete, not yet in commercial operation
U	Under Construction
P	Planned for installation

Table 9-1a
Schedule 1.0: Existing Generating Facilities as of December 31, 2004

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Plant Name	Unit No.	Location	Unit Type	Fuel		Fuel Transport		Alt Fuel Days Use	Commercial In-Service Month/Year	Expected Retirement Month/Year	Gen. Max. Nameplate kW	Net Capability ¹	
				Pri	Alt	Pri	Alt					Summer MW	Winter MW
Charles Larsen Memorial	2	16-17/28S/24E	GT	NG	DFO	PL	TK	28	11/62	Unknown	11,500	10	14
	3		GT	NG	DFO	PL	TK	28	12/62	Unknown	11,500	9	13
	8		CA	WH	---				04/56	Unknown	25,000	29	31
	8		CT	NG	DFO	PL	TK	5	07/92	Unknown	101,520	<u>73</u>	<u>90</u>
Plant Total											121	148	

¹Net Normal.

Source: Lakeland Energy Supply Unit Rating Group

Table 9-1b Schedule 1.0: Existing Generating Facilities as of December 31, 2004													
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Plant Name	Unit No.	Location	Unit Type	Fuel		Fuel Transport		Alt Fuel Days Use	Commercial In-Service Month/Year	Expected Retirement Month/Year	Gen. Max. Nameplate kW	Net Capability ¹	
				Pri	Alt	Pri	Alt					Summer MW	Winter MW
Winston Peaking Station	1-20	21/28S/23E	IC	DFO	NG	PL	TK	3	12/01	Unknown	2,500 each	<u>50</u>	<u>50</u>
Plant Total												50	50
C.D. McIntosh, Jr.	D1	4-5/28S/24E	IC	DFO	---	TK	---		01/70	Unknown	2,500	2.5	2.5
	D2		IC	DFO	---	TK	---		01/70	Unknown	2,500	2.5	2.5
	GT1		GT	NG	DFO	PL	TK	2	05/73	Unknown	26,640	16	19
	1		ST	NG	RFO	PL	TK	29	02/71	Unknown	103,000	80	80
	2		ST	NG	RFO	PL	TK	25	06/76	Unknown	126,000	106	106
	3 ²		ST	BIT	---	RR	TK		09/82	Unknown	363,870	205	205
	5		CT	NG	DFO	PL	TK	3	05/01	Unknown	292,950	207	228
	5		CA	WH	---				05/02	Unknown	135,000	<u>115</u>	<u>112</u>
Plant Total												734	755
System Total												905	953
¹ Net Normal.													
² Lakeland's 60 percent portion of joint ownership with Orlando Utilities Commission.													
Source: Lakeland Energy Supply Unit Rating Group													

Table 9-2

Schedule 2.1: History and Forecast of Energy Consumption and Number of Customers by Customer Class

-1	-2	-3	-4	-5	-6	-7	-8	-9
Year	Rural & Residential					Commercial		
	Population	Members per Household	GWh	Average No. of Customers	Average kWh Consumption per Customer	GWh	Average No. of Customers	Average kWh Consumption per Customer
1999	217,681	2.54	1,249	85,840	14,550	625	10,033	62,294
2000	221,060	2.53	1,239	87,222	14,205	642	10,338	62,101
2001	224,882	2.53	1,263	88,740	14,233	659	10,553	62,447
2002	231,044	2.56	1,328	90,332	14,701	665	10,637	62,518
2003	234,210	2.55	1,328	91,875	14,454	686	10,639	64,480
2004	236,890	2.54	1,418	93,126	15,227	688	11,013	62,472
2005	243,576	2.60	1,403	93,620	14,986	693	11,248	61,611
2006	247,942	2.58	1,443	96,205	14,996	734	11,480	63,937
2007	253,405	2.57	1,438	98,680	14,571	753	11,832	63,642
2008	252,731	2.51	1,383	100,739	13,733	762	11,913	63,986
Forecast								
2009	256062	2.50	1,438	102,568	14,018	768	12,007	64,000
2010	259392	2.50	1,462	103,656	14,108	790	12,130	65,117
2011	262860	2.50	1,485	104,958	14,152	803	12,222	65,730
2012	266359	2.51	1,513	106,283	14,237	818	12,321	66,369
2013	269972	2.51	1,518	107,703	14,094	831	12,422	66,904
2014	273737	2.51	1,543	109,187	14,128	850	12,532	67,825
2015	277607	2.51	1,573	110,782	14,200	872	12,645	68,966
2016	281754	2.50	1,612	112,558	14,321	899	12,773	70,351
2017	286028	2.50	1,647	114,414	14,394	923	12,909	71,463
2018	290,401	2.50	1,686	116,295	14,501	950	13,050	72,775

