



April 1, 2020

Adam Teitzman  
Florida Public Service Commission  
Office of Commission Clerk  
2540 Shumard Oak Blvd  
Tallahassee, Florida 32399-0850

Subject: 2020 Orlando Utilities Commission Ten-Year Site Plan

Dear Mr. Teitzman,

Enclosed please find an electronic copy of the 2020 Orlando Utilities Commission (OUC) Ten-Year Site Plan (TYSP). The 2020 OUC TYSP was prepared by nFront Consulting LLC (nFront) and is being submitted by nFront on behalf of OUC.

If you have any questions about this TYSP, please do not hesitate to contact me.

Respectfully submitted,

/s/ *Bradley Kushner*

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**Orlando Utilities Commission  
2020 Ten-Year Site Plan**

**Prepared by:  
nFront Consulting LLC  
April 1, 2020**



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## 1.0 EXECUTIVE SUMMARY

This report documents the 2020 Orlando Utilities Commission (OUC) Ten-Year Site Plan pursuant to Section 186.801 Florida Statutes and Section 25-22.070 of Florida Administrative Code. OUC's 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)

OUC has assumed responsibility for supplying all of the City of St. Cloud (St. Cloud) loads through calendar year 2032. 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, including base-case growth, high-growth, and low-growth scenarios.

OUC has a contract to provide power to City of Bartow (Bartow) through calendar year 2020, a contract to sell power to the City of Lake Worth Beach (Lake Worth) through calendar year 2025, a contract to sell power to the City of Winter Park (Winter Park) through calendar year 2026, a contract to sell power to Florida Power & Light through 2020, a contract to sell power to the City of Mount Dora (Mt. Dora) beginning in 2021 and extending through 2027, and a contract to sell power to the City of Chattahoochee (Chattahoochee) beginning in 2021 and extending through 2027. The power OUC is currently planning to provide to Bartow, Lake Worth, Winter Park, Florida Power & Light, Mt. Dora, and Chattahoochee is summarized 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 (FMPP) 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, 2020, including capacity from units owned by OUC, St. Cloud's entitlement to Stanton Energy Center Unit 2, and OUC's current power purchases (including natural gas, as well as landfill gas and solar resources), provides total net summer capacity of approximately 1,863 megawatts (MW) and total net winter capacity of approximately 1,902 MW<sup>1</sup>.

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<sup>1</sup> Net seasonal capacity ratings as of January 1, 2020. Includes capacity owned by OUC and St. Cloud, as well as OUC's contractual power purchases.

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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 2020 through 2029 planning period reflected in this Ten-Year Site Plan; as such, no new capacity additions are included in this Ten-Year Site Plan.

## 2.0 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 kilowatt (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 passed by a margin of 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. That year, 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 power purchase contracts. This agreement has been extended through 2032.

### 2.1 Existing Generation System

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

- Stanton Energy Center Units 1 and 2, Stanton A, and Stanton B.
- Indian River Plant Combustion Turbine Units A, B, C, and D<sup>2</sup>.
- Lakeland Electric McIntosh Unit 3.
- Florida Power & Light Company (FPL) St. Lucie Unit 2 Nuclear Generating Facility.

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<sup>2</sup> As discussed throughout this report, OUC has purchased the steam units at the Indian River site; however, the units are currently in Extended Cold Shutdown and, therefore, are not included in calculations of OUC's available capacity.

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**Table 2-1 Summary of OUC Generation Facilities**

(As of January 1, 2020)

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	15.6 <sup>(1)</sup>	18.1 <sup>(1)</sup>
Indian River	B	Brevard	GT	NG	FO2	PL	TK	07/89	Unknown	15.6 <sup>(1)</sup>	18.1 <sup>(1)</sup>
Indian River	C	Brevard	GT	NG	FO2	PL	TK	08/92	Unknown	83.0 <sup>(2)</sup>	88.5 <sup>(2)</sup>
Indian River	D	Brevard	GT	NG	FO2	PL	TK	10/92	Unknown	83.0 <sup>(2)</sup>	88.5 <sup>(2)</sup>
Stanton Energy Center	1	Orange	ST	BIT	NG	RR	PL	07/87	Unknown	294.3 <sup>(3)</sup>	294.3 <sup>(3)</sup>
Stanton Energy Center	2	Orange	ST	BIT	NG	RR	PL	06/96	Unknown	333.8 <sup>(4)</sup>	333.8 <sup>(4)</sup>
Stanton Energy Center	A	Orange	CC	NG	FO2	PL	TK	10/01	Unknown	184.2 <sup>(5)</sup>	188.5 <sup>(5)</sup>
Stanton Energy Center	B	Orange	CC	NG	FO2	PL	TK	02/10	Unknown	292.0	307.0
McIntosh	3	Polk	ST	BIT	--	RR	--	09/82	Unknown	133.0 <sup>(6)</sup>	136.0 <sup>(6)</sup>
St. Lucie <sup>(7)</sup>	2	St. Lucie	NP	UR	--	TK	--	06/83	Unknown	60.0	62.0

<sup>(1)</sup>Reflects an OUC ownership share of 48.8 percent.  
<sup>(2)</sup>Reflects an OUC ownership share of 79.0 percent.  
<sup>(3)</sup>Reflects an OUC ownership share of 68.6 percent.  
<sup>(4)</sup>Reflects an OUC ownership share of 71.6 percent and St. Cloud entitlement of 3.4 percent.  
<sup>(5)</sup>Reflects an OUC ownership share of 28.0 percent.  
<sup>(6)</sup>Reflects an OUC ownership share of 40.0 percent.  
<sup>(7)</sup>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.



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 primarily by pulverized coal and can generate up to approximately 70 MW each on natural gas, utilize natural gas igniters, 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<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and particulates (PM). Stanton Unit 1 is a 429 MW net coal-fired facility; OUC has a 68.6 percent ownership share of this unit, which provides 294 MW of capacity to the OUC system. Stanton Unit 2 is a 445 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, an affiliate of Southern Power), which governs the ownership of Stanton A, a combined cycle unit at the Stanton Energy Center that began commercial operation on October 1, 2003. NextEra Energy recently purchased Southern Power's interest in Stanton A, and as such, discussion of Stanton A's ownership structure refers to NextEra Energy throughout this Ten-Year Site Plan, as appropriate. OUC, KUA, FMPA, and NextEra Energy are joint owners of Stanton A, with OUC maintaining a 28 percent ownership share (and purchases 52 percent), KUA and FMPA each maintaining 3.5 percent ownership shares, and NextEra Energy 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.

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 four 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 Energy in 1999, with OUC subsequently repurchasing the units. Given their current condition (the units are currently in Extended Cold Shutdown), the Indian River steam units do not provide generating capacity for OUC, but do provide OUC with future options for new generating capacity. 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 (approximately 31 MW summer and 36 MW winter) in Indian River Units A and B, as well as a partial ownership share of 79 percent (approximately 166 MW summer and 177 MW winter) in Indian River Units C and D.

McIntosh Unit 3 is a 340 MW net unit operated by Lakeland Electric. McIntosh Unit 3 is fueled primarily by pulverized coal and also uses supplementary natural gas. OUC has a 40 percent ownership share in McIntosh Unit 3, providing approximately 133 MW of capacity (summer capacity; winter capacity is 136 MW) to the OUC system.

OUC has a 6.08951 percent ownership share in St. Lucie Unit 2 (a nuclear generating facility operated by FPL), providing approximately 60 MW of summer and 62 MW of winter 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.

St. Cloud 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 stake 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 (providing approximately 15 MW).

### ***2.2 Purchase Power Resources<sup>3</sup>***

OUC has a purchase power agreement (PPA) with NextEra Energy for 80 percent of NextEra Energy's ownership share of Stanton A. The term of OUC's Stanton A PPA is through December 2031.

### ***2.3 Power Sales Contracts***

OUC has the following contractual power sales:

- a contract to provide power to Bartow through 2020
- a contract to provide power to Lake Worth through 2025
- a contract to provide power to Winter Park through 2026
- a contract to provide power to Florida Power & Light through 2020.
- a contract to provide power to Mt. Dora beginning in 2021 and extending through 2027.
- a contract to provide power to Chattahoochee beginning in 2021 and extending through 2027.

For purposes of this Ten-Year Site Plan, OUC has assumed the winter and summer capacities and annual energy presented in Table 2-2 will be provided to Bartow, Lake Worth, Winter Park, Florida Power & Light, Mt. Dora, and Chattahoochee.

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<sup>3</sup> OUC's renewable power purchases are discussed in Section 2.4 of this Ten-Year Site Plan.

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**Table 2-2 Projected Annual Summer and Winter Peak Capacity (MW) and Annual Net Energy for Load (GWh) to be Provided to Bartow, Lake Worth, Winter Park, Florida Power & Light, Mt. Dora, and Chattahoochee**

SUMMER MW						
	Bartow	Lake Worth	Winter Park	Florida Power & Light	Mt. Dora	Chattahoochee
2020	40	50	17	100		
2021		50	17		23	8
2022		50	17		23	8
2023		50	17		23	8
2024		50	17		23	8
2025		50	17		23	8
2026			17		23	8
2027					23	8
2028						
2029						
WINTER MW						
	Bartow	Lake Worth	Winter Park	Florida Power & Light	Mt. Dora	Chattahoochee
2020	40	25	17	70		
2021		25	17		17	6
2022		25	17		17	6
2023		25	17		17	6
2024		25	17		17	6
2025		25	17		17	6
2026			17		17	6
2027					17	6
2028						
2029						
ANNUAL GWh						
	Bartow	Lake Worth	Winter Park	Florida Power & Light	Mt. Dora	Chattahoochee
2020	280	268	98	64		
2021		271	98		95	34
2022		274	98		95	34
2023		276	98		95	34
2024		278	98		95	34
2025		282	98		95	34
2026			98		95	34
2027					95	34
2028						
2029						
All rounded to nearest MW or GWh						

## ***2.4 OUC's Renewable Energy and Sustainability Initiatives and Community Activities***

OUC is actively incorporating renewable technologies into its diverse generation portfolio and taking other steps to reduce carbon dioxide emissions. In 2020, OUC established new clean energy goals to achieve a 50 percent reduction in CO<sub>2</sub> emissions by 2030<sup>4</sup>, a 75 percent reduction in CO<sub>2</sub> emissions by 2040<sup>5</sup>, and net-zero CO<sub>2</sub> emissions by 2050. These targets require investments in technologies such as solar PV, landfill gas and energy storage. Such technologies allow OUC to meet customer electricity demand while reducing harmful effects on the environment.

To further these goals, Orlando was selected as a recipient of a \$2.5 million grant from the American Cities Climate Challenge, a Bloomberg Philanthropies initiative that aims to accelerate and deepen the efforts to create the greatest climate impact. The City and OUC have agreed to partner and execute eight actions by December 2020: Meet municipal electricity demand with renewable resources; Expand solar projects in the community; Develop a green building incentive program; Pilot demonstration projects for building decarbonization (DEEP); Electrify city fleets and buses; Expand public EV charging infrastructure; Transform the EV market; Develop local energy resource centers.

Renewable energy, energy efficiency, sustainability and community activities are crucial to achieving OUC's clean energy goals. 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<sup>6</sup>.

### ***2.4.1 Solar***

OUC is actively working to provide opportunities for its customers to participate in solar projects and programs. These initiatives include Solar Photovoltaic (PV) Net Metering, the solar aggregation program (referred to as the OUCollective Solar Program), Solar PV Residential Battery Rebate, OUCommunity Solar, and the Solar Thermal Program.

Customers who participate in the Solar PV Program or the OUCollective Solar Program receive the benefit of net metering, which provides the customers with a monthly 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 full retail electric rate.

Customers who take part in the OUCollective Solar Program are able to reduce installation costs by leveraging economies-of-scale to drive down the costs for PV systems as well as for battery storage. Under the OUCollective Solar Program, customers will have access to installations for a fixed (discounted) price, and from a contractor that has been vetted by OUC. As of March 16, 2020, under the OUCollective Solar Program, 70 customers have participated representing a total of approximately 785 kW of capacity.

In 2019, OUC introduced a battery storage rebate program for residential solar PV customers. Under this program, eligible residential electric customers receive a one-time rebate of up to \$2,000 (limit one per customer) for the first fifty (50) customers. In order to qualify for the rebate, batteries must be paired with a solar PV system, and meet certain size and insurance requirements. Residential and commercial customers who want to benefit from solar energy but have no means of installing their own rooftop PV

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<sup>4</sup> Compared to a 2005 CO<sub>2</sub> baseline.

<sup>5</sup> Compared to a 2005 CO<sub>2</sub> baseline.

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

system can enroll in the OUCommunity Solar program. Those enrolled subscribe all or a portion of their energy consumptions to be produced by the Kenneth P. Ksionek Community Solar Farm, a utility-scale solar array at OUC's Stanton Energy Center in east Orlando.

Residential customers participating in the Solar Thermal Program receive a rebate of \$900 for installing a solar hot water system. Federal incentives, such as the investment tax credit, are available to eligible customers to help minimize costs of solar PV, battery storage and solar thermal systems.

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, the City 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 2009, OUC and clean energy company Petra Solar teamed up to launch the first utility pole-mounted solar PV system in Florida. Ten of Petra Solar's SunWave™ intelligent PV 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, but 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.

In 2010, OUC invested \$100,000 in an educational partnership with the Orlando Science Center to build a 31 kW PV array atop the Center's observatory. The system provides about 42,660 kilowatt-hours (kWh) of electricity per year, or enough power to serve about four homes. The PV installation not only provides green power to the Center but also an educational experience on the science of solar energy for the thousands of children who visit the center each year.

OUC is adding additional solar to its fleet of natural gas, coal, solar, and landfill gas generation already on-site at Stanton Energy Center. The Stanton Solar Farm, constructed in partnership with Duke Energy, was brought online in late 2011 and produces about 6 MW – enough to power about 600 homes. The first 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 purchases 100 percent of the output of this installation, which was the first solar farm in Orange County, for 20 years. In 2015, OUC signed a 20-year PPA for approximately 9 MWac of solar energy from a second solar farm at the Stanton Energy Center. Brought on-line in 2017, the Kenneth P. Ksionek Community Solar Farm provides enough electricity to power 2,100 homes. Only one other utility in the nation has placed panels over a coal ash byproduct landfill at a power plant. This solar farm is the latest addition to OUC's Community Solar program.

The Florida Municipal Solar Project is one of the largest municipal-backed solar projects in the United States. Approximately 900,000 solar panels will be installed on three solar sites under construction in Osceola and Orange Counties. Total planned capacity is 223.5 megawatts, which is enough energy to power 45,000 average Florida homes. Each solar site is designed to generate 74.5 megawatts of energy. Once completed, OUC will purchase 108.5 MW of solar capacity from the project through Power Purchase Agreements with NextEra – enough energy for 21,600 typical Florida homes. Two solar sites are scheduled to be completed by June 30, 2020.

