City Commission

agenda item

item type
Public Hearings: Non Quasi-Judicial Matters

meeting date
January 24, 2024

prepared by
Victoria Tabor, Administrative Coordinator II

approved by
Randy Knight, City Manager

subject
Resolution 2281-24 - Amending the Sustainability Action Plan (SAP) adopting Renewable Energy Targets

motion | recommendation
After revision to the Initial Integrated Resource Plan (IRP) Feasibility Study and conducting a proforma rate analysis, staff recommends for City of Winter Park to adopt Target #3 and Scenario 3D which is 80% renewable energy supply by 2035, 89% renewable energy supply by 2042, and 100% renewable energy supply by 2050. Whereby the Resolution firms up the targets and goals, removes context of aspirational, and follows safeguards below:

- CWP should regularly reevaluate its targets and plans for its electric energy supply. Should continuing on a path to reach a 100% renewable supply prove too costly in future years, such that the associated retail electric rates would exceed 105% of local and/or state averages, the city would adjust its energy supply renewable targets accordingly.
- The new IRP Program Manager will aid in achieving target goals.
- CWP should have Quanta Technologies available as consultant to new IRP Program Manager position to align with the study results and CWP's mission.
- CWP should implement educational outreach efforts including community meetings and educational material that fosters support in meeting targets and goals.

background
City of Winter Park is committed to a sustainable future whereby the City Commission adopted a Sustainability Action Plan (SAP) in January 2023 that calls for reducing greenhouse gas emissions (GHG) and targets all electricity consumption from renewable-fueled resources. Several primary targets and scenarios were defined for evaluation as possible SAP goals for evolving toward a sustainable electric energy supply via an Integrated Resource Plan (IRP) Feasibility Study that was performed by Quanta Technologies. The IRP includes a multi-year forecast of key assumptions important to the analysis, including load forecasts, EV growth, costs for renewables and battery storage, distributed solar and storage, the cost for natural gas fuel, energy efficiency and demand response forecasts, and financial assumptions.

strategic objectives

alternatives | other considerations

fiscal impact

attachments

1. Renewable Energy Presentation
2. Feasibility Study Recommendation v2
3. Motion for Discussion- Renewable Plan 12-11-23
4. Resolution amending SAP- Renewable goals v1
5. 23.11.05 Quanta Technology CWP IRP Report V6.0-Final
6. 23.12.18 CWP Financial Proform Projections V4.0
7. SAP REVISION Jan 2024

Renewable Energy

Adoption of Carbon-free plan by 2025

Development Background

- Integrated Resource Plan (IRP)- a feasibility analysis of the cost and options to transition the power supply to 100% renewable sources
- Target 1: 100% Renewable Energy Supply by 2050
- Target 2: 100% Net-Zero Carbon by 2050 Target
- Target 3: 80% Renewable by 2035 and 100% by 2050