Table 9-3
Schedule 2.2: History and Forecast of Energy Consumption and Number of Customers by Customer Class

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year	Industrial			Railroads and Railways	Street & Highway Lighting GWh	Other Sales to Public Authorities GWh	Total Sales to Ultimate Consumers GWh
	GWh	Average No. of Customers	Average kWh Consumption per Customer				
1999	486	73	6,654,671	0	17	82	2,457
2000	502	80	6,269,363	0	18	86	2,549
2001	493	81	6,087,383	0	19	81	2,566
2002	520	84	6,192,833	0	19	80	2,701
2003	533	88	6,059,818	0	19	80	2,729
2004	541	91	5,950,484	0	20	82	2,725
2005	541	83	6,513,108	0	20	84	2,809
2006	584	87	6,711,874	0	21	87	2,883
2007	607	88	6,901,330	0	21	87	2,929
2008	608	87	6,984,609	0	21	87	2,862
Forecast							
2009	625	87	7,187,977	0	21	94	2,947
2010	626	84	7,448,560	0	21	94	2,993
2011	629	84	7,488,929	0	21	95	3,034
2012	630	84	7,499,893	0	21	95	3,077
2013	631	85	7,422,588	0	21	95	3,096
2014	632	85	7,433,541	0	21	95	3,141
2015	633	85	7,444,553	0	21	95	3,194
2016	634	85	7,455,588	0	21	95	3,261
2017	635	85	7,466,494	0	21	95	3,321
2018	636	85	7,477,588	0	21	96	3,389

Table 9-4 Schedule 2.3: History and Forecast of Energy Consumption and Number of Customers by Customer Class					
(1)	(2)	(3)	(4)	(5)	(6)
Year	Sales for Resale GWh	Utility Use & Losses GWh	Net Energy for Load GWh	Other Customers (Average No.)	Total No. of Customers
1999	0	110	2,567	10,622	108,710
2000	0	117	2,666	10,614	110,457
2001	0	128	2,694	10,699	111,993
2002	0	70	2,771	10,583	113,734
2003	0	169	2,898	10,517	115,050
2004	0	142	2,867	10,362	116,010
2005	0	133	2,942	10,206	118,002
2006	0	122	3,005	10,016	120,615
2007	0	116	3,045	9,869	122,378
2008	0	169	3,031	9,687	122,426
Forecast					
2009	0	76	3,023	9,567	124,229
2010	0	137	3,130	9,570	125,440
2011	0	138	3,172	9,575	126,839
2012	0	140	3,217	9,579	128,267
2013	0	145	3,241	9,585	129,795
2014	0	141	3,282	9,589	131,393
2015	0	142	3,336	9,594	133,106
2016	0	143	3,404	9,598	135,014
2017	0	145	3,466	9,603	137,011
2018	0	147	3,536	9,608	139,038

Table 9-5
Schedule 3.1: History and Forecast of Summer Peak Demand Base Case (MW)