In 2013, OUC built the first Community Solar Farm in Central Florida. This innovative project allowed customers to “buy a piece of the sun” and receive the benefits of solar without having to install it on their own buildings. The 400 kW system sold out in six days and had a total of 39 customers sign up. The American Public Power Association (APPA) awarded OUC the 2015 Energy Innovator award on June 9, 2015, for its groundbreaking Community Solar Farm program.

In February 2017, OUC installed an innovative floating solar array on a water retention pond at its Gardenia Operations Center. The 31.5 kW pilot project is the first in Florida to send power directly to the grid. Comprised of 100 panels mounted on floats it produces enough energy to power five homes. This design appeals to developers who want to invest in solar but do not want to cut down trees or use valuable land resources. Also, OUC is evaluating performance gains in energy production as a result of the increased reflectance and cooling effect of the water. More than 9,000 potential sites within Orange and Osceola counties have been identified where floating solar may be a viable option. OUC is currently working with the Orlando International Airport to design an array to sit atop a pond on the airport site that OUC will install, own and operate.

In August 2018, OUC completed the addition of a new solar test site at its Pershing Operations Center. This test site will allow OUC to study and test a variety of solar panels and tilt angles. OUC will also collect weather data from the site to compare with the solar production data. These studies will allow OUC to determine how to make future solar installations more efficient. The peak capacity for this test array will be approximately 24 kW depending on the amount of solar panels being tested at any given time. All of the electricity produced by the array will be supplied back to the grid. In 2019, the test array produced 17.5 MWh.

Starting in 2019, OUC began to deploy weather stations with advanced sensors and measurement equipment that would record data including solar irradiance, beam radiation, wind speed, and soil moisture. With over 20 weather stations installed across our service territory, OUC is developing the capability to enhance solar production forecasting specifically to address high solar intermittency, caused by dynamic cloud formation and cover which is commonly seen in Florida’s climate. Other efforts include adding sky cameras to track oncoming cloud formations and develop predictive algorithms for spatially and temporally rich forecasting.

OUC is further showcasing solar energy by installing high-visibility solar sculptures (or “solar trees”), like the structures seen at Camping World Stadium and the Orange County Convention Center. Soon, a uniquely designed solar sculpture will be installed at Exploria Stadium, home to the Orlando City Soccer Club. This sculpture, through a multi-department competition, was designed by University of Central Florida (UCF) students. OUC has also invested in solar on utility poles and has been an area leader in installing utility-scale projects atop the Orange County Convention Center and the Stanton Energy Center.

Additionally, OUC has deployed multiple solar mobile device charging stations at LYNX bus shelters to power up electronic devices while passengers are waiting.

#### *2.4.2 Landfill Gas*

Methane or landfill gas is created by the decomposition of wet organic waste under anaerobic, or oxygenless, 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 8 MW project has the potential to displace more than three percent of the coal burned at the Stanton Energy Center. It will be capable of producing in excess of 100,000 megawatt-hours (MWh) of reduced-emissions power – offsetting about 44,000 tons of coal each year. OUC and Orange County have signed new agreements for future landfill projects, expanding capacity to 22 MW.

In December 2015, OUC began receiving energy from the CBI project at the John Drury Landfill, located in Holopaw in Osceola County, for a minimum of 9 MW with an option to expand up to 25 MW of landfill gas energy. For the CBI project, OUC built a new 25 kV distribution line that is comprised of 15.5 miles of overhead and nearly five miles of underground line. The new feeder line will send clean, renewable energy from the landfill to an OUC electric substation in St. Cloud and is the longest distribution feeder on the grid. This feeder will play a large role in OUC’s clean energy strategy.

OUC has also entered into long-term PPAs for landfill gas projects with WMI in Broward County (6 MW) and GES in Charlotte County (2.56 MW).

#### *2.4.3 Carbon Capture*

OUC has participated in research projects with the Department of Energy to investigate Carbon Capture and Utilization via recycling carbon from flue gases.

#### *2.4.4 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 its carbon footprint by using alternative fuels, purchasing more electric vehicles and recycling automotive products to help the environment. As part of an overall plan to reduce emissions in its 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 vegetable 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. OUC uses biodiesel at the Pershing Fleet Center and the Gardenia site. OUC is also in the process of installing two new 10,000-gallon fuel tanks that will store E85 fuel at its Pershing and Gardenia sites. In the next year, OUC will have approximately 50 new vehicles that will be able to use this fuel.



As a result of a \$2.5 million grant from the Florida Department of Environment Protection, Central Florida's LYNX transit system plans to open a biodiesel blending facility and fueling station at its Orlando Operations Center that will be used by both OUC and Orange County.

Embracing fuel-efficient technology as a commitment to green initiatives, OUC was the first municipal utility in Florida to acquire a plug-in hybrid vehicle that gets up to 99 miles per gallon. OUC has grown the commitment to include six all-electric cars, seven plug-in electric hybrids, and 34 hybrids in the fleet and is one of only a few other utilities throughout the country to test Nissan's new all-electric E-NV 200 cargo van. Additionally, OUC has installed 150 public level 2 and 5 DC fast chargers meet the needs of the growing numbers of electric vehicles in our territory. This pushes Orlando to one of the top 5 EV ready cities in the United States. OUC has provided an additional 40 level 2 charging stations to meet the needs of our growing fleet and employee needs. OUC also offers discounts to employees who choose to charge their vehicles at work, utilize the SunRail commuter train, and use the LYNX city bus system to get to and from work.

OUC currently 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, therefore reducing the production of greenhouse gases and reducing fuel consumption for idling.

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 antifreeze and motor oil are handled on-site. OUC recycles about 20,000 gallons of used oil each year. 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 32 EV charging stations at Reliable Plaza are offset by the sun. A 16-panel solar array provides a total of 2.8 kW of power to charge the vehicles at stations in the garage. 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 information and total system usage for its charging stations and the public charging in our territory. Users have a key fob for the charging station and supply their own power cord. Plug-in drivers can go to [mychargepoint.net](http://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 through a third-party agreement with ChargePoint, which remits the electricity fees back to OUC each month.

In 2016, OUC enhanced its EV programs with the launch of a new Commercial EV Charging Station Program that encourages adoption of EVs by providing customers a turnkey option for charging stations at their facilities. The program offers two options: *Charge It*, where OUC owns and maintains the equipment with electric usage billed separately, and *Own It*, where OUC provides a turnkey solution and the commercial customer owns the equipment. In 2019, OUC and the Greater Orlando Aviation Authority entered into an agreement to add 67 EV charging stations at the Orlando International Airport.



In 2018, OUC relaunched the Electrification program and established two key events that align with one of the program's initiatives to help increase electric vehicle adoption in Central Florida. The first event that OUC hosted was an EV Ride & Drive designed to introduce customers to electric vehicles and build awareness about electric vehicle technology. The event was held at Camping World Stadium June 15-16. Over two days, 140 guests completed 304 test drives. OUC hosted its second EV Ride & Drive event in partnership with Valencia College and Enterprise Rent-a-Car on Saturday, April 13, 2019, with 24 attendees. The second event is the Florida Utility Electric Vehicle Roundtable. This a semi-annual event was created to discuss EV friendly policy, corridor charging planning and joint initiatives with all municipal and investor-owned utilities from across Florida. The first in the series of roundtables hosted by OUC was held on Monday, September 17, 2018 with more than 70 attendees. To date, OUC has hosted three additional roundtables and discussions have included the current and future state of EVs in Florida, the Volkswagen settlement and two joint initiatives for data acquisition and a technology pilot.

OUC is working on planting sections of the 3,280 acres at the Stanton Energy Center. The site uses less than 1,000 acres currently and by planting new trees, OUC intends to measure and track the recycling of CO<sub>2</sub> from the electric generating units to reduce its overall carbon footprint.

OUC continues to improve on operations at the Stanton Energy Center, having an improved design on the Unit 2 HP/IP steam turbine that provides an additional 20 MW of output without increasing the fuel consumption or emissions. OUC plans to install the same improvement on the Unit 1 HP/IP steam turbine (20 MW) as well as an improvement to the Unit 2 LP steam turbined (10 MW) in 2020. Other recent improvements include updated control systems for both units, and adding natural gas co-firing capability to both units. This enables them to run at lower loads and increases operational flexibility, allowing OUC also installed variable frequency drives on Unit 2 to improve efficiency while operating at low load levels.

#### *2.4.5 Energy Efficiency and Sustainability*

OUC's commitment to efficiency and sustainability is also demonstrated by Reliable Plaza, OUC's energy and water efficient center on South Orange Avenue that opened in 2008 and replaced OUC's 40-year-old Administration Building. 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.

To further demonstrate OUC's commitment to sustainability, many projects are active or are planned across its facilities. These projects focus on improving building efficiency through automation and control technology on its HVAC and lighting equipment in addition to smart irrigation and Xeriscape landscape designs. The latest example is at the Gardenia administrative facility where it has undergone a LED lighting retrofit and a building automation system installation. In 2016, OUC built a living wall to showcase sustainable use of vertical space by replacing impervious surfaces while demonstrating water conservation

examples along with Florida-friendly landscaping. It also provides a vertical garden sitting area where employees may take breaks.

OUC's Commercial Indoor Lighting Program helps customers convert old, inefficient lighting to high-efficiency technology. OUC and Orlando Health have entered into agreements to upgrade indoor lighting at both the Arnold Palmer Hospital for Children and the Winnie Palmer Hospital for Women & Babies. More than 15,000 fixtures will be replaced, which will reduce demand by approximately 650 kW with energy savings of more than 6.8 million kilowatt hours, or about \$545,000 in cost savings annually. Since launching the program in 2002, more than 140,000 energy-efficient lighting fixtures have been installed in places such as public schools and hospitals, resulting in annual energy cost savings of about \$4 million.

In 2012, OUC launched a program to replace 100-watt equivalent streetlights with LED fixtures. The initiative was expanded in 2016 and will replace 12,000 fixtures used on larger roads and highways, which is about 41 percent of OUC's large roadway streetlights. These lights also will save the City 17 gigawatt-hours of annual energy once the program is complete. Equally important, LED lighting improves safety by emitting whiter, cleaner light that provides better visibility for motorists, pedestrians and law enforcement.

#### *2.4.6 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 work to implement practical, sustainable operations in their respective work areas.

The Green Team identifies ways to increase employee education and engagement and supports Corporate Sustainability projects to improve energy and water efficiency in OUC buildings, reduce waste, 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 including establishing an Internal Operations Corporate Sustainability Plan. OUC currently has single stream recycling at all of its facilities and recycles industrial materials such as wood pallets, utility meters, wire reels and copper. It keeps metrics of its energy, water, and waste performance. It has 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 practical.

#### 2.4.7 Sustainability Community Activities

In 2019, conservation specialists conducted presentations, provided face-to-face consultations, scheduled audits, and disseminated information on conservation programs. Below is a list of events the OUC Sustainability Department participated in along with Community Relations:

- Fall into Savings Neighborhood Meeting
- City of Orlando's Green Academy
- St. Cloud 4<sup>th</sup> of July Celebration
- St. Cloud East Lake Festival
- Neighborhood & Community Summit
- Lake Eola Earth Day
- St. Cloud Earth Day
- AAGO Trade Show
- Orange County Community Conference
- Fall Plant and Garden Festival
- City of Orlando District 2 Fall Events

#### 2.4.8 Neighborhood Meetings (Fall Into Savings)

In 2018, OUC hosted six Fall Into Savings neighborhood meetings, traveling our service territory to visit residents in the City of Orlando Districts to share tips and programs available to help customers conserve and save money on their utility bill. More than 400 customers attended these meetings and had the opportunity to learn about and sign up for various efficiency programs like Efficiency Delivered, OUC Power Pass, OUC Alerts, Residential Rebates, as well as to schedule free in-home energy/water audits. All attendees received a conservation kit and even had the chance to win raffle prizes that help with home efficiency upgrades. In 2019 and 2020, OUC hosted a series of five neighborhood meetings to educate residents on the Electric Integrated Resource Plan – slated to be complete in June 2020 – as to gather their feedback. At each meeting, attendees were asked to rank the following attributes in order of importance to them: sustainability, reliability, resiliency, affordability.

#### 2.4.9 Home Utility Report Program

The Home Utility Report Program (HUR) is a free service offered to OUC customers designed to help them save energy, water, and money. The report compares a customer's energy and water consumption to similar households, as well as provides personalized tips that show how much they can save by changing their behavior. Customers also can log on to the Home Utility Report website at [www.oucsavingtool.com](http://www.oucsavingtool.com) where they can customize an action plan and even get a list of preferred contractors who can help with any efficiency needs. Participants receive a free HUR bi-monthly via email or printed report. To administer the HUR program, OUC works with a third-party company that helps utilities meet their efficiency goals through effective customer engagement.

### 2.5 Transmission System

OUC's existing transmission system in Orlando consists of 31 substations interconnected through approximately 335 miles of 230 kV, 115 kV, and 69 kV lines. OUC is integrated into the Florida Reliability Coordinating Council (FRCC) regional transmission grid through twenty-one 230 kV and one 69 kV metered interconnections with other utilities, as summarized in Table 2-3. Additionally, OUC is responsible via an

Interlocal Agreement for planning, operating and maintaining St. Cloud’s four substations, 55 miles of transmission lines and three interconnections, as summarized in Table 2-4.

**Table 2-3 OUC Transmission Interconnections**

<b>UTILITY</b>	<b>KV</b>	<b>NUMBER OF INTERCONNECTIONS</b>
FPL	230	2
Duke Energy Florida (DEF)	230	9
KUA	230	2
KUA/FMPA	230	2
Lakeland Electric	230	1
TECO	230	2
TECO/Reedy Creek Improvement District	230	2
DEF	69	1
Southern Company	230	1

**Table 2-4 St. Cloud Transmission Interconnections**

<b>UTILITY</b>	<b>KV</b>	<b>NUMBER OF INTERCONNECTIONS</b>
OUC	69	1
DEF	230	1
KUA	69	1

### **3.0 STRATEGIC CONSIDERATIONS**

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**

In 2018, OUC's Electric and Water operations were reorganized into three strategic business units: Energy & Water Production (EWP), Transmission (TRAN) and Energy and Water Distribution (EWD) that report to a Chief Operating Officer.

##### **3.1.1 Energy 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 1999 sale and subsequent 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)<sup>7</sup>. 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.

Table 3-1 summarizes OUC's existing capacity by fuel type, including renewable energy resources. The ability to generate up to approximately 70 MW while operating on natural gas in each of Stanton Units 1 and 2 further enhances the percentage of generating capacity fueled by natural gas.

