April 1, 2022

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

Subject: 2022 Orlando Utilities Commission Ten-Year Site Plan

Dear Mr. Teitzman,

Enclosed please find an electronic copy of the 2022 Orlando Utilities Commission (OUC) Ten-Year Site Plan (TYSP). The 2022 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

2022 Ten-Year Site Plan

Prepared by:
nFront Consulting LLC
April 1, 2022



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1.0 EXECUTIVE SUMMARY

This report documents the 2022 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)

In December 2020 OUC finalized an Electric Integrated Resource Plan ("EIRP"), which provides a roadmap to enable OUC to achieve its goal of Net Zero Carbon by 2050, as well as interim goals of 50% carbon emissions reductions by 2030 and 75% carbon emissions reductions by 2040 as compared to 2005 levels. The first major steps outlined to achieve these carbon reduction targets was to convert one coal unit (Stanton Energy Center Unit 1) no later than 2025 and secondly, convert the other coal fired generating unit (Stanton Energy Center Unit 2) to cleaner-burning natural gas no later than 2027, and which includes 1,524 MWac of solar and 350 MW of energy storage by 2030.

In May 2021 OUC became aware of an opportunity to purchase the Osceola Generating Station ("OGS") that would better enable large-scale solar farms by mitigating the intermittency of solar power, the utility's most viable source of renewable energy. The move also allows OUC to retire its oldest coal-fired power plant, Stanton Unit 1 located in East Orange County at the utility's Stanton Energy Center ("SEC") in lieu of converting this unit to cleaner burning natural gas no later than 2025. The OGS purchase further provides the utility an extra layer of resiliency with emergency backup fuel to help prevent power disruption events as seen in Texas last February.

The purchase and upgrade of OGS from Genova, a Texas-based private ownership group, will not change OUC's commitment to its Electric Integrated Resource Plan (EIRP), the utility's 30-year energy roadmap, to move away from all coal-fired generation by 2027.

OGS is comprised of three separate turbines, known in the industry as "peakers," which can turn on and off quickly as opposed to the larger, Stanton Unit 1 turbine that requires more fuel and takes many hours to turn on. OGS can power up in just minutes.

The acquisition of OGS and the retirement of Stanton Unit 1 changes OUC's generation portfolio and makes it more flexible in managing intermittent resources, and most importantly, as OUC's primary goal,

to reduce CO_2 emissions. As such, OUC will review these changes within the generation portfolio which will occur after the April 1st Ten Year Site Plan filing.

OUC remains committed to meeting the EIRP's objectives, which include increasing solar energy and other renewable resources for electric generation, and reducing carbon dioxide emissions by 50% by 2030 and 75% in 2040 as compared to 2005 levels before reaching Net Zero emissions by 2050.

OUC is aggressively increasing its reliance on solar energy, with plans to boost capacity to 270.5 MW by 2024. Meanwhile, the utility is exploring energy storage solutions and has already committed to install 40 MW of energy storage in December of 2023 and the use of other clean energy assets in addition to investing in electrification programs that would result in further carbon dioxide reductions and cleaner air for our community.

OUC continues to assume responsibility for supplying all of the City of St. Cloud ("St. Cloud") loads through calendar year 2042. 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 contracts to provide power to the City of Lake Worth Beach ("Lake Worth") through calendar year 2025, the City of Winter Park ("Winter Park") through calendar year 2026, the City of Mount Dora ("Mt. Dora") through 2027, the City of Chattahoochee ("Chattahoochee") through 2027, and Lakeland Electric ("Lakeland") through December of 2023. The power OUC is currently planning to provide to Lake Worth, Winter Park, Mt. Dora, Chattahoochee, and Lakeland is summarized in Section 2.0.

OUC is a member of the Florida Municipal Power Pool (FMPP), which consists of OUC, Lakeland, and the Florida Municipal Power Agency ("FMPA") All-Requirements Project. Power for OUC is supplied by units owned entirely by OUC, as well as units in which OUC maintains joint ownership and power purchases. OUC's available capacity as of January 1, 2022, 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 1,819 megawatts (MW) and total net winter capacity of approximately 1,800 MW[1].

As discussed throughout this Ten-Year Site Plan, consideration of OUC's current generating resources (including existing and planned power purchase agreements) and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2031.

[1] Net seasonal capacity ratings as of January 1, 2022. Includes capacity owned by OUC and St. Cloud, as well as OUC's contractual power purchases. Capacity from the Osceola units is not included as the units are currently not able to provide power to OUC.

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 2042.

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 as of January 1, 2022, 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[2].
- Florida Power & Light Company (FPL) St. Lucie Unit 2 Nuclear Generating Facility.

[2] 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.

Table 2-1 Summary of OUC Generation Facilities

(As of January 1, 2022)

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	16(1)	18(1)
Indian River	B	Brevard	GT	NG	FO2	PL	TK	07/89	Unknown	16(1)	18(1)
Indian River	C	Brevard	GT	NG	FO2	PL	TK	08/92	Unknown	83(2)	88(2)
Indian River	D	Brevard	GT	NG	FO2	PL	TK	10/92	Unknown	83(2)	88(2)
Stanton Energy Center	1	Orange	ST	BIT	NG	RR	PL	07/87	Unknown	312(3)	312(3)
Stanton Energy Center	2	Orange	ST	BIT	NG	RR	PL	06/96	Unknown	350(4)	350(4)
Stanton Energy Center	A	Orange	CC	NG	FO2	PL	TK	10/01	Unknown	184(5)	189(5)
Stanton Energy Center	B	Orange	CC	NG	FO2	PL	TK	02/10	Unknown	292	307
St. Lucie(6)	2	St. Lucie	NP	UR	--	TK	--	06/83	Unknown	60	62

(1)Reflects an OUC ownership share of 48.8 percent.
(2)Reflects an OUC ownership share of 79.0 percent.
(3)Reflects an OUC ownership share of 68.6 percent.
(4)Reflects an OUC ownership share of 71.6 percent and St. Cloud entitlement of 3.4 percent.
(5)Reflects an OUC ownership share of 28.0 percent.
(6)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_2), nitrogen oxides (NO_x), and particulates (PM). Stanton Unit 1 is a 445 MW net coal-fired facility; OUC has a 68.6 percent ownership share of this unit, which provides 305 MW of capacity to the OUC system. Stanton Unit 2 is a 453 MW net coal-fired generating facility; OUC maintains a 71.6 percent (324 MW) ownership share of this unit. OUC anticipates converting both Stanton Unit 1 and Stanton Unit 2 to no longer operate on coal and instead operate only on natural gas during the 2025 to 2027 timeframe; OUC is in the process of determining the final timing of the natural gas conversion of each 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 2 X 1 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 1 X 1 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.

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).

The Osceola Generating Station is comprised of three separate turbines, with each unit providing 157 MW of summer and winter capacity. The Osceola units are not currently capable of providing power to OUC.

2.2 Purchase Power Resources[3]

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 the City of Lake Worth Beach (Lake Worth) through 2025.
- a contract to provide power to the City of Winter Park (Winter Park) through 2026.
- a contract to provide power to Lakeland Electric (Lakeland) through 2023 (with an option if agreed upon by both OUC and Lakeland to extend through 2024).
- a contract to provide power to the City of Mt. Dora (Mt. Dora) through 2027.
- a contract to provide power to the City of Chattahoochee (Chattahoochee) 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, Lake Worth, Winter Park, Lakeland, Mt. Dora, and Chattahoochee.

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

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

	SUMMER MW				
Calendar Year	Lake Worth	Winter Park	Mt. Dora	Chattahoochee	Lakeland
2022	50	17	23	8	125
2023	50	17	23	8	125
2024	50	17	23	8	0
2025	50	17	23	8	0
2026	0	17	23	8	0
2027	0	0	23	8	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
	WINTER MW				
Calendar Year	Lake Worth	Winter Park	Mt. Dora	Chattahoochee	Lakeland
2022	25	17	17	6	125
2023	25	17	17	6	125
2024	25	17	17	6	125
2025	25	17	17	6	0
2026	0	17	17	6	0
2027	0	0	17	6	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
	ANNUAL GWh				
Calendar Year	Lake Worth	Winter Park	Mt. Dora	Chattahoochee	Lakeland
2022	223	98	101	34	66
2023	296	98	103	35	66
2024	324	98	105	36	0
2025	352	98	106	36	0
2026	0	98	108	37	0
2027	0	0	109	37	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
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 (CO_2) emissions. In 2020, OUC established new clean energy goals to achieve a 50 percent reduction in CO_2 emissions by 2030[4], a 75 percent reduction in CO_2 emissions by 2040[5], and net-zero CO_2 emissions by 2050. These targets require investments in technologies such as solar photovoltaic (PV) and energy storage. Such technologies will allow OUC to meet customer electricity demand while reducing CO_2 emissions.

In 2019, Orlando was selected as a recipient of a $2.5 million grant from the American Cities Climate Challenge (ACCC), a Bloomberg Philanthropies initiative that aims to accelerate and deepen efforts to make the greatest positive impact on climate change. The City and OUC agreed to execute eight actions: 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, Driving Energy Efficiencies Performance (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 engagement are crucial to achieving OUC's clean energy goals. OUC's recent renewable energy and sustainability initiatives, as well as activities in the community and customer education programs, are discussed in the following subsections[6].

2.4.1 Solar

OUC is actively working to provide more opportunities for its customers to participate in solar projects and programs. These initiatives include Solar Net Metering, the solar aggregation program (referred to as the OUCollective Solar Program), 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 solar energy produced in excess of what the home or business used from the grid. 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 energy storage. Under the OUCollective Solar Program, customers have access to installations for a discounted fixed price and from a contractor that has been vetted by OUC. As of February 22, 2022, 128 customers, representing a total of approximately 1,444 kW of capacity, have participated in the program.

In 2019, OUC introduced a pilot energy 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 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.

[4] Compared to a 2005 CO_2 baseline.
[5] Compared to a 2005 CO_2 baseline.
[6] Please refer to Section 5.0 of this Ten-Year Site Plan for discussion of OUC's conservation and demand-side management programs.

Residential and commercial customers who want to benefit from solar energy but have no means of installing their own rooftop PV system can enroll in the OUCommunity Solar program. Those enrolled subscribe all or a portion of their energy consumption to be produced by OUC's solar farms.

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, energy 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 MWac 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 kWac. 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 kWac 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.

In 2011, OUC added solar to its fleet of natural gas, coal, and landfill gas generation already on-site at Stanton Energy Center. The Stanton Solar Farm, constructed in partnership with Duke Energy, produces about 5.1 MWac and was the first solar farm in Orange County. The first Stanton Solar Farm consists of more than 25,000 modules featuring solar PV panels with a patented single-axis tracking system design that increases electricity output by 30 percent and withstands category 4 hurricane winds. OUC purchases 100 percent of the output of this installation for 20 years.

