State of Florida

Public Service Commission

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COMMISSION CLERK

DATE: April 3, 2013

TO: Ann Cole, Commission Clerk, Office of Commission Clerk

FROM: Phillip O. Ellis, Engineering Specialist III, Division of Engineering POE
Kevin D. Dawkins, Engineering Specialist I, Division of Engineering KD

RE: 2013 Ten-Year Site Plan from Orlando Utilities Commission

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

If you have any additional questions, please contact me.

POE

Attachment

OUC

The *Reliable* One®

2013 TEN-YEAR SITE PLAN

PREPARED FOR

Orlando Utilities Commission

APRIL 2013

BLACK & VEATCH
Building a world of difference®

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1 EXECUTIVE SUMMARY

1 Executive Summary

This report documents the 2013 Orlando Utilities Commission (OUC) Ten-Year Site Plan pursuant to Section 186.801 Florida Statutes and Section 25-22.070 of Florida Administrative Code. The Ten-Year Site Plan provides information required by this rule, and consists of the following additional sections:

- Utility System Description (Section 2.0)
- Strategic Issues (Section 3.0)
- Forecast of Peak Demand and Energy Consumption (Section 4.0)
- Demand-Side Management (Section 5.0)
- Forecast of Facilities Requirements (Section 6.0)
- Supply-Side Alternatives (Section 7.0)
- Economic Evaluation Criteria and Methodology (Section 8.0)
- Analysis and Results (Section 9.0)
- Environmental and Land Use Information (Section 10.0)
- Conclusions (Section 11.0)
- Ten-Year Site Plan Schedules (Section 12.0)

This Ten-Year Site Plan integrates the power sales, purchases, and loads for the City of St. Cloud (St. Cloud), the partial requirements power sale to the City of Vero Beach (Vero Beach), the power sale to the City of Bartow (Bartow), the power sale to the City of Lake Worth (Lake Worth), and the power sale to Florida Power & Light Company (FPL) into the analyses, as OUC has power supply agreements with these counterparties. OUC has assumed responsibility for supplying all of St. Cloud's loads through 2032 and supplementing Vero Beach's loads for calendar year 2013 (the agreement with Vero Beach originally called for OUC to supplement Vero Beach's loads through 2032 with provisions for further extension upon contract expiration; however, Vero Beach has been in discussions with FPL regarding the sale of the utility, and this Ten-Year Site Plan assumes that OUC will no longer provide power to Vero Beach after December 31, 2013)[1]. OUC has a contract to provide power to Bartow during the 2011 through 2017 period, a contract to sell power to FPL during the 2014 through 2016 period, and a contract to sell power to Lake Worth during 2014, 2015, and 2016 (with provisions for future extension; such extensions have not been assumed for purposes of this Ten-Year Site Plan). Load forecasts for OUC and St. Cloud have been integrated into one forecast, and details of the aggregated load forecast are provided in Section 4.0. A banded forecast is provided with base case growth, high growth, and low growth scenarios. The power OUC is currently planning on providing to Vero Beach, FPL, Bartow, and Lake Worth is discussed in Section 2.0.

OUC is a member of the Florida Municipal Power Pool (FMPP), which consists of OUC, Lakeland Electric (Lakeland), and the Florida Municipal Power Agency (FMPA) All-Requirements Project. Power for OUC is supplied by units owned entirely by OUC, as well as units in which OUC maintains joint ownership and power purchases. OUC's available capacity as of January 1, 2013 including capacity, supplemented by St. Cloud's entitlement to c Stanton Energy Center Unit 2 and OUC's

[1] As discussed in more detail throughout this Ten-Year Site Plan, as part of the negotiations related to early termination of the supplemental power sale to Vero Beach, OUC will receive Vero Beach's ownership interests in Stanton Energy Center Units 1 and 2 and St. Lucie Unit 1. OUC is assumed to sell 38 MW of power to FPL during calendar years 2014, 2015, and 2016.

current power purchases, provides for total net summer capacity of 1,837 MW and total net winter capacity of 1,925 MW[2].

As illustrated in Section 6.0 of this report, OUC is projected to have adequate capacity to maintain a 15 percent reserve margin throughout the period considered in this Ten-Year Site Plan.

[2] Net seasonal capacity ratings as of January 1, 2013. Includes capacity owned by OUC and St. Cloud, as well as OUC's contractual power purchases. Reflects capacity increases to St. Lucie completed in December 2012. Does not include capacity from Crystal River Unit 3, which, as discussed later in this Ten-Year Site Plan, is out of service and expected to be retired rather than returned to service.

2 UTILITY SYSTEM DESCRIPTION

2 Utility System Description

At the turn of the 20th century, John M. Cheney, an Orlando, Florida judge, organized the Orlando Water and Light Company and supplied electricity on a part-time basis with a 100 kW generator. Twenty-four hour service began in 1903. The population of the City of Orlando (City) had grown to roughly 10,000 by 1922 and Cheney, realizing the need for wider services than his company was capable of supplying, urged his friends to work and vote for a $975,000 bond issue to enable the citizens of Orlando to purchase and municipally operate his privately owned utility. The bond issue carried almost three to one, as did a subsequent issue for additional improvements. The citizens of Orlando acquired Cheney's company and its 2,795 electricity and 5,000 water customers for a total initial investment of $1.5 million.

In 1923, OUC was created by an act of the state legislature and was granted full authority to operate electric and water municipal utilities. The business was a paying venture from the start. By 1924, the number of customers had more than doubled and OUC had contributed $53,000 to the City. When Orlando citizens took over operation of their utility, the City's population was less than 10,000; by 1925, it had grown to 23,000. In 1925, more than $165,000 was transferred to the City, and an additional $111,000 was transferred in 1926.

Today, OUC operates as a statutory commission created by the legislature of the State of Florida as a separate part of the government of the City. OUC has full authority over the management and control of the electric and waterworks plants in the City and has been approved by the Florida legislature to offer these services in Osceola County as well as Orange County. OUC's charter allows it to undertake, among other things, the construction, operation, and maintenance of electric generation, transmission, and distribution systems, chilled water systems, as well as water production, transmission, and distribution systems to meet the requirements of its customers.

In 1997, OUC entered into an Interlocal Agreement with the City of St. Cloud in which OUC assumed responsibility for supplying all of St. Cloud's loads for the 25 year term of the agreement, which added an additional 150 square miles of service area. OUC also assumed management of St. Cloud's existing generating units and purchase power contracts. This agreement has been extended through 2032.

2.1 EXISTING GENERATION SYSTEM

Presently, OUC has ownership interests in five electric generating plants, which are described further in this section. Table 2-1 summarizes OUC's generating facilities, which include the following:

- Stanton Energy Center Units 1 and 2, Stanton A, and Stanton B.
- Indian River Plant Combustion Turbine Units A, B, C, and D[3].
- Progress Energy Florida (formerly Florida Power Corporation) Crystal River Unit 3 Nuclear Generating Facility.
- Lakeland Electric McIntosh Unit 3.
- Florida Power & Light Company (FPL) St. Lucie Unit 2 Nuclear Generating Facility.

[3] As discussed throughout this report, OUC has purchased the steam units at the Indian River site; however, given the current condition of the units, these units do not currently provide generating capacity for OUC.

Table 2-1 Summary of OUC Generation Facilities
(As of January 1, 2013)

PLANT NAME	UNIT NO.	LOCATION (COUNTY)	UNIT TYPE	FUEL		FUEL TRANSPORT		COMMERCIAL IN-SERVICE MONTH/YEAR	EXPECTED RETIREMENT MONTH/YEAR	NET CAPABILITY	
				Pri	Alt	Pri	Alt			Summer MW	Winter MW
Indian River	A	Brevard	GT	NG	FO2	PL	TK	06/89	Unknown	18[(1)]	23.4[(1)]
Indian River	B	Brevard	GT	NG	FO2	PL	TK	07/89	Unknown	18[(1)]	23.4[(1)]
Indian River	C	Brevard	GT	NG	FO2	PL	TK	08/92	Unknown	85.3[(2)]	100.3[(2)]
Indian River	D	Brevard	GT	NG	FO2	PL	TK	10/92	Unknown	85.3[(2)]	100.3[(2)]
Stanton Energy Center	1	Orange	ST	BIT	NG	RR	PL	07/87	Unknown	301.6[(3)]	303.7[(3)]
Stanton Energy Center	2	Orange	ST	BIT	NG	RR	PL	06/96	Unknown	334.5[(4)]	334.5[(4)]
Stanton Energy Center	A	Orange	CC	NG	FO2	PL	TK	10/03	Unknown	173.6[(5)]	184.8[(5)]
Stanton Energy Center	B	Orange	CC	NG	FO2	PL	TK	02/10	Unknown	298	312
McIntosh	3	Polk	ST	BIT	--	RR	--	09/82	Unknown	133[(6)]	136[(6)]
Crystal River	3	Citrus	NP	UR	--	TK	--	03/77	Unknown	13[(7)]	13[(7)]
St. Lucie[(8)]	2	St. Lucie	NP	UR	--	TK	--	06/83	Unknown	60	60

(1)Reflects an OUC ownership share of 48.8 percent.
(2)Reflects an OUC ownership share of 79.0 percent.
(3)Reflects an OUC ownership share of 68.6 percent.
(4)Reflects an OUC ownership share of 71.6 percent and St. Cloud entitlement of 3.4 percent.
(5)Reflects an OUC ownership share of 28.0 percent.
(6)Reflects an OUC ownership share of 40.0 percent.
(7)Crystal River Unit 3 has been out of service since August 2009 and is expected to be retired rather than brought back into service. Capacity and energy associated with OUC's share of Crystal River Unit 3 is not reflected in this Ten-Year Site Plan, but is presented in this table for informational purposes.
(8)OUC owns approximately 6.1 percent of St. Lucie Unit No. 2. Reliability exchange divides 50 percent power from Unit No. 1 and 50 percent power from Unit No. 2. Capacity shown reflects capacity uprate completed in December 2012.

The Stanton Energy Center is located 12 miles southeast of Orlando, Florida. The 3,280 acre site contains Units 1 and 2, as well as Units A and B, and the necessary supporting facilities. Stanton Unit 1 was placed in commercial operation on July 1, 1987, followed by Stanton Unit 2, which was placed in commercial operation on June 1, 1996. Both units are fueled by pulverized coal and operate at emission levels that are within the Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) requirement standards for sulfur dioxide (SO_2), nitrogen oxides (NO_x), and particulates. Stanton Unit 1 is a 444 MW net coal fired facility. OUC has a 68.6 percent ownership share of this unit, which provides 302 MW of capacity to the OUC system. Stanton Unit 2 is a 446 MW net coal fired generating facility. OUC maintains a 71.6 percent (319 MW) ownership share of this unit.

OUC has entered into an agreement with Kissimmee Utility Authority (KUA), FMPA, and Southern Company - Florida LLC (SCF) governing the ownership of Stanton A, a combined cycle unit at the Stanton Energy Center that began commercial operation on October 1, 2003. OUC, KUA, FMPA, and SCF are joint owners of Stanton A, with OUC maintaining a 28 percent ownership share, KUA and FMPA each maintaining 3.5 percent ownership shares, and SCF maintaining the remaining 65 percent of Stanton A's capacity.

Stanton A is a 2x1 combined cycle utilizing General Electric combustion turbines. Stanton A is dual fueled with natural gas as the primary fuel and No. 2 oil as the backup fuel. OUC maintains a 28 percent equity share of Stanton A, while purchasing 52 percent as described further in Section 2.2.

Stanton B is a 1x1 combined cycle utilizing General Electric combustion turbines. Stanton B is dual fueled with natural gas as the primary fuel and No. 2 oil as the backup fuel. OUC is the sole owner of Stanton B.The Indian River Plant is located 4 miles south of Titusville on US Highway 1. The 160 acre Indian River Plant site contains three steam electric generating units (No. 1, 2, and 3) and four combustion turbine units (A, B, C, and D). The three steam turbine units were sold to Reliant in 1999, with OUC recently repurchasing the units. The combustion turbine units are primarily fueled by natural gas, with No. 2 fuel oil as an alternative. OUC has a partial ownership share of 48.8 percent, or 36 MW, in Indian River Units A and B as well as a partial ownership share of 79 percent (approximately 171 MW) in Indian River Units C and D. Given their current condition, the Indian River steam units do not provide generating capacity for OUC, but do provide OUC with future options for new generating capacity.

Crystal River Unit 3 is an 835 MW net nuclear generating facility operated by Progress Energy Florida, formerly Florida Power Corporation. OUC has a 1.6015 percent ownership share in this facility, providing approximately 13 MW to the OUC system. Given the current status of the unit, which has not been in operation since August 2009, and the announcement by Duke Energy[4] in February 2013 that the unit will not be brought back to service, this Ten-Year Site Plan does not reflect any capacity or energy being provided by Crystal River Unit 3.

McIntosh Unit 3 is a 340 MW net coal fired unit operated by Lakeland Electric. McIntosh Unit 3 has supplementary oil and refuse-derived fuel burning capability and is capable of burning up to 20 percent petroleum coke. Lakeland Electric has ceased burning refuse-derived fuel at McIntosh Unit 3 for operational and landfill reasons. For purposes of the analyses performed in this application, it was assumed that McIntosh Unit 3 would burn coal priced identically to that used for Stanton Units 1 and 2. OUC has a 40 percent ownership share in McIntosh Unit 3, providing approximately 133 MW of capacity to the OUC system.

[4] Duke Energy recently completed its merger with Progress Energy, with the combined company being called Duke Energy.

St. Lucie Unit 2 is a 853 MW net nuclear generating facility operated by FPL. OUC has a 6.08951 percent ownership share in this facility, providing approximately 51 MW of generating capacity to OUC. A reliability exchange with St. Lucie Unit 1 results in half of the capacity being supplied by St. Lucie Unit 1 and half by St. Lucie Unit 2. The capacity available from St. Lucie Unit 2 increased following completion of the unit's capacity uprate in December 2012; the increase is reflected throughout this Ten-Year Site Plan.

As part of the Interlocal Agreement with St. Cloud, OUC has operating control of the generating units owned by St. Cloud. The St. Cloud internal combustion generating units (totaling 21 MW of grid-connected capacity, and an additional 6 MW that has never been connected to the grid) were retired as of March 2008. St. Cloud also has an entitlement to capacity from Stanton Unit 2 associated with its purchase through FMPA (related to FMPA's participation in the Stanton II Project). FMPA's ownership in Stanton Unit 2 through the Stanton II Project is 23.2 percent and St. Cloud's purchase from FMPA's Stanton Unit 2 ownership is 14.67 percent, entitling St. Cloud to approximately 15.2 MW of capacity from Stanton Unit 2.

2.2 PURCHASE POWER RESOURCES[5]

OUC has a purchase power agreement (PPA) with SCF for 80 percent of SCF's ownership share of Stanton A. Under the original Stanton A PPA OUC, KUA, and FMPA agreed to purchase all of SCF's 65 percent capacity share of Stanton A for 10 years, although the utilities retained the right to reduce the capacity purchased from SCF by 50 MW each year, beginning in the sixth year of the PPA, as long as the total reduction in capacity purchased did not exceed 200 MW. The utilities originally had options to extend the PPA beyond its initial term. OUC, KUA, and FMPA have unilateral options to purchase all of Stanton A's capacity for the estimated 30 year useful life of the unit. Subsequent amendments to the original PPA continue OUC's capacity purchase through the 20th year of the PPA. Beginning with the 16th contract year and ending with the 20th contract year, OUC will maintain the irrevocable right to reduce the amount of capacity purchased by either 20 MW or 40 MW per year, as long as the total reduction in purchased capacity does not exceed 160 MW. Additionally, OUC has the option of terminating the PPA after the 20th contract year, which ends September 30, 2023. Rather than terminating the PPA, OUC may elect to continue the PPA for an additional 5 years under the Extended Term option beginning October 1, 2023, and ending September 30, 2028. OUC may subsequently continue the PPA for an additional 5 years under the Further Extension option beginning October 1, 2028, and ending September 30, 2033.

2.3 POWER SALES CONTRACTS

OUC has had a number of power sales contracts with various entities over the past several years. OUC is currently contractually obligated to supply supplementary power to Vero Beach under a partial requirements power sales contract. The original duration of the contract was 20 years (the contract went into effect January 1, 2010) with provisions for further extension upon contract expiration. Under the agreement, OUC was to be the exclusive power provider and marketer for Vero Beach. Recent negotiations between OUC and Vero Beach have led to early termination of this power sales agreement, with the contract reflected to expire December 31, 2013 in this Ten-Year Site Plan. Upon expiration of the sale to Vero Beach, OUC will provide power to FPL for a 3 year period (2014 through 2016). OUC also has a contract to provide power to Bartow for the 2011 through 2017 period. Bartow purchases the power from OUC, and then distributes it to its customers through its existing infrastructure. OUC has a 3 year contract, with two, one year extension options, to provide power to Lake Worth, beginning in 2014.

[5] OUC's renewable power purchases are discussed in Section 2.4 of this Ten-Year Site Plan.

For purposes of this 10-Year Site Plan, OUC has assumed the winter and summer capacities and annual energy presented in Table 2-2 will be provided to Vero Beach, FPL, Bartow, and Lake Worth.

Table 2-2 Annual Summer and Winter Peak Capacity (MW) and Annual Net Energy for Load (GWh) to be Provided to Vero Beach, FPL, Bartow, and Lake Worth

YEAR	SUMMER MW				WINTER MW				ANNUAL GWH		
	VER	FPL	Bartow	LWU	VER	FPL	Bartow	LWU	VER	Bartow	LWU
2013	99		67		99		63		632	290	
2014		38	67	31		38	69	31		295	221
2015		38	68	32		38	70	32		295	228
2016		38	69	33		38	70	33		300	234
2017			69				71			303	

VER = Vero Beach; LWU= Lake Worth.

2.4 OUC'S RENEWABLE ENERGY AND SUSTAINABILITY INITIATIVES AND COMMUNITY INVOLVEMENT

OUC is actively incorporating renewable technologies in their generation portfolio and taking other steps to reduce carbon emissions. Technologies such as solar and landfill gas allow OUC to provide the necessary power demand to customers while reducing harmful effects on the environment. Renewable energy, energy efficiency, sustainability and community activities are crucial to reducing the total needed demand for power. OUC's recent renewable energy and sustainability initiatives, as well as OUC's recent activities in the community and customer education initiatives, are discussed in the following sub-sections.[6]

2.4.1 Solar

In addition to continuing to promote DSM and conservation, OUC is actively working to promote customer awareness of opportunities to increase the role of renewable energy. One such initiative is OUC's Green Pricing Program. Participation in this program helps add renewable energy to OUC's generation portfolio, improves regional air and water quality, and assists OUC in developing additional renewable energy resources. Program participants may pay an additional $5.00 on their monthly utility bills for each 200 kWh block blend of local bio-energy (75 percent), local solar energy (20 percent) and purchased wind power (5 percent); or $10.00 for each 200 kWh block of 100 percent solar energy. There is no limit to the number of 200 kWh blocks that a participant may acquire to support funding of additional renewable energy to OUC's portfolio. Participation helps OUC develop cleaner alternative energy resources, such as solar, wind, and biomass. The annual per customer participation of 2,400 kWh is equivalent to the environmental benefit of planting 3 acres of forest, taking three cars off the road, preventing the use of 27 barrels of oil, or bicycling more than 30,575 miles instead of driving.

Further examples of OUC's commitment to renewable energy are OUC's environmentally friendly solar programs, which are available to both residential and commercial customers. These programs include the Solar Photovoltaic (PV) Net Metering Program and the Solar PV Credit Program, and the Solar Thermal program, which generates heat for domestic water heating systems. Participating customers in the PV Credit program can install a solar PV system on their homes or business and sign an agreement allowing OUC to retain the rights to the environmental benefits or attributes. For

[6] Please refer to Section 5.0 of this Ten-Year Site Plan for discussion of OUC's conservation and demand-side management programs.

the Net Metering Program, participating customers receive a monthly production credit on their utility bills for energy produced in excess of what the home or business can use. Any excess electricity generated and delivered by the solar PV systems back to OUC's electric grid is credited at the customer's retail electric rate. Customers participating in the Solar PV Credit program receive a monthly credit of $0.05 for each kWh produced from their system. Commercial Solar Thermal Program participants receive a monthly credit of $0.03 for each kWh equivalent produced by their solar hot water system. Customers participating in the Residential Solar Thermal Program receive a rebate of up to $1,000 for installing a solar hot water system. Residential customers may also benefit from OUC's partnership with the Orlando Federal Credit Union to provide low interest loan options for solar thermal and PV installations, helping to keep the net monthly cost low, all of which can be included on the OUC bill. Additional federal tax credits may also be available to help minimize costs. To date, a total of 512 customers participate in OUC's solar incentive programs adding 4.1 MW of distributed capacity to OUC's energy portfolio.

To further facilitate development of solar energy, OUC supported Orange County in its efforts to obtain a $2.5 million grant from the Florida Department of Environmental Protection to install a 1 MW solar array on the Orange County Convention Center. The project "went live" in May 2009 and is currently producing clean, green power. In 2008, Orlando was designated a "Solar American City" by the U.S. Department of Energy (DOE). The ongoing partnership between OUC, City of Orlando and Orange County received $450,000 in funding and technical expertise to help develop solar projects in OUC's service area that can be replicated across the country.

In September 2009, OUC and clean energy company Petra Solar teamed up to launch the first utility pole-mounted solar photovoltaic system in Florida. Ten of Petra Solar's SunWave™ intelligent photovoltaic solar systems have been installed on OUC utility poles along Curry Ford Road. Together the panels can generate up to 2 KW, about enough to power a small home. The innovative solar panel demonstration project is expected to help enhance the Smart Grid capabilities and reliability of the electric distribution grid. Petra Solar worked in collaboration with the University of Central Florida in developing the pole-mounted approach to clean energy generation. The SunWave systems not only turn street light and utility poles into solar generators, they also communicate with the electric grid and can offer smart grid capabilities. The systems can improve grid reliability through real-time communications between solar generators in the field and the utility control center. In addition, the systems enhance electric distribution grid reliability through a host of capabilities such as voltage and frequency monitoring and reactive power compensation.

During 2010, OUC invested $100,000 in an educational partnership with the Orlando Science Center to build a 31.5 kW PV array atop the Science Center's observatory. The system provides about 42,660 kWh of electricity per year, or enough power to serve about four homes. The PV installation not only provides green power to the Science Center but also an educational experience on the science of solar energy for the thousands of children who visit the center each year.