Development Background

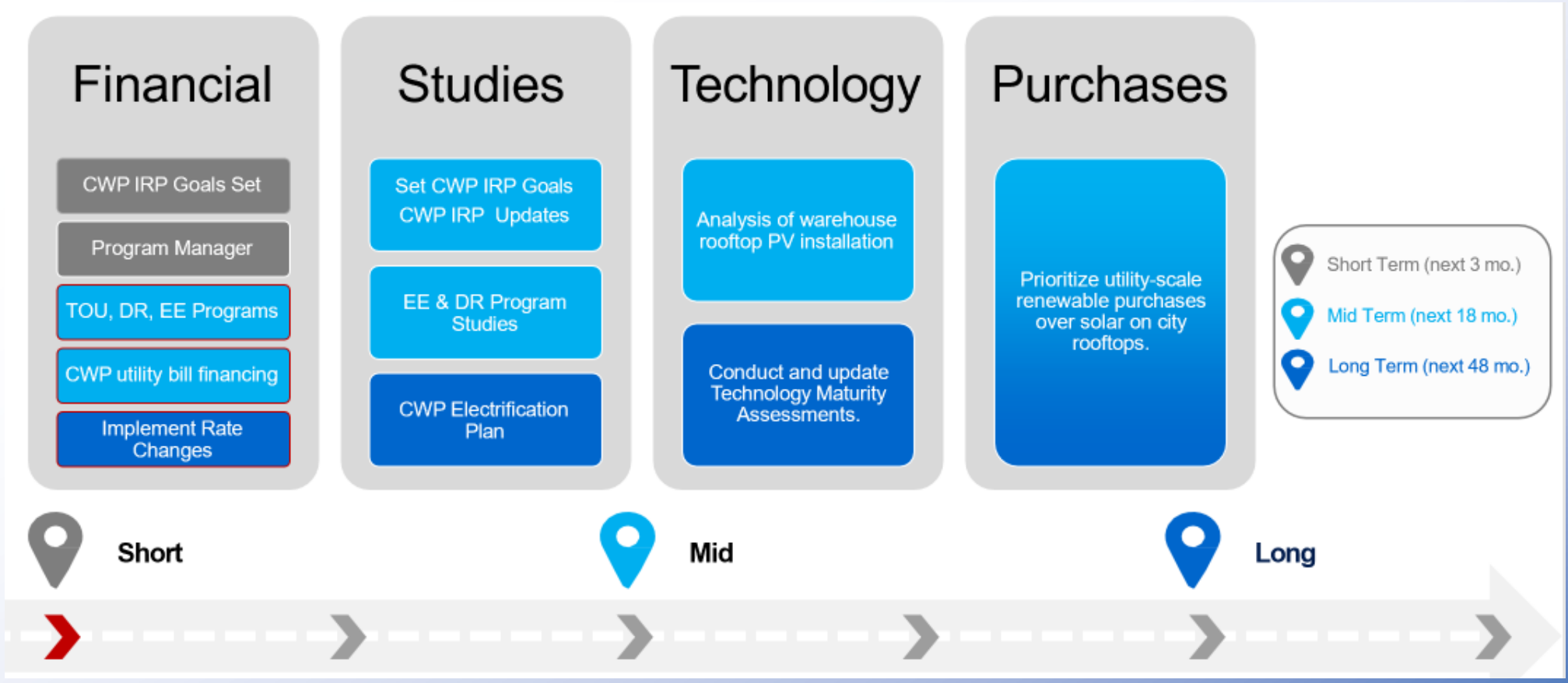
- January 2023 City Commission
  - Sustainability Action Plan (SAP) Adopted with carbon emission targets at TBD
- March 2023 City Commission Work Session
  - Target 3 was preferred with Carbon Free goals
  - Deliverables Requested: 30 yr Cost Proforma, Key Assumptions Documentation, Storm Risk, IRP Manager Position
- October 2023 IRP Manager Position Filled- Lisa Vedder
- December 2023 City Commission Work Session
  - Deliverables Provided: Cost Proforma, Key Assumptions Documentation, and Storm Risk
- Utility Advisory Board Approved
- Keep Winter Park Beautiful & Sustainable Board Approved

Development Background

- IRP that includes key assumptions of which are referenced in Appendix A. The IRP developed conservative assumptions and forecasts to assess costs and electric supply technology options from 2024 to 2050 across 18 different future scenarios.

- IRP analysis indicates, under scenario 3D, that city can feasibly transition to 80% renewable supply by 2035 for a cost of power comparable to the cost of continuing with the current fossil-fueled.

Roadmap Next Steps:



SAP New Renewable Targets

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target	2042 Target	2050 Target
CR-1	Proportion of renewable energy in Winter Park Electric Utility's Energy portfolio[1] – Baseline Year: 2021 includes Covanta	4%	13%	21.72	23%	80%	89%	100%
CR-2	Community wide greenhouse gas emissions [Tons of carbon dioxide equivalent]– Baseline Year: 2018	398,919	405,394	406,999	355,000	235,000	151,000	58,000
CR-3	WP Electric Utility customers with Solar – Baseline Year: 2012	7	139	154	300	700	950	1300
CR-4	Proportion of Residents within 1/2 mile of affordable, healthy food options – Baseline Year: 2012	-	46%	40%	50%	75%	80%	TBD
CR-5	Undergrounding of Winter Park's electrical Utility[2]	-	-	73.1%	85%	100%		

[1]Approximations with plans for refinement as reaching 100% target in 2050 is contingent on cost reduction in dispatchable energy from renewable sources as noted in the Key Assumptions Appendix A of the100% Renewable Initiative Final Report 6.0, 2023.

[2]Target completion date is no later than 2030.