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 kWac 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 for its groundbreaking Community Solar Farm program.

In 2015, OUC signed a 20-year PPA for 8.9 MWac of solar energy from a second solar farm at the Stanton Energy Center. Brought online in 2017, the Kenneth P. Ksionek Community Solar Farm provides enough electricity to power 2,100 homes. At the time the Kenneth P. Ksionek Community Solar Farm was constructed, only one other utility in the nation had placed panels over a coal ash byproduct landfill at a power plant.

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 in Osceola and Orange counties. Total planned capacity is 223.5 MWac, which is enough energy to power 45,000 average Florida homes. Each solar site is designed to generate 74.5 MWac of energy. OUC is a stakeholder in two of the sites, the Taylor Creek and Harmony Solar Energy Centers, which began operating in the summer of 2020. Under power purchase agreements with NextEra, OUC receives 108.5MWac from the two facilities, enough energy for 21,600 typical Florida homes. These two solar sites started commercial operations on June 30, 2020.

In 2021, OUC executed two PPAs with NextEra for 149 MW of new utility-scale solar capacity from two new solar farms, Storey Bend and Harmony 2 that are planned to enter commercial operation in December 31, 2023. Both sites are located in Osceola County. The new solar capacity will produce enough to serve about 27,000 typical Florida homes. Additionally, in 2021, OUC also announced the planned addition of a 40 MW, 2-hour (80 MWh) utility-scale energy storage system at the Storey Bend site that will be used to help smooth PV production from both solar farms. The new energy storage system will enable OUC to integrate more solar PV capacity to its grid while maintaining grid reliability and stability.

In February 2017, OUC installed an innovative floating solar array on a water retention pond at its Gardenia Operations Center. The 31.5 kWdc pilot project, which has since been increased to 59.2 kWdc, is the first in Florida to send power directly to the grid. Comprised of dozens of PV 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. In December 2020, OUC, joined by the City and the Greater Orlando Aviation Authority, dedicated a 123 kWac floating solar array that was installed in a pond at Orlando International Airport. Shaped like the airport's "O" logo, the array is highly visible and produces enough power for 14 homes.

In August 2018, OUC completed the addition of a new solar test site at its Pershing Operations Center. This test site allows OUC to study and test a variety of solar panels and tilt angles. OUC also collects 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 is approximately 24 kWac depending on the number of solar panels being tested at any given time. All of the electricity produced by the array is supplied back to the grid.

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, a common occurrence in Florida's climate. In 2020, OUC began testing cloud-

tracking technology at two solar farms. Created through a collaboration with University of Central Florida College of Engineering students, "CIMS" or the Cloud Impact Mapping System, keeps watch for clouds moving toward solar fields, forecasts how soon they'll arrive and, once they do, their impact on solar production. This technology shows promise in helping OUC anticipate drop-offs in solar output and filling in the gaps with other generation assets.

In order to better utilize solar energy and increase its reliability during cloudy weather, OUC has embarked in designing its own advanced algorithms and control schemes. This has taken form in the project known as, "Nanogrid," a living laboratory for testing the interoperability of multiple distributed energy resources and the ability to self-operate at OUC's Gardenia facility. Nanogrid currently is comprised of 59 kWac of floating solar, 80 kWh of vanadium redox flow batteries, DC fast charging, Level 2 EV charging, V2G EV charging, as well as an intelligent control system developed in partnership with UCF – with more technology already in the planning stages. This level of control will enable solar to become more reliable during intermittent weather as well as help to drive down costs for energy storage. In 2022, OUC will be adding 16 kW/64 kWh of flywheel energy storage.

OUC is also evaluating the efficiency of different solar PV technologies through real-world testing. In particular, OUC will install a 100 kWac solar array on the rooftop of its Gardenia office building. This array will be comprised of bifacial solar modules, which are expected to provide increased output as compared to mono-facial modules. This test array will enable OUC to evaluate any efficiency gains of bifacial panels in a real-world environment, which will inform decisions around large-scale solar PV installations in the future. Gardenia also is the host site of OUC's first community solar farm, which consists of PV arrays set atop rows of parking shelters.

OUC also has showcased solar energy with high-visibility solar sculptures, including "solar trees" at Camping World Stadium and the Orange County Convention Center and, most recently, a soccer ball-shaped solar sculpture situated outside Exploria Stadium, home to the Orlando City Soccer Club. The soccer ball sculpture was designed by University of Central Florida (UCF) students through a multi-department competition. 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 oxygen-less, conditions in a landfill. This gas is considered a renewable energy source because the anaerobic digestion process continues as waste materials are constantly added to the landfill.

In partnership with Orange County, OUC captures methane gas emissions from county landfill cells and pipes it to the Stanton Energy Center where it is co-fired with coal. In addition to helping to reduce greenhouse gas emissions, this 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 and Collier County (4 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 758 vehicles – ranging from plug-in hybrids to bucket trucks – OUC's fleet logs more than 2.7 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 has installed two 10,000-gallon fuel tanks that store E85 fuel at its Pershing and Gardenia sites.

Embracing fuel-efficient technology as a commitment to green initiatives, OUC has grown the commitment to include six all-electric cars, six plug-in electric hybrids, and 21 hybrids in the fleet and is one of only a few utilities throughout the country to test Nissan's new all-electric E-NV 200 cargo van. Additionally, OUC has installed more than 300 public charging stations. Up to 22 high-speed chargers are under development at the new Robinson Mobility Recharge Hub in downtown Orlando. The charging facility will be the largest of its kind in Florida and will be able to power up all kinds of EVs. An OUC-led partnership that includes the City, Orange County and Power Electronics, the maker of EV charging equipment, received a $500,000 grant from the Florida Department of Environmental Protection to build the station. The charging hub complements OUC's support for a law Gov. Ron DeSantis signed in 2020 calling for the creation of a statewide EV charging infrastructure. These efforts have helped push 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.

Funded in part by a $1.9 million "Low or No Emission Grant" from the Federal Transit Administration, Orlando's new e-bus pilot program puts innovation and clean energy exploration in motion. Partnering with LYNX and the City of Orlando, OUC invested in charging stations and batteries for the e-buses with the intention of gathering real world battery performance data. The first eight of 14 LYNX battery-run electric buses are in service on LYNX's LYMMO Grapefruit, Lime and North Quarter lines. The remaining six eBuses are scheduled to arrive no later than Fall 2022. In addition to enhancing Orlando's charging

infrastructure, the e-buses will help reduce emissions in some of our community's economically disadvantaged neighborhoods.

OUC currently has seven 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 kWac 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 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 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. The following year, OUC hosted an EV Ride & Drive event in partnership with Valencia College and Enterprise Rent-a-Car on April 13, 2019, with 24 attendees. Due to the pandemic, OUC cancelled the 2020 EV Ride & Drive and in its place created eight EV ride-along videos on OUC.com for customers to learn more about the benefits of electric vehicles and charging stations. The videos have received nearly 14,000 views.

The second event is the Florida Utility Electric Vehicle Roundtable. This a semi-annual event was created to discuss EV-friendly policies, 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 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.

In October 2020, OUC, in partnership with the City and Electrification Coalition, launched the Electrified Dealers Program. It's focused on expanding consumer adoption of EVs in Central Florida. Through direct engagement with dealers and by offering rebates, OUC seeks to improve the EV purchasing experience and reduce barriers to EV ownership. In addition to offering a rebate on a plug-in electric vehicle purchase or lease and providing a cost-effective for businesses to install EV charging stations, OUC, in 2020, committed to investing $45 million in electrification programs aimed at putting more than 40,000 EVs on Central Florida's roads by 2030.

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_2 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 and LP steam turbine that provides additional output without increasing fuel consumption or emissions. OUC has installed the same improvement on the Unit 1 HP/IP steam turbine. 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. 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 West Anderson Street 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 nonprofit 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 utilizes 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 and Pershing campuses where they have undergone extensive LED lighting retrofits. Some buildings have received HVAC upgrades as well as new chiller investments.

In 2016, OUC built a living wall and rain harvest garden to showcase sustainable use of vertical space by replacing impervious surfaces while demonstrating water conservation examples along with Florida-

friendly landscaping. The project underwent major improvements including irrigation changes that have improved water consumption. A new self-guided tour and marketing materials were developed with a focus on water education. Improvements in the garden structure increased the yield of harvests tenfold from 2019. Edible plants from the garden are distributed to employees to raise awareness about the importance of buying and growing produce locally.

New construction projects will keep sustainability and energy efficiency at the forefront. This is exemplified by the planned construction of OUC's St. Cloud Operations & Maintenance Facility Project. A 24-acre property that will support permanent fleet and logistic operations, as well as accommodate a future new substation based on projected load growth. The intended goal is to make this into a net-zero energy campus as well as meeting the standards for LEED certification.

OUC's Commercial Indoor Lighting Program helps customers convert old, inefficient lighting to high-efficiency technology. OUC and Orlando Health, and the Orlando Catholic Diocese have entered into master agreements to upgrade indoor lighting at most if not all of their facilities over the next 3-5 years. More than 25,000 fixtures are estimated to be replaced, which will reduce demand by approximately 1,100 kW with energy savings of more than 10 million kilowatt hours, or about $945,000 in cost savings annually. Since launching the program in 2002, more than 45 million kWh and 10.5 MW demand has been saved in places such as public schools, churches, theme parks and hospitals, resulting in annual energy cost savings of about $16 million.

In 2013, OUC launched a program to replace 100-watt High Pressure Sodium (HPS) streetlights with LED fixtures. The initiative was expanded in 2016 to include 250-watt and 400-watt HPS fixtures, and was completed in 2022 resulting in the replacement of more than 29,000 HPS streetlights with their LED equivalent. These lights save the City more than 14 gigawatt-hours of annual energy and, equally important, LED lighting improves safety by emitting whiter, cleaner light that provides better visibility for motorists, pedestrians and law enforcement.

In May 2021, a Request for Proposal was sent out to select a consultant that could complete a comprehensive analysis of customer facing conservation related energy efficiency programs and submit findings to retain, improve, or change offerings. This engagement primarily focused on residential and small commercial customer offerings. The expectation is that the work completed through this engagement will help expand OUC's portfolio of customer facing efficiency programs. The analysis completed and recommendations provided will consider OUC's customer base, service territory, and demographics. OUC is looking for programs and efficiency measures that result in: environmental benefits such as a reduction in Greenhouse Gas Emissions, a reduce load measured in kilowatt and kilowatt hours, and cost-effective benefits for the customers we serve. Final recommendations will be presented in Spring 2022

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. In 2018, the Green Team went through a relaunch with the recruitment of new and passionate employees. Employees received training in sustainability and Eco practices. Furthermore, the Green Team has hosted e-waste

collection events, has worked to vastly improve OUC's waste processes and has participated in national events such as Earth Hour.