OUC has added solar to its fleet of natural gas, coal, and landfill gas generation already on site at Stanton Energy Center. Duke Energy owns and maintains the Stanton Solar Farm, which produces about 5 MW, or enough power for about 500 homes. Brought on-line in late 2011, the Stanton Solar Farm consists of more than 25,000 modules featuring solar panels with a patented single-axis tracking system design that can withstand Category 4 hurricane winds while increasing electricity output by 30 percent. OUC plans to purchase the output of this installation, which is the first solar farm in Orange County, for the next 20 years.

2.4.2 Landfill Gas

The gas produced by the biological breakdown of organic matter in landfill is known as methane or landfill gas. It is created by the decomposition of wet organic waste under anaerobic, or oxygen-less, conditions in a landfill. This gas is considered a renewable energy source because the anaerobic digestion process continues as waste materials are constantly added to the landfill. In partnership with Orange County, OUC captures methane gas emissions from county landfill cells, and pipes it to the Stanton Energy center where it is co-fired with coal. In addition to helping to reduce greenhouse gas emissions, this project has the potential to displace more than 3 percent of the coal burned at the Stanton Energy Center. It is also capable of producing in excess of 100,000 MWh of reduced-emissions power.

OUC and Orange County recently brought a new LFG facility on line that will recover up to 22 MW of landfill gas capacity from the Orange County Landfill's southern expansion site.

OUC has signed a 20-year renewable energy purchase power agreement for nearly 3 MW of energy generated from landfill gas in Port Charlotte. Its current capacity is now at 2.5 MW but is expected to increase over time.

2.4.3 Carbon Reduction

With more than 775 vehicles – ranging from plug-in hybrids to bucket trucks – OUC's fleet logs more than 4.7 million miles annually. OUC reduces their carbon footprint by using alternative fuels, purchasing more hybrids and recycling automotive products to help our environment. As part of an overall plan to reduce emissions in fleet, OUC uses"B20" – a blend of 80 percent petroleum diesel and 20 percent biodiesel – a clean-burning alternative fuel made from new or used vegetables oils and animal fats, including recycled cooking grease. Compared to petroleum diesel, biodiesel produces lower emissions, so it is better for the environment. B20 has been integrated seamlessly into the fueling system without any changes to vehicles or fuel storage and distribution equipment. Since 2006, nearly 696,000 gallons of B20 have been purchased, and the reduction in diesel fuel has reduced OUC's carbon footprint by 1,772 tonnes of CO_2e (carbon dioxide equivalent). OUC uses biodiesel at both its Pershing Fleet Center and its Gardenia site. Biodiesel is now available in downtown Orlando. Thanks to a $2.5 million grant from the Florida Department of Environment Protection, Central Florida's LYNX transit system opened a biodiesel blending facility and fueling station at its Orlando Operations Center.

Embracing fuel-efficient technology as a commitment to green initiatives, OUC was the first municipal utility in Florida to acquire a plug-in hybrid that gets up to 99 miles per gallon. In addition to the plug-in, OUC has 19 other traditional hybrids in the fleet. OUC also moved forward with an agreement to develop the charging infrastructure, test, and lease 6 all-electric vehicles with a 100 mile range (the Nissan Leaf), and has also leased two Chevy Volts, which can run on gasoline or electricity.

OUC now has five hybrid bucket trucks and one auxiliary battery system to operate the aerial tower hydraulics. Bucket trucks are a promising application for hybrid technology since much of the vehicle's work is done when stationary. The hybrid diesel-electric system allows the main engine to be turned off while crews operate entirely off the battery.

OUC's Fleet Division has incorporated a number of eco-conscious policies, including the use of earth-friendly products and special care taken to dispose contaminated fuels according to environmental standards. Tires, batteries and oil filters are recycled through vendors, while freon, antifreeze and motor oil are handled on site. OUC also has a vehicle idling policy that requires the engine to be turned off after five minutes. Diesel engines use about one gallon of fuel per hour when idling, so this policy saves about $4 per hour per vehicle.

As part of OUC's commitment to alternative fuels and efficient transportation, three of the nine electric-vehicle charging stations at Reliable Plaza are powered by the sun. Located in the parking garage, the 16-panel solar array provides a total of 2.8 kW of power to charge the vehicles. At night or on a cloudy day when the sun is not shining, the power is drawn from Reliable Plaza. When the sun is shining but no car is charging, the power is fed back into the building. OUC can access a special website to track real time info and total system usage for its charging stations. A full charge takes about four hours for a Nissan Leaf. Users have a key fob for the charging station and supply their own power cord. Plug-in drivers can go to mychargepoint.net to locate available charging stations nationwide. Users register with Chargepoint to set up an account that links to their credit card. The power is billed by Nova Charge.

To help prepare Central Florida to support plug-ins, OUC partnered with the City of Orlando, Orange County, and others as part of a national non-profit initiative called Project Get Ready. OUC and the City of Orlando also hosted the national kickoff of the U.S. Department of Energy ChargePoint America Grant, which has provided nearly 300 public charging stations to Central Florida; 135 of these stations are located in OUC's service territory. OUC is developing an electric vehicle infrastructure solution for Greater Orlando, and as part of this effort is offering businesses the opportunity to participate by allocating space for charging stations. Participating businesses were given the option of owning the equipment or hosting the equipment. Customers that choose to own the equipment were reimbursed for installation costs. Customers that opted to host the equipment had no out of pocket expense. OUC installs, owns, and operates the equipment at hosted sites. In the coming year, OUC plans to offer a rebate of $1,000 to commercial customers who install additional charging stations within its service territory.

2.4.4 Energy Efficiency and Sustainability

OUC's commitment to efficiency and sustainability is further demonstrated by Reliable Plaza, OUC's energy and water efficient center in south downtown that opened in 2008 and replaced OUC's 40-year-old Administration Building on South Orange Avenue. Reliable Plaza earned Gold Leadership in Energy and Environmental Design (LEED) certification in 2009, officially cementing the 10-story administration and customer service center as the "Greenest Building in downtown Orlando." The non-profit U.S. Green Building Council awarded the Gold level certification after completing a review of the building's design and construction. Reliable Plaza also holds a Florida Water Star certification, a voluntary program for new and existing construction that encourages water efficiency in appliances plumbing fixtures, irrigation systems and landscapes. Reliable Plaza showcases a number of environmentally friendly features designed to use 28 percent less energy and 40 percent less water than a similarly sized facility. One of the more innovative offerings at Reliable Plaza is the interactive conservation education center. With a live link to the building's conservation systems, the center's touch screen gives customers real time data on how Reliable Plaza uses – and saves – energy and water. The center provides information on green building ideas and conservation tips customers can use at home.

2.4.5 OUC's Green Team

With the philosophy that changing an organization's culture requires both corporate and individual accountability, OUC has established the Green Team – a dedicated group of employee volunteers who are working to implement practical, sustainable operations in their respective work areas.

In addition to setting benchmarks and establishing metrics, the Green Team identifies ways to improve energy and water efficiency in OUC buildings, reduce waste, use product inventories more efficiently, lower emissions from operations, and create a healthier, happier environment for employees and customers.

With the Gold LEED-certified Reliable Plaza setting the standard, other OUC facilities have followed suit, implementing a number of environmental efforts, including:

- Retrofitting and upgrading light bulbs and ballasts
- Installing light sensors
- Turning up thermostats
- Cutting back on landscape and exterior building lighting
- Purchasing Energy Star-rated appliances when replacements are needed
- Using environmentally friendly cleaning products
- Upgrading HVAC systems
- Installing rain sensors on irrigation systems
- Cutting grass less frequently at water plants, substations and areas not highly visible to the public

Going forward, OUC is planning a number of new green initiatives. OUC currently has single stream recycling at all of its facilities and also recycles industrial materials such as wood pallets, utility meters, wire reels and copper. It has also developed internal policies such as electronic document storage, online document review, double-sided printing and specifies the use of recycled paper and office products whenever practicable. In the coming months, OUC will be focused on reducing its energy and water usage with efficiency upgrades at its Pershing and Gardenia facilities.

2.4.6 Community Activities

OUC also continues to play an active role in the local community. OUC employees have donated more than 55,000 hours and $200,000 to 180 community organizations since 1993. OUC conservation support personnel have made hundreds of public appearances related to conservation at schools, business expos, professional associations, and homeowner association meetings. Conservation specialists conducted presentations, provided face-to face consultations, scheduled audits, and disseminated information on conservation programs. Below is a list of events OUC participated in during 2012:

- Nissan LEAF Drive Electric Tour
- Project Get Ready Stakeholder Meeting
- Eco-nomic Living Expo
- Orlando Business Journal Power Breakfast
- Neighborhood & Community Summit
- Colony Cove HOA Presentation
- Orlando Magic Fan Fest (NBA Green Week)
- Valencia Earth Day Event
- Watercolor Project Awards
- CNL Earth Day Fair
- GE Earth Day
- Earth Day at Lake Eola
- Hispanic Business Expo
- State of Orange County Address
- Valencia EV Event

- Mascot Games
- Florida Energy Summit
- Solar Power International Conference
- Lake Eola's Electric Auto Showcase
- State of Downtown Address
- Home & Garden Show
- Richmond Estates HOA Presentation
- Florida Water Festival

Specific examples of community activities in which OUC was involved during 2012 are outlined below.

2.4.6.1 Lowe's Utility Partnership Event

OUC partnered with Lowe's to celebrate Energy Awareness Month. OUC utilized its partnership with Lowe's to educate customers on the benefits of saving energy and water as well as rebates available through OUC. Conservation Auditors were on site at the Lowe's Home Improvement store in Southeast Orlando in October. Conservation Auditors and OUC representatives engaged customers by conducting a scavenger hunt throughout the store for customers to identify ENERGY STAR® and OUC rebated products for a chance to win a $50 Lowe's gift card.

2.4.6.2 Water Cooler Project

For the sixth year in a row, OUC hosted the Water Color Project, a conservation-themed art program that encourages students to showcase the importance of saving water through their artwork. Elementary students compete to have their artwork featured in an annual calendar, while middle and high school students decorate rain barrels that become a traveling exhibit that is displayed throughout the community.

2.4.6.3 City of Orlando Weatherization Programs

OUC also partnered with the City of Orlando on several weatherization programs that target homes in some of the City's least energy-efficient neighborhoods. Based on historical consumption data from OUC, the City developed an energy intensity map to identify the neighborhoods with the highest energy consumption per square foot.

A relatively new program—P.O.W.E.R. (Provide Opportunity, Weatherization, Efficiency and Rehabilitation)—weatherizes and renovates the homes of Orlando residents who apply and meet specific income requirements.

2.4.6.4 Project Awesome

OUC and the Orlando Science Center delivered energy and water conservation workshops to fifth grade classrooms throughout OUC's service territory via Project AWESOME (Alternative Water & Energy Supply; Observation, Methods & Education). It was the third year of the educational program that promotes both water and energy conservation through a hands-on curriculum using content approved by OUC and meeting Sunshine State Standards. Projects included allowing students to make an aquifer, build a solar-powered car, and test low flow showerheads and compact fluorescent light bulbs (CFLs) against traditional fixtures as part of an electric and water conservation and alternative sources educational program. Project A.W.E.S.O.M.E., which launched in 2009, delivers two 90-minute classroom workshops—energy in the fall and water in the spring—to students in support of their Science FCAT preparation. In the 2011–2012 school year, 7,500 fifth grade students in 50 schools in Orange and Osceola County participated, and the program received high marks from both teachers and students. According to post-test assessments, more than 60 percent of the students improved their science skills.

2.4.6.5 "Light Up Nemours" (Believe in Conservation Contest)

OUC teamed up with Nemours Children's Hospital to celebrate the hospital's grand opening by giving elementary school children the chance to participate in a special lighting ceremony. The winners of a conservation-themed art contest received the opportunity to turn on the hospital's colorful lights for the very first time. The colorful lights are unique to Nemours Children's Hospital, where patients are able to pick the lighting color in their own rooms.

The winning schools received $1,000 to be used to teach children the importance of conservation and efficiency; knowledge which will help families reduce their utility bills by making good decisions. Nemours also is going green. In fact, 90 percent of the hospital's construction waste has been recycled, and reclaimed water is being used for more than 60,000 square feet of garden space. Nemours is working toward a Leadership in Energy and Environmental Design (LEED) certification.

2.4.6.6 Habitat for Humanity

OUC has been a long time partner of Habitat for Humanity Orlando, and in 2012 donated $60,000 worth of energy efficient features towards Staghorn Villas – Habitat Orlando's energy efficient townhome project. The $8 million community houses 58 local families. OUC provided 870 compact fluorescent light bulbs, and upgraded all of the community's lighting systems. Siemens partnered with OUC on the project, matching OUC's $60,000 donation.

2.4.6.7 OUC Orlando Half Marathon and 5k

Each December the annual OUC Orlando Half Marathon and 5k races through the streets of downtown Orlando. Considered one of the Southeast's premier and most popular road races, the event starts and finishes in picturesque Lake Eola Park. It offers participants a scenic tour of The City Beautiful throughout their entire running experience. Known for its relatively flat/fast course and favorable Florida weather, the race attracts world class runners, local athletes and amateurs alike.

2.4.7 Customer Education Initiatives

From providing better online access to their consumption history to designing convenient and effective conservation programs, OUC is arming customers with the information and tools they need to optimize the efficiency of their homes and businesses. While the tools and technologies used might have changed, OUC's commitment to conservation has not.

2.4.7.1 Preferred Contractor Network

OUC's revamped its Preferred Contractor Network (PCN) in order to take the hassle out of home improvement by eliminating the guesswork and the paperwork. With the PCN, customers seeking to improve the efficiency of their home don't have to worry about finding a qualified contractor or submitting rebate forms and receipts. Instead they simply select an OUC-approved contractor who completes the work and provides the qualifying rebate at the point of sale. Customers can start saving energy, water and money right away. For the contractors who earn OUC's stamp of approval, they benefit by growing their business and promoting OUC's rebates.

2.4.7.2 Mobile Site

OUC continued to offer a mobile version of its website —m.ouc.com— for handheld devices. The mobile site lets customers interact with OUC on the go. They can pay their bill, check their account, find a rebate or get conservation tips right from their cell phone. Customers have the same online access to OUC.com but in an easy-to-use mobile format.

2.4.7.3 Conservation Website

OUC's conservation website (http://www.ReliablyGreen.com), which launched in January 2010, was developed to inform OUC's customers about energy conservation and ways to "Make Your Mark" while showcasing OUC's own green efforts in "How We Make Our Mark." In 2012, OUC developed an additional six water conservation videos to show customers how they can start saving water and money starting at the tap. It's a one-stop, 24-hour shop for energy and water conservation and rebate information for OUC customers.

2.4.7.4 Home Energy Reports Program

The Home Energy Reports Program, OUC's largest conservation effort to date serving 78,000 customers, encourages customers to conserve by comparing their consumption to their efficient neighbors. Participants receive regular emails or printed reports showing how they rank along with tips and suggestions on how they can improve. To administer the Home Energy Reports, OUC is working with Opower, a software company that helps utilities meet their efficiency goals through effective customer engagement.

2.4.7.5 Energy & Water Conservation DVD

OUC continued to offer a conservation video in an interactive DVD format in English or Spanish that walks customers through a "do-it-yourself" energy and water audit for their home that can help lower their utility bill. In 2012, OUC developed an additional six water conservation videos to show customers how they can save water and money starting at the tap. It is also available online at http://www.ouc.com/waystosave.

2.4.7.6 Media Overview

To reach the desired audience, OUC implemented a comprehensive media campaign that utilized print, online, television, radio, outdoor media and community partnerships. By diversifying their media, OUC is able to reach a broader range of customers and reinforce their commitment to showing customers how to reduce their energy and water use and ultimately their utility bills.

2.4.7.7 Orlando Magic Partnership

After assisting with the energy and water efficiency features in the design phase of the Orlando Magic's new LEED certified home, OUC has continued its green partnership with the Orlando Magic since the Amway Center opened in October 2010:

- The promotion of the facility's LEED certification and its energy and water efficiency features
- Sponsorship of the NBA Green Week (April 2012)
- An interactive educational booth at home game Fan Fest events
- A public information campaign on www.orlandomagic.com.

With this partnership, OUC reaches many of its customers who attend Magic games or follow them on TV. In addition to the approximately 7,000 season ticket holders who reside in the OUC service territory, 87 corporations hold suites, loge boxes or legends suites at the arena. These include many large and mid-size commercial businesses that can benefit from OUC's commercial products and services.

2.4.7.8 Connections

Connections is a monthly newsletter sent to all OUC customers whether they receive a paper statement or e-bill. The Connections newsletters also are posted on http://www.OUC.com and feature information on OUC's programs, events and energy and water saving tips.

2.4.7.9 Social Media

Facebook and Twitter allow OUC to spotlight special events and programs in the community and provide a conservation tip of the day, consisting of 365 daily tips on how to save energy, water and money. OUC also utilizes OUC TV via YouTube to promote conservation and renewable initiatives.

2.5 TRANSMISSION SYSTEM

OUC's existing transmission system consists of 31 substations interconnected through approximately 333 miles of 230 kV, 115 kV, and 69 kV lines and cables. OUC is fully integrated into the state transmission grid through its twenty-one 230 kV, one 115 kV, and one 69 kV metered interconnections with other generating utilities that are members of the Florida Reliability Coordinating Council (FRCC), as summarized in Table 2-3. Additionally, OUC is responsible for St. Cloud's four substations, as well as approximately 56 miles of 230 kV and 69 kV lines and cables. As presented in Table 2-4, the St. Cloud transmission system includes three interconnections.

Table 2-3 OUC Transmission Interconnections

UTILITY	KV	NUMBER OF INTERCONNECTIONS
FPL	230	2
Progress Energy Florida (PEF)	230	9
KUA	230	2
KUA/FMPA	230	2
Lakeland Electric	230	1
TECO	230	2
TECO/Reedy Creek Improvement District	230	2
PEF	69	1
Southern Company	230	1

Table 2-4 St. Cloud Transmission Interconnections

UTILITY	KV	NUMBER OF INTERCONNECTIONS
OUC	69	1
PEF	230	1
KUA	69	1

The upgrade of the 69 kV tie line from the St. Cloud Central substation to KUA has been delayed because of a road widening project along its path, and is now scheduled for completion by summer 2016. The overhead portion of the existing St. Cloud 69 kV transmission line from the Central to the South substation is scheduled to be upgraded by summer 2016.

The upgrade of the Taft-Lakeland 230 kV transmission line from the existing 954 ACSR conductor to 1272 ACSS/TW conductor is in progress. The conductor will be upgraded to increase the power transfer capability of the 230 kV transmission line sections. To date the Osceola Substation to Lake Agnes Substation, Taft Substation to Cane Island Tap, and Cane Island Tap to Osceola Substation line section conductor upgrades are complete. The Lake Agnes to McIntosh Substation line section conductor upgrade began construction in late 2012, and is scheduled for completion by summer 2013. Upon completion of this fourth and final segment, the entire 45 miles of 230 kV transmission line from OUC Taft to Lakeland McIntosh substation, which is mainly routed along the Florida Department of Transportation (FDOT) Interstate 4 roadway, will be upgraded to not less than 840 MVA.

A new 230 kV transmission line was added to the 230 kV Stanton Substation that connects to the new 230 kV Stanton Energy Center Generator B Substation (Sub 36) located on the Stanton Energy Center power plant property. Sub 36 is configured as a collector bus for the new Combustion Turbine Generator and Steam Generator installed on the Generator B site. The line was built on its own corridor to minimize common corridor exposure and any associated potential difficulties.

The 115/12.47 kV America Substation protective relaying and station power systems were completely upgraded to increase system reliability and support modifications to the substation that must be completed to allow for the next phase of the FDOT I-4/408 interchange project. The America upgrade project will have coordination activities with the FDOT and the Expressway Authority extending to approximately 2017.

The 230 k V and 115/12.47 kV Southwood Substation Retrofit Project includes power circuit breaker replacement, in addition to protective relaying and station power system upgrades to increase system reliability and support transmission line capacity increases realized from upgrade projects. During site inspections in April 2010, internal damage was detected in a 373 MVA, 230 / 115kV "bus tie" autotransformer. Damage to the unit was extensive, and required the transformer to be rewound or replaced. The autotransformer was replaced and was energized with load mid-May of 2011. Work at the Southwood Substation, which consists of the remainder of the protective relay retrofit work, is scheduled for completion by fall 2013.

A new OUC – Progress Energy 230 kV tie line with terminals located at the OUC Stanton Substation and the Progress Energy Bithlo Substation was jointly coordinated and constructed. Construction of the Stanton Substation line terminal and the Stanton to Bithlo substation line was completed in May of 2010 as scheduled.

OUC's portion of the existing 230 kV Stanton to Progress Energy Curry Ford (to Rio Pinar) transmission line was recently upgraded to 830 MVA, and presently exceeds the Progress Energy line rating of 468 MVA. Progress Energy is expected to upgrade their associated line segments in the near future.

The four position ring bus 115 kV Martin Substation and its aging electrical infrastructure was replaced by the 230 kV Convention Center Substation in terms of Distribution load service. Two 115 kV transmission lines that sourced Martin Substation from Southwood Substation were removed from service and from the transmission system by January 2012.

To maintain reliable and economic service and proactively plan for the future at key locations, OUC is evaluating numerous upgrades to its transmission system. While these upgrades vary in scope and timing, the following identifies the higher priority, near-term transmission system upgrades planned by OUC:

- Continued conceptual permitting and design for the future Stanton South 230 kV Substation for future generation needs. The site will address system stability, redundancy, and available fault current issues.
- Replacement and upgrade of aging transmission infrastructure within the corridor from Pershing to Stanton to Indian River. The 115 kV line from Pershing to Stanton will be upgraded from 150 MVA to 400 MVA.
- Various 115 kV transmission projects will be implemented to move power more effectively to the downtown Orlando region. Upgrades were performed on the transmission lines from Pershing to Michigan, Pershing to Grant, Metro West to Turkey Lake, America to Kaley, by December 2012.
- Among 115 kV lines under consideration for Upgrade are the transmission lines from Pershing to Stanton, Pine Hills to Country Club, Southwood to Holden, and Southwood to MetroWest by Summer 2015.
- Addition of several distribution transformer additions to existing substations may be required; load growth will determine when these transformer additions will be required.
- An engineering study of the 230 kV Stanton to Taft corridor is scheduled for completion by fall 2013 to determine future upgrade and increased power transfer options. Upon completion of the study, the best, most fiscally responsible option(s) will be pursued.

3 STRATEGIC ISSUES

3 Strategic Issues

OUC incorporates a number of strategic considerations while planning for the electrical system. This section provides an overview of a number of these strategic considerations.