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<sup>7</sup> Based on the current condition of the Indian River steam units (Extended Cold Shutdown), OUC is not currently assigning a firm capacity value to the units for purposes of capacity planning.

**Table 3-1 Capacity (MW) Owned and Purchased by OUC by Fuel Type**  
(As of January 1, 2020)

PLANT NAME	WINTER CAPACITY						SUMMER CAPACITY					
	Coal	Nuclear	Gas/ Oil	PV	LFG	Total	Coal	Nuclear	Gas/ Oil	PV	LFG	Total
Stanton <sup>(1)(2)</sup>	613		846			1,459	613		818	9		1,440
Indian River			213			213			197			197
C.D. McIntosh Jr.	136					136	133					133
St. Lucie		62				62		60				60
Other (MW)					18	18					18	18
Total (MW)	749	62	1,059		18	1,888	746	60	1,015	9	18	1,848
Total (percent)	39.7%	3.3%	56.1%	0.0%	1.0%	100.0%	40.4%	3.2%	54.9%	0.5%	1.0%	100.0%

<sup>(1)</sup> Includes OUC's share of the landfill gas burned in Stanton Units 1 and 2.  
<sup>(2)</sup> Stanton Units 1 and 2 can each generate up to approximately 70 MW while operating on natural gas.

The diversity of OUC's fuel supply provides protection against disruption of supply while simultaneously providing economic opportunities to reduce cost to customers. OUC recently modified the Stanton Energy Center coal units to allow the units to offset a portion of their coal usage with natural gas. 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.

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.

### *3.1.2 Transmission Business Unit*

The OUC Transmission Business Unit is responsible for the planning, engineering, construction, and maintenance of all substations and lines operating at 69kV or higher. To maintain reliable and economic service and proactively plan for the future, OUC is evaluating numerous upgrades to its transmission system. While these upgrades vary in scope and timing, the following list provides an overview of significant projects:

- Work is underway to upgrade the 230kV Stanton to Taft transmission corridor. Engineering and construction will proceed by segment through 2020. Upgrade of this corridor is necessary to reliably meet growth and maintain adequate transfer capability.
- A transmission line routing and feasibility engineering study for the addition of a new 230kV source into downtown Orlando has been conducted. Detailed design is underway and construction is expected to begin in 2020.
- Current growth rates support the need for adding several substation distribution transformers during the next five years.
- Planning and feasibility engineering are underway to evaluate options for potential projects to meet future growth on the St. Cloud system.
- The \$2.3 billion I-4 Ultimate project by the Florida Department of Transportation (FDOT) and its contractor is underway for 21 miles of roadway improvements between Kirkman Road and State Road 434. Coordination of construction activities and mitigation of conflicts around the America Substation, Robinson Substation and multiple transmission lines will occur through 2021.

### *3.1.3 Energy and Water Distribution Business Unit*

OUC's EWD business unit focuses on providing OUC's customers with the safest and most reliable electric service possible. OUC is No. 1 for the 22<sup>nd</sup> straight year for electric distribution and reliability compared to all major utilities in Florida, according to data submitted to the Public Service Commission.

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.

### **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<sup>8</sup>. 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.

As part of the agreement associated with the termination of the gasification portion of Stanton B, OUC acquired a 165-acre tract of land in its service territory situated near its highest growth areas<sup>9</sup>. 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 Lakeland Electric and FMPP's All-Requirements Project members to form the Florida Municipal Power Pool (FMPP). Later, KUA joined FMPP. Over time, FMPP'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 provides savings to all parties via 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 three years and automatically renews 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 enhanced by metered interconnections with other Florida utilities, including nine interconnections with Duke Energy Florida (formerly Progress Energy Florida), 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. Along with enhancing reliability, these interconnections also facilitate the marketing of electric energy by OUC to and from other electric utilities in Florida.

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<sup>8</sup> As discussed previously, OUC recently repurchased the Indian River steam units. Given the current condition of the units (Extended Cold Shutdown), 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.

<sup>9</sup> Originally proposed to be an integrated gasification combined cycle (IGCC) unit, Stanton B was designed to be able to run as a stand-alone 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.



In addition, in 2017, OUC entered into a new five-year contract for the storage of natural gas to manage price volatility and provide backup fuel during emergencies. The fuel will provide up to 30,000 MMBtu/day to help ensure power reliability.

### **3.5 Environmental Performance<sup>10</sup>**

As the quality of the environment is important to Florida, and especially important to the tourism-driven economy of 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 its generating units with emission levels below those required by permits and licenses by equipping its power plants with the best environmental protection systems available at the time of their construction and continuously enhancing these systems over time. Unit 2 is the first unit of its size and kind in the nation to use selective catalytic reduction (SCR) to remove nitrogen oxides (NO<sub>x</sub>). Using SCR and low-NO<sub>x</sub> burner technology, Stanton 2 successfully meets the stringent air quality requirements imposed upon it. 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 methane gas collected from the Orange County landfill adjacent to Stanton Energy Center. OUC also receives the energy generated from the burning of methane gas collected from the John Drury Landfill. Methane gas, when released into the atmosphere, is considered 20 times more intense 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 to minimize hazardous waste generation and to prevent environmental impacts. The Environmental Affairs and 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 regularly. This report helps OUC analyze how it impacts the environment and details operating emissions. The greenhouse gas inventory was only a part of a larger initiative to perform a comprehensive

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<sup>10</sup> 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.

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.

OUC's commitment to efficiency and sustainability is further demonstrated by the completion of Reliable Plaza, OUC's energy and water efficient center in south downtown, which replaced 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 administrative 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.

Building on a platform of advanced digital electric and water meters, OUC launched a series of technology enhancements to support mobile devices, automate its website, add a consumption dashboard, and synchronize its automated phone system with the website and new customer-facing products such as OUC's innovative Power Pass prepaid program. Now, customers can access detailed account information, including their power and water consumption, at any time and on any mobile device. Providing real-time information, combined with energy saving tips, empowers them to make better decisions, which in turn helps make us all more sustainable.

Additionally, smart grid advances are enabling OUC to pinpoint problems – from power outages to water leaks – the moment they occur while tracking crew locations to dispatch the closest truck to resolve customer issues quickly and saving precious resources at the same time.

### ***3.6 Community Relations, Connecting Our Customers, and Economic Development***

#### ***3.6.1 Community Relations***

As Orlando's hometown utility, OUC is committed to helping the community it serves. Individuals and organizations know they can rely on the utility when it matters most –through board involvement, support, employee volunteerism and more. OUC supports more than 400 non-profit and business-based organizations and participates in nearly 150 events each year, while employees volunteer more than 10,000 hours in the community. Many events incorporate sustainability messaging, encouraging the efficient use of energy and water.

From unique solar sculptures at high visibility locations like Camping World Stadium and St. Cloud's Lakefront Park, to solar mobile device charging stations at LYNX bus stations and H<sub>2</sub>OUC Hydration Stations at parks and neighborhood centers, OUC's commitment to sustainability can be seen all around town. Additionally, OUC set out to make Orlando one of the most EV-friendly cities in the nation and has installed more than 150 EV charging stations in its service area with more planned in the near future.

OUC also supports a diverse group of business chambers within its service territory, including the Orlando Chamber, Lake Nona Chamber, St. Cloud Chamber and Indian American, Hispanic, African-American, Asian, Caribbean, Disability and LGBT chambers. It is also actively involved with economic gardening organizations such as GrowFL, National Entrepreneur Center, Prospera (formerly the Hispanic Business

Initiative Fund), Black Business Investment Fund, Athena and technical associations. OUC helped power OiX Orlando, a collective of tech experts, entrepreneurs, and tech industry leaders fueling the explosion of high-tech startups in the region.

#### *3.6.1.1 Utility and Community Volunteerism*

OUC launched Project CARE, its utility assistance fund, in 1994. The program, managed by Heart of Florida United Way 2-1-1, a local, non-profit organization, provides rapid response to customers in need through case management and home energy audits to help with energy efficiency. Since its inception, Project CARE has raised more than \$6.4 million, assisting more than 200,000 customers with assistance amounts over \$23,000. For every \$1 donated by customers, OUC contributes \$2 to the program.

In addition, OUC's Proud Volunteer program encourages and rewards employees for their volunteer work in the community. Employees volunteer more than 10,000 hours every year and help support a variety of non-profit organizations in the community.

The annual OUC Charity Golf Tournament has raised over \$788,000 for more than 50 Central Florida non-profits since its inception in 1995.

Each year, OUC participates in the annual Ride-4-Ronald bike ride to benefit Ronald McDonald House Charities of Central Florida. In 2019, the OUC team raised over \$21,000 for the event.

#### *3.6.1.2 Water Color Project*

Since 2006, OUC has hosted the Water Color Project, a conservation-themed art program that encourages students to highlight the importance of saving water through their artwork. More than 29,000 students from 200 schools have competed to have their artwork featured. Winning elementary school students' art is featured in an annual calendar, while middle and high school students decorate rain barrels. The barrels become a traveling exhibit throughout the community. In addition, a silent auction is held for the rain barrels with proceeds going back to the winning schools' art programs.

#### *3.6.1.3 Project AWESOME*

OUC and the Orlando Science Center deliver energy and water conservation workshops to every fifth grader in OUC's service territory via Project AWESOME (Alternative Water & Energy Supply; Observation, Methods & Education). The educational program promotes both water and energy conservation through a hands-on curriculum using content approved by OUC that meets Common Core Standards. As part of an electric and water conservation and alternative sources educational program, the projects include making an aquifer, building a solar-powered car, and testing low-flow showerheads and compact fluorescent light bulbs (CFLs) against traditional fixtures. Project AWESOME, which launched in 2009, delivers two 90-minute classroom workshops, as well as hands-on labs and pre- and post-classroom activities—energy is covered as part of the earth science section and water during the life science section. More than 100,000 students have gone through the curriculum.

#### *3.6.1.4 Strategic Partnerships Promote Awareness*

OUC has leveraged highly visible, professional sports partnerships to highlight OUC's commitment to sustainability and high-impact economic development efforts.

After assisting with energy and water efficiency features in the design phase of the Orlando Magic's LEED-certified home, Amway Center, OUC has continued its green partnership with the NBA team, including promotion of the facility's LEED certification and its energy and water efficiency features through highly visible educational signage and on-going digital.

The Magic partnership served as a model for OUC's agreement with the United States Tennis Association (USTA). The new Home of American Tennis in Lake Nona meets LEED certification standards. OUC is exclusively designated as the "Official Sustainability & Utility Sponsor" and displays savings that can be achieved through initiatives such as EV charging stations, hydration stations, mobile device charging stations and solar arrays on the roofs of shade pavilions. It's estimated the facility has brought more than 150 high-wage jobs to the community and attracts 100,000 unique visitors per year.

In 2015, OUC became the exclusive electric, water and sustainability utility partner for Orlando City Soccer Club. Within Exploria Stadium, the club's new MLS home, OUC has branded all water fountains and showcases the savings that can be achieved through sustainability initiatives. Both permanent and transitional signage highlighting the energy and water efficiency features were incorporated into the facility along with OUC's role in helping it achieve LEED certification. In addition, a solar sculpture will be installed outside to demonstrate sustainability and clean energy features at the stadium.

#### *3.6.1.5 Central Florida Regional Housing Trust*

In 2019, OUC partnered with the Parramore Asset Stabilization (PASF), a collaboration between the Central Florida Foundation, Florida Community Loan Fund and New Jersey Community Capital along with the City of Orlando and other partners, in a comprehensive approach to address the local housing crisis in new and innovative ways. Working together, the organization purchased 83 residential units with a goal of improving and preserving quality, long-term, affordable rental housing in Orlando's Parramore neighborhood, with a commitment to renovate the homes and keep rents affordable.

OUC will provide PASF's homes with energy- and water-efficiency upgrades. The utility's contribution covers attic insulation, duct work repair, weather stripping, irrigation improvements, LED lighting, Energy Star® windows, hybrid water heaters, energy efficient AC systems, and smart thermostats for some homes. Residents of refurbished homes could see their monthly utility bills fall by as much as 40 percent, amounting to an annual savings of approximately \$800. PASF expects to complete home renovations early next year.

#### *3.6.2 Connecting Customers*

From providing better online access to their consumption history to designing convenient and effective conservation programs, OUC arms customers with the information and tools they need to optimize the efficiency of their homes and businesses. This includes the community outreach previously discussed in this report as well as a mix of new technologies and programs designed to provide customers with the information, control and options they desire.

##### *3.6.2.1 Self-Service Options*

OUC's informational website, self-service portal and automated phone system are used by over 150,000 customers each month.

Customers are able to find tips, videos on ways to save, and frequently asked questions regarding their services. Through their myOUC online profile, they are able to pay their bills, make service requests, request payment extensions and more. The Usage Dashboard and OUC Power Pass program continue to drive adoption of the website. The site is mobile friendly and accessible from a range of devices including tablets and smartphones.

#### *3.6.2.2 Traditional Media and Digital Outreach*

To reach the desired audience, OUC implements comprehensive, integrated media campaigns that utilize print, online, television, radio, social, outdoor media and community partnerships. By diversifying and targeting media, OUC can effectively reach the right customer with the right message. Campaigns cover a range of topics from safety to storm prep to sustainability. These campaigns reinforce OUC's commitment to showing customers how to reduce their energy and water use and ultimately their utility bills while promoting programs and initiatives important to the community.

OUC engages local television, online and print media outlets to highlight work in the community and reliability improvements, how customers can stay safe from scammers, energy- and water-saving tips, and more. 2019 highlights include a Halloween-focused segment on 'Energy Vampires' – or appliances and electronics that consume electricity even when powered off – coverage of OUC's involvement in creating an artificial reef out of an old cargo ship off the coast of Florida, and stories on research to use hydrogen as a means of energy storage as solar capacity increases.

#### *3.6.2.3 Connections*

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

#### *3.6.2.4 OUC Blog*

In 2019, OUC launched a blog called OUConnect ([www.oucblog.com](http://www.oucblog.com)). On OUConnect, customers can learn ways to save energy, water and money and how OUC is creating innovative products and services to meet the ever-growing needs of Central Florida. Customers will also read articles about community initiatives, as well as profiles on employees making a difference both at work and in their hometowns.

#### *3.6.2.5 OUConnect E Newsletter*

In April 2019, OUC launched a monthly email newsletter to all residential and commercial customers with email addresses (170,000). This newsletter keeps customers informed and connected to OUC's programs, products, provides conservation tips and more.