The Green Team continues to identify 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 2021, OUC conservation specialists and the Community Engagement team conducted presentations, provided face-to face consultations, scheduled audits, and disseminated information on conservation programs. Still in the midst of the pandemic in 2021, OUC participated in a mix of in-person and virtual community engagements. Below is a list of some of the events the OUC Sustainability Department participated in along with Community Engagement:

- Central Florida Earth Day
- St. Cloud Earth Day
- Orlando Youth Energy Academy
- HEAT Tradeshow
- Annual Peghorn Pig-Out (St. Cloud)
- 5th Annual Community Rainbow Run
- National Night Out
- City of Orlando District 1 Fall Festival
- Hispanic Chamber of Commerce Hola in the Park (St. Cloud)
- OUC Orlando Half Marathon

- Lake Nona Stem Night

In February 2021, OUC, along with the City and the Orlando Science Center, unveiled the Tiny Green Home as a mobile educational showcase of sustainable living. The 200-square-foot home is being used to raise awareness of the benefits of energy and water conservation, renewable energy, sustainability rebates, vehicle electrification, composting, growing food and sustainability programs offered by OUC, the City and the Science Center, the host site of the mobile exhibit. The City and OUC are able to transport the Tiny Green Home to events throughout the year. The micro-dwelling also includes a functioning roof-top solar array and a rain barrel to collect and conserve water, among other green features visitors can add to their own homes. The Tiny Green Home also offers an augmented reality experience. The project is funded equally by OUC and the city, along with support from the Bloomberg Philanthropies American Cities Climate Challenge. In 2021, more than 13,000 visitors interacted with the tiny home between community events and Orlando Science Center tours. Since the Tiny home is mobile, OUC was able to take it on the road to four community events in 2021— Central Florida Earth Day, Hispanic Chamber Hola in the Park, OUC Orlando Half Marathon and Lake Nona Stem Night.

2.4.8 Neighborhood Meetings

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 and 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. In 2021, OUC hosted a three-part virtual meeting series targeted to neighborhood HOA's (homeowner associations) and NOA's (neighborhood associations) within our service territory. Attendees included board president and representatives had the opportunity to learn more about OUC's products and services, as well as how to save energy, water, and money so they can pass the knowledge along to your neighbors. These 1-hour meetings allowed attendees to meet live with OUC experts who gave them a closer look at options like OUC's programs including water efficiency rebates and conservation tips.

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. Participants receive a free HUR monthly email report or bi-monthly 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. There is also an online portal available to customers to obtain additional information on how to save energy and water.

2.5 Transmission System

OUC's existing transmission system in Orlando consists of 31 substations interconnected through approximately 338 miles of 230 kV, 115 kV, and 69 kV lines. OUC is integrated into the Florida Reliability Coordinating Council (FRCC) regional transmission grid through multiple utilities, as summarized in Table 2-3. Additionally, OUC is responsible via an Interlocal Agreement for planning, operating and maintaining St. Cloud's five substations, 56 miles of transmission lines, and interconnections, as summarized in Table 2-4.

Table 2-3 OUC Interconnections

UTILITY	KV	NUMBER OF INTERCONNECTIONS
Duke Energy Florida (DEF)	230	11
FPL	230	2
KUA	230	2
KUA/FMPA	230	2
Lakeland Electric	230	1
NextEra SEC A	230	1
TECO	230	2
TECO/Reedy Creek Improvement District	230	2
FRP Taylor Creek Solar	115	1
DEF (Magnolia Ranch)	69	1
St. Cloud	69	1

Table 2-4 St. Cloud Interconnections

UTILITY	KV	NUMBER OF INTERCONNECTION
DEF	230	1
FRP Harmony Solar	230	1
KUA	69	1
OUC	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)[7]. In addition, OUC formally instituted its Energy Risk Management Program in 2000.

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

In 2020 the Business Unit led the Electric Integrated Resource Plan that calls for a review of OUC's generation needs in light of the growing penetration of distributed energy resources, such as solar power, and a call to move to Net Zero Carbon by 2050. Florida-specific factors were taken into consideration because renewable resources are limited relative to other regions in the country and could impact fuel diversity. Currently, wind, hydroelectric and geothermal are not economically and/or technically viable in Florida – and biomass and landfill gas, while possible resources are only available in small quantities. While solar is feasible, it poses intermittency challenges, and back up resources will be necessary to ensure that power is always available. OUC will continue to evaluate wind-by-wire generation and monitor emerging clean technologies such as hydrogen, offshore wind and small modular nuclear power plants.

[7] 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 summarizes OUC's existing (owned and purchased) 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.

Table 3-1 Capacity (MW) Owned and Purchased by OUC by Fuel Type

(As of January 1, 2022)

PLANT NAME	WINTER CAPACITY						SUMMER CAPACITY					
	Coal	Nuclear	Gas/ Oil	PV	LFG	Total	Coal	Nuclear	Gas/ Oil	PV	LFG	Total
Stanton[1][2]	562		945			1,507	562		919	7		1,487
Indian River			212			212			198			198
St. Lucie		62				62		60				60
Other (MW)					19	19				55	19	74
Total (MW)	562	62	1,157	0	19	1,800	562	60	1,117	62	19	1,819
Total (percent)	31%	3%	64%	0%	1%	100%	31%	3%	61%	3%	1%	100%

[1] Includes OUC's share of the landfill gas burned in Stanton Units 1 and 2.
[2] Stanton Units 1 and 2 can each generate up to approximately 70 MW while operating on natural gas.

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:

- A transmission line routing and feasibility engineering study for the addition of a new 230kV source into downtown Orlando has been conducted.
- Current growth rates support the need for adding several substation distribution transformers during the next five years.
- Engineering and property acquisition are underway for construction of a new 21-mile 230kV transmission line between the existing Magnolia Ranch North and St. Cloud East substations.
- 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 continue.

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's leadership in providing reliable electric distribution service is demonstrated by its commitment to making initial investments in high quality material and equipment. Additionally, more than 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 Florida Municipal Power Pool

In 1988, OUC joined Lakeland Electric and FMPA's All-Requirements Project members to form the Florida Municipal Power Pool (FMPP). Later, KUA joined FMPP. Over time, FMPA's All-Requirements Project has added members as well. FMPP is an operating-type electric pool, which dispatches all the pool members' generating resources in the most economical manner to meet the total load requirements of the pool. The central dispatch 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.

3.3 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 11 interconnections with Duke Energy Florida, four with KUA, two each with Tampa Electric Company and Reedy Creek Improvement District, two with FPL, one each with Lakeland Electric and St. Cloud, and one with NextEra. Along with enhancing reliability, these interconnections also facilitate the marketing of electric energy by OUC to and from other electric utilities in Florida.

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.

3.4 Environmental Performance[8]

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_X). Using SCR and low-NO_X 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.

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

OUC 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.

3.4.1 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 report is made available to customers, typically commercial ones that request it.

3.5 Community Engagement, Connecting with Our Customers, and Economic Development

3.5.1 Community Engagement

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 nonprofit 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 pavilions and sculptures at high visibility locations like Lake Lorna Doone Park, Exploria Stadium and St. Cloud's Lakefront Park, to solar mobile device charging stations at LYNX bus stations and H_2OUC Hydration Stations at parks and neighborhood centers, OUC's commitment to sustainability can be seen all around town.

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.

In 2020, OUC and SALT Outreach, Inc., provided energy-efficient showers to homeless citizens around Orlando. OUC partnered with the nonprofit to develop a solar-powered trailer with four bathrooms.

3.5.1.1 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, nonprofit organization, provides rapid response to customers in need through case management. Since its inception, Project CARE has allocated nearly $7 million, assisting more than 24,000 households and thousands of families and individuals. For every $1 donated by customers, OUC contributes $2 to the program.

When the onset of the COVID-19 pandemic in early 2020 caused the local economy to nearly shut down completely, OUC took immediate steps to help impacted customers. In mid-March, OUC suspended electric and water disconnections for nonpayment and waived late payment fees. In April, the OUC Board approved a $12.1 million customer-relief package that included $7.5 million to lower electric fuel rates for May bills, representing a 11.4% overall decrease for residential customers and 11.2% to 19.7% reduction for commercial customers; a $2.6 million contribution to Project CARE, in partnership with the City of Orlando; $1.5 million for utility bill payment assistance to qualified small businesses; $500,000 for new OUC Power Pass customers. Payment plans and deferred payment arrangements were offered to customers for up to 12 months depending on qualifying criteria. While OUC resumed disconnects in July 2020, OUC's efforts to assist financially distressed customers extended well into late 2020. By the end of 2020, more than 6,500 customers accessed Project CARE funds while more than 1,800 small businesses took advantage of the OUC relief program targeting them. Meanwhile, OUC connected more than 2,800 customers to the federal government's Low Income Home Energy Assistance Program (LIHEAP) and helped more than 40,000 set up payment plans, amounting to millions of dollars in deferred revenues.

Regarding volunteerism, 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 nonprofit organizations in the community.

The annual OUC Charity Golf Tournament has raised over $818,000 for more than 54 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. Since 2013, the OUC team has raised over $90,000 for the charity event.

3.5.1.2 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. While fourth- and fifth-grade students compete to have their artworks featured in OUC's Water Conservation Calendar, middle and high school students paint water-inspired themes on rain barrels. Their completed works are displayed in a traveling exhibit, judged and later sold in a silent auction, with the proceeds going back to the winning schools' art programs. More than 29,000 students from 200 local schools have participated in this program. In 2020, due to the pandemic, OUC created a virtual awards ceremony to recognize the hard work and creativity of participating students and teachers while educating the community on the importance of water conservation. The virtual event received more than 2,400 views.

3.5.1.3 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 (one per semester), as well as hands-on labs and pre- and post-classroom activities. Energy is covered as part of the earth science section that's taught in the fall semester while

water is the focus of the spring semester's life science section. More than 94,000 students have gone through the curriculum. Due to COVID and schools turning to virtual learning in early 2020, Project AWESOME workshops shifted to online. The lessons were made available to teachers in the form of a voiced-over PowerPoint. Each lesson included science content, discussion questions and an activity for students to complete.

3.5.1.4 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 promoted the facility's LEED certification and its energy and water efficiency features through highly visible educational signage and on-going digital media. In 2020, OUC partnered with the Magic for the OUC Community Assist Program: for every assist a Magic player made in the 2019-2020 season, OUC committed to donating a tree to the Central Florida community. This activation was originally planned to take place at the Central Florida Earth Day Festival in April, but it was transitioned to a drive-up event due to COVID 19. In September, OUC hosted a tree giveaway at our Gardenia Operations Facility as a drive-through event, giving away more than 1,500 trees to 161 people.