3.1 STRATEGIC BUSINESS UNITS

OUC is currently organized into two strategic business units: the Electric and Water Production (EWP)and the Electric and Water Delivery (EWD) business units.

3.1.1 Electric and Water Production Business Unit

The EWP business unit has structured its operations based on a competitive environment that assumes that even OUC's customers are not captive. EWP will only be profitable if it can produce electricity and water that is competitively priced in the open market. In line with this strategy, OUC is continually studying strategic options to improve or reposition its generating assets, such as the sale of the Indian River steam units in 1999 and the addition of new units and power purchase agreements, and the recent repurchase of the Indian River steam units (which provides OUC with full control over the Indian River site, and additional alternatives for future new generating resources, including possible repowering of the units)[7]. In addition, OUC formally instituted its Energy Risk Management Program in 2000.

OUC's generating system has been designed over the years to take advantage of fuel diversity and the resultant system reliability and economic benefits. OUC's longstanding intent to achieve diversity in its fuel mix is evidenced by its participation in other generating facilities in the State of Florida. The first such endeavor occurred in 1977 when OUC secured a share of the Crystal River Unit 3 nuclear plant, followed by the acquisition of an ownership share in Lakeland Electric's McIntosh Unit 3 coal fired unit in 1982. In 1983, OUC also acquired a share of the St. Lucie Unit 2 nuclear unit. OUC's current mix of wholly and jointly owned capacity is summarized in Table 3-1.

As shown in Table 3-1, coal represents approximately 48.4 percent of the winter generating capacity (approximately 50.4 percent summer) and natural gas represents approximately 47.5 percent of the winter generating capacity (approximately 45.4 percent summer) either wholly or jointly owned by OUC. With the inclusion of OUC's purchased power resources, coal represents approximately 39.7 percent of the winter generating capacity (approximately 41.4 percent summer) and natural gas represents approximately 56.9 percent of the winter generating capacity (approximately 55.0 percent summer).

Given its current status and expected retirement, Crystal River 3 is not being included among the generating resources reflected in this Ten-Year Site Plan. As discussed in Section 2.0 of this Ten-Year Site Plan, OUC is expected to receive Vero Beach's capacity associated with Stanton Energy Center Units 1 and 2 and St. Lucie Unit 2 as part of the terms of the early termination of OUC's power sale contract to Vero Beach. While these factors are not reflected in Table 3-1, they are considered in the projections of future requirements and economic analysis performed for and included in this Ten-Year Site Plan.

The diversity of OUC's fuel supply provides protection against disruption of supply while simultaneously providing economic opportunities to reduce cost to customers. Additional details of OUC's generating facilities are presented in Table 2-1 and Schedule 1 of Section 12.0 of this Ten-Year Site Plan.

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[7] Based on the current condition of the Indian River steam units, OUC is not currently assigning a firm capacity value to the units for purposes of capacity planning.

Table 3-1 Generation Capacity (MW) Owned by OUC by Fuel Type
(as of January 1, 2013)

PLANT NAME	WINTER CAPACITY				SUMMER CAPACITY			
	Coal	Nuclear	Gas/Oil	Total	Coal	Nuclear	Gas/Oil	Total
Stanton	623[1]		497	1,120	621		472	1,093
Indian River			248	248			207	207
Crystal River[2]		0		0		0		0
C.D. McIntosh Jr.	136			136	133			133
St. Lucie[3]		61		61		60		60
Total (MW)	**759**	**61**	**745**	**1,565**	**754**	**60**	**679**	**1,493**
Total (percent)	**48.5**	**3.9**	**47.6**	**100.0**	**50.5**	**4.0**	**45.5**	**100.0**

(1) Includes OUC's share of the landfill gas burned in Stanton Units 1 and 2.
(2) As discussed previously, Crystal River 3 is currently out of service and expected to be retired rather than returned to service.
(3) Capacity shown for St. Lucie reflects capacity uprate completed in December 2012.

OUC's use of alternative or renewable fuels is enhanced by the capability to burn a mixture of petroleum coke in McIntosh Unit 3, along with coal. Petroleum coke is a waste by-product of the refining industry and in addition to the benefits of using a waste product, petroleum coke's lower price may result in an economic advantage compared to burning 100 percent coal. Tests have been done that indicate the unit has the ability to use petroleum coke for approximately 20 percent of the fuel input. Permits have been modified and approved for this level of use.

OUC's fuel diversity is further enhanced by the renewable energy technologies that contribute to OUC's generating resources. OUC's renewable resources are discussed in detail in Section 2.4 of this Ten-Year Site Plan.

In 2008 OUC completed a comprehensive Electric Integrated Resource Plan (IRP) performed by the Strategic Planning team. The IRP analyzed OUC's position in the light of current and possible future governmental regulation. The IRP covered all potential resources, including opportunities in energy efficiency, renewable energy, and conventional generation. The report will be a basis for future plans in power production, demand side management, and other business processes.

3.1.2 Electric and Water Delivery Business Unit

OUC's EWD business unit focuses on providing OUC's customers with the most reliable electric service possible. Formerly called the Electric Distribution Business Unit, the unit was renamed after merging with OUC's Electric Transmission Business Unit, which was being phased out with the anticipated creation of a regional independent transmission organization.

OUC's leadership in providing reliable electric distribution service is demonstrated by its commitment to making initial investments in high quality material and equipment. Additionally, approximately 60 percent of OUC's distribution system is underground, protecting it from trees and high winds. OUC's dependability is also attributable to its proactive maintenance programs to identify and correct potential problems, proactive replacement of old equipment, and a tree trimming program that minimizes tree-related service disruptions. OUC's reliability is demonstrated by the fact that during 2012, OUC once again led the State of Florida in key performance indicators related to power restoration.

3.2 REPOSITION OF ASSETS

As a strategic consideration, OUC has been working on repositioning its assets. One major consideration was the sale of its Indian River power plant steam units to Reliant Energy in 1999[8]. The sale of the Indian River steam units allowed OUC to take positions in Stanton A and B and to update and diversify its generation portfolio. The sale offered OUC the ability to replace the less competitive oil and gas steam units with more competitive combined cycle generation. In 2007 OUC broke ground on the Stanton B project[9] and, as part of the agreement associated with the termination of the gasification portion of Stanton B, acquired a 165 acre tract of land in its service territory situated near it highest growth areas. The land is in an industrial area and is ideal for a new power generation site, having access to important infrastructure including a rail spur, natural gas lines, and OUC-owned and operated transmission lines.

3.3 FLORIDA MUNICIPAL POWER POOL

In 1988, OUC joined with Lakeland Electric and the FMPA's All-Requirements Project members to form the FMPP. Later, KUA joined FMPP. Over time, FMPA's All-Requirements Project has added members as well. FMPP is an operating-type electric pool, which dispatches all the pool members' generating resources in the most economical manner to meet the total load requirements of the pool. The central dispatch is providing savings to all parties because of reduced commitment costs and lower overall fuel costs. OUC serves as the FMPP dispatcher and handles all accounting for the allocation of fuel expenses and savings. The term of the pool agreement is 1 year and automatically renews from year to year until terminated by the consent of all participants.

OUC's participation in FMPP provides significant savings from the joint commitment and dispatch of FMPP's units. Participation in FMPP also provides OUC with a ready market for any excess energy available from OUC's generating units.

3.4 SECURITY OF POWER SUPPLY

OUC currently maintains interchange agreements with other utilities in Florida to provide electrical energy during emergency conditions. The reliability of the power supply is also enhanced by metered interconnections with other Florida utilities including nine interconnections with Progress Energy Florida (formerly Florida Power Corporation), four with KUA, two each with Tampa Electric Company and Reedy Creek Improvement District, two with FPL, and one each with Lakeland Electric and St. Cloud. In addition to enhancing reliability, these interconnections also facilitate the marketing of electric energy by OUC to and from other electric utilities in Florida.

In addition, in 2008 OUC entered into a five-year contract for the storage of natural gas to manage price volatility and provide backup fuel for emergency situations. The fuel will provide up to 30,000 MBtu/day to help ensure power reliability.

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[8] As discussed previously, OUC recently repurchased the Indian River steam units. Given the current condition of the units, OUC is not assigning a capacity value for purposes of capacity planning. The purchase of the units provides OUC with full control over the Indian River site and additional alternatives for future generation, including possible repowering.

[9] Originally proposed to be an integrated gasification combined cycle (IGCC) unit, Stanton B was designed to be able to run as a standalone natural gas unit with the gasification portion as an alternative fuel source. In 2007, OUC made the decision not to move forward with the gasification portion of Stanton B, and the unit began commercial operation in February 2010 as a 1x1 combined cycle unit operating on natural gas as the primary fuel with the capability to utilize fuel oil as a secondary fuel source.

3.5 ENVIRONMENTAL PERFORMANCE[10]

As the quality of the environment is important to Florida, and especially important to the tourist-attracted economy in Central Florida, OUC is committed to protecting human health and preserving the quality of life and the environment in Central Florida. To demonstrate this commitment, OUC has chosen to operate their generating units with emission levels below those required by permits and licenses by equipping its power plants with the best available environmental protection systems. As a result, even with a second unit in operation, the Stanton Energy Center is one of the cleanest coal fired generating stations in the nation. Unit 2 is the first of its size and kind in the nation to use selective catalytic reduction (SCR) to remove nitrogen oxides (NO_x). Using SCR and low-NO_x burner technology, Stanton 2 successfully meets the stringent air quality requirements imposed upon it. OUC is considering adding SCR to Stanton Unit 1, as well as taking measures to increase the efficiency of the Stanton Unit 1 and Unit 2 steam turbine generators. Stanton A incorporates environmentally advanced technology and enables OUC to diversify its fuel mix while adding more flexibility to OUC's portfolio of owned generation and purchased power. As its newest generating asset, Stanton B further contributes to OUC's environmentally responsible portfolio of generating resources.

This superior environmental performance not only preserves the environment, but also results in many economic benefits, which help offset the costs associated with the superior environmental performance. For example, the high quality coal burned at Stanton contributes to the high availability of the units as well as their low heat rates. Additionally, OUC has installed natural gas igniters for both Stanton 1 and Stanton 2, eliminating the use of No. 6 fuel oil and reducing the amount of coal burned during operations when economical to do so.

Further demonstrating its environmental commitment to clean air, OUC has signed a contract to burn the methane gas collected from the Orange County landfill adjacent to Stanton Energy Center. Methane gas, when released into the atmosphere, is considered to be 20 times worse than carbon dioxide in terms of possible global warming effects. Stanton 1 and Stanton 2 both have the capability of burning methane.

OUC has also voluntarily implemented a product substitution program not only to protect workers' health and safety but also to minimize hazardous waste generation and to prevent environmental impacts. The Environmental Affairs and the Safety Divisions constantly review and replace products to eliminate the use of hazardous substances. To further prevent pollution and reduce waste generation, OUC also reuses and recycles many products.

3.5.1 Emphasis on Sustainability

OUC completed its first greenhouse gas inventory for the entire company in 2008 and updates the inventory annually. This report helps OUC analyze how it impacts the environment, detailing both operating emissions and ways to reduce greenhouse gases. The greenhouse gas inventory was only a part of a larger initiative to perform a comprehensive sustainability audit of every department in the company. The goal of this effort is to understand both short-term and long-term opportunities to reduce the corporate carbon footprint in all departments and business functions. A comprehensive sustainability audit was completed in 2009 and will serve as a guide to help OUC develop new environmental initiatives.

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[10] Please refer to Section 2.4 of this Ten Year Site Plan for a detailed discussion of OUC's renewable generating technologies and other environmental initiatives

OUC's commitment to efficiency and sustainability is further demonstrated by the completion of Reliable Plaza, OUC's new energy and water efficient center in south downtown which replaces OUC's previous South Orange Avenue home. OUC's Reliable Plaza has earned Gold Leadership in Energy and Environmental Design (LEED) certification, officially cementing the 10-story administration and customer service center as the "Greenest Building in downtown Orlando." The non-profit U.S. Green Building Council awarded the Gold level certification after completing a review of the building's design and construction. Reliable Plaza also holds a Florida Water Star certification, a voluntary program for new and existing construction that encourages water efficiency in appliances plumbing fixtures, irrigation systems and landscapes. Reliable Plaza showcases a number of environmentally friendly features and uses 28 percent less energy and 40 percent less water than a similarly sized facility. One of the more innovative offerings at Reliable Plaza is the interactive conservation education center. With a live link to the building's conservation systems, the center's touch screen gives customers real time data on how Reliable Plaza uses – and saves – energy and water. The center also can give information on green building ideas and conservation tips customers can use at home.

OUC partnered with the Disney Entrepreneur Center for a pilot efficiency program that will offer conservation credits to small businesses that may be experiencing financial difficulties. OUC also began its "Power to Save" campaign, which allowed customers to view OUC conservation and education videos on demand on Bright House Networks. Viewers could access information around the clock and at no cost. The campaign provided access that customers requested and OUC saved money and resources by offering a waste-free alternative to mailing out conservation DVDs.

3.6 COMMUNITY RELATIONS

Owned by the City of Orlando and its citizens, OUC is especially committed to being a good corporate citizen and neighbor in the areas it serves or impacts.

In Orange, Osceola, and Brevard Counties, where OUC serves customers and/or has generating units, OUC gives its wholehearted support to education, diversity, the arts, and social-service agencies. An active Chamber of Commerce participant in all three counties, OUC also supports area Hispanic Chambers and the Metropolitan Orlando Urban League. As a United Arts trustee, OUC has allowed its historic Lake Ivanhoe Power Plant to be turned into a performing arts center. OUC is also a corporate donor for WMFE public television and has been a co-sponsor of the "Power Station" exhibit at the Orlando Science Center. OUC has also donated $100,000 to the Orlando Science Center to help sponsor the alternative-energy exhibit "Our Energy Future" that includes a permanent exhibit in Orlando and a component that travels to museums throughout the country.

OUC conservation support personnel have made hundreds of public appearances related to conservation at schools, business expos, professional associations, and homeowner association meetings. Conservation specialists conducted presentations, provided face to face consultations, scheduled audits, and disseminated information on conservation programs. OUC also sponsors energy-related events, such as the Florida Renewable Energy Association's Renewable Energy Expo, which stresses the importance of reducing individual carbon footprints and introduces the general public to entrepreneurs and educators who are working on the challenges of energy independence and global climate change.

Long a supporter of Habitat for Humanity Orlando, OUC saw Habitat's first town home project – Staghorn Villas – as an opportunity to provide local families with affordable homes that could also help them keep their utility costs in check. OUC donated $60,000 in energy-efficient features for Staghorn Villas, an $8 million town home community that will provide affordable housing for 58 local families. OUC also provided more than 870 compact florescent light bulbs and upgraded all lighting systems throughout the community. Siemens also partnered on the project, matching OUC's $60,000 donation.

In partnership with the City of Orlando, the P.O.W.E.R. Program targets Carver Shores' homeowners and entails an extensive scope of work. Working with a City crew, the homes will be evaluated not only for energy efficiency but also for health concerns like mold that often accompany home issues like leaky roofs, windows, etc. This program targets about 40 homes, including some that will receive complete upgrades involving new appliances, a new HVAC system, and other major home projects. A home could potentially be completely renovated and rehabilitated while families are moved into temporary housing during the upgrade process. OUC is rebating items related to energy efficiency to the City of Orlando.

OUC has partnered with the Orlando Science Center to deliver an interactive curriculum to Orange county public school classrooms within OUC's service territory. The Orlando Science Center, using content approved by OUC, has developed an electric and water conservation and renewable energy curriculum and designed activities that meet Sunshine State Standards and target fifth graders, who are preparing for their first Science FCAT test. The program includes two 90-minute classroom workshops for students as well as hands-on labs and pre- and post-classroom activities.

4 FORECAST OF PEAK DEMAND AND ENERGY CONSUMPTION

4 Forecast of Peak Demand and Energy Consumption

OUC retained Itron, formerly Regional Economic Research, Inc. (RER), to assist in the development of forecasts of peak demand and energy consumption. The project scope was to develop a set of sales, energy, and demand forecast models that could support OUC's budgeting and financial planning process as well as long-term planning requirements. OUC utilized its internal knowledge of the service area with the expertise of Itron in the development of the forecast models.

4.1 FORECAST METHODOLOGY

There are two primary forecasting approaches used in forecasting electricity requirements: econometric-based modeling (such as linear regression) and end-use models. In general, econometric forecast models provide better forecasts in the short-term time frame, and end-use models are better at capturing long-term structural change resulting from competition across fuels, and changes in appliance stock and efficiency.

The difficulty of end-use modeling is that these models are extremely data-intensive and provide relatively poor short-term forecasts. End-use models require detailed information on appliance ownership, efficiency of the existing stock, new purchase behavior, utilization patterns, commercial floor-stock estimates by building type, and commercial end-use saturations and intensities in both new and existing construction. It typically costs several hundred thousand dollars to update and to maintain such a detailed database. Lack of detailed end-use information precluded developing end-use forecasts for the OUC/St. Cloud service territories. Furthermore, since there is virtually no retail natural gas in the OUC service territory, end-use modeling would provide little information on cross-fuel competition - one of the primary benefits of end-use modeling.

Since end-use modeling was not an option, the approach adopted was to develop linear regression sales models. To capture long-term structural changes, end-use concepts are blended into the regression model specification. This approach, known as statistically adjusted end-use (SAE) model, entails specifying end-use variables (heating, cooling, and other use) and utilizing these variables in sales regression models. While the SAE approach loses some end-use detail, it adequately forecasts short-term energy requirements, and it provides a reasonable structure for forecasting long-term energy requirements.

4.1.1 Residential Sector Model

The residential model consists of both an average use per household model and a customer forecast model. Monthly average use models were estimated over the period encompassing 2002 to 2011. This provides at least 9 years of historical data, with more than enough observations to estimate strong regression models. Once models were estimated, the residential energy requirement in month T was calculated as the product of the customer and average use forecast:

$$\text{Residential Sales}_T = \text{Average User Per Household}_T \times \text{Number of Customers}_T$$

4.1.1.1 Residential Customer Forecast

The number of customers was forecasted as a function of population and gross state product (GSP) projections for the Orlando Metropolitan Statistical Area (MSA). Models were estimated using MSA-level data, since county level economic data is only available on an annual basis. Not surprisingly, the historical relationship between OUC customers and population in the Orlando MSA is extremely strong. Use of the GSP variable allows for the changing housing demographic associated with the recession to be reflected in the model. The OUC customer forecast model had an adjusted R^2 of 0.99, with an in-sample Mean Absolute Percent Error (MAPE) of approximately 0.2

percent. For St. Cloud, the model performance was comparable with an adjusted R^2 was 0.98 and an in sample MAPE of approximately 1.2 percent.

4.1.1.2 Average Use Forecast

The SAE modeling framework begins by defining energy use ($USE_{y,m}$) in year (y) and month (m) as the sum of energy used by heating equipment ($Heat_{y,m}$), cooling equipment ($Cool_{y,m}$), and other equipment ($Other_{y,m}$), depicted as follows:

$$\text{Use}_{y,m} = \text{Heat}_{y,m} + \text{Cool}_{y,m} + \text{Other}_{y,m}$$

Although monthly sales are measured for individual customers, the end-use components are not. Substituting estimates for end-use elements provides the following econometric equation:

$$\text{Use}_m = a + b_1 \times \text{XHeat}_m + b_2 \times \text{XCool}_m + b_3 \times \text{XOther}_m + \varepsilon_m$$

Here, $XHeat_m$, $XCool_m$, and $XOther_m$ are explanatory variables constructed from end-use information, dwelling data, weather data, and market data. The estimated model can then be thought of as an SAE model, where the estimated slopes are the adjustment factors.

XHeat captures the factors that affect residential space heating. These variables include the following:

- Heating degree-days
- Heating equipment saturation levels
- Heating equipment operating efficiencies
- Average number of days in the billing cycle for each month
- Thermal integrity and footage of homes
- Average household size, household income, and energy price

The heating variable is represented as the product of an annual equipment index and a monthly usage multiplier as follows:

$$\text{XHeat}_{y,m} = \text{HeatIndex}_y \times \text{HeatUse}_{y,m}$$

where:

$XHeat_{y,m}$ is estimated heating energy use in year (y) and month (m)
$HeatIndex_y$ is the annual index of heating equipment
$HeatUse_{y,m}$ is the monthly usage multiplier

The heat index is defined as a weighted average energy intensity measured in kWh. Given a set of starting end-use energy intensities (EI), the index will change over time with changes in equipment saturations (*Sat*), operating efficiencies (*Eff*), and building structural index (*StructuralIndex*). Formally, the heating equipment index is defined as follows:

$$\text{HeatIndex}_y = \text{StructuralIndex}_y \times \sum_{Type} EI^{Type} \times \frac{\left(Sat_y^{Type} / Eff_y^{Type}\right)}{\left(Sat_{98}^{Type} / Eff_{98}^{Type}\right)}$$

StructuralIndex is based on EIA square footage projections and thermal shell efficiency for the southeast census region. EIA's current projections show average square footage increasing slightly faster than thermal shell integrity improvements.

Electric heating saturation in the OUC service area is relatively high with approximately 85 percent of the homes using electric space heat. Heat pumps account for nearly half the existing stock and are projected to increase as a share of heating equipment over time. Given that heat pumps are significantly more efficient than resistance heat, efficiency gains are expected to outstrip increasing heat saturation, which in turn slows expected residential heating sales growth.

Heating sales are also driven by the factors that impact utilization of the appliance stock. Heating use depends on weather conditions, household size, household income, and prices. The heat use variable is constructed as follows:

$$HeatUse_{y,m} = \left(\frac{HDD_{y,m}}{HDD_{98}}\right) \times \left(\frac{HHSize_y}{HHSize_{98}}\right)^{0.20} \times \left(\frac{Income_y}{Income_{98}}\right)^{0.25} \times \left(\frac{Price_{y,m}}{Price_{98}}\right)^{-0.13}$$

where:
HDD is the number of heating degree days in year (y) and month (m)
HHSize is the average household size in a year (y)
Income is the average real income per household in a year (y)
Price is the average real price of electricity in month (m) and year (y)

By construction, $HeatUse_{y,m}$ has an annual sum that is close to 1.0 in the base year (1998). The index changes over time with changes in HDD, HHSize, Income, and Price. In this form, the coefficients represent end-use elasticity estimates. The elasticity estimates are based on a study performed by OUC's consultants. The elasticities are also validated by evaluating out-of-sample model fit statistics using different elasticity estimates.

The explanatory variable for cooling loads is constructed in a similar manner. The amount of energy used by cooling systems depends on the following types of variables.