#### *3.6.2.6 Social Media*

Facebook, Twitter, YouTube, and NextDoor allow OUC to update customers about the Commission's community involvement, as well as provide them with conservation tips, outage and restoration updates, and other need-to-know, real-time information that may affect them. Social media platforms also serve as additional customer service outlets, allowing customers to notify OUC about issues needing quick resolution, and provide additional opportunities for the Commission to build interactive relationships with customers and potentially diffuse negative situations.

#### *3.6.2.7 Digital Meters*

OUC's entire service area was upgraded with nearly 370,000 digital electric and water meters. The digital meters are easier to read and provide detailed information about customers' daily energy and water use. Meters can be monitored remotely, which reduces costs and time while ensuring an accurate and timely reading for the customer. Remote monitoring also allows OUC to better predict and prevent outages and restore power faster. OUC created Florida's first meter farm consisting of 120 electric meters and four water meters at its Pershing facility. The farm provides information and shows OUC exactly how updates are installed to ensure the meters are working correctly.

#### *3.6.2.8 OUC Power Pass Program*

OUC Power Pass is a program that allows customers to pay-as-you-go or pay in advance for utility services allowing the option of avoiding deposits, late fees and a monthly bill. Statistics have shown that pay-before-consumption programs result in less electricity and water usage because customers are more aware of how much they are using. Customers can check on their electric bill or water usage every day using the OUC Power Pass portal or receive alerts via text, email and/or phone. More than 13,000 customers are enrolled in the program to date.

#### *3.6.2.9 Usage Dashboard*

Digital meter technology allows customers to monitor electric consumption on an hourly basis and water on a daily basis instead of waiting until the end of the month to receive their bills. The ability to track usage patterns and make adjustments to lower energy bills was one of the items most frequently requested by OUC customers. To accommodate their needs, OUC released the OUC Usage Dashboard to most residential customers through their myOUC online profile. Because the new system also provides high-consumption alerts via email, changes in usage can be made immediately, and costs can be kept in check.

#### *3.6.2.10 Online Rebate Application*

In 2015, the Sustainability Department launched a new online rebate application tool that allows customers to apply for savings without the hassle of paperwork. It is more convenient for customers, reduces transaction times, and has almost eliminated the use of paper and mail for this type of service. Customers are able to access the tool through their myOUC online profile. The new system also streamlines internal work and provides more detailed reports on program enrollment and savings.

#### *3.6.2.11 Project Momentum*

OUC upgraded its customer information system from PeopleSoft Enterprise Risk Management to Customer Care & Billing to improve the quality experience for all levels of customers. OUC undertook this major initiative to lay the foundation for future enhancements and new technologies. This complex endeavor took into account other affected systems such as Outage Management, Meter Data Management, Enterprise 1, Geographic Information System, the Web, and Interactive Voice Response. Kicked off in January 2015 and implemented in July 2017, Project Momentum required 200-plus employees from 17 OUC departments and partner contractors to understand and work through hundreds of business processes and thousands of data points. Delivering an improved quality experience for customers is a primary goal of OUC's Strategic Plan.

#### *3.6.2.12 Outage Alerts*

OUC launched the first phase of its OUC Alerts program with Outage Alerts in December 2017. The system allows customers to receive information about service outages, including the cause and an estimated restoration time, via text, voice or email.

#### *3.6.2.13 Billing Alerts*

In January 2019, the second phase of OUC's Alerts program expanded to include Billing Alerts. The new feature lets customers set an alert, via text, email or voice, to let them know when their new bill is ready to view and when payment is due. This alert, along with Outage Alerts, launched in 2017, are among new "two-way communication" initiatives OUC has introduced to provide customers. Future OUC Alerts program phases to consider include consumption notifications and marketing messages.

### *3.6.3 Economic Development*

Orlando has undergone a radical transformation over the years to diversify its economy and attract high-wage positions in technology, medicine, life sciences, and modeling and simulation. With Orlando's increasing emphasis on recruiting, retaining and expanding commercial customers, OUC has become a major player in the region's economic development. Working in partnership with Enterprise Florida, the Orlando Economic Partnership, and city and county governments, the utility is attracting more companies to Orlando and St. Cloud and helping them grow into vital and valuable members of the business community.

To attract large businesses that enhance the vitality of the community, OUC offers two rates. For large power users who qualify, OUC is able to negotiate its already-affordable rates to fit their business needs. The Economic Development Rider (EDR) is available to new or expanding businesses representing select target industries. Companies must add a minimum of 500 kW demand of new electric load and must create at least 25 new jobs at or above the 150 percent median income level to qualify. The Commercial Industrial Service Rider (CISR) is available to companies that have minimum load of 2,000 kW or greater, served by a single meter. Companies must provide validation of a lower rate offering outside OUC's service territory to qualify.

Details of these rates and other incentives are outlined at [www.oucpowersgrowth.com](http://www.oucpowersgrowth.com) – a website that assists site selectors and businesses seeking to locate and learn more about Orlando and OUC. The site includes property search functionality and is mobile friendly.



## 4.0 FORECAST OF PEAK DEMAND AND ENERGY CONSUMPTION

OUC prepares a set of sales, energy, and demand forecast models each year to support its budgeting and financial planning process as well as long-term planning requirements. In preparing the forecasts, OUC uses internal records, company knowledge of the service territory and customers, and economic projections. OUC draws on outside expertise as needed. IHS Markit Ltd (Global Insight) provides the economic projection data. Itron provides primary forecasting software, analysis of end-use equipment saturation and efficiencies, and technical expertise. In this forecast, Siemens and the National Renewable Energy Laboratory were utilized to provide projections of electric vehicles and rooftop solar within OUC's service territory.

### 4.1 Forecast Methodology

OUC has adopted a Statistically Adjusted Engineering (SAE) modeling technique developed by Itron. This approach entails specifying end-use variables (xHeat for heating, xCool for cooling, and xOther for other use) and utilizing these variables in multi-regression models to forecast sales. SAE variables allow anticipated shifts in customer end-use consumption driven by the type, saturation and efficiency of heating and cooling equipment, and other end-use devices to be represented along with econometric drivers and the effects of photovoltaic systems (PV) and electric vehicles (EV) in the forecast models. Itron reviews OUC's application of these techniques and provides data on heating, cooling, and other end-use load trends. These techniques are used to develop the forecasts for both the OUC and St. Cloud service territories.

#### 4.1.1 Residential

The residential sales forecast consists of both a customer forecast model and an average use per customer model. Monthly average use models were estimated using actual data for the period 2004 to 2019. This provides 16 years of historical data and enough observations to estimate strong regression models. Once models showing the number of expected customers and the expected average use per customer are developed, the projected residential sales by year (y) and month (m) are calculated as the product of the customer and average use forecasts:

$$Sales_{y,m} = Customers_{y,m} \times Average\ Usage_{y,m}$$

##### 4.1.1.1 Residential Customer Forecast

Residential customers are forecast as a function of household growth for Orange County for the OUC jurisdiction and Osceola County for the St. Cloud jurisdiction. There is a strong correlation ( $R^2$  of 0.99 for inside the City and 0.98 for outside the City) between historical changes in OUC customer counts and historical changes in Orange County households. Approximately 71 percent of OUC's residential customers are inside the City. St. Cloud historical customer counts correlate well with the Osceola County household values ( $R^2$  of 0.97). The multi-regression model for residential customers is represented as:

$$Customers_{y,m} = \beta_0 + \beta_1(Households_{y,m})$$

The coefficients ( $\beta$ ) are outputs of the multi-regression models.

##### 4.1.1.2 Average Use Forecast

The residential forecast models utilize multi-regression modeling made up of three major components:

1. Changes in the economy, such as median household income, household size, and the price of electricity.
2. End-use equipment index variables, which capture the long-term net effect of equipment saturation and equipment efficiency improvements.
3. Weather variables, which serve to allocate the seasonal impacts of weather throughout the year.



The SAE model framework begins by defining energy use for an average customer in year (y) and month (m) as the sum of energy used by heating equipment (xHeat<sub>y,m</sub>), cooling equipment (xCool<sub>y,m</sub>), and other equipment (xOther<sub>y,m</sub>). The xHeat, xCool and xOther variables are defined as a product of an annual equipment index and a monthly usage multiplier. This model is represented as:

$$\text{Average Usage}_{y,m} = \beta_1(\text{xHeat}_{y,m}) + \beta_2(\text{xCool}_{y,m}) + \beta_3(\text{xOther}_{y,m})$$

Where:

$$\text{xHeat}_{y,m} = \text{Economics}_{y,m} \times \text{HeatingEquipment}_{y,m} \times \text{HDD\_Index}_{y,m}$$

$$\text{xCool}_{y,m} = \text{Economics}_{y,m} \times \text{CoolingEquipment}_{y,m} \times \text{CDD\_Index}_{y,m}$$

$$\text{xOther}_{y,m} = \text{Economics}_{y,m} \times \text{OtherEquipment}_{y,m}$$

A customer's monthly usage level is impacted by several economic factors, including the price of electricity, household size, and household income.

$$\text{Economics}_{y,m} = \left( \frac{\text{Price}_{y,m}}{\text{Price}_{\text{base } y}} \right)^{-0.1} \times \left( \frac{\text{HH Size}_{y,m}}{\text{HH Size}_{\text{base } y,m}} \right)^{0.2} \times \left( \frac{\text{HH Income}_{y,m}}{\text{HH Income}_{\text{base } y,m}} \right)^{0.2}$$

The annual equipment variables (HeatEquip, CoolEquip, OtherEquip) are defined as a weighted average across equipment types multiplied by equipment saturation levels normalized by operating efficiency levels.

$$\text{HeatEquip}_y = \sum_{\text{tech}} \text{Weight} \times \left( \frac{\text{Saturation}_y / \text{Efficiency}_y}{\text{Saturation}_{\text{base } y} / \text{Efficiency}_{\text{base } y}} \right)$$

$$\text{CoolEquip}_y = \sum_{\text{tech}} \text{Weight} \times \left( \frac{\text{Saturation}_y / \text{Efficiency}_y}{\text{Saturation}_{\text{base } y} / \text{Efficiency}_{\text{base } y}} \right)$$

$$\text{OtherEquip}_y = \sum_{\text{tech}} \text{Weight} \times \left( \frac{\text{Saturation}_y / \text{Efficiency}_y}{\text{Saturation}_{\text{base } y} / \text{Efficiency}_{\text{base } y}} \right)$$

The following degree day index variables serve to allocate the seasonal impacts of weather throughout the year. For historic periods, actual heating degree days ("HDD") and cooling degree days ("CDD") are used. Normal HDDs and CDDs are used for forecast periods.

$$\text{HDD\_Index}_{y,m} = \frac{\text{HDD}_{y,m}}{\text{Normal HDD}_y}$$

$$\text{CDD\_Index}_{y,m} = \frac{\text{CDD}_{y,m}}{\text{Normal CDD}_y}$$

#### 4.1.2 Non-Residential

##### 4.1.2.1 General Service Non-Demand (GSND)

The General Service Non-Demand (GSND) and General Service Demand Secondary (GSD Secondary) classes are modeled as a combined General Service Secondary class (GS Secondary) using a single model because the historic data indicates customer migration has occurred back and forth between the two classes. The result is a single model, which produces predicted values with a higher correlation than that of two separate models.

The forecast is later split between GSND and GSD Secondary using the monthly relationships between the two classes in 2019.

The framework for the GS secondary class model is similar to the residential model. It also has three major components and utilizes the SAE model framework. General service customers and general service average usage are modeled separately. The end-use equipment variables are based on commercial appliance / equipment saturation and efficiency projections. The economic drivers in the model are the commercial price of electricity and Gross Metro Product Index. The third component is the weather variable, which is entirely composed of CDDs. HDDs are not used in the GS Secondary model because no statistically valid correlation between HDDs and sales could be identified.

GS secondary customers are forecast as a function of population for Orange County for the OUC jurisdiction and Osceola County for the St. Cloud jurisdiction. There is a strong correlation ( $R^2$  of 0.98) between historical changes in customers and historical changes in the Orange County population. St. Cloud historical customers also correlates well with the Osceola County population ( $R^2$  of 0.93).

The GS Secondary use per customer model is represented as:

$$Sales_{y,m} = Customers_{y,m} \times Average\ Usage_{y,m}$$

Sales to five large GSD Secondary customers are excluded from the GS Secondary model discussed above. These large customers are forecast individually using a combination of SAE techniques, individual customer trending, and customer-specific planning input. These large customers represent approximately four percent of OUC's total load and eight percent of the GS Secondary Load. They are handled individually because each has identifiable growth plans or patterns and/or each individually represents a significant load.

#### 4.1.2.2 General Service Demand (GSD)

Forecast sales to GSD Secondary customers were modeled as discussed above. In addition to the customers taking service at secondary voltage, OUC serves 21 customers (excluding OUC water plants) at primary voltage. Of those 21, 16 are modeled as a group because they have exhibited a consistent load over time. This group of 16 customers represents about 18 percent of the GSD Primary sales.

The five remaining primary customers are forecast individually using a combination of techniques, which includes regression modeling, individual customer trending, and customer-specific planning input. These five customers represent approximately six percent of OUC's total load and 81 percent of the GSD Primary sales.

Sales from the various GSD models are summed to complete the GSD forecast.

#### 4.1.2.3 Streetlights

Private and public lighting consumption is forecast separately. Both classes are not impacted by the weather, and the SAE modeling approach does not apply. Therefore, simple exponential smoothing models with a linear trend are used to generate both forecasts. The forecast for public streetlights reflects the planned schedule for replacement of traditional HPS and MH fixtures with LED fixtures.

#### 4.1.2.4 OUC Use

OUC Use sales are those to OUC Water Plants, OUCooling Plants, and OUC facilities. The OUC Use models utilize CDDs, but not HDDs or the factors included in the "Other" SAE modeling variable.

Binary variables have been inserted in the multi-regression model coinciding with operations date for the three OUC Cooling Plants commissioned in the past 10 years.

**4.1.3 Net Energy for Load (“NEL”) and Peak Demand Forecast**

The individual OUC and St. Cloud net energy for load forecasts are generated based on the respective sales forecasts described above and the historic relationship between actual monthly sales and NEL. Peak demand forecasts are then developed for each system based on the forecast NEL and the historic relationship between NEL, peak demand and daily weather.

**4.2 Base Case Forecast Assumptions**

Incorporated into the forecast regression models are sets of underlying economic and demographic, price of electricity, and weather assumptions.

**4.2.1 Economics & Demographics**

The economic and demographic assumptions are derived from forecasts for Orange County, Osceola County, and the Orlando Standard Metropolitan Statistical Area (“SMSA”) provided by Global Insight.

**4.2.1.1 Median Household Income**

The residential forecast model uses the Median Household Income in real dollars, as shown in Table 4-1.