(1) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interrupt.	(6) Residential		(7) Commercial/Industrial		(9) Conservation	(10) Net Firm Demand
					Load Management	Conservation	Load Management	Conservation		
1999	542	0	542	0	22	0	0	0	0	520
2000	556	0	556	0	21	0	0	0	0	525
2001	549	0	549	0	0	0	0	0	0	549
2002	578	0	578	0	0	0	0	0	0	578
2003	579	0	579	0	0	0	0	0	0	579
2004	584	0	584	0	0	0	0	0	0	584
2005	639	0	639	0	0	0	0	0	0	639
2006	631	0	631	0	0	0	0	0	0	631
2007	648	0	648	0	0	0	0	0	0	648
2008	615	0	615	0	0	0	0	0	0	615
Forecast										
2009	642	0	642	0	0	0	0	0	0	642
2010	650	0	650	0	0	0	0	0	0	650
2011	655	0	655	0	0	0	0	0	0	655
2012	662	0	662	0	0	0	0	0	0	662
2013	667	0	667	0	0	0	0	0	0	667
2014	675	0	675	0	0	0	0	0	0	675
2015	684	0	684	0	0	0	0	0	0	684
2016	696	0	696	0	0	0	0	0	0	696
2017	707	0	707	0	0	0	0	0	0	707
2018	719	0	719	0	0	0	0	0	0	719

Table 9-6 Schedule 3.2: History and Forecast of Winter Peak Demand Base Case (MW)									
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	Total	Wholesale	Retail	Interrupt.	Residential		Comm./Ind.		Net Firm Demand
					Load Management	Conservation	Load Management	Conservation	
1999/2000	610	0	610	0	51	0	0	0	559
2000/01	656	0	656	0	0	0	0	0	656
2001/02	659	0	659	0	0	0	0	0	659
2002/03	694	0	694	0	0	0	0	0	694
2003/04	570	0	570	0	0	0	0	0	570
2004/05	648	0	648	0	0	0	0	0	648
2005/06	680	0	680	0	0	0	0	0	680
2006/07	596	0	596	0	0	0	0	0	596
2007/08	684	0	684	0	0	0	0	0	684
2008/09	660	0	660	0	0	0	0	0	660
Forecast									
2009/10	680	0	680	0	0	0	0	0	680
2010/11	687	0	687	0	0	0	0	0	687
2011/12	694	0	694	0	0	0	0	0	694
2012/13	699	0	699	0	0	0	0	0	699
2013/14	705	0	705	0	0	0	0	0	705
2014/15	713	0	713	0	0	0	0	0	713
2015/16	723	0	723	0	0	0	0	0	723
2016/17	734	0	734	0	0	0	0	0	734
2017/18	745	0	745	0	0	0	0	0	745
2018/19	756	0	756	0	0	0	0	0	756

Table 9-7
Schedule 3.3: History and Forecast of Annual Net Energy for Load – GWh
Base Case

	-1	-2	-3	-5	-6	-7	-8	-9	-10
Year	Total	Residential Conservation	Comm./Ind. Conservation	Retail	Wholesale	Utility Use & Losses	Net Energy for Load	Load Factor %	
1999	2457	0	0	2457	0	110	2,567	45.8%	
2000	2549	0	0	2549	0	117	2,666	49.9%	
2001	2566	0	0	2566	0	128	2,694	46.9%	
2002	2701	0	0	2701	0	70	2,771	48.0%	
2003	2729	0	0	2729	0	169	2,898	47.7%	
2004	2725	0	0	2725	0	142	2,867	56.0%	
2005	2809	0	0	2809	0	133	2,942	51.8%	
2006	2883	0	0	2883	0	122	3,005	50.4%	
2007	2929	0	0	2929	0	116	3,045	54.9%	
2008	2862	0	0	2862	0	169	3,031	50.6%	
Forecast									
2009	2947	0	0	2947	0	76	3,023	52.3%	
2010	2,993	0	0	2,993	0	148	3,130	52.5%	
2011	3,034	0	0	3,034	0	151	3,172	52.7%	
2012	3,077	0	0	3,077	0	152	3,217	52.9%	
2013	3,096	0	0	3,096	0	154	3,241	52.9%	
2014	3,141	0	0	3,141	0	156	3,282	53.1%	
2015	3,194	0	0	3,194	0	158	3,336	53.4%	
2016	3,261	0	0	3,261	0	159	3,404	53.7%	
2017	3,321	0	0	3,321	0	162	3,466	53.9%	
2018	3,389	0	0	3,389	0	162	3,536	54.2%	