- Cooling degree days
- Cooling equipment saturation levels
- Cooling equipment operating efficiencies
- Thermal integrity and footage of homes
- Average household size, household income, and energy price

The cooling variable is represented as the product of an equipment-based index and monthly usage multiplier as follows:

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

where:

$XCool_{y,m}$ is the estimated cooling energy use in year (y) and month (m)
$CoolIndex_{y}$ is the cooling equipment index
$CoolUse_{y,m}$ is the monthly usage multiplier

The cooling equipment index is calculated as follows:

$$CoolIndex_{y} = StructuralIndex_{y} \times \sum_{Type} EI^{Type} \times \frac{\left(Sat_{y}^{Type} \Big/ Eff_{y}^{Type} \right)}{\left(Sat_{98}^{Type} \Big/ Eff_{98}^{Type} \right)}$$

As air conditioning saturation increases, the index increases. As efficiency increases, the index decreases. Again, because of the high current saturation of air conditioning, the index is largely driven by increasing overall air conditioning efficiency. A slight increase in the structural index (as a result of increasing square footage) results in a small increase in the cooling equipment index over time.

The cooling utilization variable is constructed similar to that of the heating use variable. *CoolUse* is defined as follows:

$$CoolUse_{y,m} = \left(\frac{CDD_{y,m}}{CDD_{98}} \right) \times \left(\frac{HHSize_{y}}{HHSize_{98}} \right)^{0.20} \times \left(\frac{Income_{y}}{Income_{98}} \right)^{0.25} \times \left(\frac{Price_{y,m}}{Price_{98}} \right)^{-0.07}$$

where:

CDD is the number of cooling degree days in year (y) and month (m).

Monthly estimates of nonweather sensitive sales can be derived in a similar fashion to space heating and cooling. Based on end-use concepts, other sales are driven by the following:

- Appliance and equipment saturation levels
- Appliance efficiency levels
- Average household size, real income, and real prices

The explanatory variable for other uses is defined as follows:

$$XOther_{y,m} = OtherEqpIn\ dex_{y,m} \times OtherUse_{y,m}$$

The first term on the right hand side of this expression ($OtherEqpIndex_{y,m}$) embodies information about appliance saturation and efficiency levels and monthly usage multipliers. The second term (*OtherUse*) captures the impact of changes in price, income, and household size on appliance utilization. The appliance index is defined as follows:

$$OtherIndex_{y,m} = EI^{Type} \times \frac{\left(Sat_y^{Type} \Big/ \frac{1}{Eff_y^{Type}} \right)}{\left(Sat_{98}^{Type} \Big/ \frac{1}{Eff_{98}^{Type}} \right)} \times MoMult_m^{Type}$$

where:
EI is the energy intensity for each appliance (annual kWh)
Sat represents the fraction of households who own an appliance type
$MoMult_m$ is a monthly multiplier for the appliance type in month (m)
Eff is the average operating efficiency for water heaters

This index combines information about trends in saturation levels and efficiency levels for the main appliance categories with monthly multipliers for lighting, water heating, and refrigeration. Saturation and efficiency trends are based on EIA projections for the southeast census region.

Economic activity is captured through the *OtherUse* variable, where *OtherUse* is defined as follows:

$$OtherUse_{y,m} = \left(\frac{HHSize_y}{HHSize_{98}} \right)^{0.20} \times \left(\frac{Income_y}{Income_{98}} \right)^{0.25} \times \left(\frac{Price_{y,m}}{Price_{98}} \right)^{-0.07}$$

Increase in household income translates into an increase in XOther, while increases in electricity prices result in a decrease in XOther. Decreasing household size (number per household) translates into a decrease in XOther.

4.1.1.3 Estimate Models

To estimate the forecast models, monthly average residential usage is regressed on XCool, XHeat, and XOther. Lagged *Use* values of XCool and Xheat are also included in the specification since these variables are constructed with calendar-month weather data, but the dependent variable (residential average use) is based on revenue-month sales. July residential sales, for example, reflect usage in both calendar months June and July. Despite the "noise" associated with the economic recession over the past couple of years, the end-use variables worked well in the regression models. For OUC, the average residential adjusted R^2 is 0.96 with an in-sample MAPE of approximately 2.0 percent. All the model coefficients are highly significant (exhibited by t-statistics greater than 2.0). The St. Cloud model also explains average usage well with an R^2 of 0.93. The model coefficients are highly significant.

4.1.2 Nonresidential Sector Models

The nonresidential sector is segmented into two revenue classes:

- *Small General Service (GS Nondemand or GSND)*
- *Large General Service (GS Demand or GSD)*

The GSND class consists of small commercial customers with a measured demand of less than 50 kW. The GSD class consists of those customers with monthly maximum demand exceeding 50 kW.

The SAE approach is also used to develop models to forecast electricity sales for commercial nondemand and demand classes. The commercial SAE model framework begins by defining energy use ($Use_{y,m}$) in year (y) and month (m) as the sum of energy used by heating equipment ($Heat_{y,m}$), cooling equipment ($Cool_{y,m}$), and other equipment ($Other_{y,m}$) as follows:

$$Sales_{y,m} = Heat_{y,m} + Cool_{y,m} + \text{Other}_{y,m}$$

Although monthly sales are measured for individual customers, the end-use components are not. Substituting estimates for the end-use elements gives the following econometric equation:

$$Sales_m = a + b_1 \times XHeat_m + b_2 \times XCool_m + b_3 \times XOther_m + \varepsilon_m$$

The model parameters are then estimated using linear regression.

The constructed variables XHeat, XCool, and XOther capture structural as well as market condition changes. The end-use variables include the following:

- Heating and cooling degree days
- End-use saturation and efficiency trends
- Real regional output
- Price

The end-use variables are represented as the product of an annual equipment index (Index) and a monthly usage multiplier (Use). The variables are defined as follows:

$$\mathbf{XHeat}_{y,m} = \mathbf{HeatIndex}_{y} \times \mathbf{HeatUse}_{y,m}$$

$$\mathbf{XCool}_{y,m} = \mathbf{HeatIndex}_{y} \times \mathbf{HeatUse}_{y,m}$$

$$\mathbf{XOther}_{y,m} = \mathbf{OtherIndex}_{y,m} \times \mathbf{OtherUse}_{y,m}$$

The heating equipment index captures change in end-use saturation and efficiency. The heating index is defined as follows:

$$HeatIndex_y = HeatSales_{98} \times \frac{\left(HeatShare_y / Eff_y \right)}{\left(HeatShare_{98} / Eff_{98} \right)}$$

In this expression, 1998 is defined as the base year. The ratio on the right is equal to 1.0 in 1998. As end-use saturation increases, the index increases; as efficiency increases, the index decreases. The starting heating sales estimate (HeatSales98) is derived from the EIA end-use forecast database for the southeast census region. Similarly, projections of saturation and efficiency changes are based on EIA's long-term outlook for the southeast region.

The heating variable *XHeat* is constructed by interacting the index variable (*HeatIndex*) with a variable that captures short-term stock utilization (*HeatUse*). Temperature data, prices, and regional output are incorporated into the HeatUse variable. The calculated heat utilization variable is computed as follows:

$$HeatUse_{y,m} = \left(\frac{HDD_{y,m}}{HDD_{98}}\right) \times \left(\frac{Output_{y}}{Output_{98}}\right)^{0.45} \times \left(\frac{Price_{y,m}}{Price_{98}}\right)^{-0.10}$$

where:
HDD is the number of heating degree days in year (y) and month (m)
Output is real gross regional product in year (y) and month (m)
Price is the average real price of electricity in year (y) and month (m)

As constructed, *HeatUse* is also an index value with a value of 1.0 in 1998. Furthermore, in this functional form, the coefficients of 0.45 and -0.1 can be interpreted as elasticities. A 1.0 percent change in output will translate into a 0.45 percent increase in the HeatUse index. A 1.0 percent increase in real price will translate into a -0.1 percent change in HeatUse.

The cooling variable (*XCool*) is constructed in a similar manner. Cooling requirements are driven by the following:

- Cooling degree days
- Cooling equipment saturation levels
- Cooling equipment operating efficiencies
- Business activity (as captured by regional output)
- Price

The following cooling variable is the product of an equipment-based index and monthly usage multiplier:

$$\mathbf{CoolIndex_{y} = CoolSales_{98} \times \frac{\left(CoolShare_{y} / Eff_{y}\right)}{\left(CoolShare_{98} / Eff_{98}\right)}}$$

where:

CoolIndex$_y$ is an index of the cooling equipment

As with heating, the cooling equipment index depends on equipment saturation levels (*CoolShare*) normalized by operating efficiency levels (*Eff*). Saturation and efficiency trends are derived from the EIA end-use database for the southeast census region. Given the nearly 100 percent saturation in air conditioning, the index is driven downwards by improving air conditioning efficiency.

The *CoolUse* variable is constructed similar to the *HeatUse* variable. *CoolUse* captures the interaction of temperature (*CDD*), regional output (*Output*), and price. The output and price elasticity are estimated to be 0.45 and -0.1, respectively. The constructed use variable is defined as follows:

$$CoolUse_{y,m} = \left(\frac{CDD_{y,m}}{CDD_{98}}\right) \times \left(\frac{Output_{y}}{Output_{98}}\right)^{0.45} \times \left(\frac{Price_{y,m}}{Price_{98}}\right)^{-0.1}$$

By construction, the *CoolUse* variable has an annual sum that is close to 1.0 in the base year (1998). The first two terms, which involve billing days and cooling degree days, serve to allocate annual values to months of the year. The remaining terms average to 1.0 in the base year. In other years, the values will vary to reflect changes in commercial output and prices.

Monthly estimates of nonweather sensitive sales can be derived in a similar fashion as space heating and cooling. Based on end-use concepts, other sales are driven by the following:

- Equipment saturation levels
- Equipment efficiency levels
- Average number of days in the billing cycle for each month
- Real commercial output and real prices

The explanatory variable for other uses is defined as follows:

$$\mathbf{XOther}_{y,m} = \mathbf{OtherIndex}_{y,m} \times \mathbf{OtherUse}_{y,m}$$

The first term embodies information about equipment saturation levels and efficiency levels. The equipment index for other uses is defined as follows:

$$OtherIndex_{y,m} = \sum_{Type} OtherSales_{98}^{Type} \times \left(\frac{Share_{y}^{Type} / Eff_{y}^{Type}}{Share_{98}^{Type} / Eff_{98}^{Type}}\right)$$

where:
OtherSales represents starting base year non-heating, ventilating, and air conditioning (HVAC) sales
Share represents saturation of other office equipment
Eff is the average operating efficiency

This index combines information about trends in saturation levels and efficiency levels for the primary commercial non-HVAC end-uses. End-uses embedded in *OtherIndex* include lighting, water heating, cooking, refrigeration, office equipment, and miscellaneous equipment. The equipment categories are based on EIA categorizations. Economic drivers interact with the *OtherIndex* through the utilization variable *OtherUse*. *OtherUse* is defined as follows:

$$OtherUse_{y,m} = \left(\frac{Output_{y}}{Output_{98}}\right)^{0.45} \times \left(\frac{Price_{y,m}}{Price_{98}}\right)^{-0.10}$$

4.1.2.1 GSND Sales Forecast

Similar to the residential forecast, the GSND forecast predicts average sales per customer and number of customers. The sales forecast is modeled where sales are specified as a function of regional output, (real) price, heating and cooling degree days, and end-use indices to account for changes in commercial sector end-use saturation and efficiency.

4.1.2.2 GSND Sales Models

GSND sales models are estimated for OUC and St. Cloud. GSND, as a class, represents about 5 percent of OUC's residential sales and 5 percent St. Cloud's sales. Both models explain historical monthly sales variations. The adjusted R^2 for the OUC GSND sales model is 0.86 and the adjusted R^2 for St. Cloud is 0.87. The estimated end-use variable coefficients are statistically significant at the 5 percent level of confidence in both models.

4.1.2.3 GSD Models

The GSD class represents the largest nonresidential customer class. Over the past few years, OUC has seen solid sales gains in this customer class. Overall sales growth has slowed significantly over the forecast period due to the recessionary conditions and lower economic growth, GSD sales are expected to continue to grow at a steady rate without increasing through the ten year forecast horizon

The GSD models include *XCool* and *XOther*. Low t-statistics on the heating variables indicate that there is relatively little electric space heating in the GSD class. In the OUC model, *XCool* and *XOther* are highly significant with t-statistics over 2.0. The R^2 is 0.84 with an in-sample MAPE of 3.7 percent. The St. Cloud end-use variables are also statistically significant with t-statistics over 2.0. The St. Cloud model has an adjusted R^2 of 0.90 with an MAPE of 3.3 percent.

The four largest OUC customers that receive secondary service (representing about 3.6 percent of sales) and the 22 customers that receive primary service (representing about 7.4 percent of sales) , combine to account for approximately 10 percent of OUC's sales, are backed out of OUC GSD sales data and forecasted separately. The eight largest customers (4 primary and 4 secondary) include a defense contractor, the Orlando International Airport (OIA), two regional medical centers, a sewage treatment facility, a plastics manufacturer, and two theme parks. Forecasts are based on discussions with customer support staff and current economic projections. The large customer sales forecast is combined with the other GSD forecast to develop a total GSD forecast.

OUC's own electric use (OUC Use) is also forecasted separately. The forecast is primarily driven by expected demand for OUC's chilled water cooling plants in the metropolitan Orlando area. OUC chiller-related electricity requirements are backed out of the GSD sales forecast since chilled water sales are expected to directly displace GSD air conditioning load.

4.1.2.3.1 Street Lighting Sales

Street lighting sales are forecasted using a simple trend model. The forecast also includes sales from the *OUC Convenient Lighting Program*, which targets outdoor lighting use. Introduction of higher efficiency lighting products over the next 10 years is expected to reduce the growth in lighting sales to about 1 GWh per year over the evaluation period.

4.1.3 Hourly Load and Peak Forecast

To capture the load diversity across the two retail companies, separate system hourly load forecasts are estimated for OUC and St. Cloud. The hourly load forecasts are then combined to generate a total system hourly load forecast. Summer and winter peak demands are then calculated from the combined utility system hourly load forecast.

The system load profiles are based on a set of hourly load models using load data covering the January 1998 to December 2010 period. Historical hourly loads are first expressed as a percentage of the total daily energy as follows:

$$\text{Fraction}_{dh} = \text{Load}_{hd} \div \text{Energy}_{d}$$

where:
$Load_{hd}$ = the system load in hour (h) and day (d)
$Energy_{d}$ = the system energy in day (d)

Hourly fraction models are then estimated using the Ordinary Least Squares (OLS) regression where the hourly models are specified as a function of daily weather conditions, months, day of the week, and holidays. A second model is estimated for daily energy ($Energy_{d}$) where daily energy is specified as a function of daily temperatures, day of the week, holidays, seasons, and a trend variable to account for underlying growth over the estimation period.

The hourly fraction and daily energy models are used to simulate hourly fractions and daily energy for normal daily weather conditions. Normal daily temperatures are calculated by first ranking each year from the hottest to coldest day. The ranked data are then averaged to generate the hottest average temperature day to the coolest average temperature day. Daily normal temperatures are then mapped back to a representative calendar day based on a typical daily weather pattern. The hottest normal temperature is mapped to July and the coldest normal temperature to January.

Given weather normal hourly fractions (*WNFraction*) and weather normal daily energy (*WNDailyEnergy*), it is possible to calculate weather normal load for hour (h) in day (d) as follows:

$$WNLoad_{dh} = \text{WNFraction}_{dh} \times \text{WNDailyEnergyt}_{dh}$$

The system 8,760 hourly load forecast is generated by combining the weather normal system load shape with the energy forecast using *MetrixLT*. The energy forecast is allocated to each hour based on the weather normal hourly profile. Separate hourly load forecasts are derived for OUC and St. Cloud.

Under normal daily weather conditions OUC is just as likely to experience a winter peak as it is a summer peak. OUC experiences a "needle-like" peak in the winter months on the 1 or 2 days where the low temperature falls below freezing. The needle peak is largely driven by backup resistant heat built into the residential heat pumps.

A separate hourly load forecast is estimated for St. Cloud. Given that St. Cloud is dominated by the residential sector, St. Cloud is even more likely to peak during the winter season.

The hourly OUC and St. Cloud forecasts are aggregated to yield total system hourly load requirements. Forecasted seasonal peaks are then derived by finding the maximum hourly demand in January (for the winter peak) and August (for the summer peak).

4.2 FORECAST ASSUMPTIONS

The forecast is driven by a set of underlying demographic, economic, weather, and price assumptions. Given long-term economic uncertainty, the approach was to develop a set of reasonable, but conservative, set of forecast drivers.

4.2.1 Economics

The economic assumptions are derived from forecasts from Economy.com and the University of Florida. Economy.com's monthly economic forecast for the Orlando MSA is used to drive the forecast.

4.2.1.1 Employment and Regional Output

The nonresidential forecast models are driven by nonmanufacturing and regional output forecasts. Economy.com's employment forecasts were used. Table 4-1 shows the annual employment and gross state product projections.

4.2.1.2 Population, Households, and Income

The primary economic drivers in the residential forecast model are population, the number of households, and real personal income. Economy.com's projections for the Orlando MSA were used, and the projections are presented in Table 4-2.

4.2.2 Price Assumption

An aggregate retail price series was used as a proxy for effective prices in each of the model specifications. Since retail rates (across rate schedules) have generally moved in the same direction, an average retail price variable captures price movement across all the customer classes. The average annual price series is provided in Table 4-3.

The price series is calculated by first deflating historical monthly revenues by the Consumer Price Index. Real revenues are then divided by retail sales to yield a monthly revenue per kWh value. Since revenue is itself a function of sales, it is inappropriate to regress sales directly on revenue per kWh. To generate a price series, a 12 month moving average of the real revenue per kWh series is calculated. This is a more appropriate price variable, as it assumes that households and businesses respond to changes in electricity prices that have occurred over the prior year.

Table 4-1 Employment and Gross Regional Output Projections – Orlando MSA

YEAR	TOTAL EMPLOYMENT (THOUSANDS)	NON-MANUFACTURING EMPLOYMENT (THOUSANDS)	GROSS PRODUCT (BILLION $)
2013	1,016	936	96.5
2018	1,107	1,029	114.2
2023	1,211	1,134	129.6
2028	1,328	1,254	144.5
Average Annual Increase			
13-18	1.7%	1.9%	3.4%
13-23	1.8%	1.9%	3.0%
23-28	1.8%	2.0%	2.7%

Table 4-2 Population, Household, and Income Projections – Orlando MSA

YEAR	MEDIAN HOUSEHOLD INCOME	HOUSEHOLDS (THOUSANDS)	POPULATION (THOUSANDS)
2013	$48,259	843	2,259
2018	$54,546	977	2,591
2023	$60,652	1,125	2,959
2028	$67,746	1,274	3,329
Average Annual Increase			
13-18	2.48%	2.97%	2.78%
13-23	2.31%	2.92%	2.74%
13-28	2.29%	2.79%	2.62%

Table 4-3 Historical and Forecasted Price Series Average Annual Price

YEAR	REAL PRICE(1) (CENTS/KWH)
2003	5.0
2008	5.7
2013	6.0
2018	6.0
2023	6.0
Average Annual Increase	
03-08	2.66%
08-13	1.03%
13-18	0.00%
13-23	0.00%
13-28	0.00%

(1)Real prices presented in 1992 $ basis.

4.2.3 Weather

Weather is a key factor affecting electricity consumption for indoor cooling and heating. Monthly cooling degree days (CDDs) are used to capture cooling requirements while heating degree days (HDDs) account for variation in usage because of electric heating needs. CDDs and HDDs are calculated from the daily average temperatures for Orlando.

CDD is calculated using a 65º F base. First, a daily CDD is calculated as follows:

$$CDD_d = (AvgTemp_d - 65)\ when\ \ AvgTemp_d \rangle = 65$$

CDD_d has a value equal to the average daily temperature minus 65 when the average daily temperature is greater than or equal to 65° F, and equals zero if average daily temperature is less than 65° F. The daily CDD values are then aggregated to yield a monthly CDD as follows:

$$\mathbf{CCD_m = \Sigma CDD_{md}}$$

For each month, a normal CDD estimate is calculated using a 10 year average of the monthly values calculated from 1995 through 2004:

$$\mathbf{CDD_{nm} = \Sigma CDD_m \div 10}$$

Heating degree days are calculated in a similar manner. Daily HDD is first derived using a base temperature of 65° F as follows:

$$HDD_d = (65 - AvgTemp_d)\ when\ AvgTemp_d \langle = 65$$

HDD_d equals 65° F minus the average daily temperature if the average daily temperature is less than or equal to 65° F, and equals zero if the daily temperature is greater than 65° F. Aggregate monthly HDD (HDD_m) is then calculated by summing daily HDD over each month:

$$HDD_m = \Sigma HDD_{md}$$

The monthly normal HDD is calculated as a 10 year average of the calendar month HDD as follows:

$$\mathbf{HDD_{nm} = \Sigma HDD_m \div 10}$$

4.3 BASE CASE LOAD FORECAST

A long-term annual budget forecast was developed through 2028. As outlined in the methodology section, the sales forecast is developed from a set of structured regression models that can be used for forecasting both monthly sales and customers for the forecast horizon. Forecast models are estimated for each of the major rate classifications including the following:

- Residential
- GSND (small commercial customers)
- GSD (large commercial and industrial customers)
- Street lighting

Models are estimated using monthly sales data covering the 2002 through 2012 period for the OUC residential model as well as for the OUC nonresidential models. St. Cloud residential, GSD, and GSND sales models are estimated using monthly data from 2002 through 2012.

To support production-costing modeling, an 8,760 hourly load forecast is derived for each of the forecast years. The hourly load forecasts are based on a set of hourly and daily energy statistical models. The models are estimated from hourly system load data over the January 2002 to December 2012 period. A separate set of models is estimated for OUC and St. Cloud. Seasonal peak demand forecasts are derived as the maximum hourly demand forecast occurring in the summer and winter months. Table 4-4 summarizes the annual net energy for load and seasonal peak demand forecasts for the combined OUC and St. Cloud service territories.

4.3.1 Base Case Economic Outlook

Economic projections are based on Economy.com's economic outlook for Orlando and the State of Florida. The economic downturn has impacted all of the major rate sectors for both OUC and St. Cloud. Growth has slowed or stalled significantly for all areas of employment. Foreclosures in both service areas have affected the growth of residential usage and customers. OUC will continue to closely monitor the economic impact on sales and customer growth.

4.3.2 Forecast Results

Based upon the previously discussed economic assumptions, total retail sales for OUC are expected to increase from 5,383 GWh in 2012 to 6,349 GWh by 2023. St. Cloud sales are projected to increase from 545 GWh to 654 GWh over this same time period.