**4.2.1.2 Gross Metro Product**

The non-residential forecast models use Orlando SMSA Gross Metro Product, as shown in Table 4-1.

**Table 4-1 Economic & Demographic Projections**

Year	Orlando SMSA Median Household Income <sup>1</sup>	Orlando SMSA Gross Metro Product (\$ Billions) <sup>1</sup>	Orange County (Thousands)		Osceola County (Thousands)	
			Households	Population	Households	Population
2020	\$52,688	\$132.9	512.9	1,436.6	128.7	397.5
2025	\$54,348	\$152.0	556.3	1,550.7	150.3	463.7
2029	\$55,670	\$171.3	592.6	1,643.7	167.5	515.9
Average Annual Increase						
20 - 25	0.6%	2.7%	1.6%	1.5%	3.1%	3.1%
20 - 29	0.6%	2.9%	1.6%	1.5%	3.0%	2.9%

(1) 2009 dollars

**4.2.1.3 Households and Population**

The primary demographic drivers in the residential forecast model are the number of households and the population (see Table 4-1). Households are used in the residential customer forecast model. The population data is divided by the household data to determine household size used in the residential average use forecast model.

**4.2.2 Price of Electricity**

The nominal price of electricity by customer class is forecast to increase at the same rate as inflation resulting in essentially no change to the real price of electricity. The real price of electricity by customer class is used in the residential and non-residential forecast models.

#### 4.2.3 Weather

Weather is a key factor affecting electricity consumption for indoor cooling and heating. Monthly CDDs are used to capture electric cooling load requirements while HDDs are used to capture electric heating load requirements. CDDs and HDDs are calculated from the daily average temperatures as reported by the National Weather Service for the weather station at the Orlando International Airport. CDDs are calculated using a 65°F base temperature as follows:

$$CDD_d = (Avg Temp_d - 65°F) \text{ when } Avg Temp_d \geq 65°F$$

The daily CDD values are then aggregated to yield monthly CDDs for each year as follows:

$$CDD_{y,m} = \sum CDD_{y,m,d}$$

Daily HDD values are calculated in a similar manner using a base temperature of 65°F as follows:

$$HDD_d = (65°F - Avg Temp_d) \text{ when } Avg Temp_d \leq 65°F$$

The daily HDD values are then aggregated to yield monthly HDDs for each year as follows:

$$HDD_{y,m} = \sum HDD_{y,m,d}$$

“Normal” monthly weather is assumed to be the median annual degree days for the 20-year period ending 2018.

### 4.3 Base Case Load Forecast

A long-term annual budget forecast was developed using the methodology and base-case assumptions outlined above.

#### 4.3.1 Customer and Sales Forecast Results

Total customers and retail sales for OUC and St. Cloud are expected to increase as shown in Table 4-2 through Table 4-5.

##### 4.3.1.1 Residential Forecast

With increasing appliance efficiency, increased customer conservation, and declining household size, average use per residential customer is projected to decline over the forecast period 2020 through 2029. Residential sales are projected to grow at an average annual rate of 1.4 percent for OUC and at 2.6 percent for St. Cloud over this same period. The number of residential customers is projected to grow at an average annual growth rate of 1.5 percent for OUC and 2.9 percent for St. Cloud over this same period.

##### 4.3.1.2 GSND Forecast

GSND sales are projected to grow at an average annual rate of 1.1 percent and 3.4 percent for OUC and St. Cloud, respectively, between 2020 and 2029. The number of GSND customers is projected to grow at an average annual growth rate of 1.1 percent and 2.8 percent, respectively, for OUC and St. Cloud over this same period.

##### 4.3.1.3 GSD Forecast

GSD is comprised of large commercial and industrial customers. Sales are projected to show considerable growth as a result of new major commercial development such as new tourist attractions, hotels, airport expansion, and other smaller commercial development. Sales are projected to grow at an average annual rate of 1.5 percent and 3.4 percent for OUC and St. Cloud, respectively, between 2020 and 2029. The number

of GSD customers is projected to grow at an average annual growth rate of 1.1 percent and 3.1 percent, respectively, for OUC and St. Cloud over this same period.

**Table 4-2 OUC Long-Term Sales Forecast (GWh)**

Year	Residential	GSND	GSD	Lighting	OUC Use	Total Retail
2020	1,998	422	3,441	54	143	6,058
2025	2,115	443	3,776	54	247	6,635
2029	2,269	467	3,949	54	253	6,992
Average Annual Increase						
20 - 25	1.1%	1.0%	1.9%	0.0%	11.5%	1.8%
20 - 29	1.4%	1.1%	1.5%	0.0%	6.5%	1.6%

**Table 4-3 OUC Average Number of Customers Forecast**

Year	Residential	GSND	GSD	Total Retail
2020	181,984	22,639	5,107	209,730
2025	196,642	23,932	5,398	225,971
2029	208,893	24,986	5,634	239,514
Average Annual Increase				
20 - 25	1.6%	1.1%	1.1%	1.5%
20 - 29	1.5%	1.1%	1.1%	1.5%

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

Year	Residential	GSND	GSD	Lighting	Total Retail
2020	550	54	144	3	751
2025	626	63	167	3	858
2029	691	73	194	3	960
Average Annual Increase					
20 - 25	2.6%	3.1%	3.1%	-0.1%	2.7%
20 - 29	2.6%	3.4%	3.4%	-0.1%	2.8%

**Table 4-5 St. Cloud Average Number of Customers Forecast**

Year	Residential	GSND	GSD	Total Retail
2020	38,734	3,667	350	42,750
2025	44,986	4,256	406	49,648
2029	49,985	4,722	450	55,157
Average Annual Increase				
20 - 25	3.0%	3.0%	3.0%	3.0%
20 - 29	2.9%	2.8%	2.8%	2.9%

**4.3.2 Forecast Peak Demand and NEL**

Peak demand growth is driven by the aggregate retail class energy forecast for OUC and St. Cloud. OUC and St. Cloud peaks and NEL are presented in Tables 4-6 and 4-7, respectively. Table 4-8 represents the combined seasonal peak demand and NEL forecasts for OUC and St. Cloud. Peak demand is forecast to grow at a higher rate than NEL due to non-residential sales growth outpacing residential sales growth.

**Table 4-6 OUC Forecast Peak Demand (Summer and Winter) and NEL**

Year	Summer (MW)	Winter (MW)	NEL (GWh)
2020	1,160	1,002	6,306
2025	1,284	1,145	6,907
2029	1,349	1,205	7,279
Average Annual Increase			
20 - 25	2.1%	2.7%	1.8%
20 - 29	1.7%	2.1%	1.6%

**Table 4-7 St. Cloud Forecast Peak Demand (Summer and Winter) and NEL**

Year	Summer (MW)	Winter (MW)	NEL (GWh)
2020	202	177	796
2025	231	203	910
2029	259	227	1,017
Average Annual Increase			
20 - 25	2.7%	2.7%	2.7%
20 - 29	2.8%	2.8%	2.8%

**Table 4-8 System Forecast Peak Demand (Summer and Winter) and NEL (Total of OUC and St. Cloud)**

Year	Summer (MW)	Winter (MW)	NEL (GWh)
2020	1,362	1,164	7,102
2025	1,514	1,331	7,817
2029	1,607	1,423	8,296
Average Annual Increase			
20 - 25	2.1%	2.7%	1.9%
20 - 29	1.9%	2.3%	1.7%

**4.4 High and Low Load Scenarios**

In addition to the base case, two long-term forecast scenarios representing a high and low range around the forecast peak demand and NEL were constructed to test for sensitivity of uncertain economic conditions and customer growth. Weather conditions deviating from normal were not included in sensitivity testing due to non-growth related impacts and an equal probability of affecting any given year either negatively or positively. The high and low load scenarios represent alternatives to the base case forecast and are defined by 0.5 percent higher and 0.5 percent lower economic growth rates, respectively. Table 4-9 represents a summary of the high and low load scenarios.

**Table 4-9 High and Low Scenario System Forecast Peak Demand (Summer and Winter) and NEL (Total of OUC and St. Cloud)**

<b>High Load Scenario</b>			
<b>Year</b>	<b>Summer (MW)</b>	<b>Winter (MW)</b>	<b>NEL (GWh)</b>
2020	1,365	1,164	7,115
2025	1,549	1,363	7,987
2029	1,676	1,486	8,614
Average Annual Increase			
20 - 25	2.6%	3.2%	2.3%
20 - 29	2.3%	2.8%	2.1%
<b>Low Load Scenario</b>			
<b>Year</b>	<b>Summer (MW)</b>	<b>Winter (MW)</b>	<b>NEL (GWh)</b>
2020	1,358	1,164	7,089
2025	1,484	1,308	7,653
2029	1,555	1,380	7,996
Average Annual Increase			
20 - 25	1.8%	2.4%	1.5%
20 - 29	1.5%	1.9%	1.3%



## **5.0 DEMAND-SIDE MANAGEMENT**

Sections 366.80 through 366.83, 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), OUC, and JEA (referred to collectively as the FEECA utilities).

OUC’s residential and commercial/industrial numeric conservation goals for the 2015 through 2024 period were established by the PSC pursuant to Order No. PSC-13-0645-PAA-EU. These PSC-established annual goals are presented in Tables 5-1, 5-2 and 5-3.

**Table 5-1 Residential DSM Goals Approved by the PSC**

Calendar Year	Summer (MW)	Winter (MW)	Annual (GWh)
2015	0.05	0.04	0.14
2016	0.08	0.08	0.30
2017	0.12	0.12	0.45
2018	0.16	0.16	0.60
2019	0.20	0.21	0.72
2020	0.21	0.21	0.77
2021	0.21	0.22	0.80
2022	0.19	0.20	0.72
2023	0.19	0.18	0.66
2024	0.16	0.16	0.57
<b>Total</b>	<b>1.57</b>	<b>1.58</b>	<b>5.73</b>

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

Calendar Year	Summer (MW)	Winter (MW)	Annual (GWh)
2015	0.20	0.49	0.34
2016	0.28	0.57	0.50
2017	0.30	0.70	0.66
2018	0.36	0.70	0.75
2019	0.37	0.66	0.82
2020	0.39	0.70	0.85
2021	0.40	0.78	0.86
2022	0.37	0.78	0.85
2023	0.39	0.74	0.82
2024	0.36	0.70	0.80
<b>Total</b>	<b>3.42</b>	<b>6.82</b>	<b>7.25</b>

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

Calendar Year	Summer (MW)	Winter (MW)	Annual (GWh)
2015	0.25	0.54	0.48
2016	0.36	0.65	0.80
2017	0.42	0.82	1.11
2018	0.52	0.82	1.35
2019	0.57	0.86	1.54
2020	0.60	0.91	1.62
2021	0.61	1.00	1.66
2022	0.56	0.98	1.56
2023	0.57	0.92	1.48
2024	0.52	0.86	1.37
<b>Total</b>	<b>4.98</b>	<b>8.36</b>	<b>12.97</b>

OUC has been increasingly emphasizing its DSM and conservation programs to increase customer awareness of such programs. Not only do these programs help customers save money by saving energy, the programs help OUC reduce emissions of greenhouse gases and better position OUC to meet possible future greenhouse gas 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 and natural gas prices have remained at or near historic lows for the last several years, and look to continue to do so for the near future. These appliance and generating unit efficiency improvements, coupled with low natural

gas prices, have mitigated to some degree the effectiveness of DSM and conservation programs, as overall efficiency increases in the marketplace partially offset the benefit of such programs.

The conservation programs included in OUC's DSM Plan (filed with the PSC on March 16, 2015) and offered to its customers in 2019 consist of the following:

- Residential Home Energy Survey Program – Walk-Through and Online
- Residential Duct Repair Rebates Program
- Residential Ceiling Insulation Upgrade Rebates Program
- Residential Window Film/Solar Screen Rebates Program
- Residential High Performance Windows Rebate Program
- Residential Efficient Electric Heat Pump Rebates Program
- Residential New Home Rebates Program
- Residential Efficiency Delivered Program
- Commercial Energy Audit Program
- Commercial Efficient Electric Heat Pump Rebates Program
- Commercial Duct Repair/Replacement Rebates Program
- Commercial Window Film/Solar Screen Rebates Program
- Commercial Ceiling Insulation Upgrade Rebates Program
- Commercial Cool/Reflective Roof Rebates Program

The remainder of this section describes each of the DSM and conservation programs outlined above. Incentives and rebate amounts included in the program descriptions are current as of the time this report was prepared. In addition to offering these 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 Energy Survey Programs**

### **5.1.1 Residential Home 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 and to encourage participation in various OUC rebate programs. The home energy surveys are available to both single family and multi-family residential customers.

The Residential Energy Walk-Through Survey includes a review of the customer electric consumption history as well as a walk-through review 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.

In addition to the Energy Walk-Through, OUC offers customers an interactive Online Home Energy Audit. The Online Home Energy Audit walks the customer through a complete visual assessment of energy and water efficiency in his or her home. The online audit has several benefits over the walk-through survey, including the convenience of viewing it at any time without a scheduled appointment and the ability to conduct it numerous times. The interactive Online Home Energy Audit is available on OUC's web site at <http://www.OUC.com/energyaudit>.

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 their historical energy usage and conservation measures that they can implement. Customers will benefit from the increased efficiency in their homes, and decreased electric and water bills.

The Home Energy Audit rates how efficient a customer's home energy use is and where one can make improvements to lower utility bills. Participation is tracked through service orders that are produced when appointments are scheduled and completed. Online Surveys are tracked through the service provider (Schneider), who produces monthly activity reports.

#### **5.1.2 Commercial Energy Audit Program**

The Commercial/Industrial Energy Survey Program has been offered for several years and is focused on increasing the energy efficiency of commercial buildings and includes a free survey comprised of a physical walk-through inspection of the commercial facility performed by trained and experienced energy experts. The survey will include a pre walk-through review of historical energy usage as well as a walk-through to 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 Survey. Participation is tracked through service orders that are produced when appointments are scheduled and completed.

### **5.2 Rebate Programs**

The following outlines the various rebate programs OUC offers to its customers. Customers can participate by submitting a rebate application online at <http://www.OUC.com/rebates>. Proofs of purchase and/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.

#### **5.2.1 Residential Duct Repair Rebates Program**

The Duct Repair Rebates 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 any other 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 \$100.

### 5.2.2 Residential Ceiling Insulation Upgrade Rebates Program

The attic is the easiest place to add insulation and lower total energy costs throughout the seasons. The Ceiling Insulation Rebates Program has been offered for several years and is designed to encourage customers to upgrade their attic insulation. Participating customers receive \$0.10 per square foot for upgrading their attic insulation to R-30 or higher. The program applies to conditioned areas only.