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 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, in November 2020, OUC oversaw the installation of a soccer-ball shaped solar sculpture outside the stadium. "Gyration," which measures 9.5 feet wide by 14.5 feet tall, was designed by an 11-member University of Central Florida team of mechanical engineering, electrical engineering and art students who responded to an OUC challenge to conceptualize a sculpture that doubles as a source of clean energy. During daylight hours, the sculpture's photovoltaic modules generate electricity for OUC, producing 1,264 kilowatt hours (kWh) of electricity annually. At night, interior lighting illuminates some of Gyration's purple panels. With its clean energy production offsetting the conventionally generated power it consumes at night, Gyration yields net-zero carbon output.

3.5.1.5 OUC Empowerment Zone

OUC has a multi-year commitment to revitalizing one of the most economically disadvantaged zip codes in its territory, 32805. The Empowerment Zone program encourages broad-based economic prosperity and community support, ensures improved access to OUC programs and improves the overall health and wellness of the community. In short: OUC's Empowerment Zone seeks to build thriving communities by

leveraging OUC's resources and partnerships to enhance three pillars: educational opportunities, sustainable housing, and health and wellness. Examples include:

- Virtual Tutoring Programs with ELEVATE Orlando, which OUC supported by donating 20 laptops.
- In 2019, OUC employees raised $42,000 for New Image Youth Center (NIYC), as part OUC's annual workplace giving campaign, OUCares. NIYC works with at-risk students in grades K-12 in the Parramore community and provides academic support, social development, health and wellness programs and crisis intervention services.
- OUC created a pre-apprenticeship program to meet the goals of creating career opportunities vs. job opportunities; prioritizing diversity, equity and inclusion; and raising median incomes for the community. This approach is helping to combat unemployment; increase livable wages; eliminate financial burdens on students; and provide a measurable impact. In 2021, the first class graduated 12 participants who all earned employment placement. The second cohort will begin in May 2022.
- OUC partnered with the Central Florida Housing Trust - Parramore Asset Stabilization Fund on an affordable housing project. OUC's contribution to the initiative included improving the efficiency of 83 residential units, with such upgrades as attic insulation and weather stripping, duct work repair, irrigation improvements, LED lighting, Energy Star® windows, hybrid water heaters and energy efficient AC systems. Residents of these homes could realize annual utility savings of approximately $800.
- OUC also is developing cost-saving programs and providing conservation education through neighborhood advisory councils. OUC partnered with LIFT Orlando, a local nonprofit, to help revitalize the City of Orlando's Lake Lorna Doone Park, which is in the Empowerment Zone. OUC's is sponsoring the recently built 4,800-square-foot OUC Solar Pavilion at Lake Lorna Doone Park and EV charging stations and hydration stations in the park. The pavilion will serve as a hub for community events and activities while providing 42kWac of renewable energy.

3.5.2 Connecting with Our 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.

3.5.2.1 Self-Service Options

OUC's informational website, self-service portal and automated phone system are transacted with millions of times each year by many customers.

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.

3.5.2.2 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.

In 2020 as our customers spent more time in their homes as a result of the COVID-19 pandemic, OUC focused on conservation education and cost-saving measures to help them better manage their energy and water usage. One way of doing this was offering virtual energy/water efficiency audits over the telephone, with OUC conservation specialists reviewing customers' consumption patterns with the intention to find unusual activity, such as high-water usage possibly due to a leak, which could be corrected. Conservation specialists also conducted on-site efficiency audits from outside homes while talking via their mobile phone with customers. The OUC.com/HighBillSolutions webpage was created and shared numerous times with customers to raise awareness of and educate them on how to track daily energy usage, look for ways to save on their utility bills, schedule free home energy and water efficiency audits, and help them better understand the impact of having their families at home for an extended period of time. The page also contained links to information on OUC financial assistance and payment arrangements/plans.

3.5.2.3 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 and feature OUC's programs, community events, sustainability initiatives, and energy- and water-saving tips.

3.5.2.4 OUC Blog

In 2019, OUC launched a blog called OUConnect (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.

3.5.2.5 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.

3.5.2.6 Social Media

Instagram, 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.

3.5.2.7 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.

3.5.2.8 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 14,000 customers are enrolled in the program to date.

3.5.2.9 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.

3.5.2.10 Online Rebate Application

OUC supports an online rebate application tool for customers to apply for rebates without the hassle of paperwork. It is more convenient for customers and reduced transaction time. Customers are able to access the tool through their myOUC online profile. OUC is continuing the use of software through the next few years and implemented a new software solution for rebate processing in 2022.

3.5.2.11 Project Momentum & PowerShift

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.

In 2019, OUC launched a project to offer Time of Use (TOU) rates – internally known as PowerShift – to explore the viability of extending a new rate structure as an option for customers. As an exploratory phase,

OUC gauged interest from each of its customer segments and ultimately accepted 700 customers to conduct the pilot. Beginning in April 2021, the 700 pilot customers were billed according to On-Peak (2 p.m.-8 p.m.) and Off-Peak rates, the latter being the lowest, to give customers the opportunity to save on their monthly bills and to also smooth OUC's power demand curve. OUC has created numerous marketing and communication materials to ensure customers are equipped with the tools and resources to be successful in the program. Feedback is gathered via quarterly customer surveys. OUC will use data from these surveys, as well as other data points and metrics, to determine the future of TOU rates after the pilot's conclusion.

3.5.2.12 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.

3.5.2.13 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.

3.5.3 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 – 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 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 adoption curves used to project 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 usage models were estimated using actual data for the period 2011 to 2021. This provides 11 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 usage 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 service territory and Osceola County for the St. Cloud service territory. There is a strong correlation between historical changes in customer counts and historical changes in households. The multi-regression model for residential customers is represented as:

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

The coefficients (β) 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 ($xHeat_{y,m}$), cooling equipment ($xCool_{y,m}$), and other equipment ($xOther_{y,m}$). 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:

$$Average\ Usage_{y,m} = \beta_1(xHeat_{y,m}) + \beta_2(xCool_{y,m}) + \beta_3(xOther_{y,m})$$

Where:

$xHeat_{y,m}$ = $Economics_{y,m}$ x $HeatingEquipment_{y,m}$ x $HDD\_Index_{y,m}$

$xCool_{y,m}$ = $Economics_{y,m}$ x $CoolingEquipment_{y,m}$ x $CDD\_Index_{y,m}$

$xOther_{y,m}$ = $Economics_{y,m}$ x $OtherEquipment_{y,m}$

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

$$Economics_{y,m} = \left(\frac{Price_{y,m}}{Price_{base\ y}}\right)^{-0.1} \times \left(\frac{HH\ Size_{y,m}}{HH\ Size_{base\ y,m}}\right)^{0.2} \times \left(\frac{HH\ Income_{y,m}}{HH\ Income_{base\ y,m}}\right)^{0.2}$$

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.

$$HeatEquip_y = \sum_{tech} Weight \times \left(\frac{Saturation_y / Efficieny_y}{Saturation_{base\ y} / Efficieny_{base\ y}}\right)$$

$$CoolEquip_y = \sum_{tech} Weight \times \left(\frac{Saturation_y / Efficieny_y}{Saturation_{base\ y} / Efficieny_{base\ y}}\right)$$

$$OtherEquip_y = \sum_{tech} Weight \times \left(\frac{Saturation_y / Efficieny_y}{Saturation_{base\ y} / Efficieny_{base\ y}}\right)$$

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.

$$HDD\_Index_{y,m} = \frac{HDD_{y,m}}{Normal\ HDD_y}$$

$$CDD\_Index_{y,m} = \frac{CDD_{y,m}}{Normal\ CDD_y}$$

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) 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 the most recent year of actual data.

The framework for the GS secondary class sales forecast is similar to the residential class sales forecast. 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 and equipment saturation and efficiency projections. The economic drivers in the model are the commercial price of electricity and Orlando Standard Metropolitan Statistical Area (SMSA) Gross Metro Product in real dollars. 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 service territory and Osceola County for the St. Cloud service territory. There is a strong correlation between historical changes in customer counts and historical changes in the Orange County population. St. Cloud historical customers also correlates well with the Osceola County population.

The GS Secondary use per customer model is represented as:

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

Sales to four 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 currently represent approximately 4 percent of OUC's total load and 8 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 22 customers (excluding 5 OUC water plants) at primary voltage. Of those 22, 18 are modeled as a group because they have exhibited a consistent load over time. This group of 18 customers currently represents about 18 percent of the GSD Primary load.

The four remaining primary customers are forecast individually using a combination of techniques, which includes regression modeling, individual customer trending, and customer-specific planning input. These four customers represent approximately 7 percent of OUC's total load and 82 percent of the GSD Primary load.

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 are used to generate both forecasts. The forecast for private streetlights includes a linear trend to capture the historic organic growth that is expected to continue within the forecast period. The forecast for public streetlights does not include a linear trend as any growth in the number of lights has been offset by the 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.

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 SMSA provided by IHS Markit Ltd.

4.2.1.1 Median Household Income

The residential average usage forecast models use Median Household Income in real dollars, as shown in Table 4-1.

4.2.1.2 Gross Metro Product

The commercial average usage forecast models use Gross Metro Product in real dollars, as shown in Table 4-1.

4.2.1.3 Households and Population

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

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 commercial forecast models.

Table 4-1 Economic & Demographic Projections

Year	Orlando SMSA Median Household Income[1]	Orlando SMSA Gross Metro Product ($ Billions)[2]	Orange County (Thousands)		Osceola County (Thousands)	
			Households	Population	Households	Population
2022	$48,290	$139.2	541.0	1,460.0	140.5	410.5
2027	$51,307	$165.6	593.2	1,570.8	164.4	473.4
2031	$52,674	$185.7	639.6	1,672.8	183.1	525.0
Average Annual Increase						
22 - 27	1.2%	3.5%	1.9%	1.5%	3.2%	2.9%
22 - 31	1.0%	3.3%	1.8%	1.5%	3.0%	2.8%
(1) 2009 dollars (2) 2012 dollars						

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:

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

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:

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

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 2020.

4.3 Base-Case Load Forecast

A long-term annual base-case forecast was developed using the methodology and 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, increased penetration of rooftop solar, and declining household size, average usage per residential customer is projected to decline over the forecast period 2022 through 2031. Residential sales are projected to grow at an average annual rate of 2.1 percent for OUC and at 3.2 percent for St. Cloud over this same period. The number of residential customers is projected to grow at an average annual rate of 1.8 percent for OUC and 4.2 percent for St. Cloud over this same period.