Table 4-4 Net System Peak (Summer and Winter) and Net Energy for Load (Total of OUC and St. Cloud)(1)

YEAR	SUMMER (MW)	WINTER (MW)	NET ENERGY (GWH)	LOAD FACTOR (%)
2013	1,208	1,183	6,310	59.6%
2018	1,290	1,250	6,779	60.0%
2023	1,385	1,342	7,269	59.9%
2028	1,497	1,444	7,833	59.6%
Average Annual Increase				
13-18	1.3%	1.1%	1.4%	-
18-23	1.4%	1.4%	1.4%	-
23-28	1.6%	1.5%	1.5%	-

(1) Net system peak demand and net energy for load forecasts reflect demand reductions associated with OUC's conservation and energy efficiency programs.

4.3.2.1 Residential Forecast

With high electric end-use saturation and projected appliance efficiency-gains, residential average use is projected to remain about flat over the forecast period. Since OUC average residential use is flat, residential sales growth will be driven largely by the addition of new customers. With slow population projections for the region, residential customers are expected to increase at an average annual rate of 2.0 percent for OUC and at 2.0 percent for St. Cloud for the next several years. The ten year residential sales average annual growth rate is 1.9 percent for OUC and 2.0 percent for St. Cloud. The OUC and St. Cloud residential sales forecasts are shown in Tables 4-5 through 4-8, respectively.

4.3.2.2 Small Commercial Sales Forecast

GSND sales are projected to grow at an average annual rate of 1.7 percent and 2.25 percent for OUC and St. Cloud, respectively, between 2012 and 2022. Projected GSND sales are driven by regional non-manufacturing employment and output growth. Average use growth is partly constrained by size limitation; as customers exceed the 50 kW rate class cutoff, they migrate to the appropriate GSD rate. For OUC and St. Cloud, average GSND use has actually trended downward over the last few years and is expected to trend downward. Small commercial customer growth accounts for most of the GSND sales gains. The GSND customer forecast is driven by regional non-manufacturing employment projections. The number of GSND customers is projected to grow at an average annual growth rate of 1.9 percent and 3.5 percent, respectively, for OUC and St. Cloud from 2012 through 2022. Tables 4-5 through 4-8 show annual GSND forecasts for OUC and St. Cloud.

4.3.2.3 Large Nonresidential Sales Forecast

GSD represents the largest commercial and industrial customers. GSD sales grew 1.4 percent percent between 2002 and 2011. Sales are projected to continue to show solid gains as a result of new major developments such as the UCF medical school, Burnham institute, VA hospital, and other related medical businesses coming on line. The GSD customer forecast is driven by total employment projections and total sales by projected regional gross output. Tables 4-5 through 4-8 summarize the annual GSD forecasts for OUC and St. Cloud.

Table 4-5 OUC Long-Term Sales Forecast (GWh)

YEAR	RESIDENTIAL	GS NONDEMAND	GS DEMAND	ST. LIGHTING	CONV. ST. LTS.	OUC USE	TOTAL RETAIL
2013	1,826	306	3,327	27	30	30	5,546
2018	1,994	367	3,501	28	32	30	5,952
2023	2,199	438	3,641	30	33	30	6,371
2028	2,437	528	3,795	31	33	30	6,854
Average Annual Increase							
13-18	1.8%	3.7%	1.0%	0.7%	1.3%	0.0%	1.4%
13-23	1.9%	3.7%	0.9%	1.1%	1.0%	0.0%	1.4%
13-28	1.9%	3.7%	0.9%	0.9%	0.6%	0.0%	1.4%

Table 4-6 OUC Average Number of Customers Forecast

YEAR	RESIDENTIAL	GS NONDEMAND	GS DEMAND	TOTAL RETAIL
2013	158,205	21,216	7,553	186,974
2018	174,099	24,481	8,817	207,397
2023	192,315	28,282	10,104	230,702
2028	210,695	32,739	11,394	254,829
Average Annual Increase				
13-18	1.9%	2.9%	3.1%	2.1%
13-23	2.0%	2.9%	3.0%	2.1%
13-28	1.9%	2.9%	2.8%	2.1%

Table 4-7 St. Cloud Long-Term Sales Forecast (GWh)

YEAR	RESIDENTIAL	GS NONDEMAND	GS DEMAND	ST. LIGHTING	TOTAL RETAIL
2013	401	27	127	8	564
2018	435	29	133	8	605
2023	479	30	139	8	656
2028	529	32	145	8	714
Average Annual Increase					
13-18	1.6%	1.3%	0.9%	0.3%	1.4%
13-23	1.8%	1.0%	0.9%	0.3%	1.5%
13-28	1.9%	1.0%	0.9%	0.3%	1.6%

Table 4-8 St. Cloud Average Number of Customers Forecast

YEAR	RESIDENTIAL	GS NONDEMAND	GS DEMAND	TOTAL RETAIL
2013	27,355	2,255	231	29,841
2018	30,066	2,419	237	32,721
2023	33,311	2,596	248	36,156
2028	36,540	2,774	260	39,575
Average Annual Increase				
13-18	1.9%	1.4%	0.5%	1.9%
13-23	2.0%	1.4%	0.7%	1.9%
13-28	1.9%	1.4%	0.8%	1.9%

4.4 NET PEAK DEMAND AND NET ENERGY FOR LOAD

Hourly load models are used to forecast the 8,760 hours of each of the forecast years. Underlying hourly load growth is driven by the aggregate energy forecast. Thus, forecasted peaks grow at roughly the same rate as the energy forecast. Tables 4-9 and 4-10 show seasonal peak demands and net energy for load forecasts for OUC and St. Cloud, respectively.

4.5 HIGH AND LOW LOAD SCENARIOS

In addition to the base case, two long-term forecast scenarios representing a high range and low range around the peak demand forecast. The high and low case scenarios were based on long-term population projections. The high and low forecast scenarios are based on bands around the most likely population forecast for the Orlando MSA. The base case population growth rate is 2.0 percent. In the high case scenario, the population is forecasted to increase at 3.0 percent on a compounded basis between 2012 and 2028. The high growth scenario results in a forecasted 2013-2028 annual energy growth rate of 2.2 percent, with a system peak demand that is 191 MW higher than the base case by 2028. In the low case scenario, the population is forecasted to increase at 1.0 percent on a compounded basis between 2012 and 2028. In the low case scenario, energy increases 0.7 percent on a compounded basis through 2028. The low case peak demand is 157 MW lower than the base case in 2028. Table 4-11 presents a summary of the high, base, and low load scenarios.

Table 4-9 OUC Forecast Net Peak Demand (Summer and Winter) and Net Energy for Load [1]

YEAR	SUMMER (MW)	WINTER (MW)	NET ENERGY (GWH)
2013	1,066	1,035	5,712
2018	1,138	1,091	6,138
2023	1,219	1,168	6,573
2028	1,315	1,254	7,076
Average Annual Increase			
13-18	1.3%	1.1%	1.4%
13-23	1.4%	1.2%	1.4%
13-28	1.4%	1.3%	1.4%

[1] Net system peak demand and net energy for load forecasts reflect demand reductions associated with OUC's conservation and energy efficiency programs.

Table 4-10 St. Cloud Forecast Net Peak Demand (Summer and Winter) and Net Energy for Load

YEAR	SUMMER (MW)	WINTER (MW)	NET ENERGY (GWH)
2013	143	148	598
2018	152	159	641
2023	166	174	695
2028	182	190	757
Average Annual Increase			
13-18	1.3%	1.5%	1.4%
13-23	1.5%	1.6%	1.5%
13-28	1.6%	1.7%	1.6%

Table 4-11 Scenario Peak Forecasts OUC and St. Cloud [(1)]

HIGH LOAD SCENARIO			
Year	Summer (MW)	Winter (MW)	Net Energy (GWh)
2013	1,230	1,187	6,398
2018	1,363	1,315	7,115
2023	1,519	1,465	7,951
2028	1,688	1,628	8,864
Average Annual Increase			
13-18	2.1%	2.1%	2.1%
18-23	2.1%	2.1%	2.2%
23-28	2.1%	2.1%	2.2%
Base Load Scenario			
Year	Summer (MW)	Winter (MW)	Net Energy (GWh)
2013	1,208	1,183	6,310
2018	1,290	1,250	6,779
2023	1,385	1,342	7,269
2028	1,497	1,444	7,833
Average Annual Increase			
13-18	1.3%	1.1%	1.4%
18-23	1.4%	1.3%	1.4%
23-28	1.4%	1.3%	1.5%
Low Load Scenario			
Year	Summer (MW)	Winter (MW)	Net Energy (GWh)
2013	1,203	1,171	6,254
2018	1,256	1,212	6,540
2023	1,301	1,255	6,781
2028	1,340	1,293	6,989
Average Annual Increase			
13-18	0.9%	0.7%	0.9%
18-23	0.8%	0.7%	0.8%
23-28	0.7%	0.7%	0.7%

[(1)] Peak demand and net energy forecasts reflect demand reductions associated with OUC's conservation and energy efficiency programs.

5 DEMAND-SIDE MANAGEMENT

5 Demand-Side Management

Sections 366.80 through 366.85, and 403.519, Florida Statutes (F.S.), are known collectively as the Florida Energy Efficiency and Conservation Act (FEECA). Section 366.82(2), F.S., requires the Florida Public Service Commission (PSC) to adopt appropriate goals designed to increase the conservation of expensive resources, such as petroleum fuels, to reduce and control the growth rates of electric consumption and weather-sensitive peak demand. Pursuant to Section 366.82(6), F.S., the PSC must review the conservation goals of each utility subject to FEECA at least every five years. The seven utilities subject to FEECA are Florida Power & Light Company (FPL), Progress Energy Florida, Inc. (PEF), Tampa Electric Company (TECO), Gulf Power Company (Gulf), Florida Public Utilities Company (FPUC), Orlando Utilities Commission (OUC), and JEA (referred to collectively as the FEECA utilities). Goals were established for the FEECA utilities in August 2004 (Docket Nos. 040029-EG through 040035-EG). OUC's 2005 Demand-Side Management (DSM) Plan was approved by the Florida Public Service Commission (FPSC) on September 1, 2004 (Docket No. 040035-EG). The FPSC determined that there were no cost-effective conservation measures available for use by OUC, and therefore established zero DSM and conservation goals for OUC's residential, commercial, and industrial sectors through 2014. Although OUC's FPSC-approved DSM and conservation goals were zero for the 2005 through 2014 period, OUC recognized the importance of energy efficiency and conservation and voluntarily maintained and continued to offer DSM programs that showed potential for high customer demand and participation.

Given that 5 years had elapsed since the FPSC's August 2004 FEECA dockets, goals for the 2010 through 2019 period were required to be established by January 2010. OUC's residential and commercial/industrial numeric conservation goals for the 2010 through 2019 period were established by the FPSC in the *Final Order Approving Numeric Conservation Goals* (Order No. PSC-09-0855-FOF-EG, issued December 30, 2009). On March 30, 2010, OUC filed a petition requesting FPSC approval of OUC's DSM Plan, which was subsequently approved pursuant to the FPSC Order issued September 3, 2010 (Order No. PSC-10-0554-PAA-EG), with Consummating Order issued September 28, 2010 (Order No. PSC-10-0595-CO-EG). OUC's DSM Plan set forth the programs that OUC anticipated offering to achieve the numeric conservation goals established by the FPSC. These FPSC-established annual goals are presented in Tables 5-1, 5-2 and 5-3.

Table 5-1 Residential DSM Goals Approved by the FPSC

CALENDAR YEAR	SUMMER (MW)	WINTER (MW)	ANNUAL (GWH)
2010	0.50	0.20	1.80
2011	0.50	0.20	1.80
2012	0.50	0.20	1.80
2013	0.50	0.20	1.80
2014	0.50	0.20	1.80
2015	0.50	0.20	1.80
2016	0.50	0.20	1.80
2017	0.50	0.20	1.80
2018	0.50	0.20	1.80
2019	0.50	0.20	1.80
Total	**5.00**	**2.00**	**18.00**

Table 5-2 Commercial/Industrial DSM Goals Approved by the FPSC

CALENDAR YEAR	SUMMER (MW)	WINTER (MW)	ANNUAL (GWH)
2010	0.70	0.70	1.80
2011	0.70	0.70	1.80
2012	0.70	0.70	1.80
2013	0.70	0.70	1.80
2014	0.70	0.70	1.80
2015	0.70	0.70	1.80
2016	0.70	0.70	1.80
2017	0.70	0.70	1.80
2018	0.70	0.70	1.80
2019	0.70	0.70	1.80
Total	**7.00**	**7.00**	**18.00**

Table 5-3 Total Residential and Commercial/Industrial DSM Goals Approved by the FPSC

CALENDAR YEAR	SUMMER (MW)	WINTER (MW)	ANNUAL (GWH)
2010	1.20	0.90	3.60
2011	1.20	0.90	3.60
2012	1.20	0.90	3.60
2013	1.20	0.90	3.60
2014	1.20	0.90	3.60
2015	1.20	0.90	3.60
2016	1.20	0.90	3.60
2017	1.20	0.90	3.60
2018	1.20	0.90	3.60
2019	1.20	0.90	3.60
Total	**12.00**	**9.00**	**36.00**

OUC has been increasingly emphasizing its DSM and conservation programs to increase customer awareness of such programs. This is beneficial to the customers, and also represents one way in which OUC is helping to reduce its emissions of greenhouse gases, better positioning OUC to meet possible future climate regulations.

It should be noted that government mandates have forced manufacturers to increase their efficiency standards, thereby decreasing the incremental amount of energy savings achievable. In addition, the efficiency of new generation has increased. These appliance and generating unit efficiency improvements have to some degree mitigated the effectiveness of DSM and conservation programs, as the incremental benefit of such programs is partially offset by overall efficiency increases in the marketplace as a whole.

The quantifiable DSM and conservation programs offered to OUC's customers in 2012, and planned to be offered during 2013, include the following:

- Residential Energy Survey Program (Walk-Through, DVD, and Online)
- Residential Duct Repair Rebate Program
- Residential Ceiling Insulation Rebate Program
- Residential Window Film/Solar Screen Rebate Program
- Residential High Performance Window Rebate Program
- Residential Caulking and Weather Stripping Rebate Program
- Residential Wall Insulation Rebate Program
- Residential Cool/Reflective Roof Rebate Program
- Residential Heat Pump Rebate Program
- Residential Efficiency Delivered Program
- Residential Billed Solution Insulation Program
- Residential New Home Rebate Program
- Residential Compact Fluorescent Lighting Program
- Residential AC Proper Sizing with R-30 Attic Insulation Rebate Program
- Commercial Energy Audit Program
- Commercial Indoor Lighting Retrofit Billed Solution Program
- Commercial Indoor Lighting Retrofit Rebate Program
- Commercial Heat Pump Rebate Program
- Commercial Duct Repair Rebate Program
- Commercial Window Film/Solar Screen Program
- Commercial Ceiling Insulation Program
- Commercial Cool/Reflective Roof Program

During calendar year 2012, OUC continued offered the following non-quantified measures that aid OUC's customers in reliability, energy conservation, and education:

- Residential Energy Conservation Rate Structure
- Commercial OUConsumption Online
- Commercial OUConvenient Lighting
- OUCooling
- Small Business Efficiency Pilot
- Residential Floor Insulation
- Energy Star Washing Machine
- Solar Water Heating
- Heat Pump Water Heaters
- Commercial Custom Incentive
- Multi-Family ARRA Grant Project

The remainder of this section describes each of the quantifiable and non-quantifiable DSM and conservation programs that OUC currently plans to offer to its customers to meet the FPSC-approved DSM goals. In addition to offering such programs, OUC continues to play an active role in promoting conservation through community relations as discussed in Section 2.4 and Section 3.6 of this Ten-Year Site Plan.

5.1 QUANTIFIABLE CONSERVATION PROGRAMS

5.1.1 Residential Energy Survey Program

OUC has been offering home energy surveys dating back to the late 1970's. The home energy walk-through surveys were designed to provide residential customers with recommended energy efficiency measures and practices customers can implement. The Residential Energy Survey Program consists of three measures: the Residential Energy Walk-Through Survey, the Residential Energy Survey DVD, and an interactive Online Energy Survey. These measures are available to both single family and multi-family residential customers.

The Residential Energy Walk-Through Survey includes a complete examination of the attic; heating, ventilation, and air conditioning (HVAC) system; air duct and air returns; window caulking; weather stripping around doors; faucets and toilets; and lawn sprinkler systems. OUC provides participating customers specific tips on conserving electricity and water as well as details on customer rebate programs. OUC Conservation Specialists are using this walk-through type audit as a means of motivating OUC customers to participate in other conservation programs and qualify for appropriate rebates.

A Residential Energy Survey Video was first offered in 2000 by OUC and is now available to OUC customers in an interactive DVD format. The DVD is free and is distributed in English and Spanish to OUC customers by request. The DVD was developed to further assist OUC customers in surveying their homes for potential energy saving opportunities. The DVD walks the customer through a complete visual assessment of energy and water efficiency in his or her home. A checklist brochure to guide the customer through the audit accompanies the DVD. The DVD has several benefits over the walk-through survey, including the convenience of viewing the DVD at any time without a scheduled appointment and the ability to watch the DVD numerous times. In addition to the Energy Walk-Through and the DVD Surveys, OUC offers customers an interactive Online Home Energy Audit. The interactive Online Home Energy Audit is available on OUC's web sites, http://www.OUC.com and http://www.ReliablyGreen.com.

One of the primary benefits of the Residential Energy Survey Program is the education it provides to customers on energy conservation measures and ways their lifestyle can directly affect their energy use. Customers participating in the Energy Survey Program are informed about conservation measures that they can implement. Customers will benefit from the increased efficiency in their homes, and decreased electric and water bills.

Participation in the Walk-Through Energy Survey has been consistently strong over the past several years and interest in the Energy Survey DVD, as well as the interactive Online Home Energy Audit, has been high since the measures were first introduced. Feedback from customers who have taken advantage of the surveys has been very positive.

OUC customers can participate in this program by requesting an appointment for a Walk-Through Energy Survey by calling the OUC Customer Service Call Center or requesting an Energy Survey DVD. OUC customers can also use the Online Home Energy Audit at their convenience by visiting OUC's websites. Participation is tracked through service orders that are produced when appointments are scheduled and completed or the DVD is mailed. Online Surveys are tracked through the service provider (Apogee), who produces monthly activity reports.

5.1.2 Residential Duct Repair Rebate Program

The Duct Repair Rebate Program originated in 2000 and is designed to encourage customers to repair leaking ducts on existing systems. Qualifying customers must have an existing central air conditioning system of 5.5 tons or less and ducts must be sealed with mastic and fabric tape or Underwriters Laboratory (UL) approved duct tape. Participating customers receive a rebate for 100 percent of the cost of duct repairs on their homes, up to $160.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor or the customer. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.3 Residential Ceiling Insulation Rebate Program

The attic is the easiest place to add insulation and lower total energy costs throughout the seasons. The ceiling insulation rebate program has been offered for several years and is designed to encourage customers to upgrade their attic insulation. Participating customers receive $0.05 per square foot for upgrading their attic insulation up to R-30. If the customer arranges an OUC pre-inspection and it is verified the existing insulation is R-11 or less, OUC will pay a rebate of $0.14 per square foot.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com and http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor or the customer. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.4 Residential Window Film/Solar Screen Rebate Program

Installing solar window film on pre-existing homes can help reflect the heat during hot summer days and help the efficiency of home cooling units. The window film/solar screen rebate program has been offered for several years and is designed to encourage customers to install solar shading on their windows. Participating customers will receive a rebate in the amount of $1 per square foot for installation of solar shading film with a shading coefficient of 0.5 or less on east-, west, and south-facing windows.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor or the customer. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.5 Residential High Performance Window Rebate Program

Energy-efficient windows can help minimize heating, cooling, and lighting costs. The high performance windows rebate program has been offered for several years and is designed to encourage customers to install windows that improve energy efficiency in their homes. Customers will receive a $2 rebate per square foot for the purchase of ENERGY STAR® rated energy efficient windows.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor or the customer. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.6 Residential Caulking and Weather Stripping Rebate Program

Properly sealing cracks and openings in houses can significantly reduce heating and cooling costs, improve building durability, and create a healthier indoor environment. In an effort to continue providing this program in a more cost productive and efficient manner this program was incorporated into the Efficiency Delivered program described in Section 5.1.10.

As a standalone program, customers received a rebate for 50 percent of the cost (up to $100) for the caulking and weather stripping of their homes. Customers can now participate in the program via the Efficiency Delivered program.

5.1.7 Residential Wall Insulation Rebate Program

Air leakage and improperly installed insulation can waste 20 percent or more of the energy used to heat and cool a house. The wall insulation rebate program is designed to encourage customers to insulate the walls of their homes. Customers will receive a rebate of $0.66 per square foot of insulation added, with the requirement that the initial insulation R-value must be increased by a minimum of R-10.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor or the customer. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.8 Residential Cool/Reflective Roof Rebate Program

A cool/reflective roof reflects the sun's rays to help lower roof surface temperature and increase roof life. It helps lower energy bills during the summer by preventing heat absorption. The cool/reflective roof rebate program, which has been offered in the past couple of years, is designed to encourage customers to install new roofing to help insulate their homes. Customers will receive a rebate of $0.14 per square foot for ENERGY STAR® cool/reflective roofing that has an initial solar reflectance greater than or equal to 0.70.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor or the customer. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to property owner who may have paid for the improvement.

5.1.9 Residential Heat Pump Rebate Program

The residential heat pump rebate program provides rebates to qualifying customers in existing homes who install heat pumps having a seasonal energy efficiency ratio (SEER) of 14.0 or higher. Customers will obtain a rebate in the form of a credit on their bill ranging from $20 to $1,275, depending upon the SEER rating and capacity (tons) of the new heat pump. The following table illustrates the incentives available depending on the size and efficiency of the Heat Pump installed.