### 5.2.3 Residential Window Film/Solar Screen Rebates Program

Installing window film on pre-existing homes can help reflect the heat during hot summer days and help the efficiency of home cooling units. The residential Window Film/Solar Screen Rebates 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 \$0.55 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. ENERGY STAR® qualified double pane windows do not qualify for this rebate.

### 5.2.4 Residential High Performance Window Rebates Program

Energy-efficient windows can help minimize heating, cooling, and lighting costs. The residential High Performance Windows Rebates 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 \$1.50 rebate per square foot for the purchase of ENERGY STAR® rated energy efficiency windows.

### 5.2.5 Residential Efficient Electric Heat Pump Rebates Program

The residential Efficient Electric Heat Pump Rebates Program provides rebates to qualifying customers in existing homes who install heat pumps having a seasonal energy efficiency ratio (SEER) of 15.0 or higher. Customers will obtain a rebate in the form of a credit on their bill ranging up to \$1,630, 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.

	SEER	15	16	17	18	19	20	21	22	23
A / C Size (Tons)	1	\$ 5	\$ 55	\$ 95	\$ 135	\$ 170	\$ 205	\$ 230	\$ 260	\$ 280
	1 1/2	30	105	175	230	285	330	375	415	450
	2	60	160	250	325	400	460	520	570	620
	2 1/2	90	215	325	425	510	590	660	725	785
	3	115	270	400	520	625	720	805	885	955
	3 1/2	145	320	475	615	740	850	950	1,040	1,125
	4	175	375	550	710	850	975	1,090	1,195	1,290
	4 1/2	205	430	630	805	965	1,105	1,235	1,355	1,460
	5	230	485	705	900	1,075	1,235	1,380	1,510	1,630

### 5.2.6 Residential New Home Rebates Program

What was 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 and has been renamed the New Home Rebates program. 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 table below reflects an example of the incentives available.

<b>Rebate</b>	<b>Rate of Rebate</b>	<b>Square Footage</b>	<b>Total</b>
Ceiling Insulation Upgrade to R-38 or higher	\$0.03/sq. ft.	2,000	\$60
Heat Pump	Up to \$1,630	N/A	\$500
Energy Star® Heat Pump Water Heater	\$500	N/A	\$500
Solar Water Heater	\$900	N/A	\$900

### 5.2.7 Residential Efficiency Delivered Program

What was once referred to as the Home Energy Fix-Up Program has been revamped and expanded to allow for any OUC customer (both energy and water) to participate and renamed 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:

<b>Household Income</b>	<b>OUC Contribution</b>
Less than \$40,000	85% (not to exceed \$2,000)
\$40,001–\$60,000	50% (not to exceed \$2,000)
Greater than \$60,000	Rebates only

- \$40,000 or less OUC will contribute 85 percent of the total cost (not to exceed \$2,000),
- \$40,001 to \$60,000 OUC will contribute 50 percent of the total cost (not to exceed \$2,000),
- 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 low-income customers, who are only required to have a current balance that is not delinquent. 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. Several new measures are under consideration to be added to this program.

The purpose of the program is to reduce energy and water costs, especially for low-income households, and 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.

**5.2.8 Commercial Efficient Electric Heat Pump Rebates Program**

The commercial Efficient Electric Heat Pump Rebates Program provides rebates to qualifying customers in existing buildings who install heat pumps having a seasonal energy efficiency ratio (SEER) of 15.0 or higher. Customers will obtain a rebate in the form of a credit on their bill ranging up to \$1,630, 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.

	SEER	15	16	17	18	19	20	21	22	23
A / C Size (Tons)	1	\$ 5	\$ 55	\$ 95	\$ 135	\$ 170	\$ 205	\$ 230	\$ 260	\$ 280
	1 1/2	30	105	175	230	285	330	375	415	450
	2	60	160	250	325	400	460	520	570	620
	2 1/2	90	215	325	425	510	590	660	725	785
	3	115	270	400	520	625	720	805	885	955
	3 1/2	145	320	475	615	740	850	950	1,040	1,125
	4	175	375	550	710	850	975	1,090	1,195	1,290
	4 1/2	205	430	630	805	965	1,105	1,235	1,355	1,460
	5	230	485	705	900	1,075	1,235	1,380	1,510	1,630

**5.2.9 Commercial Duct Repair Rebates Program**

The commercial Duct Repair Rebates program started in 2009. OUC will rebate 100 percent of cost, up to \$100. 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.

**5.2.10 Commercial Window Film/Solar Screen Rebates Program**

The commercial Window Film/Solar Screen Rebates 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 \$0.55 per square foot for window tinting and solar screening with a shading coefficient of 0.5 or less on east-, west- and south-facing windows. ENERGY STAR® qualified double pane windows do not qualify for this rebate.

**5.2.11 Commercial Ceiling Insulation Upgrade Rebates Program**

The Commercial Ceiling Insulation Rebates Program started in 2009 and was designed to increase a building's resistance to heat loss and gain. Participating customers receive \$0.10 per square foot, for upgrading their attic insulation to R-30 or higher.

*5.2.12 Commercial Cool/Reflective Roof Rebate Program*

The Commercial Cool/Reflective Roof Rebates 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 \$0.12 per square foot for ENERGY STAR® cool/reflective roofing that has an initial solar reflectance greater than or equal to 0.70.



## **6.0 FORECAST OF FACILITIES REQUIREMENTS**

### **6.1 Existing Capacity Resources**

#### **6.1.1 Existing 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, 2020) is 1,535 MW in the winter and 1,494 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 McIntosh Unit 3 and St. Lucie Unit 2

St. Cloud's entitlement to capacity from Stanton Unit 2 is included as generating capability in Tables 6-1 and 6-2, 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. The utilities originally had options to extend the PPA beyond its initial term. OUC's Stanton A PPA has been extended through December 2031. As discussed in Section 2, NextEra Energy has purchased SCF's interest in Stanton A.

#### **6.1.3 Power Sales Agreements**

OUC's power sales to Bartow, Lake Worth, Winter Park, Florida Power & Light, Mt. Dora, and Chattahoochee are described in Section 2.3.

#### **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 its operating fleet and decisions related to generating units, and develop appropriate corresponding compliance plans.

### **6.2 Reserve Margin Requirements**

The 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. Also reflected in Tables 6-1 and 6-2 are expected capacity increases for Stanton Unit 1 and Stanton Unit 2 associated with planned unit improvements.

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 through the period considered in this Ten-Year Site Plan (i.e. through 2029). As such, this Ten-Year Site Plan does not include any new capacity additions.

#### **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.

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Table 6-1 Projected Winter Reserve Requirements – Base Case

Year	Retail and Wholesale Peak Demand (MW) <sup>1</sup>								Available Capacity (MW)					Reserves (MW)			Excess/ (Deficit) Capacity to Maintain 15% Reserve Margin (MW) <sup>(7)</sup>
	OUC	STC	Mt. Dora	Chattahoochee	Bartow	Lake Worth	Winter Park	Florida Power & Light	Total	Installed <sup>(2)</sup>	SEC A PPA	Landfill Gas <sup>(3)</sup>	Solar <sup>(3)</sup>	Total <sup>(4)</sup>	Required <sup>(5)</sup>	Available <sup>(6)</sup>	
2019/20	1,002	177	0	0	40	25	17	70	1,331	1,535	350	18	0	1,902	187	572	384
2020/21	1,064	182	17	6	0	25	17	0	1,311	1,556	350	18	0	1,924	187	613	426
2021/22	1,083	187	17	6	0	25	17	0	1,335	1,556	350	18	0	1,924	191	589	398
2022/23	1,114	192	17	6	0	25	17	0	1,370	1,556	350	18	0	1,924	196	553	358
2023/24	1,137	197	17	6	0	25	17	0	1,399	1,556	350	18	0	1,924	200	525	324
2024/25	1,145	203	17	6	0	25	17	0	1,412	1,556	350	18	0	1,924	202	512	309
2025/26	1,161	208	17	6	0	0	17	0	1,409	1,556	350	18	0	1,924	205	515	309
2026/27	1,175	214	17	6	0	0	0	0	1,412	1,556	350	18	0	1,924	208	512	303
2027/28	1,190	220	0	0	0	0	0	0	1,410	1,556	350	18	0	1,924	212	513	302
2028/29	1,205	227	0	0	0	0	0	0	1,432	1,556	350	18	0	1,924	215	492	277

(1). Peak Demands shown are non-coincident.  
(2). Includes existing net capability to serve OUC and St. Cloud.  
(3). Capacity of LFG and Solar reflects capacity projected to be available at time of seasonal peak demand.  
(4). "Totals" may not add due to rounding.  
(5). "Required Reserves" include 15 percent reserve margin on OUC and St. Cloud retail peak demand as well as wholesale sales to Florida Power & Light. OUC is not responsible for providing reserves to Bartow, Winter Park, Mt. Dora, or Chattahoochee. Wholesale sale shown to Lake Worth includes reserves.  
(6). "Available Reserves" equals the difference between total available capacity and total peak demand.  
(7). Calculated as the difference between "Available Reserves" and "Required Reserves."

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**Table 6-2 Projected Summer Reserve Requirements – Base Case**

Year	Retail and Wholesale Peak Demand (MW) <sup>1</sup>								Available Capacity (MW)					Reserves (MW)			Excess/ (Deficit) Capacity to Maintain 15% Reserve Margin (MW) <sup>(7)</sup>
	OUC	STC	Mt. Dora	Chattahoochee	Bartow	Lake Worth	Winter Park	Florida Power & Light	Total	Installed <sup>(2)</sup>	SEC A PPA	Landfill Gas <sup>(3)</sup>	Solar <sup>(3)</sup>	Total <sup>(4)</sup>	Required <sup>(5)</sup>	Available <sup>(6)</sup>	
<b>2020</b>	1,160	202	0	0	40	50	17	100	1,569	1,508	342	18	9	1,877	219	308	88
<b>2021</b>	1,184	207	23	8	0	50	17	0	1,490	1,516	342	18	65	1,940	209	450	242
<b>2022</b>	1,233	214	23	8	0	50	17	0	1,544	1,516	342	18	65	1,940	217	396	179
<b>2023</b>	1,260	219	23	8	0	50	17	0	1,577	1,516	342	18	102	1,977	222	400	178
<b>2024</b>	1,272	225	23	8	0	50	17	0	1,595	1,516	342	18	139	2,014	225	419	195
<b>2025</b>	1,284	231	23	8	0	50	17	0	1,614	1,516	342	18	139	2,014	227	401	173
<b>2026</b>	1,299	237	23	8	0	0	17	0	1,584	1,516	342	18	139	2,014	230	430	200
<b>2027</b>	1,314	244	23	8	0	0	0	0	1,589	1,516	342	18	139	2,014	234	425	191
<b>2028</b>	1,331	252	0	0	0	0	0	0	1,583	1,516	342	18	139	2,014	237	431	194
<b>2029</b>	1,349	259	0	0	0	0	0	0	1,608	1,516	342	18	139	2,014	241	406	165

(1). Peak Demands shown are non-coincident.  
(2). Includes existing net capability to serve OUC and St. Cloud.  
(3). Capacity of LFG and Solar reflects capacity projected to be available at time of seasonal peak demand.  
(4). "Totals" may not add due to rounding.  
(5). "Required Reserves" include 15 percent reserve margin on OUC and St. Cloud retail peak demand as well as wholesale sales to Florida Power & Light. OUC is not responsible for providing reserves to Bartow, Winter Park, Mt. Dora, or Chattahoochee. Wholesale sale shown to Lake Worth includes reserves.  
(6). "Available Reserves" equals the difference between total available capacity and total peak demand.  
(7). Calculated as the difference between "Available Reserves" and "Required Reserves."

## ***7.0 SUPPLY-SIDE ALTERNATIVES***

As discussed previously, OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2029 (i.e. through the duration of this Ten-Year Site Plan). As such, no supply-side alternatives have been evaluated as part of this Ten-Year Site Plan.

## **8.0 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 2.0 percent.

#### **8.1.2 Present Worth Discount Rate**

The present worth discount rate is assumed to be 6.5 percent.

### **8.2 Fuel Price Forecasts**

The natural gas and fuel oil price forecasts reflected in this Ten-Year Site Plan were developed based on a combination of the NYMEX forward curve and projections provided by PIRA Energy Group (PIRA). PIRA was founded in 1976 and is an international energy consulting firm specializing in global energy market analysis and intelligence. Among other services, PIRA offers consulting on a broad range of subjects in the international crude oil, petroleum products, natural gas, electricity, coal, biofuels and emissions markets. PIRA's clients include international and national integrated oil and gas companies, independent producers, refiners, marketers, oil and gas pipelines, electric and gas utilities, industrials, trading companies, financial institutions and government agencies.

The coal forecast reflected in this Ten-Year Site Plan was developed based on projections by Energy Ventures Analysis, Inc. (EVA) for use by OUC as well as recent offers from coal suppliers of Illinois Basin coal. EVA is a consulting firm that engages in a variety of projects for private and public sector clients related to energy and environmental issues. In the energy area, much of EVA's work is related to analysis of the electric utility industry and fuel markets, particularly oil, natural gas, and coal. EVA's clients in these areas include coal, oil, and natural gas producers; electric utility and industrial energy consumers; and gas pipelines and railroads. EVA also works for a number of public agencies, such as state regulatory commissions, the US EPA, and the US DOE, as well as interveners in utility rate proceedings, such as consumer counsels and municipalities. Another group of clients include trade and industry associations, such as the Electric Power Research Institute, the Gas Research Institute, and the Center for Energy and Economic Development. EVA has provided testimony to numerous state public utility commissions, including the Florida Public Service Commission. Furthermore, the firm has filed testimony in a number of cases in both state and federal courts, as well as before the Federal Energy Regulatory Commission.

## 9.0 ANALYSIS AND RESULTS

As discussed previously, consideration of OUC's existing generating resources and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2029 (the final year considered in this Ten-Year Site Plan). As such, no new capacity additions are included in this Ten-Year Site Plan.

For informational purposes, OUC utilized PCI GenTrader to obtain the annual production costs associated for various load, fuel, and other sensitivity cases. GenTrader is a computer-based chronological production costing model developed for use in power supply system planning. GenTrader 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.

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 2020 at the present worth discount rate of 6.5 percent. These annual present worth costs are then summed over the 2020 through 2029 period to calculate the total CPWC of the expansion plan being 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. The CPWC associated with the base case analysis is approximately \$2.326 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 as compared to the base-case analysis. 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; as with the base case load forecast, OUC is anticipated to have sufficient capacity to maintain its 15 percent reserve margin under the high load forecast sensitivity. The CPWC associated with the high load analysis is approximately \$2.337 billion.