4.3.1.2 GSND Forecast

GSND is comprised of small commercial customers. GSND sales are projected to grow at an average annual rate of 1.1 percent and 3.9 percent for OUC and St. Cloud, respectively, between 2022 and 2031. The number of GSND customers is projected to grow at an average annual rate of 1.0 percent and 3.5 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 grow at an average annual rate of 1,5 percent and 3.9 percent for OUC and St. Cloud, respectively, between 2022 and 2031. The number of GSD customers is projected to grow at an average annual rate of 0.9 percent and 3.5 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
2022	2,043	424	3,424	60	142	6,093
2027	2,239	444	3,704	63	219	6,669
2031	2,455	469	3,903	66	225	7,118
Average Annual Increase						
22 - 27	1.8%	0.9%	1.6%	1.0%	9.1%	1.8%
22 - 31	2.1%	1.1%	1.5%	1.1%	5.2%	1.7%

Table 4-3 OUC Average Number of Customers Forecast

Year	Residential	GSND	GSD	Total Retail
2022	191,098	23,495	4,831	219,424
2027	209,131	24,502	5,037	238,670
2031	224,220	25,587	5,259	255,066
Average Annual Increase				
22 - 27	1.8%	0.8%	0.8%	1.7%
22 - 31	1.8%	1.0%	0.9%	1.7%

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

Year	Residential	GSND	GSD	Lighting	Total Retail
2022	575	58	163	3	799
2027	693	70	198	3	964
2031	763	82	230	3	1,078
Average Annual Increase					
22 - 27	3.8%	3.8%	4.0%	0.0%	3.8%
22 - 31	3.2%	3.9%	3.9%	0.0%	3.4%

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

Year	Residential	GSND	GSD	Total Retail
2022	44,319	4,039	359	48,717
2027	55,472	4,820	428	60,720
2031	64,199	5,520	490	70,209
Average Annual Increase				
22 - 27	4.6%	3.6%	3.6%	4.5%
22 - 31	4.2%	3.5%	3.5%	4.1%

4.3.2 Forecast Hourly Peak Demand and NEL

Peak demand growth is driven by the aggregate retail load forecasts for OUC and St. Cloud. Seasonal hourly peaks and annual NEL are presented for OUC and St. Cloud in Tables 4-6 and 4-7, respectively. Table 4-8 represents the combined seasonal coincident hourly peak demand and NEL forecasts for OUC and St. Cloud.

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

Year	Summer (MW)	Winter (MW)	NEL (GWh)
2022	1,190	1,026	6,233
2027	1,296	1,146	6,822
2031	1,377	1,236	7,281
Average Annual Increase			
22 - 27	1.7%	2.2%	1.8%
22 - 31	1.6%	2.1%	1.7%

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

Year	Summer (MW)	Winter (MW)	NEL (GWh)
2022	223	187	915
2027	272	231	1,103
2031	312	266	1,234
Average Annual Increase			
22 - 27	4.1%	4.2%	3.8%
22 - 31	3.8%	4.0%	3.4%

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

Year	Summer (MW)	Winter (MW)	NEL (GWh)
2022	1,408	1,192	7,148
2027	1,562	1,352	7,925
2031	1,682	1,476	8,515
Average Annual Increase			
22 - 27	2.1%	2.5%	2.1%
22 - 31	2.0%	2.4%	2.0%

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)

High Load Scenario			
Year	Summer (MW)	Winter (MW)	NEL (GWh)
2022	1,410	1,193	7,159
2027	1,588	1,371	8,050
2031	1,732	1,514	8,752
Average Annual Increase			
22 - 27	2.4%	2.8%	2.4%
22 - 31	2.3%	2.7%	2.3%
Low Load Scenario			
Year	Summer (MW)	Winter (MW)	NEL (GWh)
2022	1,405	1,192	7,137
2027	1,536	1,333	7,803
2031	1,635	1,439	8,289
Average Annual Increase			
22 - 27	1.8%	2.3%	1.8%
22 - 37	1.7%	2.1%	1.7%

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 2021 through 2024 period were established by the PSC pursuant to Order No. PSC-2019-0509-FOF-EG. These PSC-established annual goals are presented in Tables 5-1, 5-2 and 5-3.

OUC committed to a 1 percent goal of energy efficiency as a percent of retail sales. This includes measures beyond those measured through FEECA. Because OUC must operationally plan to generate enough energy to meet demand at all times, and because OUC can incentivize but not control actual adoption, this forecast is being used for purposes of this 10-Year Site Plan.

Table 5-1 Residential DSM Goals Approved by the PSC

Calendar Year	Summer (MW)	Winter (MW)	Annual (GWh)
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
Total	**0.96**	**0.97**	**3.52**

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

Calendar Year	Summer (MW)	Winter (MW)	Annual (GWh)
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
Total	**1.91**	**3.70**	**4.18**

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

Calendar Year	Summer (MW)	Winter (MW)	Annual (GWh)
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
Total	**2.86**	**4.67**	**7.69**

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, and the efficiency of new generation has increased. These appliances and generating unit efficiency improvements 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 2020 DSM Plan (approved by the PSC on June 5, 2020) and offered to OUC's customers in 2021 consist of the following:

- Residential Home Energy Survey Program – Walk-Through and Online
- Residential Duct Repair Rebates Program
- Residential Ceiling Insulation Rebates Program
- Residential High Performance Windows Rebate Program
- Residential Efficient Electric Heat Pump Rebates Program
- Residential New Home Rebates Program
- Residential Heat Pump Water Heater Rebates Program
- Residential Efficiency Delivered Program
- Commercial Energy Audit Program
- Commercial Efficient Electric Heat Pump Rebates Program
- Commercial Duct Repair Rebates Program
- Commercial Ceiling Insulation Rebates Program
- Commercial Cool/Reflective Roof Rebates Program
- Commercial Indoor Lighting Billed Solution Program
- Commercial Indoor Lighting Rebates Program
- Commercial Custom Incentives Program

The remainder of this section describes each of the DSM and conservation programs outlined above (Sections 5.1 and 5.2), as well as OUC's other DSM, conservation, and energy efficiency programs and activities not included in OUC's 2020 DSM Plan (Section 5.3). 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 available through a third-party service provider.

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 walkthrough review of historical energy usage as well as a walkthrough 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 residential 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 Rebates Program

The attic is the easiest place to add insulation and lower total energy costs throughout the seasons. The residential 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 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.

5.2.4 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

5.2.5 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.

Rebate	**Rate of Rebate**	**Square Footage**	**Total**
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

5.2.6 Residential Heat Pump Water Heater Rebates Program

Commonly referred to as hybrid electric heat pump water heaters, such water heaters with a coefficient of performance (COP) of greater than 2.0 can cut water heating electric use and costs by more than half. OUC's Heat Pump Water Heater Rebates program provides rebates for the heat pumps for qualifying installations. The contractor and/or retailer's invoice is required to receive this rebate and must reflect the system model number. If the receipt does not include the model number, a copy of the retailer's item description of product installed should be submitted that can be matched to the proof of purchase. OUC's rebate is $500.

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 (energy, water, or 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 $2,500 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:

Household Income	OUC Contribution
Less than $40,000	85% (not to exceed $2,500)
$40,001–$60,000	50% (not to exceed $2,500)
Greater than $60,000	Rebates only

- $40,000 or less OUC will contribute 85 percent of the total cost (not to exceed $2,500),
- $40,001 to $60,000 OUC will contribute 50 percent of the total cost (not to exceed $2,500),
- 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 24-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 are included in the table below:

Air conditioner tune-up	Thermostat replacement	Minor plumbing repairs
Air filter replacement	Duct leak repairs	Toilet replacement
Attic insulation	Evaporator coil cleaning	Water flow restrictors
Smart Thermostats installation or thermostat replacement	Hot water pipe and air conditioner refrigerant line insulation	Blower Door Testing
Caulking and weatherstripping	Irrigation repairs	Window film insulation

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

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 Ceiling Insulation 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.

5.2.11 Commercial Cool/Reflective Roof Rebates 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.

5.2.12 Commercial Indoor Lighting Billed Solution Program

Converting old indoor lights to new lighting technologies is one of the most cost-effective improvements that a commercial customer can make. For some, the lack of capital or budget planning can be major barriers to making cost-effective investments. Since 2002, OUC's commercial Indoor Lighting program has assisted commercial customers with these investments through OUC's commercial Indoor Lighting Billed Solution program. Through a competitive RFP process, OUC selected a qualified lighting contractor to work with customers to develop proposals. Customers enter into an agreement with OUC to pay back the cost of the project based on the expected savings through monthly charges applied to their bill. Basically, it is a cash-flow neutral billed solution where the monthly savings pay for the project's cost over the pay-back period or term. The term cannot exceed five years.

5.2.13 Commercial Indoor Lighting Rebates Program

Commercial customers that upgrade the efficiency of their indoor lighting may be eligible to receive a rebate of $250/kW through the commercial Indoor Lighting Rebates program. Participation is open to

facilities located within OUC's service area that receive electric service under an OUC commercial rate. Participants or customers may be any of the following:

- Individual customers who install more efficient lighting in their own facilities.
- National or local companies that install more efficient lighting.
- Local contractors, design/build firms, architectural and engineering firms, and commercial property developers working on behalf of OUC commercial customers.

5.2.14 Commercial Custom Incentive Program

Through the commercial Custom Incentive program, commercial customers receive incentives based on the reduction in peak demand their projects achieve plus the first year energy savings. Energy and demand saving incentives are paid for the maximum one-hour average demand reduction that occurs during the Summer Demand period defined as weekdays, between 1 P.M. to 6 P.M., from April through October. Pre- and post-inspections are required. Incentives and other program considerations are summarized below.

- $550 per kW reduction incentive and/or energy reduction measures at $0.032 per kWh will also be incentivized.
- $250 per kW reduction incentive for all lighting measures.
- Incentives shall not exceed 50% of project cost.
- Incentives may be paid at 50% on project completion and remainder at one year depending on performance results.
- All incentives will be paid as a credit appearing on the customer's OUC statement.
- Simple return on investment must be greater than 2 years.
- Energy and demand conservation measure should have a useful life of at least 10 years.
- A maximum incentive of $100,000 per customer annually.