HEAT PUMP SIZE	HEAT PUMP SEER AND REBATE AMOUNT				
Tons	14	15	16	17	18
1	$20	$80	$130	$175	$215
1 1/2	$55	$145	$220	$290	$350
2	$90	$205	$310	$400	$480
2 1/2	$120	$270	$400	$515	$615
3	$155	$335	$490	$625	$745
3 1/2	$190	$395	$580	$735	$880
4	$225	$460	$670	$850	$1,010
4 1/2	$260	$525	$755	$960	$1,145
5	$295	$590	$845	$1,075	$1,275

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application, and work must be performed by a contractor. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.10 Residential Efficiency Delivered Program

What was once referred to as the home energy fix-up program has now been revamped and expanded to allow for any OUC customer both Energy and Water to participate and renamed as the Efficiency Delivered program. The program is available to residential customers (single family homes) and provides up to $2,000 of energy and water efficiency upgrades based on the needs of the customer's home. A Conservation Specialist from OUC performs a survey at the home and determines which home improvements have the potential of saving the customer the most money. The program is an income based program which is the basis for how much OUC will help contribute toward the cost of improvements and consists of three household income tiers: 1) $40,000 or less OUC will contribute 85 percent of the total cost, 2) $40,001 to $60,000 OUC will contribute 50 percent of the total cost, and 3) greater than $60,000 OUC will contribute the rebate incentives that apply toward the total cost. Each customer must request and complete a free Residential Energy Survey. Ordinarily, Energy Survey recommendations require a customer to spend money replacing or adding energy conservation measures: however, customers may not have the discretionary income to implement these measures especially those in the lower income tier. Under this program, OUC will arrange for a licensed, approved contractor to perform the necessary repairs based on a negotiated and contracted rate. The remaining portion of the cost the customer is responsible for, can be paid directly to OUC or over an interest-free 12-month period on the participant's monthly electric bill. To be eligible for this program, the customer's account must be in good credit standing with the exception of our low-income customers who are only required to have a current balance. Some of the improvements covered under this program include ceiling insulation, duct system repair, pipe insulation, window film, window caulk, door caulk, door weather stripping, door sweep, threshold plate, air filter replacement, toilet replacement, irrigation repairs, water flow restrictors and minor plumbing repairs.

The purpose of the program is to reduce the energy and water costs especially for low-income households, particularly those households with elderly persons, disabled persons and children. Through this program, OUC helps to lower the bills of customers who may have difficulty paying their bills, thereby decreasing the potential for costly service disconnect fees and late charges. OUC believes that this program will help customers afford other essential living expenses. For others, this program offers a one-stop-shop to facilitate the implementation of a whole suite of conservation measures at reasonable costs and pre-screened qualified contractors.

Efficiency Delivered contractor(s) are selected through a Request For Proposal (RFP) process on a routine basis. Eligible customers are referred to the participating contractor after the OUC Conservation Specialist inspection is complete. The Efficiency Delivered contractor then inspects the home and creates a proposal to install eligible measures. Once the customer accepts the proposal and signs the agreement the contractor calls the customer and schedules the work. Typically the work is completed within 45 days. Upon receipt of notice of completion and customer acceptance, payment to the contractor is processed and the customer's share of the conservation improvements is billed. Participation is tracked based on completed installations.

5.1.11 Residential Billed Solution Insulation Program

The Residential Billed Solution Insulation Program was merged into the newly expanded Efficiency Delivered program as described above. OUC is still providing interest free financing over 12 months through the OUC bill for any remaining costs that exist not covered by OUC's incentives, up to $2,000.

5.1.12 Residential New Home Rebate Program

Previously named The Residential Gold Ring Home Program has been transformed into a more flexible "a la carte" program offering a variety of choices for the Builder or Home buyer. This transformation was based on feedback OUC received from the residential building community in order to increase the level of participation in OUC's program. The chart below reflects an example of the incentives available.

Rebate	Rate of Rebate	Square Footage	Total
Cool/Reflective Roof	$0.04 per sq. ft	2,000	$80
Block Wall Insulation	$0.16 per sq. ft	1,100	$176
Ceiling Insulation Upgrade to R-38	$0.04 per sq. ft	2,000	$80
Heat Pump	up to $1,275	2,000	*$460
Energy Star® Washing Machine	$100	N/A	$100
Energy Star® Heat Pump Water	$650	N/A	$650
Solar Water Heater	$1000	N/A	$1,000

**Based on a typical HVAC Heat Pump size for a 2000 square foot home of 4 tons with a 15 SEER efficiency. Refer to Heat Pump rebate chart for other details.*

5.1.13 Residential Compact Fluorescent Lighting Program

OUC will give away at least one compact fluorescent lamp to customers who participate in OUC's in-home energy audit program, contribute to OUC's customer assistance program Project Care, attend a CFL giveaway event, or sign up for Budget Billing or OUConvenient Billing. OUC will encourage their installation in fixtures that they use the most or at least operate four hours per day. This practice may be eliminated as incandescent lamps are curtailed from the market place due to legislation over the next few years. The loss of the energy savings will be made up through increases from other OUC programs.

5.1.14 Residential HVAC Proper Sizing with R-30 Attic Insulation Program

OUC offers this program to assist its customers in properly sizing their air conditioning (AC) units. The program combines proper sizing of AC systems along with installation of R-30 insulation. OUC will provide the customer with a $40 rebate when provided with certified sizing documentation; the rebate increases to $85 when combined with participation in another OUC program such as the Heat Pump, Block Wall Insulation, Ceiling Insulation Upgrade, Floor Insulation Upgrade, or Duct Repair/Replacement programs.

5.1.15 Commercial Energy Audit Program

The commercial/industrial energy audit program has been offered for several years and is focused on increasing the energy efficiency and energy conservation of commercial buildings and includes a free survey comprised of a physical walk-through inspection of the commercial facility performed by highly trained and experienced energy experts. The survey will examine heating and air conditioning systems including duct work, refrigeration equipment, lighting, water heating, motors, process equipment, and the thermal characteristics of the building including insulation. Following the inspection the customer receives a written report detailing cost-effective recommendations to make the facility more energy and water efficient. Participating customers are encouraged to participate in other OUC commercial programs and directly benefit from energy conservation, which decreases their electric and water bills.

OUC customers can participate by calling the OUC Customer Service Call Center and requesting an appointment for a Walk-Through Energy. Participation is tracked through service orders that are produced when appointments are scheduled and completed.

5.1.16 Commercial Indoor Lighting Retrofit Program

The indoor lighting retrofit program has been offered for several years and reduces energy consumption for the commercial customer through the replacement of older fluorescent and incandescent lighting with newer, more efficient lighting technologies. A special alliance between OUC and the lighting contractor enables OUC to offer the customer a discounted project cost. An additional feature of the program is a "cash-flow neutral billing solution" that allows the customer to pay for the retrofit through the monthly savings that the project generates. This removes the major participation barrier of lacking the upfront capital funding normally required to implement an impactful conservation measure. The project payment appears on the participating customer's utility bill as a line-item and is typically offset by the energy savings. The Term is set to be equal to the pay-back period of the project. After the project has been completely paid for, the participating customer's utility bill will decrease by the energy cost savings.

Lighting contractor(s) are selected through an RFP process. Eligible customers are referred to the lighting contractor typically after an energy survey or through other contacts generated by OUC's Account Representatives. The Lighting contractor inspects the facility and creates a proposal to install eligible measures. Once the customer accepts the proposal and signs the payment agreement, the work is scheduled and completed. Upon receipt of notice of completion, customer acceptance and an OUC inspection, payment to the contractor is processed, and the customer is billed through their OUC bill based on the terms of the payment agreement. Participation is tracked based on completed installations.

As contemplated in OUC's FPSC-approved DSM Plan, OUC has expanded its Indoor Lighting retrofit program by offering the option of receiving a $150/kW rebate instead of the billed solution mentioned above. This expansion provides more options to encourage participation.

5.1.17 Commercial Heat Pump Rebate Program

The commercial heat pump rebate program provides rebates to qualifying customers in existing buildings who install heat pumps having a seasonal energy efficiency ratio (SEER) of 14.0 or higher. Customers will obtain a rebate in the form of a credit on their bill ranging from $20 to $1,275, depending upon the SEER rating and capacity (tons) of the new heat pump. The following table illustrates the incentives available depending on the size and efficiency of the Heat Pump installed.

HEAT PUMP SIZE	HEAT PUMP SEER AND REBATE AMOUNT				
Tons	14	15	16	17	18
1	$20	$80	$130	$175	$215
1 1/2	$55	$145	$220	$290	$350
2	$90	$205	$310	$400	$480
2 1/2	$120	$270	$400	$515	$615
3	$155	$335	$490	$625	$745
3 1/2	$190	$395	$580	$735	$880
4	$225	$460	$670	$850	$1,010
4 1/2	$260	$525	$755	$960	$1,145
5	$295	$590	$845	$1,075	$1,275

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.18 Commercial Duct Repair Rebate Program

The duct repair rebate program started in 2009. OUC will rebate 100 percent of cost, up to $160. Qualifying customers must have an existing central air conditioning system of 5.5 tons or less and ducts must be sealed with mastic and fabric tape or Underwriters Laboratory (UL) approved duct tape.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.19 Commercial Window Film/Solar Screen Rebate Program

The window film/solar screen rebate program started in 2009 and is designed to help reflect the heat during hot summer days and retain heat on cool winter days. OUC will rebate customers $1 per square footfor window tinting and solar screening with a shading coefficient of 0.5 or less.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.20 Commercial Ceiling Insulation Rebate Program

The ceiling insulation rebate program started in 2009 and was designed to increase a building's resistance to heat loss and gain. Participating customers receive $0.05 per square foot, for upgrading their attic insulation up to R-30. If the customer arranges an OUC pre-inspection and it is verified the existing insulation is R-11 or less, OUC will pay a rebate of $0.14 per square foot.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.1.21 Commercial Cool/Reflective Roof Rebate Program

The cool/reflective roofs rebate program started in 2009 and was designed to reflect the sun's rays and lower roof surface temperature while increasing the lifespan of the roof. OUC will rebate customers at $0.14 per square foot for ENERGY STAR® cool/reflective roofing that has an initial solar reflectance greater than or equal to 0.70.

Customers can participate by submitting a rebate application form available through OUC's Customer Service Centers or on line at http://www.OUC.com or http://www.ReliablyGreen.com. Proofs of purchase or receipts are required to be attached to the application and repairs can be performed by a contractor. Participation is tracked based on the number of rebates processed. Typically these rebates are credited on the customer's bill, or a check can be processed and sent to the property owner who may have paid for the improvement.

5.2 ADDITIONAL CONSERVATION MEASURES

The following measures are offered by OUC to its customers, resulting in energy savings and increased reliability. Although the measures were not included in OUC's DSM Plan, they are initiatives OUC's local board of Commissioners have elected to offer that provide additional benefits to OUC's customers.

5.2.1 Residential Energy Conservation Rate Structure

Beginning in October 2002, OUC modified its residential rate structure to a two-tiered block structure to encourage energy conservation. Residential customers using more than 1,000 kWh per month pay a higher rate for the additional energy usage. The purpose of this rate structure is to make OUC customers more energy-conscientious and to encourage conservation of energy resources.

5.2.2 Commercial OUConsumption Online

OUConsumption enables businesses to check their energy usage and demand from a desktop computer and manage their energy load. Customers are able to analyze the metered interval load data for multiple locations, compare energy usage among facilities, and measure the effectiveness of various energy efficiency efforts. The data can also be downloaded for further analysis. Participants must cover a one-time set-up fee of $45, a $45 monthly fee per meter, up to $500 for a load profiling meter and the cost of additional infrastructure to provide connectivity to the meter.

5.2.3 Commercial OUConvenient Lighting

OUConvenient Lighting provides complete outdoor lighting services for commercial applications, including industrial parks, sports complexes, and residential developments. Each lighting package is customized for each participant, allowing the participant to choose among light fixtures and poles. OUC handles all of the upfront financial costs and maintenance. The participant then pays a low monthly fee for each fixture. OUC also retrofits existing fixtures to new light sources or higher output units, increasing efficiency as well as providing preventive and corrective maintenance. New interlocal agreements have allowed this OUConvenient Lighting to expand into neighboring communities like Clermont, Oviedo, and Brevard County.

5.2.4 OUCooling

Originally formed in 1997 as a partnership between OUC and Trigen-Cinergy Solutions, OUCooling helps to lower air conditioning-related electric charges and reduce capital and operating costs. During 2004, OUC bought Trigen-Cinergy's rights and is now the sole owner of OUCooling. OUCooling will fund, install, and maintain a central chiller plant for each business district participating in the program. The main benefits to the businesses are lower electric energy consumption, increased reliability, and the elimination of the environmental risks associated with the handling of chemicals. Other benefits for the businesses include avoided initial capital cost, lower maintenance costs, a smaller mechanical room (therefore more rental space), no insurance requirements, improved property resale value, and availability of maintenance personnel for other duties.

OUC currently has five chilled water districts: downtown Orlando, the Mall at Millenia, the Starwood Resort, Lake Nona, and the Orange County Convention Center including Lockheed Martin and neighboring hotels. OUC envisions building other chiller plants to serve commercial campuses, hotels, retail shopping centers, and tourist attractions. OUC recently added its fifth district at Lake Nona, with the potential to provide up to 50,000 tons of chilled water to the medical complexes and research facilities located in the area. At full build out, this central chilled water system may be one of the largest in the US. In addition, a 17.6 million gallon chilled water thermal storage tank serving the Orange County Convention Center among other facilities and hotels, is one of the largest in the world. The tank works in tandem with 18 water cooled chillers and feeds a chilled water loop that can handle more than 33,000 gallons of 37º F water per minute.

5.2.5 Small Business Efficiency Pilot

OUC's Small Business Efficiency Pilot shows small business owners how to reduce energy and water consumption and improve overall business operations. The pilot focuses on providing essential services to entrepreneurial and small businesses, which include how to write a business plan, how to write contracts, proper accounting methods and other information necessary for a new business to succeed. After completion, small businesses receive a $250 credit on their utility bill.

For participation, customers are required to complete a Commercial Energy Survey or have had one completed in the past 12 months, fill an application form (downloadable from http://www.OUC.com), and attend a one-hour counseling session at the University of Central Florida's Small Business Development Center (SBDC). Validation of the application form by the SBDC is necessary before turning it in to OUC for credit processing.

5.2.6 Residential Floor Insulation

OUC added a Floor Insulation rebate to incent customers to insulate wood floors over unconditioned spaces. This incentive is mostly geared towards older homes that were not built to today's more energy efficient standards. The $0.07 per square foot incentive is for a minimum of R-11 floor insulation.

5.2.7 Energy Star Washing Machine

OUC added a $50 incentive for the purchase of Energy Star washing machines to bring customers' attention to the benefits of these new machines. Not only do they use less electricity and water, but they also reduce the energy required to dry the clothes which accounts for the majority of the electric savings.

5.2.8 Solar Water Heating

OUC changed its previous incentive of $0.03 per kWh equivalent production incentive to a one time upfront rebate of $1,000 to incent customers to purchase a Solar Water Heater. OUC continues to partner with Orlando Federal Credit Union (OFCU) to provide OUC's residential customers with low interest loan options for installing Solar Thermal Systems. Below are the low interest loan rates and terms for the solar thermal program.

Solar Thermal Systems

($7,500 maximum loan amount)

Terms (months)	Rate (APR)
36	0.00%
60	2.75%
84	4.00%

5.2.9 Heat Pump Water Heaters

OUC added a new incentive of $650 for the purchase of a Heat Pump Water Heater. It appears this technology has passed the development stage, become more affordable and has become more of a standard option for customers to consider. As with other incentives, this has the potential to change as equipment minimum efficiency standards change in the future.

5.2.10 Commercial Custom Incentive Program

OUC developed a program to accommodate the various other efficiency improvements possible in a commercial application that were not covered by an existing standard conservation program. It is impractical to have specific individual programs for all potential conservation measures especially when there are technological changes and improvements occurring all the time. With the Custom Incentive program, OUC can accommodate practically any measure that can reduce electric demand above code requirements that a commercial customer wants to implement. The incentive is $250/KW provided it is a measure other than just an indoor lighting retrofit. Qualifying measures can include chillers, thermal storage systems, packaged cooling unit replacements, fan and pump motor efficiency upgrades, refrigeration equipment, etc. The program brochure is available at: http://www.ouc.com/Libraries/RG_Documents/CommIndustrial_Incentives_Info_Sheets_lo.sflb.ashx

5.2.11 Multi-Family ARRA Grant Project

The multi-family market segment is a notoriously difficult market segment to penetrate when it comes to conservation program participation. The owners of the complex do not have a great interest in reducing the tenants' electric bills they do not pay. And the tenants do not have an interest in improving property they do not own. These disincentives lead to a lack of participation from the multi-family market segment, unless the market can be transformed. One way to begin to transform this market is to illustrate the benefits of efficiency that could lead to lower overall costs for tenants that translate to higher satisfaction rates that lead to higher occupancy rates, lower maintenance costs and higher property values for the owners. Last year the opportunity arose when American Recovery and Reinvestment Act (ARRA) grant money became available. OUC partnered with the University of Florida (UF) and were awarded a Clean Energy ARRA grant to install conservation measures in several multi-family apartment complexes to start illustrating these benefits in a real application, not just theoretical. The project consisted of installing conservation measures such as: R-30 Attic Insulation, SEER 15 High Efficiency Heat Pumps, Duct Repair, Solar window film, Energy Star Refrigerators, Heat Pump Water Heaters, Compact Flourescents, Water Saving Showerheads and Aerators. In keeping with the objectives of the ARRA funds, OUC targeted low-income complexes where the savings would have the greatest economic benefit. The highlights of the project that was completed on 4/30/2012 include:

- Five (5) low-income apartment complexes
- Total of 272 Apartments retrofitted (other half reserved for control group)
- Total Project Cost: $1,295,960
- Clean Energy Grant used towards Project Cost: $390,000
- OUC contribution towards Project Cost: $215,786
- Complex owners' contribution $651,426
- Total expected savings from retrofits: $142,247/yr
- Average savings per apartment: $523/yr
- Total estimated kWh savings per year: 1,016,052

Once a full year has passed, the plan is to perform some measurement and verification analytics to demonstrate all of the associated benefits derived from these retrofit projects and share the results with the multi-family ownership and tenant community alike.

6 FORECAST OF FACILITIES REQUIREMENTS

6 Forecast of Facilities Requirements

6.1 EXISTING CAPACITY RESOURCES AND REQUIREMENTS

6.1.1 Existing and Planned Generating Capacity

Tables 6-1 and 6-2, which are presented at the end of this section, indicate that the combined installed generating capability for OUC and St. Cloud (as of January 1, 2013) is 1,579 MW in the winter and 1,507 MW in the summer. OUC's existing generating capability (described in more detail in Section 2.0) consists of the following:

- A joint ownership share in the Stanton Energy Center (Units 1, 2, and Stanton A)
- Sole ownership of Stanton Energy Center Unit B (Stanton B)
- Joint ownership shares of the Indian River combustion turbine units
- Joint ownership shares of Crystal River Unit 3, McIntosh Unit 3, and St. Lucie Unit 2

Additionally, St. Cloud's entitlement to capacity from Stanton Unit 2 is included as generating capability, consistent with the Interlocal Agreement described in Section 2.0

6.1.2 Power Purchase Agreements

Corresponding to the construction of Stanton A, OUC entered into a PPA with SCF to purchase capacity from SCF's 65 percent ownership share of Stanton A. The original Stanton A PPA was for a term of 10 years and allowed OUC, KUA, and FMPA to purchase all of SCF's 65 percent capacity share of Stanton A for 10 years. The utilities retained the right to reduce the capacity purchased from SCF by 50 MW each year, beginning in the sixth year of the PPA, as long as the total reduction in capacity purchased did not exceed 200 MW. The utilities originally had options to extend the PPA beyond its initial term. OUC, KUA, and FMPA have unilateral options to purchase all of Stanton A's capacity for the estimated 30 year useful life of the unit. Subsequent amendments to the original PPA continue OUC's capacity purchase until the 16th year of the PPA. Beginning with the 16^{th} contract year and ending with the 20th contract year, OUC will maintain the irrevocable right to reduce the amount of capacity purchased by either 20 MW or 40 MW per year, as long as the total reduction in purchased capacity does not exceed 160 MW. OUC has the option of terminating the PPA on September 30, 2023, or extending the PPA up to an additional 10 years through two separate 5 year extensions.

6.1.3 Power Sales Agreements

OUC's power sales to Vero Beach, FPL, Bartow, and Lake Worth are described in Section 2.3. As part of its negotiations with Vero Beach regarding early termination of OUC's power sale, OUC will receive Vero Beach's ownership shares in Stanton Energy Center Units 1 and 2 and St. Lucie Unit 2 beginning January 1, 2014. Increases to OUC's generating capacity associated with these units are reflected in this Ten-Year Site Plan.

6.1.4 Retirements of Generating Facilities

OUC has not scheduled any unit retirements over the planning horizon, but will continue to evaluate options on an ongoing basis. One factor affecting potential unit modifications and/or retirements is the impact of pending future environmental regulations. OUC will continue to monitor future environmental regulations that may impact their operating fleet and decisions related to generating units, and develop appropriate corresponding compliance plans.

As discussed previously, Crystal River Unit 3 has been out of service since August 2009, and Duke Energy has announced the unit will be retired rather than being brought back into service. Crystal River Unit 3 is not included as a generating resource in this Ten-Year Site Plan.

6.2 RESERVE MARGIN CRITERIA

The Florida Public Service Commission (FPSC) has established a minimum planned reserve margin criterion of 15 percent in 25-6.035 (1) Florida Administrative Code for the purposes of sharing responsibility for grid reliability. The 15 percent minimum planned reserve margin criterion is generally consistent with practice throughout much of the industry. OUC has adopted the 15 percent minimum reserve margin requirement as its planning criterion.

6.3 FUTURE RESOURCE NEEDS

6.3.1 Generator Capabilities and Requirements Forecast

Tables 6-1 and 6-2 (presented at the end of this section) display the forecast reserve margins for the combined OUC and St. Cloud systems for the winter and summer seasons, respectively. OUC's capacity from renewable projects (discussed in Section 2.4) that is projected to be available at the time of peak demand is also reflected in Tables 6-1 and 6-2.

Table 6-1 and Table 6-2 indicate that OUC is projected to have adequate generating capacity to maintain the 15 percent reserve margin requirements throughout both the summer and winter seasons considered in this Ten-Year Site Plan. These projections consider OUC's capacity allocations associated with planned upgrades to the existing St. Lucie Unit 2, as well as capacity increases associated with planned efficiency improvements for Stanton Units 1 and 2, and capacity decreases associated with planned environmental retrofits for Stanton Unit 1.

6.3.2 Transmission Capability and Requirements Forecast

OUC continuously monitors and upgrades the bulk power transmission system as necessary to provide reliable electric service to its customers. OUC's current transmission system planning criteria are summarized in its annual filing to the Federal Energy Regulatory Commission. Please see OUC's FERC Form 715 for additional information.