*9.1.2.2 Low-Load Forecast Sensitivity*

The low-load forecast is presented in Section 4.0; as with the base case load forecast, OUC is anticipated to have sufficient capacity to maintain its 15 percent reserve margin under the low load forecast sensitivity. The CPWC associated with the low-load analysis is approximately \$2.294 billion.

*9.1.2.3 High Fuel Price Forecast Sensitivity*

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. The CPWC associated with the high natural gas and coal price forecast sensitivity is approximately \$2.405 billion.

*9.1.2.4 Low Fuel Price Forecast Sensitivity*

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. The CPWC associated with the low natural gas and coal price forecast sensitivity is approximately \$2.073 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 differential in price between coal and natural gas projected for 2019 will remain constant through 2028. The CPWC associated with the constant differential natural gas and coal price forecast sensitivity is approximately \$2.371 billion.

*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 6.5 percent present worth discount rate used in the other economic analyses discussed in this section. The CPWC associated with the high present worth discount rate sensitivity is approximately \$2.030 billion.



## ***10.0 ENVIRONMENTAL AND LAND USE INFORMATION***

As discussed previously, consideration of OUC's existing generating resources and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2029 (the final year considered in this Ten-Year Site Plan). As such, no new capacity additions are included in this Ten-Year Site Plan. In general, it should be noted that OUC's existing Stanton Energy Center and Indian River sites may accommodate future generating unit additions.

## ***11.0 CONCLUSIONS***

As discussed previously, consideration of OUC's existing generating resources and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2029 (the final year considered in this Ten-Year Site Plan). As such, no new capacity additions are included in this Ten-Year Site Plan. In general, it should be noted that OUC's existing Stanton Energy Center and Indian River sites may accommodate future generating unit additions.

***12.0 TEN-YEAR SITE PLAN SCHEDULES***

This section presents the schedules required by the Ten-Year Site Plan rules for the FPSC. 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 2020 OUC Ten-Year Site Plan.

**ORLANDO UTILITIES COMMISSION  
2020 TEN-YEAR SITE PLAN**

**Schedule 1  
Existing Generating Facilities  
As of December 31, 2019**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Plant Name	Unit No.	Location	Unit Type	Fuel		Fuel Transport		Alt. Fuel Days Use	Commercial In-Service Month/Year	Expected Retirement Month/Year	Gen. Max. Nameplate KW <sup>(1)</sup>	Net Capability	
				Pri	Alt	Pri	Alt	Use				Summer MW	Winter MW
Indian River	A	Brevard	GT	NG	DFO	PL	TK	0.2	06/89	Unknown	41,400	15.6 <sup>(2)</sup>	18.1 <sup>(2)</sup>
Indian River	B	Brevard	GT	NG	DFO	PL	TK	0.2	07/89	Unknown	41,400	15.6 <sup>(2)</sup>	18.1 <sup>(2)</sup>
Indian River	C	Brevard	GT	NG	DFO	PL	TK	0.2	08/92	Unknown	130,000	83.0 <sup>(3)</sup>	88.5 <sup>(3)</sup>
Indian River	D	Brevard	GT	NG	DFO	PL	TK	0.2	10/92	Unknown	130,000	83.0 <sup>(3)</sup>	88.5 <sup>(3)</sup>
Stanton Energy Center	1	Orange	ST	BIT	NA	RR	UN	UN	07/87	Unknown	464,500	294.3 <sup>(4)</sup>	294.3 <sup>(4)</sup>
Stanton Energy Center	2	Orange	ST	BIT	NA	RR	UN	UN	06/96	Unknown	464,500	333.8 <sup>(5)</sup>	333.8 <sup>(5)</sup>
Stanton Energy Center	A	Orange	CC	NG	DFO	PL	TK	3	10/01	Unknown		184.2 <sup>(6)</sup>	188.5 <sup>(6)</sup>
Stanton Energy Center	B	Orange	CC	NG	DFO	PL	TK	3	02/10	Unknown	333,000	292.0	307.0
McIntosh	3	Polk	ST	BIT	NA	REF	UN	UN	09/82	Unknown		133.0 <sup>(7)</sup>	136.0 <sup>(7)</sup>
St. Lucie <sup>(8)</sup>	2	St. Lucie	ST	NUC	NA	TK	UN	UN	08/83	Unknown		60.0	62.0

NOTES:

- <sup>(1)</sup> Nameplate ratings are reported for units which OUC maintains majority ownership. Values reported are for the entire unit (not just OUC's ownership share)
- <sup>(2)</sup> Reflects an OUC ownership share of 48.8 percent.
- <sup>(3)</sup> Reflects an OUC ownership share of 79.0 percent.
- <sup>(4)</sup> Reflects an OUC ownership share of 68.6 percent.
- <sup>(5)</sup> Reflects an OUC ownership share of 71.6 percent and St. Cloud entitlement of 3.4 percent.
- <sup>(6)</sup> Reflects an OUC ownership share of 28.0 percent.
- <sup>(7)</sup> Reflects an OUC ownership share of 40.0 percent.
- <sup>(8)</sup> Capacity from Crystal River Unit No. 3 Is not included as available capacity given it has not operated since summer of 2009 and is retired.
- <sup>(9)</sup> 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.

**ORLANDO UTILITIES COMMISSION  
2020 TEN-YEAR SITE PLAN**

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Population	Members per Household	Rural and Residential Average No. of Customers GWH	Average No. of Customers	Average KWH Consumption Per Customer	GWH	Commercial Average No. of Customers	Average KWH Consumption Per Customer
<b>HISTORY:</b>								
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
2013	476,916	2.56	2,153	186,455	11,549	345	22,585	15,254
2014	485,016	2.55	2,264	190,279	11,899	379	23,376	16,230
2015	496,659	2.54	2,430	195,606	12,423	393	23,705	16,579
2016	514,813	2.56	2,491	201,424	12,369	401	23,991	16,719
2017	576,536	2.79	2,481	206,959	11,987	424	24,323	17,440
2018	577,895	2.74	2,576	210,899	12,212	475	25,020	18,966
2019	615,376	2.85	2,599	216,113	12,026	474	25,751	18,424
<b>FORECAST:</b>								
2020	629,331	2.85	2,548	220,717	11,544	476	26,306	18,082
2021	641,261	2.85	2,595	225,221	11,522	480	26,697	17,998
2022	652,785	2.84	2,631	229,515	11,465	486	27,073	17,941
2023	664,282	2.84	2,663	233,633	11,399	492	27,449	17,912
2024	675,627	2.84	2,700	237,626	11,364	498	27,819	17,913
2025	686,920	2.84	2,741	241,628	11,343	505	28,188	17,932
2026	698,456	2.84	2,786	245,923	11,331	513	28,565	17,972
2027	710,088	2.84	2,838	250,302	11,337	522	28,946	18,025
2028	721,845	2.83	2,896	254,658	11,373	530	29,331	18,085
2029	733,378	2.83	2,960	258,878	11,433	539	29,708	18,153

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)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year	GWH	Industrial Average No. of Customers	Average KWH Consumption Per Customer	Railroads and Railways GWH	Street & Highway Lighting GWH	Other Sales to Public Authorities GWH	Total Sales to Ultimate Consumers GWH
<b>HISTORY:</b>							
2010	3,414	7,201	474,101	0	51	31	6,132
2011	3,422	7,428	460,737	0	34	30	6,021
2012	3,392	7,558	448,853	0	35	30	5,916
2013	3,467	5,718	606,442	0	29	30	6,025
2014	3,489	5,618	621,007	0	30	29	6,191
2015	3,514	5,793	606,594	0	61	139	6,537
2016	3,506	5,811	603,333	0	61	142	6,601
2017	3,480	5,839	595,929	0	59	124	6,568
2018	3,513	5,709	615,262	0	61	146	6,769
2019	3,544	5,579	635,318	0	61	145	6,823
<b>FORECAST:</b>							
2020	3,584	5,456	656,924	0	57	143	6,809
2021	3,653	5,529	660,675	0	57	156	6,942
2022	3,740	5,598	668,141	0	57	216	7,131
2023	3,835	5,667	676,799	0	57	245	7,292
2024	3,901	5,735	680,150	0	57	246	7,403
2025	3,943	5,803	679,440	0	57	247	7,494
2026	3,989	5,873	679,279	0	57	249	7,595
2027	4,039	5,944	679,506	0	57	250	7,706
2028	4,090	6,015	680,038	0	57	252	7,826
2029	4,143	6,084	680,919	0	57	253	7,952

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)	(2)	(3)	(4)	(5)	(6)
Year	Sales for Resale GWH	Utility Use & Losses GWH	Net Energy for Load GWH	Other Customers (Average No.)	Total No. of Customers
<b>HISTORY:</b>					
2010	469	277	6,878	0	207,046
2011	768	188	6,977	0	209,638
2012	764	346	7,026	0	213,325
2013	769	272	7,065	0	214,758
2014	1,000	332	7,523	0	219,272
2015	1,317	268	8,122	0	225,104
2016	1,100	278	7,979	0	231,226
2017	1,032	302	7,902	0	237,121
2018	1,040	189	7,998	0	241,628
2019	644	295	7,762	0	247,443
<b>FORECAST:</b>					
2020	710	293	7,812	0	252,479
2021	498	299	7,739	0	257,447
2022	500	307	7,939	0	262,186
2023	503	314	8,110	0	266,749
2024	505	319	8,227	0	271,180
2025	508	324	8,326	0	275,619
2026	227	328	8,150	0	280,361
2027	129	333	8,168	0	285,192
2028	0	339	8,165	0	290,004
2029	0	344	8,296	0	294,670

**Notes:**

Represents total of OUC and St. Cloud.

2010 - 2012 "Sales for Resale" represent sales to City of Vero Beach.

2013-2019 "Sales for Resale" represents aggregation of sales to City of Vero Beach, City of Winter Park, City of Lake Worth, City of Bartow, and Florida Power & Light.

Forecast "Sales for Resale" include aggregated projected sales to City of Winter Park, City of Lake Worth Beach, City of Bartow, Florida Power & Light, Mt.

Dora, and Chattahoochee as summarized in Section 2 of OUC's 2020 Ten-Year Site Plan.

"Net Energy for Load" may not match other Schedules due to rounding.

**ORLANDO UTILITIES COMMISSION  
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**Schedule 3.1  
History and Forecast of Summer Peak Demand  
Base Case**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	Total	Wholesale	Retail	Interruptible	Residential Load Management	Residential Conservation	Comm./Ind. Load Management	Comm./Ind. Conservation	Net Firm Demand
<b>HISTORY:</b>									
2010	1,295	74	1,218	0	0	1.0	0.0	1.7	1,292
2011	1,371	164	1,205	0	0	1.0	0.0	0.6	1,369
2012	1,381	165	1,214	0	0	0.6	0.0	1.7	1,379
2013	1,413	157	1,256	0	0	0.7	0.0	0.9	1,411
2014	1,500	203	1,297	0	0	0.6	0.0	0.2	1,499
2015	1,531	206	1,325	0	0	0.4	0.0	2.2	1,528
2016	1,620	252	1,368	0	0	0.5	0.0	2.5	1,617
2017	1,638	255	1,383	0	0	0.4	0.0	5.0	1,633
2018	1,541	207	1,334	0	0	0.4	0.0	3.7	1,537
2019	1,634	199	1,431	0	0	0.5	0.0	3.4	1,630
<b>FORECAST:</b>									
2020	1,570	207	1,362	0	0	0.2	0	0.4	1,569
2021	1,490	98	1,391	0	0	0.4	0	0.8	1,489
2022	1,546	98	1,446	0	0	0.6	0	1.2	1,544
2023	1,579	98	1,479	0	0	0.8	0	1.6	1,577
2024	1,598	98	1,497	0	0	1.0	0	1.9	1,595
2025	1,617	98	1,516	0	0	1.1	0	2.3	1,614
2026	1,588	48	1,536	0	0	1.3	0	2.7	1,584
2027	1,594	31	1,559	0	0	1.4	0	3.1	1,589
2028	1,588	0	1,583	0	0	1.6	0	3.5	1,583
2029	1,614	0	1,608	0	0	1.8	0	3.9	1,608

**Notes:**

Represents total of OUC and St. Cloud. Peak demands may not match other schedules due to non-coincidence of OUC and St. Cloud peaks and/or rounding.  
 Historical "Residential Conservation" and "Comm/Ind. Conservation" represent annual demand reductions associated with new participants in OUC's DSM programs described in Section 5 of OUC's 2020 Ten-Year Site Plan.  
 Forecast "Residential Conservation" and "Comm/Ind. Conservation" represent cumulative annual demand reductions associated with new participants in OUC's DSM programs described in Section 5 of OUC's 2020 Ten-Year Site Plan.  
 2010 - 2012 "Wholesale" represent sales to City of Vero Beach.  
 2013-2019 "Wholesale" represents sales to City of Vero Beach, City of Winter Park, City of Lake Worth, and City of Bartow.  
 Forecast "Wholesale" include projected sales to City of Vero Beach, City of Winter Park, City of Lake Worth, City of Bartow, and Florida Power & Light.  
 Forecast "Net Firm Demand" may not exactly match up with peak demands presented in the 2020 OUC Ten-Year Site Plan due to coincidence and rounding.



**ORLANDO UTILITIES COMMISSION  
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**Schedule 3.2  
History and Forecast of Winter Peak Demand  
Base Case**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Year	Total	Wholesale	Retail	Interruptible	Residential Load Management	Residential Conservation	Comm./Ind. Load Management	Comm./Ind. Conservation	Net Firm Demand
<b>HISTORY:</b>									
2009/10	1,337	36	1,299	0	0	0.8	0.0	0.9	1,335
2010/11	1,323	174	1,147	0	0	0.8	0.0	0.6	1,321
2011/12	1,216	182	1,032	0	0	0.5	0.0	1.8	1,214
2012/13	1,183	155	1,028	0	0	0.5	0.0	0.9	1,182
2013/14	1,275	201	1,074	0	0	0.4	0.0	0.2	1,275
2014/15	1,374	207	1,166	0	0	0.4	0.0	0.7	1,373
2015/16	1,320	243	1,077	0	0	0.4	0.0	1.3	1,319
2016/17	1,194	210	984	0	0	0.3	0.0	4.4	1,189
2017/18	1,410	182	1,228	0	0	0.3	0.0	4.7	1,405
2018/19	1,134	76	1,055	0	0	0.3	0.0	3.5	1,131
<b>FORECAST:</b>									
2019/20	1,332	152	1,179	0	0	0.2	0	0.7	1,331
2020/21	1,313	64	1,246	0	0	0.4	0	1.5	1,311
2021/22	1,338	64	1,270	0	0	0.6	0	2.3	1,335
2022/23	1,374	64	1,306	0	0	0.8	0	3.1	1,370
2023/24	1,404	64	1,335	0	0	1.0	0	3.9	1,399
2024/25	1,418	64	1,348	0	0	1.1	0	4.7	1,412
2025/26	1,416	39	1,369	0	0	1.3	0	5.5	1,409
2026/27	1,420	22	1,389	0	0	1.4	0	6.3	1,412
2027/28	1,419	0	1,410	0	0	1.6	0	7.1	1,410
2028/29	1,441	0	1,432	0	0	1.8	0	7.9	1,432

**Notes:**

Represents total of OUC and St. Cloud. Peak demands may not match other schedules due to non-coincidence of OUC and St. Cloud peaks and/or rounding.  
 Historical "Residential Conservation" and "Comm/Ind. Conservation" represent annual demand reductions associated with new participants in OUC's DSM programs described in Section 5 of OUC's 2020 Ten-Year Site Plan.  
 Forecast "Residential Conservation" and "Comm/Ind. Conservation" represent cumulative annual demand reductions associated with new participants in OUC's DSM programs described in Section 5 of OUC's 2020 Ten-Year Site Plan.  
 2010 - 2012 "Wholesale" represent sales to City of Vero Beach.  
 2013-2019 "Wholesale" represents sales to City of Vero Beach, City of Winter Park, City of Lake Worth, and City of Bartow.  
 Forecast "Wholesale" include projected sales to City of Vero Beach, City of Winter Park, City of Lake Worth, City of Bartow, and Florida Power & Light.  
 Forecast "Net Firm Demand" may not exactly match up with peak demands presented in the 2020 OUC Ten-Year Site Plan due to coincidence and rounding.