- **80% renewable energy by 2035**
- **89% renewable energy by 2042 (technology review)**
- **100% renewable energy by 2050**
- **Key Assumptions Referenced**
- **Rate collar of 105% local/state avgs**

Renewable Energy Feasibility Study: ~~Recommendations:~~

City of Winter Park (CWP) is committed to a sustainable future whereby the City Commission has adopted a sustainability action plan (SAP) in January 2023 that calls for reducing greenhouse gas emissions (GHG) and targets all electricity consumption from renewable-fueled resources. Three primary targets were defined for evaluation as possible SAP goals for evolving toward a sustainable electric energy supply. The three potential targets evaluated by Quanta Technology's feasibility study for future energy supply included:

- Target 1: 100% renewable energy supply by 2050
- Target 2: 100% net-zero carbon energy supply by 2050
- Target 3: 80% renewable energy supply by 2035 and then 100% by 2050

Each target was analyzed by way of scenario considerations. A scenario in this context is a set of future conditions that collectively describe the external environment/conditions under which supply options are to be assessed. In the case of a resource plan, a scenario description includes a multi-year forecast of external drivers or assumptions important to the analysis, including load forecasts, EV growth, costs for renewables and battery storage, distributed solar and storage, the cost for natural gas fuel, energy efficiency and demand response forecasts, and financial assumptions.

The analysis indicates that the CWP's adoption of a path toward 100% renewables can be accomplished for a reasonable cost of power for the next 20 years. However, beyond the next 20 years (during the last 6 years analyzed in the report from 2043–2050), the technology selection and the costs remain uncertain and, based on the technology options, and costs assumed in this study, could bring a substantial increase in power costs. This rapid rise in costs near the end of the study period was driven by assumptions on technology costs which resulted in a sharp increase in cost during the final years of the study.

The Quanta Technology study ~~supports~~ states that additional cost-effective technologies ~~will be~~are forecasted to be available before 2043. The power industry and DOE is expending considerable time and money on identifying options that could deliver lower-priced energy sources, including offshore wind, long-term energy storage technologies, and new technologies for geothermal energy, among others. While the costs projected in the last ~~6~~ 2 year~~year~~s of the study are very high, based on the current assumptions, the costs before 2043 are comparable to projected CWP's utility costs and could be lower.

As continuing on a path to 100% renewable energy supply, and in the best interest of the CWP, a recommended roadmap for consideration is provided.

Recommendations:

After revision to the initial study and conducting a proforma rate analysis, the ~~screnrio~~scenario best fit for City of Winter Park is ~~Targer #3~~Scenario 3D that includes the following:

- CWP should adopt Target #~~3A~~3 and Scenario 3D: 80% renewable energy supply by 2035, 89% renewable energy supply by 2042 ~~with updating on new technology available~~, and 100% renewable energy supply by 2050.
    - Adoption should be within the SAP whereby targets are updated as shown in table below.

- Resolution should firm up the targets and goals removing context of aspirational.

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2025 Target	2035 Target	2042 Target	2050 Target
CR-1	Proportion of renewable energy in Winter Park Electric Utility's Energy portfolio[1] – Baseline Year: 2021 includes Covanta	4%	13%	23%	80%	89%	100%
CR-2	Community wide greenhouse gas emissions [Tons of carbon dioxide equivalent][2] – Baseline Year: 2018	398,919	405,394	355,000	235,000	151,000	58,000
CR-3	WP Electric Utility customers with Solar – Baseline Year: 2012	7	139	300	700	950	1300
CR-4	Proportion of Residents within 1/2 mile of affordable, healthy food options – Baseline Year[3]: 2012	-	46%	50%	75%	80%	TBD
CR-5	Undergrounding of Winter Park's electrical utility[3]	-	74%	85%	100%	[redacted]	[redacted]

[1]*Approximations with plans for refinement as reaching 100% target in 2050 is contingent on a dramatic cost reduction in dispatchable energy from renewable sources.*
[2]*The baseline for this updated indicator will be calculated in 2023, previous indicator did not include "affordable" identifier.*
[3]*Target completion date is no later than 2030.*

- CWP should not avoid adopting its renewable targets because of costs that are not expected to occur for over 20 years.
- CWP should regularly reevaluate its targets and plans for its electric energy supply. Should continuing on a path to reach a 100% renewable supply prove too costly in future years, such that the associated retail electric rates would exceed 105% of local and/or state averages, the city would adjust its energy supply renewable targets accordingly.
- ~~Should continuing on a path to 100% renewable prove too costly in future years, CWP can adjust accordingly.~~
- ~~CWP investment in the~~ The new Integrated Resource Plan (IRP) Program Manager will aid in achieving target goals.
- CWP should have Quanta Technologies available as consultant to new Integrated Resource Plan (IRP) Program Manager position to align with the study results and CWP's mission.
- CWP should implement educational outreach efforts including community meetings and educational material that fosters support in meeting targets and goals.