Table 6-1 Projected Winter Reserve Requirements – Base Case

YEAR			RETAIL AND WHOLESALE PEAK DEMAND (MW)					AVAILABLE CAPACITY (MW)				RESERVES (MW)		EXCESS/(DEFICIT) CAPACITY TO MAINTAIN 15% RESERVE MARGIN[(6)] (MW)
	OUC	STC	Vero Beach	Bartow	Lake Worth	FPL	Total	Installed[(1)]	SEC A PPA	Renewables[(2)]	Total[(3)]	Required[(4)]	Available[(5)]	
2012/13	1,035	148	99	63	0	0	1,345	1,579	343	3	1,925	177	580	403
2013/14	1,029	148	0	69	31	38	1,315	1,642	343	3	1,988	177	672	496
2014/15	1,042	151	0	70	32	38	1,332	1,642	343	3	1,988	179	656	477
2015/16	1,059	153	0	70	33	38	1,355	1,642	343	3	1,988	182	633	451
2016/17	1,076	156	0	71	0	0	1,303	1,642	343	3	1,988	185	685	500
2017/18	1,091	159	0	0	0	0	1,250	1,640	343	3	1,985	187	735	548
2018/19	1,106	162	0	0	0	0	1,268	1,640	343	3	1,985	190	718	527
2019/20	1,121	165	0	0	0	0	1,286	1,640	343	3	1,985	193	699	507
2020/21	1,136	168	0	0	0	0	1,304	1,640	343	3	1,985	196	681	486
2021/22	1,152	171	0	0	0	0	1,323	1,640	343	3	1,985	198	663	464

(1) Includes existing net capability to serve OUC and St. Cloud. Reflects OUC's share of the increased capacity associated with the uprate to the existing St. Lucie Unit 2 nuclear generating unit, as well as changes to capacity for Stanton Units 1 and 2 associated with planned efficiency improvements and environmental retrofits. Also includes increases to capacity of Stanton Units 1 and 2 and St. Lucie Unit 2 associated with termination of OUC's power sale to Vero Beach.
(2) Capacity of "Renewables" reflects capacity value projected to be available at time of peak demand.
(3) "Totals" may not add due to rounding.
(4) "Required Reserves" include 15 percent reserve margin on OUC retail peak demand and STC retail peak demand.
(5) "Available Reserves" equals the difference between total available capacity and total peak demand.
(6) Calculated as the difference between available reserves and required reserves.

Table 6-2 Projected Summer Reserve Requirements – Base Case

	RETAIL AND WHOLESALE PEAK DEMAND (MW)							AVAILABLE CAPACITY (MW)				RESERVES (MW)		EXCESS/(DEFICIT) CAPACITY TO MAINTAIN 15% RESERVE MARGIN[6] (MW)
YEAR	OUC	STC	Vero Beach	Bartow	Lake Worth	FPL	Total	Installed[1]	SEC A PPA	Renewables[2]	Total[3]	Required[4]	Available[5]	
2013	1,066	143	99	67	0	0	1,374	1,507	322	8	1,837	181	463	282
2014	1,073	142	0	67	31	38	1,351	1,570	322	8	1,900	182	549	367
2015	1,088	145	0	68	32	38	1,371	1,570	322	8	1,900	185	529	344
2016	1,106	147	0	69	33	38	1,394	1,570	322	8	1,900	188	506	318
2017	1,123	150	0	69	0	0	1,341	1,568	322	8	1,898	191	556	365
2018	1,138	152	0	0	0	0	1,290	1,568	322	8	1,898	194	607	414
2019	1,154	155	0	0	0	0	1,309	1,568	322	8	1,898	196	589	392
2020	1,169	158	0	0	0	0	1,327	1,568	322	8	1,898	199	571	372
2021	1,185	160	0	0	0	0	1,346	1,568	322	8	1,898	202	552	350
2022	1,202	163	0	0	0	0	1,365	1,568	322	8	1,898	205	533	328

[1] Includes existing net capability to serve OUC and St. Cloud. Reflects OUC's share of the increased capacity associated with the uprate to the existing St. Lucie Unit 2 nuclear generating unit, as well as changes to capacity for Stanton Units 1 and 2 associated with planned efficiency improvements and environmental retrofits. Also includes increases to capacity of Stanton Units 1 and 2 and St. Lucie Unit 2 associated with termination of OUC's power sale to Vero Beach.
[2] Capacity of "Renewables" reflects capacity value projected to be available at time of peak demand.
[3] "Totals" may not add due to rounding.
[4] "Required Reserves" include 15 percent reserve margin on OUC retail peak demand and STC retail peak demand.
[5] "Available Reserves" equals the difference between total available capacity and total peak demand.
[6] Calculated as the difference between available reserves and required reserves.

7 SUPPLY-SIDE ALTERNATIVES

7 Supply-Side Alternatives

As discussed previously, consideration of OUC's existing generating resources and OUC's current base case load forecast indicates that OUC is expecting to have adequate capacity to satisfy forecast reserve margin requirements through the 2022 (both summer and winter seasons). As such, no capacity additions are reflected in this Ten-Year Site Plan. It should be noted that OUC's existing Stanton Energy Center and Indian River sites may accommodate future generating unit additions. OUC will continue to evaluate its power supply requirements and alternatives as part of its planning processes.

8 ECONOMIC EVALUATION CRITERIA AND METHODOLOGY

8 Economic Evaluation Criteria and Methodology

This section presents the economic evaluation criteria and methodology used for OUC's current planning processes.

8.1 ECONOMIC PARAMETERS

The economic parameters are summarized below and are presented on an annual basis.

8.1.1 Inflation and Escalation Rates

The general inflation rate, construction cost escalation rate, fixed O&M escalation rate, and nonfuel variable O&M escalation rate are each assumed to be 2.5 percent.

8.1.2 Present Worth Discount Rate

The present worth discount rate is assumed to be equal to OUC's embedded rate for new debt of 5.5 percent.

8.1.3 Interest During Construction Rate

The interest during construction (IDC) rate used by OUC for economic evaluations is 5.5 percent.

8.1.4 Fixed Charge Rate

The fixed charge rate (FCR) represents the sum of a project's fixed charges as a percent of the initial investment cost. When the FCR is applied to the initial investment, the product equals the revenue requirements needed to offset the fixed charges during a given year. A separate FCR can be calculated and applied to each year of an economic analysis, but it is common practice to use a single, levelized FCR that has the same present value as the year-by-year FCR. The FCR calculation includes 0.10 percent for property insurance. Bond issuance fees and insurance costs are not included in the calculation of the levelized FCR, since these are already considered in OUC's embedded debt rate. Assuming a 20 year financing term, the resulting levelized FCR is 4.67 percent. Assuming a 30 year financing term, the resulting levelized FCR is 6.98 percent.

8.2 FUEL PRICE FORECASTS

8.2.1 Coal

The existing Stanton Units 1 and 2 can be operated on various coal types including low sulfur Central Appalachian and Illinois basin/Western Kentucky coals. OUC developed projections of delivered coal prices to the Stanton Energy Center based on input provided by Energy Ventures Analysis, Inc. (EVA). The annual price projections for blended low sulfur Central Appalachian and Illinois Basin/Western Kentucky coal delivered to the Stanton Energy Center are presented in Table 8-1.

8.2.2 Natural Gas

Natural gas is the primary fuel for Stanton A, Stanton B, and OUC's Indian River combustion turbines. The forecasted price for natural gas delivered to the Indian River and Stanton Energy Center sites is presented in Table 8-1. The gas price includes the Florida Gas Transmission (FGT) Zone 3 basis adder for Henry Hub and fuel loss and usage charges. Firm natural gas transmission costs for existing firm natural gas transportation capacity are not included since such costs are associated with OUC's existing units and would not affect future resource decisions as they are considered to be "sunk costs."

8.2.3 No. 2 Fuel Oil

No. 2 fuel oil is the secondary fuel for Stanton A and B, as well as for OUC's Indian River combustion turbines. Fuel oil is not considered a primary fuel source for OUC's existing units. For informational purposes, OUC's current fuel oil price projections are presented in Table 8-1.

8.2.4 Nuclear

Forecast annual prices for nuclear fuel, which are required for OUC's ownership shares of St. Lucie Units 1 and 2, are presented in Table 8-1.

Table 8-1 Delivered Fuel Price Forecasts (Nominal $/MBtu)

CALENDAR YEAR	STANTON ENERGY CENTER COAL - DELIVERED	DELIVERED NATURAL GAS	ULTRA-LOW SULFUR DIESEL (0.0015% SULFUR)	NUCLEAR
2013	4.44	4.25	22.22	0.66
2014	4.23	4.59	20.85	0.69
2015	4.33	4.82	20.76	0.72
2016	4.45	5.07	20.82	0.76
2017	4.59	5.59	21.30	0.80
2018	4.72	6.15	21.87	0.84
2019	4.86	6.67	21.79	0.88
2020	5.02	7.19	23.11	0.93
2021	5.19	7.60	24.16	0.99
2022	5.37	7.86	25.92	1.05

9 ANALYSIS AND RESULTS

9 Analysis and Results

As discussed throughout this Ten-Year Site Plan, OUC is not projected to require additional capacity to satisfy reserve margin requirements throughout the term of this Ten-Year Site Plan under its base case load forecast. OUC will continue to evaluate its power supply requirements and alternatives during the timeframe considered in this Ten-Year Site Plan as well as beyond 2022, and in doing so will evaluate possible participation in new and/or existing nuclear generating units if deemed appropriate.

For informational purposes, Black & Veatch's POWRPRO was used to obtain the annual production costs associated for various load, fuel, and other sensitivity cases. POWRPRO is a computer-based chronological production costing model developed for use in power supply system planning. POWRPRO simulates the hour-by-hour operation of a power supply system over a specified planning period. Required inputs include the performance characteristics of generating units, fuel costs, and the system hourly load profile for each year. POWRPRO has been used in numerous Need for Power Applications approved by the Florida Public Service Commission, including FMPA's Treasure Coast Energy Center Unit 1 Need for Power Application (approved in July 2005) and OUC's Stanton Energy Center Unit B Need for Power Application (approved in May 2006).

POWRPRO summarizes each unit's operating characteristics for every year of the planning horizon. These characteristics include, among others, each unit's annual generation, fuel consumption, fuel cost, average net operating heat rate, the number of hours the unit was on line, the capacity factor, variable O&M costs, and the number of starts and associated costs. Fixed O&M costs and debt service on existing generating units are generally considered sunk costs that will not vary from one expansion plan to another and were therefore not included for existing units. The annual capacity charges for the Stanton A purchase power agreement likewise were not included, as they also represent sunk costs. Similarly, fixed costs for firm natural gas transportation capacity from FGT for existing firm natural gas transportation capacity are considered sunk costs and are not included. Costs associated with OUC's renewable power purchases have not been included, as they would be the same for every expansion plan. The operating costs of each unit are aggregated to determine annual operating costs for each year of the expansion plan.

The cumulative present worth cost (CPWC) calculations presented in this section account for annual system costs (i.e. fuel and energy, non-fuel variable O&M, and startup costs) for each year of the expansion planning period and discounts each back to 2013 at the present worth discount rate of 5.5 percent. These annual present worth costs are then summed over the 2013 through 2022 period to calculate the total CPWC of the expansion plan being considered. Such analysis allows for a comparison of CPWC between various capacity expansion plans across the sensitivities considered

9.1 CPWC ANALYSES

9.1.1 Base Case Analysis

The base case considers the base load forecast presented in Section 4 and the base fuel price forecasts presented in Section 8 of this Ten-Year Site Plan. As discussed previously, no capacity additions are projected to be required under the base case load forecast. The CPWC for the production costs associated with the base case analysis is approximately $2.33 billion.

9.1.2 Sensitivity Analyses

As part of its capacity planning process, OUC considers a number of sensitivity analyses to measure the impact of variations to critical assumptions. Among the numerous sensitivities that OUC may consider in its planning processes are high and low fuel prices, high and low load and energy growth projections, a case in which the differential between natural gas and coal price projections is held constant over time, and a high present worth discount rate case. Of these sensitivities only the high and low load and energy growth projection sensitivities would potentially impact the timing of unit additions. For informational purposes, the following subsections describe the high and low load and energy growth, the high and low fuel price, the constant differential fuel price, and the high present worth discount rate sensitivities.

9.1.2.1 High Load Forecast Sensitivity

The high load forecast is presented in Section 4.0; no capacity additions are projected to be required to maintain the 15 percent reserve margin under the high load forecast sensitivity. The CPWC for the production costs associated with the high load analysis is approximately $2.45 billion.

9.1.2.2 Low Load Forecast Sensitivity

The low load forecast is presented in Section 4.0; no capacity additions are projected to be required to maintain the 15 percent reserve margin under the low load forecast sensitivity. The CPWC for the production costs associated with the low load analysis is approximately $2.25 billion.

9.1.2.3 High Fuel Price Forecast Sensitivity

The fuel price projections for the high fuel price sensitivity are shown in Table 9-1. It should be noted that OUC's contractual arrangements for coal delivery will mitigate the effects of volatility in coal prices; however, for purposes of this analysis this factor was not considered.

As discussed previously, no capacity additions are projected to be required under the base case load forecast. The CPWC for the production costs associated with the high natural gas and coal price forecast sensitivity is approximately $2.65 billion.

9.1.2.4 Low Fuel Price Forecast Sensitivity

The fuel price projections for the low fuel price sensitivity are shown in Table 9-2. It should be noted that OUC's contractual arrangements for coal delivery will mitigate the effects of volatility in coal prices; however, for purposes of this analysis this factor was not considered.

As discussed previously, no capacity additions are projected to be required under the base case load forecast. The CPWC for the production costs associated with the low natural gas and coal price forecast sensitivity is approximately $1.80 billion.

9.1.2.5 Constant Differential Natural Gas and Coal Price Forecast Sensitivity

The constant differential natural gas and coal price forecast sensitivity assumes that the delivered natural gas price and delivered coal price forecast for 2013 presented in Section 8.0 would remain constant in real terms. The constant differential price forecasts shown in Table 9-3 were developed by applying the general inflation rate (2.5 percent) to the base case 2013 natural gas and coal price forecasts to convert from real to nominal dollars. The fuel oil and nuclear fuel price forecasts presented in Section 8.0 have not been changed for this sensitivity.

As discussed previously, no capacity additions are projected to be required under the base case load forecast. The CPWC for the production costs associated with the constant differential natural gas and coal price forecast sensitivity is approximately $2.40 billion.

Table 9-1 Delivered Fuel Price Forecasts – High Fuel Price Sensitivity (Nominal $/MBtu)

CALENDAR YEAR	STANTON ENERGY CENTER COAL - DELIVERED	DELIVERED NATURAL GAS	ULTRA-LOW SULFUR DIESEL (0.0015% SULFUR)	NUCLEAR
2013	5.11	4.88	25.56	0.76
2014	4.87	5.28	23.98	0.79
2015	4.98	5.55	23.87	0.83
2016	5.12	5.83	23.94	0.88
2017	5.28	6.42	24.50	0.92
2018	5.43	7.08	25.15	0.96
2019	5.59	7.67	25.06	1.02
2020	5.77	8.27	26.58	1.07
2021	5.96	8.74	27.78	1.14
2022	6.18	9.04	29.80	1.20

Table 9-2 Delivered Fuel Price Forecasts – Low Fuel Price Sensitivity (Nominal $/MBtu)

CALENDAR YEAR	STANTON ENERGY CENTER COAL - DELIVERED	DELIVERED NATURAL GAS	ULTRA-LOW SULFUR DIESEL (0.0015% SULFUR)	NUCLEAR
2013	3.33	3.18	16.67	0.49
2014	3.18	3.44	15.64	0.52
2015	3.25	3.62	15.57	0.54
2016	3.34	3.80	15.61	0.57
2017	3.45	4.19	15.98	0.60
2018	3.54	4.62	16.40	0.63
2019	3.64	5.00	16.34	0.66
2020	3.76	5.39	17.34	0.70
2021	3.89	5.70	18.12	0.74
2022	4.03	5.90	19.44	0.79

Table 9-3 Delivered Fuel Price Forecasts – Constant Differential Fuel Price Sensitivity (Nominal $/MBtu)

CALENDAR YEAR	STANTON ENERGY CENTER COAL - DELIVERED	DELIVERED NATURAL GAS	ULTRA-LOW SULFUR DIESEL (0.0015% SULFUR)	NUCLEAR
2013	4.44	4.25	22.22	0.66
2014	4.55	4.35	20.85	0.69
2015	4.67	4.46	20.76	0.72
2016	4.78	4.57	20.82	0.76
2017	4.90	4.69	21.30	0.80
2018	5.02	4.80	21.87	0.84
2019	5.15	4.92	21.79	0.88
2020	5.28	5.05	23.11	0.93
2021	5.41	5.17	24.16	0.99
2022	5.55	5.30	25.92	1.05

9.1.2.6 High Present Worth Discount Rate Sensitivity

The high present worth discount rate sensitivity assumes a 10 percent present worth discount rate instead of the 5.5 percent present worth discount rate used in the other economic analyses discussed in this section. As discussed previously, no capacity additions are projected to be required under the base case load forecast. The CPWC for the production costs associated with the high present worth discount rate sensitivity is approximately $1.87 billion.

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10
ENVIRONMENTAL AND LAND USE INFORMATION

10 Environmental and Land Use Information

As discussed previously in this Ten-Year Site Plan, OUC's base case load forecast indicates that no additional capacity is necessary to satisfy reserve margin requirements throughout the term of this Ten-Year Site Plan. As such, no capacity additions are reflected in this Ten-Year Site Plan. It should be noted that OUC's existing Stanton Energy Center and Indian River sites may accommodate future generating unit additions.

11 CONCLUSIONS

11 Conclusions

As discussed throughout this Ten-Year Site Plan, OUC's base case load forecast indicates that no additional capacity is required to satisfy projected reserve margin requirements throughout the term considered in this Ten-Year Site Plan. As such, no capacity additions are reflected in this Ten-Year Site Plan. It should be noted that OUC's existing Stanton Energy Center and Indian River sites may accommodate future generating unit additions. OUC will continue to evaluate its power supply requirements and alternatives as part of its planning processes.

12 TEN-YEAR SITE PLAN SCHEDULES

12 Ten-Year Site Plan Schedules

This section presents the schedules required by the Ten-Year Site Plan rules for the Florida Public Service Commission (FPSC). The Schedules are presented in the same format in which they will be provided in response to the FPSC's Supplemental Data Request. The information contained within the FPSC Schedules is representative of the combined OUC and City of St. Cloud systems, consistent with all sections of the 2013 OUC Ten-Year Site Plan.

Schedule 1
Existing Generating Facilities
As of December 31, 2012

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
								Alt.					
								Fuel	Commercial	Expected	Gen. Max.	Net Capability	
	Unit		Unit	Fuel		Fuel Transport		Days	In-Service	Retirement	Nameplate	Summer	Winter
Plant Name	No.	Location	Type	Pri	Alt	Pri	Alt	Use	Month/Year	Month/Year	KW [1]	MW	MW
Indian River	A	Brevard	GT	NG	DFO	PL	TK	0.2	06/89	Unknown	41,400	18 [2]	23.4 [2]
Indian River	B	Brevard	GT	NG	DFO	PL	TK	0.2	07/89	Unknown	41,400	18 [2]	23.4 [2]
Indian River	C	Brevard	GT	NG	DFO	PL	TK	0.2	08/92	Unknown	130,000	85.3 [3]	100.3 [3]
Indian River	D	Brevard	GT	NG	DFO	PL	TK	0.2	10/92	Unknown	130,000	85.3 [3]	100.3 [3]
Stanton Energy Center	1	Orange	ST	BIT	NA	RR	UN	UN	07/87	Unknown	464,500	301.6 [4]	303.7 [4]
Stanton Energy Center	2	Orange	ST	BIT	NA	RR	UN	UN	06/96	Unknown	464,500	334.5 [5]	334.5 [5]
Stanton Energy Center	A	Orange	CC	NG	DFO	PL	TK	3	10/01	Unknown		173.6 [6]	184.8 [6]
Stanton Energy Center	B	Orange	CC	NG	DFO	PL	TK	3	02/10	Unknown	333,000	298	312
McIntosh	3	Polk	ST	BIT	NA	REF	UN	UN	09/82	Unknown		133 [7]	136 [7]
Crystal River [8]	3	Citrus	ST	NUC	NA	TK	UN	UN	03/77	Unknown		13	13
St. Lucie [9]	2	St. Lucie	ST	NUC	NA	TK	UN	UN	08/83	Unknown		60	61

NOTES:

(1) Nameplate ratings are reported for units which OUC maintains majority ownership. Values reported are for the entire unit (not just OUC's ownership share)

(2) Reflects an OUC ownership share of 48.8 percent.

(3) Reflects an OUC ownership share of 79.0 percent.

(4) Reflects an OUC ownership share of 68.6 percent.

(5) Reflects an OUC ownership share of 71.6 percent and St. Cloud entitlement of 3.4 percent.

(6) Reflects an OUC ownership share of 28.0 percent.

(7) Reflects an OUC ownership share of 40.0 percent.

(8) Capacity from Crystal River Unit No. 3 Is not included as available capacity given it has not operated since summer of 2009and is not expected to return to operation prior to retirement.

(9) OUC owns approximately 6.1 percent of St. Lucie Unit No. 2. Reliability exchange divides 50 percent power from Unit No. 1 and 50 percent power from Unit No. 2. Reflects increased capacity following completion of capacity uprate in December 2012.

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)
			Rural and Residential				Commercial	
Year	Population	Members per Household	GWH	Average No. of Customers	Average KWH Consumption Per Customer	GWH	Average No. of Customers	Average KWH Consumption Per Customer
HISTORY:								
2003	391,500	2.55	2,033	153,708	13,226	299	18,011	16,601
2004	403,900	2.54	2,082	158,755	13,115	300	18,866	15,902
2005	421,100	2.54	2,198	165,545	13,277	320	19,672	16,267
2006	436,000	2.55	2,241	170,765	13,125	340	20,034	16,960
2007	451,696	2.56	2,223	176,435	12,599	363	20,230	17,922
2008	457,897	2.55	2,269	179,785	12,622	395	20,463	19,283
2009	452,220	2.55	2,235	177,163	12,615	317	20,762	15,264
2010	454,300	2.55	2,325	178,197	13,047	311	21,648	14,366
2011	458,940	2.55	2,223	180,072	12,347	311	22,138	14,026
2012	466,940	2.56	2,140	182,570	11,723	319	23,198	13,730
FORECAST:								
2013	474,595	2.56	2,228	185,560	12,005	333	23,471	14,196
2014	481,417	2.56	2,262	188,234	12,017	334	23,273	14,331
2015	490,725	2.56	2,294	191,869	11,959	353	24,418	14,447
2016	500,884	2.56	2,339	195,841	11,944	371	25,471	14,555
2017	511,474	2.56	2,382	199,980	11,910	383	26,178	14,642
2018	522,174	2.56	2,428	204,164	11,895	396	26,900	14,721
2019	533,012	2.56	2,478	208,401	11,889	409	27,646	14,810
2020	544,082	2.56	2,524	212,730	11,866	423	28,418	14,895
2021	555,037	2.56	2,573	217,014	11,855	438	29,213	14,983
2022	565,986	2.56	2,624	221,295	11,858	453	30,033	15,074

Notes:
Represents total of OUC and St. Cloud.