Table 9-8 Schedule 4: Previous Year and Two Year Forecast of Retail Peak Demand and Net Energy for Load by Month						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Month	Actual		2009 Forecast		2010 Forecast	
	Peak Demand ¹ MW	NEL GWh	Peak Demand ¹ MW	NEL GWh	Peak Demand ¹ MW	NEL GWh
January	684	236	660	237	680	250
February	533	213	582	212	590	218
March	445	223	490	226	496	233
April	483	231	483	218	489	226
May	563	276	574	275	582	283
June	615	282	587	277	595	285
July	613	288	616	291	623	301
August	615	296	642	314	650	321
September	587	306	564	264	570	273
October	526	248	555	261	561	269
November	494	214	465	212	469	220
December	532	218	540	236	546	251

¹After Load Management, Conservation and Interruptible Load exercised as needed.

Table 9-9
Schedule 5: Fuel Requirements

Table 9-9 Schedule 5: Fuel Requirements														
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Fuel Requirements	Type	Units	Calendar Year										
				2008-Actual	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
(1)	Nuclear		Trillion Btu	0	0	0	0	0	0	0	0	0	0	0
(2)	Coal ¹		1000 Ton	674	324	477	550	552	566	550	552	533	530	526
(3)	Residual	Steam	1000 BBL	2	0	0	0	0	0	0	0	0	0	0
(4)		CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0
(5)		CT	1000 BBL	0	0	0	0	0	0	0	0	0	0	0
(6)		Total	1000 BBL	2	0	0	0	0	0	0	0	0	0	0
(7)	Distillate	Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	0
(8)		CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0
(9)		CT	1000 BBL	8	0	1	0	0	0	0	0	0	0	0
(10)		Total	1000 BBL	8	0	1	0	0	0	0	0	0	0	0
(11)	Natural Gas	Steam	1000 MCF	523	317	559	429	398	445	80	0	0	0	0
(12)		CC	1000 MCF	6,871	9,533	12,366	9,544	11,625	12,548	13,724	13,616	14,746	14,807	15,265
(13)		CT	1000 MCF	18	1	18	0	0	0	0	1	0	1	2
(14)		Total	1000 MCF	7,412	9,851	12,943	9,973	12,023	12,993	13,804	13,617	14,746	14,808	15,267
(15)	Other		Trillion Btu	0	0	0	0	0	0	0	0	0	0	0

¹ Includes Petroleum Coke.

Table 9-10
Schedule 6.1: Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Energy Sources	Type	Units	Calendar Year										
				2008-Actual	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
(1)	Inter-Regional Interchange		GWh	0	0	0	0	0	0	0	0	0	0	0
(2)	Nuclear		GWh	0	0	0	0	0	0	0	0	0	0	0
(3)	Coal ¹		GWh	1507	816	1205	1400	1406	1441	1399	1403	1351	1342	1332
(4)	Residual	Steam	GWh	2	0	0	0	0	0	0	0	0	0	0
(5)		CC	GWh	0	0	0	0	0	0	0	0	0	0	0
(6)		CT	GWh	0	0	0	0	0	0	0	0	0	0	0
(7)		Total	GWh	2	0	0	0	0	0	0	0	0	0	0
(8)	Distillate	Steam	GWh	0	0	0	0	0	0	0	0	0	0	0
(9)		CC	GWh	1	0	0	0	0	0	0	0	0	0	0
(10)		CT	GWh	1	0	1	0	0	0	0	0	0	0	0
(11)		Total	GWh	2	0	1	0	0	0	0	0	0	0	0
(12)	Natural Gas	Steam	GWh	27	26	46	35	33	36	7	0	0	0	0
(13)		CC	GWh	870	1350	1748	1334	1660	1801	1978	1966	2134	2147	2214
(14)		CT	GWh	1	0	0	0	0	0	0	0	0	0	0
(15)		Total	GWh	898	1376	1794	1369	1693	1837	1985	1966	2134	2147	2214
(16)	NUG			0	0	0	0	0	0	0	0	0	0	0
(17)	Hydro			0	0	0	0	0	0	0	0	0	0	0
(18)	Other (Specify) ²			559	831	130	403	118	-37	-102	-33	-81	-23	-10
(19)	Net Energy for Load		GWh	3031	3023	3130	3172	3217	3241	3282	3336	3404	3466	3536

¹ Includes Petroleum Coke.