Roadmap Goals:

- ~~Short-term – First 6 Months - (May~~July 2023 to December ~~–~~July 2 2023): ~~Focusing on alignment, definition, and goal setting/validation, which includes defining and committing to a clean energy supply target and establishing multiple interim targets for renewable contributions along the path to 2050.~~

- Short-term- First 6 Months - (July 2023 to December 2023): Focusing on alignment, definition, and goal setting/validation, which incudes defining and committing to a clean energy supply target and establishing multiple interim targets for renewable contributions along the path to 2050.
- Mid-term- First 18 Months - (~~August 2023–February~~by June 2025): Focusing on designing customer demand response (DR) programs, energy efficiency (EE) programs and time of use (TOU) rates, prioritizing utility-scale renewable purchases over solar for city assets.
- Long-term -First 48 months (~~March 2025–April 2027~~by June 2027): Focusing on implementing EE, DR programs and TOU rates, and changing the net energy metering (NEM) rate credited to the customer to a cost-based TOU rate.

DRAFT Motion for Discussion- Renewable Plan 12-10-23

Move to Approve the Renewable Energy Plan (the "Plan") to Achieve 80% Renewable Energy by 2035 and 100% by 2050 (aka Scenario 3A), as shown in the Quanta Study dated 11-11-2023 (the "Study") with the following Notations and Conditions:

1. The approval is based on "Revised Case 4" of the financial projections and the Key Assumptions. Importantly, Case 2 shows that the "As-Is, Fossil Fuel Plan" from 2024-2030 may require rate increases of around 2.67% per year. On the other hand, the Renewable Energy Plan may require only 0.18% more of a rate increase to secure more significant solar power thru 2030.
2. The intent of the Renewable Energy Plan is:
    a. to cause the creation/expansion of additional renewable energy generation and;
    b. to lower the carbon emissions in the immediate area.

    The intention is to commit to or invest in identifiable renewable energy sources ("Spot or single source") that are distinct and offer wholesale forward long-term purchase contracts from and/or direct investment and ownership in the plant itself. The intention is NOT merely to pay more to a bulk provider when the renewable power is not from a specified plant. For example, buying "Solar" energy from Florida Power or OUC based merely on a "representation" by Florida Power or OUC that the energy will be derived from a variety of renewable sources is not sufficient to meet the intent of the Renewable Plan.

    Sections 4.5 "Generation Technologies and Battery Storage" and Section 4.9 "Financial Assumptions" work together to: i. Imply that there will be significant development of renewable energy capacity; and ii. Imply that the additional renewable energy capacity can be purchased.

RESOLUTION 2281-24

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF WINTER PARK, FLORIDA, AMENDING THE SUSTAINABILITY ACTION PLAN ADOPTED BY RESOLUTION 2267-23; PROVIDING FOR SEVERABILITY, NON-LIMITATION OF AUTHORITY, AND AN EFFECTIVE DATE.

WHEREAS, in January 25, 2023, the City adopted the Sustainability Action Plan that promotes, "responsible and proactive decision-making that minimizes negative impacts and maintains balance between social, environmental, and economic growth to ensure a desirable planet for all species now and in the future"; and

WHEREAS, the purpose of the Sustainability Action Plan is to create a roadmap depicting where the City is today and where it would like to be in the future, in regards to achieving sustainability goals and targets by a specific time frame; and

WHEREAS, based upon the results from the feasibility study, the target dates in the Climate Resiliency section of the Sustainability Action Plan has been revised to replace `TBD' with specific target goals of 80% renewable energy supply by 2035, 89% renewable energy supply by 2042 to include an update on technologies available, and 100% renewable energy supply by 2050; and

WHEREAS, it is the intention that the City will conduct the following safeguard measures to ensure meaningful emission reduction goals:

- regularly re-evaluate renewable targets and integrated resource plans for its electric energy supply at 3-year maximum intervals, and adjust such targets and plans accordingly should continuing on a path to 100% renewable energy prove too costly in future years such that the associated retail electric rates would exceed 105% of local and/or state averages; and,
- establish short-term, mid-term, and long-term goals in its roadmap to 100% renewable energy; and,
- pursue a carbon emission goal of **zero carbon**; and

WHEREAS, the Sustainability Action Plan and revision is supported by the Keep Winter Park Beautiful and Sustainable Advisory Board and the Utility Advisory Board; and

WHEREAS, the Sustainability Action Plan is a living document intended to evolve over time and contains long-term objectives and short-term actions for helping the City achieve targets related to sustainability; and

WHEREAS, the objectives are intended to be quantifiable so that progress can be measured on an annual basis.