5.3 OUC's Additional DSM/EE/Conservation Programs and Activities

In addition to the residential and commercial programs previously discussed, OUC continues to do more to reduce energy consumption through supply-side initiatives, including:

- Conservation Voltage Reduction (CVR) - The Conservation Voltage Reduction (CVR) Project is made possible by OUC's investment in its Advanced Meter Infrastructure (AMI) and more sophisticated distribution equipment. The availability of AMI customer load and voltage interval data provides an opportunity to optimize voltage control and thereby reduce energy consumption based on better awareness and monitoring of system conditions at customer service points. Benefits of CVR include conservation related reductions in customer energy usage and line losses (with associated reductions in fuel usage) and lower demands on generation resources. As of December 2021, OUC had 144 circuits of the total of 282 circuits under CVR control and savings of approximately 17,160,784 kWh annually.
- Power Plant Efficiency Improvements – During 2021, OUC continued to make investments in improving the energy efficiency at its generation facilities. The energy reduction realized in 2021 due to these efficiency improvements totaled 123,593,621 kWh.
- OUCooling Chilled Water District(s) Efficiency Improvements - OUCooling currently serves 5 0 customers and provides 49,753 tons of cooling. OUCooling's success has relied on the fact that OUCooling can deliver cooling more efficiently and less costly than what a customer would likely produce on their own. The way OUCooling succeeds is by investing in higher efficiency chillers and equipment and optimizes its operations on a continuous basis. The enhanced

efficient operation of OUCooling is estimated to have saved approximately 25,391,686 kWh in 2021.

6.0 FORECAST OF FACILITIES REQUIREMENTS

6.1 Existing Capacity Resources

6.1.1 Existing Generating Capacity

OUC's installed generating capability for OUC and St. Cloud (as of date this Ten-Year Site Plan was prepared) is 1,432 MW in the winter and 1,396 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 share of St. Lucie Unit 2 Nuclear Generating Facility
- Sole ownership of the Osceola Generating Station

St. Cloud's entitlement to capacity from Stanton Unit 2 is included as generating capability in Tables 6-2 and 6-2, consistent with the Interlocal Agreement described in Section 2.0.

OUC is currently planning to shut down the Stanton Energy Center Unit 1 coal unit by December 31, 2025.

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.

As discussed in Section 2, OUC added 108.5 MWac of solar capacity (nameplate) in June 2020 through PPAs with NextEra, and will add 149 MWac of solar capacity (nameplate) in December 2023, also through PPAs with NextEra.

In 2020, OUC completed a comprehensive Electric Integrated Resource Plan (EIRP) to guide OUC through the next 30 years. Based on the results of the EIRP, OUC anticipates entering into PPAs for approximately 1,417 MWac of solar (nameplate) and 350 MWac of energy storage by 2030 as summarized in Table 6-1.

Table 6-1 Anticipated Solar PPAs

Commercial Operation Date	Nameplate Capacity (MWac) w/o Energy Storage	Energy Storage (MW)
December 2023	149	40
June 2025	224	60
June 2026	149	50
June 2027	149	0
June 2028	224	50
June 2029	224	0
June 2030	298	150

6.1.3 Power Sales Agreements

OUC's power sales to Lake Worth, Winter Park, Mt. Dora, Chattahoochee, and Lakeland Electric are described in Section 2.3.

6.1.4 Retirements and Modifications of Generating Facilities

As mentioned before, OUC currently plans to retire Stanton Energy Center Unit 1 after the summer of 2025. 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.

OUC anticipates converting Stanton Unit 2 to no longer operate on coal and instead operate only on natural gas no later than 2027; OUC is in the process of determining the final timing of the natural gas conversion.

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

OUC was approached in May 2021 with an opportunity to purchase the Osceola Generating Station that would enable large-scale solar farms by mitigating the intermittency of solar power, the utility's most viable source of renewable energy. The move also allows OUC to retire its oldest coal-fired power plant, Stanton Unit 1 located in East Orange County at the utility's Stanton Energy Center (SEC). The purchase

further provides the utility an extra layer of resiliency because the Osceola site includes emergency backup fuel to help prevent power disruption events as seen in Texas last February.

The purchase and upgrade the inactive plant from Genova, a Texas-based private ownership group, will not change OUC's commitment to its Electric Integrated Resource Plan (EIRP), the utility's 30-year energy roadmap, to move away from all coal-fired generation by 2027. However, it would allow OUC to retire Stanton Unit 1, built in 1987, as opposed to the conversion to natural gas OUC previously announced in its EIRP in 2020.

The Osceola plant is comprised of three separate turbines, known in the industry as "peakers," which can turn on and off quickly as opposed to the larger, older Stanton Unit 1 turbine that requires more fuel and takes many hours to turn on. The Osceola site can power up in just minutes. All 3 units are expected to be able to provide power to OUC by the summer of 2025.

Tables 6-2 and 6-3 (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 6-2 and 6-3.

Table 6-2 and Table 6-3 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 2031). As such, this Ten-Year Site Plan does not include any further new capacity additions, beyond the solar purchases, energy storage and Osceola Generating Station associated with OUC's EIRP and discussed throughout this Ten-Year Site Plan.

6.3.2 Transmission Capability and Requirements Forecast

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

Table 6-2 Projected Winter Reserve Requirements – Base-Case

	Retail and Wholesale Peak Demand (MW)[1]							Available Capacity (MW)						Reserves (MW)		Excess/ (Deficit) Capacity to Maintain 15% Reserve Margin (MW)[7]
Year	OUC and STC	Mt. Dora	Chattahoochee	Lakeland	Lake Worth	Winter Park	Total	Installed[2][8]	SEC A PPA	Landfill Gas	Solar[3]	Energy Storage[3]	Total[4]	Required[5]	Available[6]	
2021/22	1,213	17	6	125	25	17	1,403	1,432	349	19	0	0	1,800	182	397	215
2022/23	1,256	17	6	125	25	17	1,446	1,432	349	19	0	0	1,800	188	354	166
2023/24	1,277	17	6	125	25	17	1,467	1,432	349	19	0	0	1,800	192	333	141
2024/25	1,323	17	6	0	25	17	1,388	1,432	349	19	0	0	1,800	198	412	213
2025/26	1,348	17	6	0	0	17	1,388	1,591	349	19	0	60	2,019	202	631	429
2026/27	1,377	17	6	0	0	0	1,400	1,591	349	19	0	110	2,069	207	669	462
2027/28	1,407	0	0	0	0	0	1,407	1,591	349	19	0	110	2,069	211	662	451
2028/29	1,438	0	0	0	0	0	1,438	1,591	349	19	0	160	2,119	216	681	465
2029/30	1,470	0	0	0	0	0	1,470	1,591	349	19	0	160	2,119	220	649	429
2030/31	1,503	0	0	0	0	0	1,503	1,591	349	19	0	310	2,269	225	766	541

(1). Peak Demands shown are non-coincident.
(2). Includes existing net capability to serve OUC and St. Cloud.
(3). Capacity of Solar reflects capacity projected to be available at time of seasonal peak demand, which is assumed to be 0% for winter and 100% of nameplate capacity of energy storage.
(4). "Totals" may not add due to rounding.
(5). "Required Reserves" include 15 percent reserve margin on OUC and St. Cloud retail peak demand. OUC is not responsible for providing reserves to Bartow, Winter Park, Mt. Dora, Chattahoochee, or Lakeland. 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."
(8). The Osceola Generating Station units are not currently capable of delivering power to OUC until completion of necessary maintenance and transmission system improvements. All three units are anticipated to be able to deliver power to OUC by the summer of 2025.

Table 6-3 Projected Summer Reserve Requirements – Base-Case

	Retail and Wholesale Peak Demand (MW)[1]							Available Capacity (MW)						Reserves (MW)		Excess/ (Deficit) Capacity to Maintain 15% Reserve Margin (MW)[7]
Year	OUC and STC	Mt. Dora	Chattahoochee	Lakeland	Lake Worth	Winter Park	Total	Installed[2][8]	SEC A PPA	Landfill Gas	Solar[3]	Energy Storage[3]	Total[4]	Required[5]	Available[6]	
2022	1,413	23	8	125	50	17	1,636	1,553	342	19	62	0	1,976	212	340	128
2023	1,434	23	8	125	50	17	1,657	1,553	342	19	62	0	1,976	215	318	103
2024	1,456	23	8	0	50	17	1,555	1,396	342	19	137	0	1,894	218	340	122
2025	1,509	23	8	0	50	17	1,607	1,867	342	19	249	60	2,537	226	930	704
2026	1,539	23	8	0	0	17	1,587	1,555	342	19	324	110	2,350	231	763	532
2027	1,568	23	8	0	0	0	1,599	1,555	342	19	398	110	2,424	235	825	590
2028	1,599	0	0	0	0	0	1,599	1,555	342	19	510	160	2,586	240	987	747
2029	1,631	0	0	0	0	0	1,631	1,555	342	19	622	160	2,698	245	1,067	823
2030	1,659	0	0	0	0	0	1,659	1,555	342	19	771	310	2,997	249	1,339	1,090
2031	1,689	0	0	0	0	0	1,689	1,555	342	19	771	310	2,997	253	1,308	1,055

(1). Peak Demands shown are non-coincident.
(2). Includes existing net capability to serve OUC and St. Cloud.
(3). Capacity of Solar reflects capacity projected to be available at time of seasonal peak demand, which is assumed to be 50% of nameplate capacity for summer solar without energy storage and 100% of nameplate capacity of energy storage.
(4). "Totals" may not add due to rounding.
(5). "Required Reserves" include 15 percent reserve margin on OUC and St. Cloud retail peak demand. OUC is not responsible for providing reserves to Bartow, Winter Park, Mt. Dora, Chattahoochee, or Lakeland. 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."
(8). The Osceola Generating Station units are not currently capable of delivering power to OUC until completion of necessary maintenance and transmission system improvements. All three units are anticipated to be able to deliver power to OUC by the summer of 2025. In the interim, OUC intends to purchase sufficient firm transmission capacity to allow for delivery of power of one of the Osceola units for the summer of 2022 and 2023. "Installed" capacity therefore includes 157 MW from Osceola Generating Station Unit 2 in the summer of 2022 and 2023.

7.0 SUPPLY-SIDE ALTERNATIVES

As discussed previously, consideration of OUC's current generating resources (including existing and planned PPAs) and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2031 (the final year considered in this Ten-Year Site Plan). As such, no new capacity additions have been evaluated as part of this Ten-Year Site Plan, beyond the solar purchases, energy storage and Osceola Generating Station associated with OUC's EIRP and discussed throughout 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 (including existing and planned PPAs) and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2031 (the final year considered 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 2022 at the present worth discount rate of 6.5 percent. These annual present worth costs are then summed over the 2022 through 2031 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 $2.040 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 load and energy growth projection sensitivity 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 $2.124 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 $2.023 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 $2.457 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 $1.939 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 $2.144 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 $1.815 billion.

10.0 ENVIRONMENTAL AND LAND USE INFORMATION

As discussed previously, consideration of OUC's current generating resources (including existing and planned PPAs) and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2031 (the final year considered in this Ten-Year Site Plan).

11.0 CONCLUSIONS

As discussed previously, consideration of OUC's current generating resources (including existing, future generation and planned PPAs) and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2031 (the final year considered in this Ten-Year Site Plan).