**ORLANDO UTILITIES COMMISSION  
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**Schedule 3.3  
History and Forecast of Annual Net Energy for Load - GWH  
Base Case**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Year	Total	Residential Conservation	Comm./Ind. Conservation	Retail	Wholesale	Utility Use & Losses	Net Energy for Load	Load Factor %
<b>HISTORY:</b>								
2010	6,785	3.01	5.8	6,030	469	277	6,776	58.2%
2011	6,983	2.7	3	6,021	768	188	6,977	58.2%
2012	7,074	1.9	7.3	5,955	764	346	7,065	58.2%
2013	7,072	1.9	4.5	6,025	769	272	7,065	57.2%
2014	7,526	1.8	1.0	6,191	1,000	332	7,523	57.3%
2015	8,136	0.8	13.4	6,537	1,317	268	8,122	57.3%
2016	7,992	1.2	12.3	6,601	1,100	278	7,979	55.4%
2017	7,934	0.8	31.0	6,568	1,032	302	7,902	55.3%
2018	8,033	0.8	34.7	6,769	1,040	189	7,998	59.4%
2019	7,778	1.0	14.3	6,823	644	295	7,762	54.4%
<b>FORECAST:</b>								
2020	7,813	0.8	0.9	6,809	710	293	7,812	56.8%
2021	7,742	1.6	1.7	6,942	498	299	7,739	59.3%
2022	7,944	2.3	2.6	7,131	500	307	7,939	58.7%
2023	8,116	3.0	3.4	7,292	503	314	8,110	58.7%
2024	8,235	3.5	4.2	7,403	505	319	8,227	58.9%
2025	8,335	4.1	5.0	7,494	508	324	8,326	58.9%
2026	8,161	4.7	5.8	7,595	227	328	8,150	58.7%
2027	8,180	5.2	6.6	7,706	129	333	8,168	58.7%
2028	8,178	5.8	7.4	7,826	0	339	8,165	58.9%
2029	8,311	6.4	8.2	7,952	0	344	8,296	58.9%

**Notes:**

Represents total of OUC and St. Cloud. NEL may not match other schedules due to rounding.

Historical "Residential Conservation" and "Comm/Ind. Conservation" represent annual demand reductions associated with new participants in OUC's DSM programs described in Section 5 of OUC's 2020 Ten-Year Site Plan.

Forecast "Residential Conservation" and "Comm/Ind. Conservation" represent cumulative annual demand reductions associated with new participants in OUC's DSM programs described in Section 5 of OUC's 2020 Ten-Year Site Plan.

2010 - 2012 "Wholesale" represent sales to City of Vero Beach.

2013-2019 "Wholesale" represents sales to City of Vero Beach, City of Winter Park, City of Lake Worth, and City of Bartow.

Forecast "Wholesale" include projected sales to City of Vero Beach, City of Winter Park, City of Lake Worth, City of Bartow, and Florida Power & Light.

Forecast "Net Energy for Load" may not exactly match up with energy requirements presented in the 2020 OUC Ten-Year Site Plan due to coincidence and rounding.

**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)
Month	2019 Actual		2020 Forecast		2021 Forecast	
	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH
January	1,015	520	1,179	541	1,246	556
February	1,037	474	1,156	489	1,224	483
March	1,055	516	1,035	521	1,052	523
April	1,130	554	1,113	547	1,133	556
May	1,342	650	1,268	631	1,289	630
June	1,431	672	1,347	664	1,376	676
July	1,371	703	1,359	709	1,391	719
August	1,356	710	1,362	725	1,391	740
September	1,346	662	1,311	657	1,341	685
October	1,225	646	1,232	584	1,257	613
November	1,090	500	1,091	504	1,115	521
December	960	511	1,069	530	1,088	539

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

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**Schedule 5  
Fuel Requirements**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
Fuel Requirements			Units	Actual 2018	Actual 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
(1)	Nuclear		Trillion BTU	4	4	5	6	7	6	6	6	6	6	6	6	
(2)	Coal		1000 Ton	1,736	1,242	1,396	1,465	1,415	1,436	1,541	1,408	1,408	1,375	1,218	1,365	
(3)	Residual	Total	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0	
(4)		Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0
(9)			Steam	1000 BBL	0	0	0	0	0	0	0	0	0	0	0	0
(10)	CC		1000 BBL	0	0	0	0	0	0	0	0	0	0	0	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	21,638	23,313	26,600	22,799	25,054	24,052	21,342	23,935	22,629	23,162	25,956	24,390	
(14)		Steam	1000 MCF	28	2,074	2,429	2,558	3,710	569	299	189	206	309	318	289	
(15)		CC	1000 MCF	21,385	20,981	23,740	19,922	21,095	23,193	20,619	23,484	22,126	22,482	25,248	23,890	
(16)		CT	1000 MCF	225	258	431	319	249	290	424	262	297	371	390	211	
(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 wholesale customers.  
Natural gas CC includes purchases from Stanton A PPA

**ORLANDO UTILITIES COMMISSION  
2020 TEN-YEAR SITE PLAN**

**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 2018	Actual 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
(1)	Firm Inter-Region Interchange		GWH	0	0	0	0	0	0	0	0	0	0	0	0
(2)	Nuclear		GWH	470	449	591	569	596	578	588	566	566	586	566	554
(3)	Coal		GWH	4,204	3,614	3,324	3,487	3,369	3,418	3,670	3,353	3,353	3,273	2,901	3,250
(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	0	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	0	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	3,138	3,554	3,631	3,101	3,386	3,343	2,960	3,341	3,153	3,220	3,611	3,405
(15)		Steam	GWH	68	218	264	278	403	62	32	21	22	34	35	31
(16)		CC	GWH	3,055	3,319	3,339	2,802	2,967	3,262	2,900	3,303	3,112	3,162	3,551	3,360
(17)		CT	GWH	15	17	28	21	16	19	28	17	19	24	25	14
(18)	NUG		GWH	0	0	0	0	0	0	0	0	0	0	0	0
(19)	Renewables	Total	GWH	185	145	266	582	587	771	1,009	1,066	1,076	1,089	1,086	1,086
(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	157	123	139	240	246	258	275	291	303	317	314	320
(24)		MSW	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(25)		Solar	GWH	28	22	127	342	341	513	734	775	773	772	772	766
(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	0	0	0	0	0	0	0	0	0	0	0
(29)	Net Energy for Load		GWH	7,997	7,762	7,812	7,739	7,938	8,110	8,227	8,326	8,148	8,168	8,164	8,295

Notes:  
 Represents GWh required to serve OUC and St. Cloud, and sales to wholesale customers.  
 Total Net Energy for Load may not correspond to other Schedules due to rounding.  
 Natural gas CC includes purchases from Stanton A PPA

**ORLANDO UTILITIES COMMISSION  
2020 TEN-YEAR SITE PLAN**

**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 2018	Actual 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
(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		%	5.88%	5.78%	7.57%	7.35%	7.51%	7.13%	7.15%	6.80%	6.95%	7.17%	6.93%	6.68%
(3)	Coal		%	52.57%	46.56%	42.55%	45.06%	42.44%	42.15%	44.61%	40.27%	41.15%	40.07%	35.53%	39.18%
(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	%	0.00%	0.00%	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	%	0.00%	0.00%	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	%	39.24%	45.79%	46.48%	40.07%	42.66%	41.22%	35.98%	40.13%	38.70%	39.42%	44.23%	41.05%
(15)		Steam	%	0.85%	2.81%	3.38%	3.59%	5.08%	0.76%	0.39%	0.25%	0.27%	0.42%	0.43%	0.37%
(16)		CC	%	38.20%	42.76%	42.74%	36.21%	37.38%	40.22%	35.25%	39.67%	38.19%	38.71%	43.50%	40.51%
(17)		CT	%	0.19%	0.22%	0.36%	0.27%	0.20%	0.23%	0.34%	0.20%	0.23%	0.29%	0.31%	0.17%
(18)	NUG		%												
(19)	Renewables	Total	%	2.31%	1.87%	3.41%	7.52%	7.39%	9.51%	12.26%	12.80%	13.21%	13.33%	13.30%	13.09%
(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	%	1.96%	1.58%	1.78%	3.10%	3.10%	3.18%	3.34%	3.50%	3.72%	3.88%	3.85%	3.86%
(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	%	0.35%	0.28%	1.63%	4.42%	4.30%	6.33%	8.92%	9.31%	9.49%	9.45%	9.46%	9.23%
(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%	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 GWh required to serve OUC and St. Cloud, and sales to wholesale customers.  
Natural gas CC includes purchases from Stanton A PPA

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Year	Total Installed Capacity MW	Firm Capacity Import MW	Firm Capacity Export MW	QF MW	Total Capacity Available MW	System Firm Summer Peak Demand MW	Reserve Margin before Maintenance MW	% of Peak	Scheduled Maintenance MW	Reserve Margin after Maintenance MW	% of Peak
<b>FORECAST:</b>											
2020	1,508	369	0	0	1,877	1,569	308	21%	0	308	21%
2021	1,516	425	0	0	1,940	1,490	450	32%	0	450	32%
2022	1,516	425	0	0	1,940	1,544	396	27%	0	396	27%
2023	1,516	462	0	0	1,977	1,577	400	27%	0	400	27%
2024	1,516	499	0	0	2,014	1,595	419	28%	0	419	28%
2025	1,516	499	0	0	2,014	1,614	401	26%	0	401	26%
2026	1,516	499	0	0	2,014	1,584	430	28%	0	430	28%
2027	1,516	499	0	0	2,014	1,589	425	27%	0	425	27%
2028	1,516	499	0	0	2,014	1,583	431	27%	0	431	27%
2029	1,516	499	0	0	2,014	1,608	406	25%	0	406	25%

**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 wholesale power sales.  
 "Reserve Margin (MW)" calculated as "Total Available Capacity" minus "System Firm Summer Peak Demand."  
 "Reserve Margin (% of Peak)" calculated as "Reserve Margin (MW)" divided by "System Firm Summer Peak Demand." OUC's agreement with Lake Worth already includes reserve calculations and OUC is not responsible for providing reserves to Bartow, Winter Park, Mt. Dora, or Chattahoochee.  
 "Scheduled Maintenance (MW)" is zero, as no units are scheduled for maintenance during peak periods.

**ORLANDO UTILITIES COMMISSION  
2020 TEN-YEAR SITE PLAN**

**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	% of Peak	Scheduled Maintenance MW	Reserve Margin after Maintenance MW	% of Peak
<b>FORECAST:</b>											
2019/20	1,535	368	0	0	1,902	1,331	572	46%	0	572	46%
2020/21	1,556	368	0	0	1,924	1,311	613	49%	0	613	49%
2021/22	1,556	368	0	0	1,924	1,335	589	46%	0	589	46%
2022/23	1,556	368	0	0	1,924	1,370	553	42%	0	553	42%
2023/24	1,556	368	0	0	1,924	1,399	525	39%	0	525	39%
2024/25	1,556	368	0	0	1,924	1,412	512	38%	0	512	38%
2025/26	1,556	368	0	0	1,924	1,409	515	38%	0	515	38%
2026/27	1,556	368	0	0	1,924	1,412	512	37%	0	512	37%
2027/28	1,556	368	0	0	1,924	1,410	513	36%	0	513	36%
2028/29	1,556	368	0	0	1,924	1,432	492	34%	0	492	34%

Notes:  
 "Firm Capacity Import" includes OUC's existing and future power purchase agreements, including renewables.  
 "System Firm Winter Peak Demand" includes OUC and St. Cloud peak demand, as well as OUC's wholesale power sales.  
 "Reserve Margin (MW)" calculated as "Total Available Capacity" minus "System Firm Winter Peak Demand."  
 "Reserve Margin (% of Peak)" calculated as "Reserve Margin (MW)" divided by "System Firm Winter Peak Demand." OUC's agreement with Lake Worth already includes reserve calculations and OUC is not responsible for providing reserves to Bartow, Winter Park, Mt. Dora, or Chattahoochee.  
 "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)
Plant Name	Unit No.	Location	Unit Type	Fuel Pri	Fuel Alt	Fuel Transport Pri	Fuel Transport Alt	Const. Start Mo/Yr	Commercial In-Service Mo/Yr	Expected Retirement Mo/Yr	Gen. Max. Nameplate KW	Net Capability Summer MW	Net Capability Winter MW	Status
Stanton Energy Center	1	Orange	ST	BIT	N/A	RR	N/A	-	04/20	-	464,500	20	20	P
Stanton Energy Center	2	Orange	ST	BIT	N/A	RR	N/A	-	11/20	-	464,500	10	10	P

Notes:

Changes to Net Capability for Stanton Energy Center Units 1 and 2 represent increased output for the entire units, not just for OUC's ownership shares.

**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 Performance 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:  
As discussed throughout OUC's 2020 Ten-Year Site Plan, OUC is projected to have sufficient capacity to maintain a 15% reserve margin for the 2020 through 2029 period. As such, there are no proposed generating facilities to include in this schedule.

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

- (1) Point of Origin and Termination:
- (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:

Notes:  
OUC's 2020 Ten-Year Site Plan does not include any directly proposed transmission lines. Therefore, Schedule 10 is not applicable.