NOW, THEREFORE, be it resolved by the City Commission of the City of Winter Park, Florida that:

SECTION 1. Recitals. The foregoing recitals are hereby ratified and confirmed as being true and correct and are hereby made a part of this Resolution.

SECTION 2. Sustainability Action Plan. The City Commission hereby adopts the amendment to the Sustainability Action Plan attached to this Resolution in order to achieve sustainability goals.

SECTION 3. Severability. If any section, subsection, sentence, clause, phrase, word or provision of this Resolution is for any reason held invalid or unconstitutional by any court of competent jurisdiction, whether for substantive, procedural, or any other reason, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portions of this Resolution.

SECTION 4. Non-limitation of Authority. This Resolution shall not be construed to limit City Commission authority or discretion over whether or how to budget, allocate, or spend moneys for any purpose. The Sustainability Action Plan is a target-based plan and is subordinate to the City's Comprehensive Plan, the City's land development regulations, and other legally binding requirements of the City's Code.

SECTION 5. Effective date. This Resolution and the Sustainability Action Plan shall become effective immediately upon adoption of this Resolution by the City Commission of the City of Winter Park, Florida.

ADOPTED at a regular meeting of the City Commission of the City of Winter Park held in City Hall, Winter Park on this 24th day of January, 2024.

_____
Mayor Phillip M. Anderson

ATTEST:

_____
City Clerk Rene Cranis

QUANTA TECHNOLOGY

REPORT

City of Winter Park 100% Renewable Initiative Final Report

PREPARED FOR

City of Winter Park

DATE

November 5, 2023
(Version 6.0)

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VERSION HISTORY:

Version	Date	Description
1.0	03/06/2023	Draft submission for CWP review
2.0	03/10/2023	Draft final submission for CWP Review
3.0	05/04/2023	Final submission
4.0	9/13/2023	Draft for review of revised and added analysis
5.0	10/14/2023	Corrected upper and lower fuel scenario results and added text
6.0	11/05/2023	Final Submission of Revised Report

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1 EXECUTIVE SUMMARY

The City of Winter Park (CWP) is located in Central Florida adjacent to Orlando in Orange County. Winter Park's vision is a city of arts and culture, cherishing its traditional scale and charm while building a healthy and sustainable future for all generations. CWP owns its electric distribution assets, and its utility supplies electricity to approximately 14,276 customers. CWP does not generate power but has contracts with the Florida Municipal Power Association (FMPA) and Orlando Utilities Commission (OUC) to purchase approximately 100 MW of power yearly and approximately 10 MW from Covanta, which derives power from burning waste.

CWP is committed to a sustainable future and has created a sustainability action plan (SAP) that calls for reducing greenhouse gas emissions (GHG) and targets all electricity consumption from renewable-fueled resources. Specifically, three primary targets were defined for evaluation as possible CWP goals for evolving toward a sustainable electric energy supply. The three potential targets under consideration for the future CWP energy supply include:

- **Target 1:** 100% renewable energy supply by 2050
- **Target 2:** 100% net-zero carbon energy supply by 2050
- **Target 3:** 80% renewable energy supply by 2035 and then 100% by 2050

Target 4 was also defined to assess the impacts of adding additional capacity to the portfolios identified by Target 3 to replace solar generation assumed to be lost during severe multiday storm events.

It is important to note that while a net-zero carbon scenario was analyzed as Target 2, CWP is primarily focused on roadmaps based upon true 100% renewable or carbon-free targets. Therefore, primary conclusions and roadmap considerations are centered around 100% renewable paths (Targets 1 and 3).

Each target was further analyzed by way of scenario considerations. A scenario in this context is a set of future conditions that collectively describe the external environment/conditions under which supply options are to be assessed. In the case of a resource plan, a scenario description includes a multi-year forecast of external drivers or assumptions important to the analysis, including load forecasts, EV growth, costs for renewables and battery storage, distributed solar and storage, the cost for natural gas fuel, energy efficiency (EE) and demand response (DR) forecasts, and financial assumptions.