In 2020, OUC completed a comprehensive Electric Integrated Resource Plan to guide OUC through the next 30 years. Results of the EIRP have been discussed throughout this Ten-Year Site Plan. OUC expects to update its plan during 2022 based on the newly acquired Osceola Generating Station. Relevant highlights include:

- OUC anticipates entering into PPAs for approximately 1,417 MWac of solar (nameplate) and 350 MW of energy storage by 2031, including 40 MW of Storage by December 2023.
- OUC recently purchased 3 existing gas units (Osceola Generating Station units 1,2, and 3).
- OUC anticipates retiring the coal-fired Unit Stanton Energy Center Unit 1 by no later than December 31, 2025.
- OUC anticipates converting the coal-fired Stanton Energy Center Unit 2 to operate on 100 percent natural gas, no later than 2027.
- OUC has pledged to achieve Net Zero carbon emissions by 2050, with interim targets of 50% carbon emissions reductions by 2030 and 75% carbon emissions reductions by 2040, both as compared to 2005 levels.

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 2022 OUC Ten-Year Site Plan.

Schedule 1
Existing Generating Facilities
As of December 31, 2021

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
				Fuel		Fuel Transport		Alt. Fuel	Commercial	Expected	Gen. Max.	Net Capability	
Plant Name	Unit No.	Location	Unit Type	Pri	Alt	Pri	Alt	Days Use	In-Service Month/Year	Retirement Month/Year	Nameplate KW[1]	Summer MW	Winter MW
Indian River	A	Brevard	GT	NG	DFO	PL	TK	0.2	06/89	Unknown	41,400	16[2]	18[2]
Indian River	B	Brevard	GT	NG	DFO	PL	TK	0.2	07/89	Unknown	41,400	16[2]	18[2]
Indian River	C	Brevard	GT	NG	DFO	PL	TK	0.2	08/92	Unknown	130,000	83[3]	88[3]
Indian River	D	Brevard	GT	NG	DFO	PL	TK	0.2	10/92	Unknown	130,000	83[3]	88[3]
Stanton Energy Center	1	Orange	ST	BIT	NA	RR	UN	UN	07/87	Unknown	464,500	312[4]	312[4]
Stanton Energy Center	2	Orange	ST	BIT	NA	RR	UN	UN	06/96	Unknown	464,500	350[5]	350[5]
Stanton Energy Center	A	Orange	CC	NG	DFO	PL	TK	3	10/01	Unknown		184[6]	189[6]
Stanton Energy Center	B	Orange	CC	NG	DFO	PL	TK	3	02/10	Unknown	333,000	292	307
St. Lucie[7]	2	St. Lucie	ST	NUC	NA	TK	UN	UN	08/83	Unknown		60	62

NOTES:
[1] Nameplate ratings are reported for units which OUC maintains majority ownership. Values reported are for the entire unit (not just OUC's ownership share)
[2] Reflects an OUC ownership share of 48.8 percent.
[3] Reflects an OUC ownership share of 79.0 percent.
[4] Reflects an OUC ownership share of 68.6 percent.
[5] Reflects an OUC ownership share of 71.6 percent and St. Cloud entitlement of 3.4 percent.
[6] Reflects an OUC ownership share of 28.0 percent.
[7] 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.

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Rural and Residential				Commercial	
Year	Population	Members per Household	GWH	Average No. of Customers	Average KWH Consumption Per Customer	GWH	Average No. of Customers	Average KWH Consumption Per Customer
HISTORY:								
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
2020	634,982	2.86	2,750	221,756	12,402	459	26,391	17,408
2021	631,387	2.76	2,701	228,707	11,808	461	27,128	16,997
FORECAST:								
2022	645,197	2.74	2,618	235,417	11,121	482	27,534	17,492
2023	657,378	2.73	2,656	241,166	11,014	485	27,783	17,459
2024	671,102	2.72	2,712	246,876	10,986	490	28,098	17,448
2025	685,067	2.71	2,781	252,694	11,005	497	28,470	17,455
2026	699,350	2.70	2,856	258,665	11,039	505	28,905	17,484
2027	713,467	2.70	2,932	264,603	11,079	514	29,322	17,525
2028	728,197	2.69	3,010	270,501	11,126	523	29,747	17,571
2029	743,385	2.69	3,089	276,432	11,174	532	30,189	17,621
2030	758,644	2.69	3,150	282,433	11,153	541	30,648	17,662
2031	773,213	2.68	3,218	288,419	11,156	551	31,107	17,713

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
HISTORY:							
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
2020	3,336	5,301	629,406	0	62	131	6,740
2021	3,447	5,210	661,681	0	62	136	6,807
FORECAST:							
2022	3,587	5,190	691,215	0	63	142	6,892
2023	3,640	5,225	696,673	0	64	162	7,007
2024	3,671	5,273	696,194	0	64	164	7,101
2025	3,797	5,330	712,331	0	65	217	7,356
2026	3,848	5,399	712,667	0	65	218	7,492
2027	3,901	5,465	713,864	0	66	219	7,632
2028	3,957	5,532	715,207	0	67	221	7,776
2029	4,015	5,602	716,630	0	67	222	7,925
2030	4,072	5,675	717,621	0	68	223	8,055
2031	4,133	5,749	718,948	0	68	225	8,195

Notes:
Represents total of OUC and St. Cloud.

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

(1) Year	(2) Sales for Resale GWH	(3) Utility Use & Losses GWH	(4) Net Energy for Load GWH	(5) Other Customers (Average No.)	(6) Total No. of Customers
HISTORY:					
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
2020	665	220	7,625	0	253,448
2021	534	206	7,547	0	261,045
FORECAST:					
2022	522	256	7,669	0	268,141
2023	597	261	7,865	0	274,174
2024	562	267	7,931	0	280,247
2025	592	277	8,226	0	286,494
2026	242	285	8,020	0	292,969
2027	147	293	8,072	0	299,390
2028	0	300	8,077	0	305,780
2029	0	308	8,232	0	312,223
2030	0	314	8,369	0	318,756
2031	0	320	8,515	0	325,275

Notes:
Represents total of OUC and St. Cloud.
2010 - 2012 "Sales for Resale" represent sales to City of Vero Beach.
2013-2020 "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 Mt. Dora, City of Chattahoochee, and Lakeland Electric as summarized in Section 2 of OUC's 2021 Ten-Year Site Plan.
"Net Energy for Load" may not match other Schedules due to rounding.

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
HISTORY:									
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
2020	1,590	224	1,362	0	0	0.8	0.0	2.3	1,586
2021	1,653	246	1,404	0	0	0.6	0.0	1.9	1,650
FORECAST:									
2022	1,636	223	1,413	0	0	0.2	0	0.4	1,636
2023	1,659	223	1,434	0	0	0.4	0	0.8	1,657
2024	1,556	98	1,456	0	0	0.5	0	1.1	1,554
2025	1,609	98	1,509	0	0	0.7	0	1.5	1,607
2026	1,590	48	1,539	0	0	0.9	0	1.8	1,587
2027	1,602	31	1,568	0	0	1.0	0	2.2	1,599
2028	1,603	0	1,599	0	0	1.2	0	2.6	1,599
2029	1,635	0	1,631	0	0	1.3	0	2.9	1,631
2030	1,663	0	1,659	0	0	1.5	0	3.3	1,659
2031	1,695	0	1,689	0	0	1.7	0	3.6	1,689

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 2022 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 2022 Ten-Year Site Plan.
Historical "Wholesale" includes sales to various entities to which OUC provided power.
Forecast "Wholesale" includes aggregated projected sales to City of Winter Park, City of Lake Worth Beach, City Mt. Dora, City of Chattahoochee, and Lakeland Electric as summarized in Section 2 of OUC's 2021 Ten-Year Site Plan.
Forecast "Net Firm Demand" may not exactly match up with peak demands presented in the 2022 OUC Ten-Year Site Plan due to coincidence and rounding.

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
HISTORY:									
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
2019/20	1,160	67	1,090	0	0	0.8	0.0	2.0	1,157
2020/21	1,307	169	1,134	0	0	1.0	0.0	2.0	1,304
FORECAST:									
2021/22	1,405	190	1,214	0	0	0.2	0	0.8	1,404
2022/23	1,448	190	1,256	0	0	0.4	0	1.5	1,446
2023/24	1,470	190	1,277	0	0	0.5	0	2.2	1,467
2024/25	1,392	65	1,323	0	0	0.7	0	2.9	1,388
2025/26	1,392	40	1,348	0	0	0.9	0	3.6	1,388
2026/27	1,406	23	1,377	0	0	1.0	0	4.3	1,400
2027/28	1,413	0	1,407	0	0	1.2	0	5.0	1,407
2028/29	1,445	0	1,438	0	0	1.3	0	5.7	1,438
2029/30	1,478	0	1,470	0	0	1.5	0	6.4	1,470
2030/31	1,511	0	1,503	0	0	1.7	0	7.1	1,503

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 2022 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 2022 Ten-Year Site Plan.
Historical "Wholesale" includes sales to various entities to which OUC provided power.
Forecast "Wholesale" includes aggregated projected sales to City of Winter Park, City of Lake Worth Beach, City Mt. Dora, City of Chattahoochee, and Lakeland Electric as summarized in Section 2 of OUC's 2022 Ten-Year Site Plan.
Forecast "Net Firm Demand" may not exactly match up with peak demands presented in the 2022 OUC Ten-Year Site Plan due to coincidence and rounding.

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 %
HISTORY:								
2012	7,074	1.9	7.3	5,916	764	346	7,026	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%
2020	7,558	1.6	9.0	6,740	665	220	7,625	52.2%
2021	7,570	11.5	11.4	6,807	534	206	7,547	52.2%
FORECAST:								
2022	7,671	0.6	1.0	6,892	522	256	7,669	53.5%
2023	7,869	1.1	1.9	7,007	597	261	7,865	54.2%
2024	7,935	1.7	2.8	7,101	562	267	7,931	58.3%
2025	8,232	2.2	3.6	7,356	592	277	8,226	58.4%
2026	8,027	2.7	4.5	7,492	242	285	8,020	57.7%
2027	8,080	3.2	5.3	7,632	147	293	8,072	57.6%
2028	8,087	3.7	6.2	7,776	0	300	8,077	57.7%
2029	8,244	4.3	7.1	7,925	0	308	8,232	57.6%
2030	8,381	4.8	7.9	8,055	0	314	8,369	57.6%
2031	8,529	5.3	8.8	8,195	0	320	8,515	57.5%

Notes:
Represents total of OUC and St. Cloud. May not match other schedules due to non-coincidence 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 2022 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 2022 Ten-Year Site Plan.
Historical "Wholesale" includes sales to various entities to which OUC provided power.
Forecast "Wholesale" includes aggregated projected sales to City of Winter Park, City of Lake Worth Beach, City Mt. Dora, City of Chattahoochee, and Lakeland Electric as summarized in Section 2 of OUC's 2022 Ten-Year Site Plan.
Forecast "Net Energy for Load" may not exactly match up with energy requirements presented in the 2022 OUC Ten-Year Site Plan due to 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)
	2021 Actual		2022 Forecast		2023 Forecast	
Month	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH	Peak Demand MW	NEL GWH
January	893	494	1,214	544	1,256	552
February	1,075	474	1,177	479	1,201	487
March	1,134	526	1,024	524	1,044	535
April	1,037	526	1,156	546	1,179	555
May	1,309	624	1,330	619	1,352	633
June	1,326	656	1,330	663	1,354	674
July	1,372	697	1,362	709	1,387	724
August	1,374	721	1,413	729	1,434	740
September	1,212	653	1,335	671	1,356	679
October	1,290	625	1,266	610	1,286	618
November	897	490	1,104	522	1,123	531
December	988	528	1,091	533	1,110	541

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.