² Intra-Regional Net Interchange including Firm Sale to FMPA

Table 9-11
Schedule 6.2: Energy Sources

(1)	(2) Energy Source	(3) Type	(4) Units	(5) - (15) Calendar Year										
				(5) 2008-Actual	(6) 2009	(7) 2010	(8) 2011	(9) 2012	(10) 2013	(11) 2014	(12) 2015	(13) 2016	(14) 2017	(15) 2018
				(1)	Inter-Regional Interchange		%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(2)	Nuclear		%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(3)	Coal ¹		%	51.80	26.99	38.50	44.14	43.71	44.46	42.63	42.06	39.69	38.72	37.67
(4)	Residual	Steam	%	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(5)		CC	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(6)		CT	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(7)		Total	%	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(8)	Distillate	Steam	%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(9)		CC	%	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(10)		CT	%	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03
(11)		Total	%	0.07	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03
(12)	Natural Gas	Steam	%	0.89	0.86	1.47	1.10	1.03	1.11	0.21	0.00	0.00	0.00	0.00
(13)		CC	%	28.70	44.66	55.85	42.06	51.60	55.57	60.27	58.93	62.69	61.94	62.61
(14)		CT	%	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(15)		Total	%	29.63	45.52	57.32	43.16	52.63	56.68	60.48	58.93	62.69	61.94	62.61
(16)	NUG		%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Hydro		%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Other (Specify) ²		%	18.44	27.49	4.15	12.70	3.67	-1.14	-3.11	-0.99	-2.38	-0.66	-0.28
(18)	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

¹ Includes Petroleum Coke.

² Other = Intra-Regional Net Interchange Including Firm Sale to FMPA.

Table 9-12 Schedule 7.1: Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Summer Peak												
	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
Year	Total Installed Capacity	Firm Capacity Import	Firm Capacity Export	Projected Firm Net To Grid from NUG	Total Capacity Available	System Firm Peak Demand	Reserve Margin Before Maintenance ¹		Scheduled Maintenance	Reserve Margin After Maintenance ¹		
	MW	MW	MW	MW	MW	MW	MW	%	MW	MW	%	
2009	905	0	0	0	905	642	263	41	0	263	41	
2010	905	0	0	0	905	650	255	39	0	255	39	
2011	905	0	0	0	905	655	250	38	0	250	38	
2012	905	0	0	0	905	662	243	37	0	243	37	
2013	905	0	0	0	905	667	238	36	0	238	36	
2014	905	0	0	0	905	675	230	34	0	230	34	
2015	905	0	0	0	905	684	221	32	0	221	32	
2016	905	0	0	0	905	696	209	30	0	209	30	
2017	905	0	0	0	905	707	198	28	0	198	28	
2018	905	0	0	0	905	719	186	26	0	186	26	

¹ Included exercising Load Management and Interruptible Load.