Schedule 2.2
History and Forecast of Energy Consumption and Number of Customers by Customer Class

(1) Year	(2) GWH	(3) Industrial Average No. of Customers	(4) Average KWH Consumption Per Customer	(5) Railroads and Railways GWH	(6) Street & Highway Lighting GWH	(7) Other Sales to Public Authorities GWH	(8) Total Sales to Ultimate Consumers GWH
HISTORY:							
2003	3,138	5,417	579,287	0	37	6	5,513
2004	3,221	5,500	585,636	0	42	6	5,651
2005	3,283	5,561	590,361	0	45	6	5,852
2006	3,347	5,675	589,871	0	49	6	5,984
2007	3,434	5,843	587,637	0	54	6	6,079
2008	3,390	5,961	568,659	0	45	17	6,115
2009	3,418	6,725	508,217	0	46	15	6,031
2010	3,414	7,201	474,101	0	51	31	6,030
2011	3,422	7,428	460,737	0	34	30	6,021
2012	3,392	7,558	448,853	0	35	30	5,916
FORECAST:							
2013	3,454	7,783	443,759	0	35	30	6,080
2014	3,488	8,030	434,377	0	36	30	6,149
2015	3,534	8,282	426,734	0	36	31	6,248
2016	3,571	8,539	418,166	0	36	31	6,347
2017	3,606	8,796	409,907	0	36	31	6,438
2018	3,634	9,054	401,400	0	36	32	6,527
2019	3,663	9,313	393,346	0	36	32	6,618
2020	3,692	9,572	385,670	0	37	32	6,708
2021	3,721	9,832	378,426	0	37	32	6,800
2022	3,749	10,092	371,433	0	37	33	6,895

Notes:
Represents total of OUC and St. Cloud.

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

(1) Year	(2) Sales for Resale GWH	(3) Utility Use & Losses GWH	(4) Net Energy for Load GWH	(5) Other Customers (Average No.)	(6) Total No. of Customers
HISTORY:					
2003	920	249	6,682	0	177,136
2004	714	234	6,599	0	183,121
2005	704	219	6,775	0	190,778
2006	18	248	6,250	0	196,474
2007	0	262	6,341	0	202,508
2008	0	150	6,265	0	206,209
2009	0	223	6,252	0	204,650
2010	469	277	6,767	0	207,046
2011	768	188	6,977	0	209,638
2012	764	346	7,026	0	213,325
FORECAST:					
2013	659	231	6,970	0	216,814
2014	521	235	6,905	0	219,537
2015	531	245	7,023	0	224,569
2016	541	244	7,132	0	229,851
2017	310	249	6,997	0	234,954
2018	0	253	6,779	0	240,118
2019	0	255	6,873	0	245,359
2020	0	260	6,968	0	250,720
2021	0	265	7,065	0	256,059
2022	0	268	7,163	0	261,420

Notes:
Represents total of OUC and St. Cloud.
2010 - 2012 "Sales for Resale" represent sales to City of Vero Beach.
Forecast "Sales for Resale" represent projected sales to City of Vero Beach for 2013, City of Bartow for 2013 through 2017, and Lake Worth for 2014 through 2016.

Schedule 3.1
History and Forecast of Summer Peak Demand
Base Case

(1) Year	(2) Total	(3) Wholesale	(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm./Ind. Load Management	(9) Comm./Ind. Conservation	(10) Net Firm Demand
HISTORY:									
2003	1,381	303	1,078	1	0	0	0	0	1,380
2004	1,311	231	1,080	1	0	0	0	0	1,310
2005	1,353	147	1,206	0	0	0	0	0	1,353
2006	1,230	22	1,208	0	0	0	0	0	1,230
2007	1,256	0	1,256	0	0	0	0	0	1,256
2008	1,221	0	1,221	0	0	0	0	0	1,221
2009	1,244	0	1,244	0	0	0	0	0	1,244
2010	1,295	74	1,218	0	0	1.0	0	1.7	1,292
2011	1,371	164	1,205	0	0	1.0	0	0.6	1,369
2012	1,381	165	1,214	0	0	0.6	0	1.7	1,379
FORECAST:									
2013	1,377	166	1,210	0	0	0.5	0	0.7	1,376
2014	1,355	136	1,217	0	0	1.0	0	1.4	1,353
2015	1,374	138	1,233	0	0	1.5	0	2.1	1,371
2016	1,398	140	1,254	0	0	2.0	0	2.8	1,394
2017	1,347	69	1,272	0	0	2.5	0	3.5	1,341
2018	1,297	0	1,290	0	0	3.0	0	4.2	1,290
2019	1,317	0	1,309	0	0	3.5	0	4.9	1,309
2020	1,337	0	1,327	0	0	4.0	0	5.6	1,327
2021	1,356	0	1,346	0	0	4.5	0	6.3	1,346
2022	1,377	0	1,365	0	0	5.0	0	7.0	1,365

Notes:
Represents total of OUC and St. Cloud.
"Residential Conservation" and "Comm/Ind. Conservation" represent cumulative annual demand reductions.
Forecast "Wholesale" represents projected sales to City of Vero Beach (2013), City of Bartow (2013 through 2017), FPL (2014 through 2016), and Lake Worth (2014 through 2016).
Forecast "Net Firm Demand" may not exactly match up with peak demands presented in Section 6 of the 2011 OUC Ten-Year Site Plan due to rounding.
2010 through 2012 "Conservation" represents OUC's actual conservation achievements. Forecast "Conservation" represents cumulative conservation projections.

Schedule 3.2
History and Forecast of Winter Peak Demand
Base Case

(4) Retail	(5) Interruptible	(6) Residential Load Management	(7) Residential Conservation	(8) Comm./Ind. Load Management	(9) Comm./Ind. Conservation	(10) Net Firm Demand
1,044	1	0	0	0	0	1,345
1,137	1	0	0	0	0	1,413
955	1	0	0	0	0	1,195
1,080	1	0	0	0	0	1,202
1,095	0	0	0	0	0	1,117
957	0	0	0	0	0	957
1,178	0	0	0	0	0	1,178
1,299	0	0	0.8	0	0.9	1,335
1,147	0	0	0.8	0	0.6	1,321
1,032	0	0	0.5	0	1.8	1,214
1,182	0	0	0.2	0	0.7	1,344
1,177	0	0	0.4	0	1.4	1,315
1,192	0	0	0.6	0	2.1	1,332
1,213	0	0	0.8	0	2.8	1,355
1,232	0	0	1.0	0	3.5	1,303
1,250	0	0	1.2	0	4.2	1,250
1,268	0	0	1.4	0	4.9	1,268
1,286	0	0	1.6	0	5.6	1,286
1,304	0	0	1.8	0	6.3	1,304
1,323	0	0	2.0	0	7.0	1,323

represent cumulative annual demand reductions.
Vero Beach (2013), City of Bartow (2013 through 2017), FPL (2014 through 2016), and Lake Worth (2014 through 2016).
peak demands presented in Section 6 of the 2011 OUC Ten-Year Site Plan due to rounding.
ctual conservation achievements. Forecast "Conservation" represents cumulative conservation projections.

Schedule 3.3
History and Forecast of Annual Net Energy for Load - GWH
Base Case

(1) Year	(2) Total	(3) Residential Conservation	(4) Comm./Ind. Conservation	(5) Retail	(6) Wholesale	(7) Utility Use & Losses	(8) Net Energy for Load	(9) Load Factor %
HISTORY:								
2003	6,682	0	0	5,513	920	249	6,682	55.3%
2004	6,599	0	0	5,651	714	234	6,599	53.3%
2005	6,775	0	0	5,852	704	219	6,775	54.5%
2006	6,250	0	0	5,984	18	248	6,250	58.0%
2007	6,341	0	0	6,079	0	262	6,341	57.6%
2008	6,265	0	0	6,115	0	150	6,265	58.6%
2009	6,252	0	0	6,031	0	223	6,252	57.4%
2010	6,986	3.0	5.8	6,030	469	277	6,767	58.2%
2011	6,983	2.7	3.0	6,021	768	188	6,977	58.2%
2012	7,035	1.9	7.3	5,917	764	346	7,027	58.2%
FORECAST:								
2013	6,973	1.8	1.8	6,080	659	231	6,970	57.8%
2014	6,912	3.6	3.6	6,149	521	235	6,905	58.3%
2015	7,034	5.4	5.4	6,248	531	245	7,023	58.5%
2016	7,146	7.2	7.2	6,347	541	244	7,132	58.4%
2017	7,015	9.0	9.0	6,438	310	249	6,997	59.5%
2018	6,801	10.8	10.8	6,527	0	253	6,779	60.0%
2019	6,898	12.6	12.6	6,618	0	255	6,873	59.9%
2020	6,997	14.4	14.4	6,708	0	260	6,968	59.9%
2021	7,097	16.2	16.2	6,800	0	265	7,065	59.9%
2022	7,199	18.0	18.0	6,895	0	268	7,163	59.9%

Notes:
Represents total of OUC and St. Cloud.
"Residential Conservation" and "Comm/Ind. Conservation" represent cumulative annual energy reductions.
Forecast "Wholesale" represents projected sales to City of Vero Beach (2013), City of Bartow (2013 through 2017), FPL (2014 through 2016), and Lake Worth (2014 through 2016).
2010 through 2012 "Conservation" represents OUC's actual conservation achievements. Forecast "Conservation" represents cumulative conservation projections.

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	2012 Actual		2013 Forecast		2014 Forecast	
Month	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH
January	1,032	458	1,183	438	1,177	443
February	974	427	1,110	381	1,104	386
March	818	477	891	422	884	427
April	999	484	961	441	956	447
May	1,102	565	1,109	506	1,108	513
June	1,148	564	1,174	535	1,175	543
July	1,201	644	1,205	577	1,209	585
August	1,209	628	1,208	573	1,215	580
September	1,208	577	1,139	524	1,147	530
October	1,180	533	1,085	480	1,094	484
November	844	436	944	405	952	407
December	911	472	945	431	954	437

Notes:
Represents the total of OUC and St. Cloud retail peak demands and net energy for load. Wholesale sales to Vero Beach and Bartow are not included.
Peak demands may not match previous schedules due to non-coincidence of OUC and St. Cloud peaks and/or rounding.

Schedule 5
Fuel Requirements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Fuel Requirements		Units	Actual 2011	Actual 2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
(1)	Nuclear		Trillion BTU	4	3	5	5	5	5	5	5	5	5	5	5
(2)	Coal		1000 Ton	1,551	1,120	803	959	986	1,007	1,190	1,422	1,773	1,854	1,896	1,881
(3)	Residual	Total	1000 BBL	17	7	0	0	0	0	0	0	0	0	0	0
(4)		Steam	1000 BBL	0	7	0	0	0	0	0	0	0	0	0	0
(5)		CC	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(6)		CT	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(7)		Other	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(8)	Distillate	Total	1000 BBL	0	2.9	0	0	0	0	0	0	0	0	0	0
(9)		Steam	1000 BBL	0	2	0	0	0	0	0	0	0	0	0	0
(10)		CC	1000 BBL	0	1	0	0	0	0	0	0	0	0	0	0
(11)		CT	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(12)		Other	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(13)	Natural Gas	Total	1000 MCF	19,732	24,087	31,344	27,456	27,806	28,120	23,866	18,191	12,667	11,844	11,771	12,789
(14)		Steam	1000 MCF	0	1,475	0	0	0	0	0	0	0	0	0	0
(15)		CC	1000 MCF	19,732	22,443	31,189	27,316	27,647	27,951	23,760	18,140	12,568	11,728	11,635	12,658
(16)		CT	1000 MCF	0	169	155	140	159	169	106	51	99	116	135	132
(17)	Other (Specify)		Trillion BTU	0	0	0	0	0	0	0	0	0	0	0	0

Notes:
Represents fuel required to serve OUC and St. Cloud, and sales to City of Vero Beach (2011 through 2013), City of Bartow (2012 through 2017), and City of Lake Worth (2014 through 2016).
Natural gas CC includes SEC A purchases from Southern - Florida, LLC

Schedule 6.1
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 2011	Actual 2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
(1)	Firm Inter-Region Interchange		GWH	0	0	0	0	0	0	0	0	0	0	0	0
(2)	Nuclear		GWH	385	417	461	464	461	461	461	461	461	461	461	461
(3)	Coal		GWH	3,850	2,745	1,991	2,429	2,495	2,552	2,998	3,600	4,498	4,725	4,842	4,799
(4)	Residual	Total	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(5)		Steam	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(6)		CC	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(7)		CT	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(8)		Other	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(9)	Distillate	Total	GWH	0	1	0	0	0	0	0	0	0	0	0	0
(10)		Steam	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(11)		CC	GWH	0	1	0	0	0	0	0	0	0	0	0	0
(12)		CT	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(13)		Other	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(14)	Natural Gas	Total	GWH	2,682	3,251	4,428	3,914	3,962	4,005	3,415	2,589	1,778	1,639	1,619	1,760
(15)		Steam	GWH	0	119	0	0	0	0	0	0	0	0	0	0
(16)		CC	GWH	2,667	3,119	4,417	3,905	3,952	3,994	3,408	2,586	1,771	1,632	1,611	1,751
(17)		CT	GWH	15	13	11	9	11	12	7	3	6	7	9	9
(18)	NUG		GWH	0	0	0	0	0	0	0	0	0	0	0	0
(19)	Renewables	Total	GWH	60	83	90	98	105	113	121	129	135	142	142	142
(20)		Biofuels	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(21)		Biomass	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(22)		Hydro	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(23)		Landfill Gas	GWH	46	73	80	88	96	104	112	119	126	133	133	133
(24)		MSW	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(25)		Solar	GWH	14	10	10	10	10	10	10	9	9	9	9	9
(26)		Wind	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(27)		Other	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(28)	Other (Specify)		GWH	0	530	0	0	0	0	0	0	0	0	0	0
(29)	Net Energy for Load		GWH	6,977	7,026	6,969	6,906	7,024	7,132	6,996	6,779	6,872	6,967	7,065	7,162

Notes:
Represents fuel required to serve OUC and St. Cloud, and sales to City of Vero Beach (2011 through 2013), City of Bartow (2012 through 2017), and City of Lake Worth (2014 through 20
Total Net Energy for Load may not correspond to other Schedules due to rounding.
Natural gas CC includes SEC A purchases from Southern - Florida, LLC
"Other" includes economy energy purchases.

Schedule 6.2
Energy Sources

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Energy Sources		Units	Actual 2009	Actual 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(1)	Firm Inter-Region Interchange		%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(2)	Nuclear		%	5.01%	5.94%	6.61%	6.72%	6.57%	6.47%	6.59%	6.81%	6.71%	6.62%	6.53%	6.44%
(3)	Coal		%	76.63%	39.07%	28.56%	35.18%	35.52%	35.79%	42.86%	53.11%	65.45%	67.81%	68.54%	67.00%
(4)	Residual	Total	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(5)		Steam	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(6)		CC	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(7)		CT	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(8)		Other	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(9)	Distillate	Total	%	0.06%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(10)		Steam	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(11)		CC	%	0.06%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(12)		CT	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(13)		Other	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(14)	Natural Gas	Total	%	17.31%	46.27%	63.54%	56.68%	56.41%	56.16%	48.81%	38.19%	25.87%	23.53%	22.92%	24.58%
(15)		Steam	%	0.00%	1.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(16)		CC	%	16.99%	44.40%	63.38%	56.55%	56.26%	56.00%	48.71%	38.14%	25.78%	23.42%	22.80%	24.45%
(17)		CT	%	0.32%	0.18%	0.16%	0.14%	0.15%	0.16%	0.10%	0.05%	0.09%	0.11%	0.13%	0.12%
(18)	NUG		%												
(19)	Renewables	Total	%	0.99%	1.18%	1.29%	1.42%	1.50%	1.59%	1.74%	1.90%	1.97%	2.04%	2.01%	1.98%
(20)		Biofuels	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(21)		Biomass	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(22)		Hydro	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(23)		Landfill Gas	%	0.99%	1.04%	1.15%	1.28%	1.36%	1.45%	1.60%	1.76%	1.83%	1.90%	1.88%	1.85%
(24)		MSW	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(25)		Solar	%	0.00%	0.14%	0.14%	0.14%	0.14%	0.13%	0.14%	0.14%	0.14%	0.13%	0.13%	0.13%
(26)		Wind	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(27)		Other	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(28)	Other (Specify)		%	0.00%	7.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(29)	Net Energy for Load		%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes:
Represents total energy requirements of OUC, St. Cloud and energy provided to City of Vero Beach and City of Bartow.
"Other" includes economy energy purchases.

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)
	Total Installed Capacity	Firm Capacity Import	Firm Capacity Export	QF	Total Capacity Available	System Firm Summer Peak Demand	Reserve Margin before Maintenance		Scheduled Maintenance	Reserve Margin after Maintenance	
Year	MW	MW	MW	MW	MW	MW	MW	% of Peak	MW	MW	% of Peak
FORECAST:											
2013	1,498	329	0	0	1,827	1,374	272	20%	0	272	20%
2014	1,561	329	0	0	1,890	1,351	357	26%	0	357	26%
2015	1,561	329	0	0	1,890	1,371	334	24%	0	334	24%
2016	1,561	329	0	0	1,890	1,394	308	22%	0	308	22%
2017	1,566	329	0	0	1,895	1,341	362	27%	0	362	27%
2018	1,566	329	0	0	1,895	1,290	411	32%	0	411	32%
2019	1,566	329	0	0	1,895	1,309	390	30%	0	390	30%
2020	1,566	329	0	0	1,895	1,327	369	28%	0	369	28%
2021	1,566	329	0	0	1,895	1,346	347	26%	0	347	26%
2022	1,566	329	0	0	1,895	1,365	325	24%	0	325	24%

Notes:
"Firm Capacity Import" includes OUC's existing and future power purchase agreements, including renewables.
"System Firm Summer Peak Demand" includes OUC and St. Cloud peak demand, as well as OUC's power sales to Vero Beach, Bartow, Lake Worth, and Florida Power & Light.
"Reserve Margin (MW)" calculated as available capacity minus "System Firm Summer Peak Demand." Adjustments made to reflect not carrying reserves on sales to Bartow, Lake Worth, or Florida Power & Light.
"Reserve Margin (% of Peak)" calculated as "Reserve Margin (MW)" divided by "System Firm Summer Peak Demand."
"Scheduled Maintenance (MW)" is zero, as no units are scheduled for maintenance during peak periods.

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 MW	Firm Capacity Import MW	Firm Capacity Export MW	QF MW	Total Capacity Available MW	System Firm Winter Peak Demand MW	Reserve Margin before Maintenance MW	Reserve Margin before Maintenance % of Peak	Scheduled Maintenance MW	Reserve Margin after Maintenance MW	Reserve Margin after Maintenance % of Peak
FORECAST:											
2012/13	1,570	347	0	0	1,917	1,345	572	43%	0	572	43%
2013/14	1,633	347	0	0	1,980	1,315	665	51%	0	665	51%
2014/15	1,633	347	0	0	1,980	1,332	648	49%	0	648	49%
2015/16	1,633	347	0	0	1,980	1,355	625	46%	0	625	46%
2016/17	1,640	347	0	0	1,987	1,303	684	52%	0	684	52%
2017/18	1,645	347	0	0	1,991	1,250	741	59%	0	741	59%
2018/19	1,645	347	0	0	1,991	1,268	724	57%	0	724	57%
2019/20	1,645	347	0	0	1,992	1,286	706	55%	0	706	55%
2020/21	1,645	347	0	0	1,992	1,304	687	53%	0	687	53%
2021/22	1,645	347	0	0	1,992	1,323	669	51%	0	669	51%

Notes:
"Firm Capacity Import" includes OUC's existing and future power purchase agreements, including renewables.
"System Firm Summer Peak Demand" includes OUC and St. Cloud peak demand, as well as OUC's power sales to Vero Beach, Bartow, Lake Worth, and Florida Power & Light.
"Reserve Margin (MW)" calculated as available capacity minus "System Firm Summer Peak Demand." Adjustments made to reflect not carrying reserves on sales to Bartow, Lake Worth, or Florida Power & Light.
"Reserve Margin (% of Peak)" calculated as "Reserve Margin (MW)" divided by "System Firm Summer Peak Demand."
"Scheduled Maintenance (MW)" is zero, as no units are scheduled for maintenance during peak periods.

Schedule 8
Planned and Prospective Generating Facility Additions and Changes

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

Notes:

No capacity additions required to maintain 15% reserve margin for base case load forecast.

Schedule 9
Status Report and Specifications of Proposed Generating Facilities

(1) Plant Name and Unit Number:

(2) Capacity
a. Summer:
b. Winter:

(3) Technology Type:

(4) Anticipated Construction Timing
a. Field construction start-date:
b. Commercial in-service date:

(5) Fuel
a. Primary fuel:
b. Alternate fuel:

(6) Air Pollution Control Strategy:

(7) Cooling Method:

(8) Total Site Area:

(9) Construction Status:

(10) Certification Status:

(11) Status with Federal Agencies:

(12) Projected Unit Perfomance Data
Planned Outage Factor (POF):
Forced Outage Factor (FOF):
Equivalent Availability Factor (EAF):
Resulting Capacity Factor (%):
Average Net Operating Heat Rate (ANOHR):

(13) Projected Unit Financial Data
Book Life (Years):
Total Installed Cost (In-Service Year $/kW):
Direct Construction Cost ($/kW):
AFUDC Amount ($/kW):
Escalation ($/kW):
Fixed O&M ($/kW-Yr):
Variable O&M ($/MWH):
K Factor:

Notes:

No capacity additions required to maintain 15% reserve margin for base case load forecast.

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

(1)	Point of Origin and Termination:	OUC's 2013 Ten-Year Site Plan does not include any directly proposed transmission lines. Therefore, Schedule 10 is not applicable.
(2)	Number of Lines:	
(3)	Right-of-Way:	
(4)	Line Length:	
(5)	Voltage:	
(6)	Anticipated Construction Timing:	
(7)	Anticipated Capital Investment:	
(8)	Substations:	
(9)	Participation with Other Utilities:	