Schedule 5
Fuel Requirements

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Fuel Requirements		Units	Actual 2020	Actual 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
(1)	Nuclear		Trillion BTU	8	5	9	7	7	6	6	6	6	6	6	6
(2)	Coal		1000 Ton	1,430	1,456	1,201	1,545	1,640	1,244	749	133	0	0	0	0
(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	31,333	26,789	30,905	25,261	23,143	24,416	25,867	34,434	33,965	32,365	34,181	31,681
(14)		Steam	1000 MCF	3,637	2,588	2,524	2,444	20	108	677	5,758	8,786	8,866	11,051	9,914
(15)		CC	1000 MCF	27,466	23,830	28,030	21,629	22,738	24,026	24,581	27,612	23,357	19,303	8,820	11,614
(16)		CT	1000 MCF	229	370	352	1,188	384	282	609	1,064	1,822	4,196	14,310	10,154
(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

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 2020	Actual 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
(1)	Firm Inter-Region Interchange		GWH	0	0	0	0	0	0	0	0	0	0	0	0
(2)	Nuclear		GWH	500	464	560	596	576	601	586	567	609	571	586	578
(3)	Coal		GWH	2,778	3,152	2,600	3,345	3,552	2,693	1,622	289	0	0	0	0
(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	4,090	3,583	4,159	3,311	3,183	3,364	3,516	4,457	4,204	3,789	3,140	3,173
(15)		Steam	GWH	328	251	245	237	2	10	66	559	853	861	1,073	963
(16)		CC	GWH	3,747	3,310	3,893	3,004	3,158	3,337	3,414	3,835	3,244	2,681	1,225	1,613
(17)		CT	GWH	15	22	21	70	23	17	36	63	107	247	842	597
(18)	NUG		GWH	0	0	0	0	0	0	0	0	0	0	0	0
(19)	Renewables	Total	GWH	257	349	348	613	620	1,568	2,296	2,758	3,263	3,873	4,643	4,764
(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	126	112	112	273	279	294	303	314	270	265	265	265
(24)		MSW	GWH	0	0	0	0	0	0	0	0	0	0	0	0
(25)		Solar	GWH	131	237	236	340	340	1,274	1,993	2,444	2,993	3,609	4,378	4,499
(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	7,625	7,548	7,667	7,865	7,930	8,226	8,019	8,071	8,076	8,233	8,369	8,515

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

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 2020	Actual 2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
(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		%	5.78%	6.15%	7.30%	7.58%	7.26%	7.31%	7.30%	7.03%	7.54%	6.93%	7.00%	6.79%
(3)	Coal		%	46.56%	41.76%	33.91%	42.53%	44.79%	32.74%	20.23%	3.58%	0.00%	0.00%	0.00%	0.00%
(4)	Residual	Total	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(5)		Steam	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(6)		CC	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(7)		CT	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(8)		Other	%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
(9)	Distillate	Total	%	0.00%	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	%	45.79%	47.47%	54.24%	42.10%	40.13%	40.90%	43.84%	55.22%	52.06%	46.02%	37.52%	37.26%
(15)		Steam	%	2.81%	3.33%	3.20%	3.02%	0.03%	0.13%	0.82%	6.93%	10.56%	10.46%	12.82%	11.30%
(16)		CC	%	42.76%	43.85%	50.78%	38.19%	39.82%	40.57%	42.57%	47.52%	40.17%	32.57%	14.64%	18.94%
(17)		CT	%	0.22%	0.29%	0.27%	0.89%	0.29%	0.20%	0.45%	0.78%	1.33%	3.00%	10.06%	7.01%
(18)	NUG		%												
(19)	Renewables	Total	%	3.37%	4.62%	4.54%	7.80%	7.82%	19.06%	28.63%	34.17%	40.40%	47.05%	55.48%	55.95%
(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	%	1.65%	1.48%	1.46%	3.47%	3.52%	3.57%	3.78%	3.89%	3.34%	3.21%	3.16%	3.11%
(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	%	1.72%	3.14%	3.08%	4.33%	4.29%	15.49%	24.85%	30.28%	37.06%	43.84%	52.32%	52.84%
(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%	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	Reserve Margin before Maintenance % of Peak	Scheduled Maintenance MW	Reserve Margin after Maintenance MW	Reserve Margin after Maintenance % of Peak
FORECAST:											
2022	1,553	423	0	0	1,976	1,636	340	24%	0	340	24%
2023	1,553	423	0	0	1,976	1,657	318	22%	0	318	22%
2024	1,396	498	0	0	1,894	1,554	340	23%	0	340	23%
2025	1,867	670	0	0	2,537	1,607	930	62%	0	930	62%
2026	1,555	795	0	0	2,350	1,587	763	50%	0	763	50%
2027	1,555	869	0	0	2,424	1,599	825	53%	0	825	53%
2028	1,555	1,031	0	0	2,586	1,599	987	62%	0	987	62%
2029	1,555	1,143	0	0	2,698	1,631	1,067	65%	0	1,067	65%
2030	1,555	1,442	0	0	2,997	1,659	1,339	81%	0	1,339	81%
2031	1,555	1,442	0	0	2,997	1,689	1,308	77%	0	1,308	77%

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 wholeslae 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" after adjusting for sales to Lake Worth, WInter Park, Mt. Dora, Chatahoochee, and Lakeland. OUC's agreement with Lake Worth already includes reserve calculations and OUC is not responsible for providing reserves to Winter Park, Mt. Dora, Chattahoochee, or Lakeland.
"Scheduled Maintenance (MW)" is zero, as no units are scheduled for maintenance during peak periods.
Forecast "System Firm Summer Peak Demand" may not exactly match up with peak demands presented in the 2022 OUC Ten-Year Site Plan due to coincidence and rounding.

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Year	Total Installed Capacity MW	Firm Capacity Import MW	Firm Capacity Export MW	QF MW	Total Capacity Available MW	System Firm Winter Peak Demand MW	Reserve Margin before Maintenance MW	Reserve Margin before Maintenance % of Peak	Scheduled Maintenance MW	Reserve Margin after Maintenance MW	Reserve Margin after Maintenance % of Peak
FORECAST:											
2021/22	1,432	368	0	0	1,800	1,403	397	33%	0	397	33%
2022/23	1,432	368	0	0	1,800	1,446	354	28%	0	354	28%
2023/24	1,432	368	0	0	1,800	1,467	333	26%	0	333	26%
2024/25	1,432	368	0	0	1,800	1,388	412	31%	0	412	31%
2025/26	1,591	428	0	0	2,019	1,388	631	47%	0	631	47%
2026/27	1,591	478	0	0	2,069	1,400	669	49%	0	669	49%
2027/28	1,591	478	0	0	2,069	1,407	662	47%	0	662	47%
2028/29	1,591	528	0	0	2,119	1,438	681	47%	0	681	47%
2029/30	1,591	528	0	0	2,119	1,470	649	44%	0	649	44%
2030/31	1,591	678	0	0	2,269	1,503	766	51%	0	766	51%

Notes:
"Firm Capacity Import" includes OUC's existing and future power purchase agreements, including renewables.
"System Firm Summer Peak Demand" includes OUC and St. Cloud peak demand, as well as OUC's wholeslae 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" after adjusting for sales to Lake Worth, WInter Park, Mt. Dora, Chatahoochee, and Lakeland. OUC's agreement with Lake Worth already includes reserve calculations and OUC is not responsible for providing reserves to Winter Park, Mt. Dora, Chattahoochee, or Lakeland.
"Scheduled Maintenance (MW)" is zero, as no units are scheduled for maintenance during peak periods.
Forecast "System Firm Summer Peak Demand" may not exactly match up with peak demands presented in the 2022 OUC Ten-Year Site Plan due to coincidence and rounding.

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)
				Fuel		Fuel Transport		Const. Start	Commercial In-Service	Expected Retirement	Gen. Max. Nameplate	Net Capability Summer	Net Capability Winter	
Plant Name	Unit No.	Location	Unit Type	Pri	Alt	Pri	Alt	Mo/Yr	Mo/Yr	Mo/Yr	KW	MW	MW	Status
Stanton Energy Center	1	Orange	ST	BIT	N/A	RR	N/A	-	N/A	12/25	464,500	-312	-312	RT
Stanton Energy Center	2	Orange	ST	NG	N/A	PL	N/A	-	N/A	04/27	464,500	350	350	OT
Osceola Generating Station	1	Osceola	GT	NG	DFO	PL	TK	-	01/25	N/A	197,200	157	157	OP
Osceola Generating Station	2	Osceola	GT	NG	DFO	PL	TK	-	01/25	N/A	197,200	157	157	OP
Osceola Generating Station	3	Osceola	GT	NG	DFO	PL	TK	-	01/25	N/A	185,600	157	157	OP

Notes:

Changes to Net Capability for Stanton Energy Center Unit 1 represents reduction in output for OUC's ownership share of Stanton 1 following retirement.

Changes to Stanton Energy Center Unit 2 represents conversion from coal to natural gas. Net Capability shown is not incremental but rather the net capability following conversion.

The Osceola Generating Station units are not currently capable of delivering power to OUC until completion of necessary maintenance and transmission system improvements. All three units are anticipated to be able to deliver power to OUC by 2025. In the interim, OUC intends to purchase sufficient firm transmission capacity to allow for delivery of power of one of the Osceola units for the summer of 2022 and 2023.

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 2022 Ten-Year Site Plan, consideration of OUC's current existing generating resources (including existing and planned PPAs) and OUC's current base-case load forecast indicates that OUC is projected to have adequate capacity to satisfy forecast reserve margin requirements through 2031 (the final year considered in the 2022 Ten-Year Site Plan). As such, no new capacity additions are included in the 2022 Ten-Year Site Plan.

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 2022 Ten-Year Site Plan does not include any proposed directly associated transmission lines. Therefore, Schedule 10 is not applicable.