Table 9-13 Schedule 7.2: Forecast of Capacity, Demand, and Scheduled Maintenance at Time of Winter Peak											
-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
Year	Total Installed Capacity	Firm Capacity Import	Firm Capacity Export	Projected Firm Net To Grid from NUG	Total Capacity Available	System Firm Peak Demand	Reserve Margin Before Maintenance ¹		Scheduled Maintenance	Reserve Margin After Maintenance ¹	
	MW	MW	MW	MW	MW	MW	MW	%	MW	MW	%
2007/08	953	0	0	0	953	680	273	40	0	273	40
2008/09	953	0	0	0	953	687	266	39	0	266	39
2009/10	953	0	0	0	953	694	259	37	0	259	37
2010/11	953	0	0	0	953	699	254	36	0	254	36
2011/12	953	0	0	0	953	705	248	35	0	248	35
2012/13	953	0	0	0	953	713	240	34	0	240	34
2013/14	953	0	0	0	953	723	230	32	0	230	32
2014/15	953	0	0	0	953	734	219	30	0	219	30
2015/16	953	0	0	0	953	745	208	28	0	208	28
2016/17	953	0	0	0	953	756	197	26	0	197	26

¹ Included exercising Load Management and Interruptible Load.

Table 9-14
Schedule 8.0: Planned and Prospective Generating Facility Additions and Changes

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Plant Name	Unit No.	Location	Unit Type	Fuel		Fuel Transport		Const Start	Commercial In-Service	Expected Retirement	Gen Max Nameplate	Net Capability		Status
				Pri.	Alt.	Pri.	Alt.	Mo/Yr	Mo/Yr	Mo/Yr	kW	Sum MW	Win MW	

None At Time of This Filing

Table 9-15 Schedule 9.1: Status Report and Specifications of Approved Generating Facilities	
(1) Plant Name and Unit Number: (2) Capacity: (3) Summer MW (4) Winter MW (5) Technology Type: (6) Anticipated Construction Timing: (7) Field Construction Start-date: (8) Commercial In-Service date: (9) Fuel (10) Primary (11) Alternate (12) Air Pollution Control Strategy: (13) Cooling Method: (14) Total Site Area: (15) Construction Status: (16) Certification Status: (17) Status with Federal Agencies: (18) Projected Unit Performance Data: (19) Planned Outage Factor (POF): (20) Forced Outage Factor (FOF): (21) Equivalent Availability Factor (EAF): (22) Resulting Capacity Factor (%): (23) Average Net Operating Heat Rate (ANOHR): (24) Projected Unit Financial Data: (25) Book Life: (26) Total Installed Cost (In-Service year \$/kW): (27) Direct Construction Cost (\$/kW): (28) AFUDC Amount (\$/kW): (29) Escalation (\$/kW): (30) Fixed O&M (\$/kW-yr): (31) Variable O&M (\$/MWh):	N/A

Table 9-16

Schedule 9.2: Status Report and Specifications of Proposed Generating Facilities

<p>(1) Plant Name and Unit Number: (2) Capacity: (3) Summer MW (4) Winter MW (5) Technology Type: (6) Anticipated Construction Timing: (7) Field Construction Start-date: (8) Commercial In-Service date: (9) Fuel (10) Primary (11) Alternate (12) Air Pollution Control Strategy: (13) Cooling Method: (14) Total Site Area: (15) Construction Status: (16) Certification Status: (17) Status with Federal Agencies: (18) Projected Unit Performance Data: (19) Planned Outage Factor (POF): (20) Forced Outage Factor (FOF): (21) Equivalent Availability Factor (EAF): (22) Resulting Capacity Factor (%): (23) Average Net Operating Heat Rate (ANOHR): (24) Projected Unit Financial Data: (25) Book Life: (26) Total Installed Cost (In-Service year \$/kW): (27) Direct Construction Cost (\$/kW): (28) AFUDC Amount (\$/kW): (29) Escalation (\$/kW): (30) Fixed O&M (\$/kW-yr): (31) Variable O&M (\$/MWh):</p>	<p>None in Current Planning Cycle</p>
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Table 9-17 Schedule 10: Status Report and Specifications of Proposed Directly Associated Transmission Lines		
(1)	Point of Origin and Termination:	None planned.
(2)	Number of Lines:	None planned.
(3)	Right of Way:	None planned.
(4)	Line Length:	None planned.
(5)	Voltage:	None planned.
(6)	Anticipated Construction Time:	None planned.
(7)	Anticipated Capital Investment:	None planned.
(8)	Substations:	None planned.
(9)	Participation with Other Utilities:	None planned.