To better account for future conditions, Quanta Technology used a planning methodology that considers ranges of plausible future conditions founded on variations of multiple scenarios rather than analysis on a single scenario associated with a target. Therefore, the three base targets were expanded into a total of 18 different scenarios:

- Six focused on achieving Target 1 (100% renewable by 2050)
- Five focused on achieving Target 2 (100% net-zero carbon by 2050)
- Five focused on achieving Target 3 (80% renewable supply by 2035 and then 100% by 2050)
- Two focused on Target 4 (80% renewable energy supply by 2035, 100% by 2050, with added capacity for storm resiliency)

This analysis indicates that CWP's adoption of a path toward 100% renewables can be accomplished for a reasonable cost of power for the next 20 years. However, beyond the next 20 years (i.e., during the last 6 years analyzed in this report from 2043–2050), the technology selection and the costs remain understandably more uncertain and, based on the technology options and costs assumed in this study, could bring a substantial increase in CWP's power costs. This rapid rise in costs near the end of the study period was driven by assumptions on technology costs, which resulted in a sharp increase in cost during the final years of the study.

Quanta Technology believes that additional cost-effective technologies will be available well before 2043. The power industry is expending considerable time and money on identifying options that could deliver lower-priced energy sources, including offshore wind, long-term energy storage technologies, and new technologies for geothermal energy, among others. While the costs projected in the last 6 years of the study are high, based on the current assumptions, the costs before 2043 are comparable to projected CWP costs and could be lower. CWP should not avoid adopting its renewable targets because of costs that are not expected to occur for over 20 years. CWP should regularly reevaluate its targets and plans for its electric energy supply. Should continuing on a path to 100% renewable prove too costly in future years, CWP can adjust accordingly.

A recommended roadmap was developed and principally centered around the following:

- **Short-term (May–July 2023):** Focusing on alignment, definition, and goal setting/validation, which includes defining and committing to a clean energy supply target and establishing multiple interim targets for renewable contributions along the path to 2050.
- **Mid-term (August 2023–February 2025):** Focusing on designing customer EE and DR programs, time of use (TOU) rates, and prioritizing utility-scale renewable purchases over solar for city assets.
- **Long-term (March 2025–April 2027):** Focusing on implementing EE and DR programs, TOU rates, and changing the net energy metering (NEM) rate credited to the customer to a cost-based TOU rate.

A complete list of the recommended activities and projects in the roadmap is included in Section 7.2. Appendix A provides definitions of terms used in this report, and Appendix B provides a list of acronyms used in this report.

2 PROJECT SCOPE

2.1 Overview

The City of Winter Park (CWP) is 10 square miles with over 30,000 residents. CWP's Electric Utility Department supplies electricity to approximately 14,276 customers (12,048 residential properties and 2,228 commercial customers). CWP does not generate power but has contracts with the Florida Municipal Power Association (FMPA) and Orlando Utilities Commission (OUC) to purchase approximately 100 MW of power yearly. In addition, CWP purchases approximately 10 MW of power from Covanta, which derives power from burning municipal waste as its fuel. Municipal waste combustion reduces contributions to landfills, but the process emits carbon dioxide and other harmful emissions into the atmosphere and is neither a renewable nor carbon-free generation technology. In 2023, CWP will also purchase 20 MW of solar energy through its partnership with the FMPA.

CWP is committed to a sustainable future and has passed resolutions to promote its commitment. On January 14, 2008, the CWP City Commission (City Commission) passed a resolution stating that CWP would pursue measures to become a certified Green Local Government through the Florida Green Building Coalition (FGBC). In 2011, CWP was officially certified as a Green Local Government at the Gold level. As part of those efforts, CWP has created a sustainability action plan (SAP) that calls for reducing greenhouse gas emissions (GHG) and targets all electricity consumption from renewable-fueled resources by 2035.

CWP defines sustainability as "responsible and proactive decision-making that minimizes negative impact and maintains a balance between social, environmental, and economic growth to ensure a desirable environment for all species now and into the future." CWP believes its efforts to invest in sustainability will bring numerous benefits, increasing quality of life, reducing dependence on fossil fuels, protecting and enhancing the environment, and realizing economic value and savings.

CWP contracted Quanta Technology to conduct a study that outlines a roadmap and a feasible action plan for CWP to reach its sustainability objectives. CWP stressed the importance of creating a realistic, practical plan with feasible implementation options. The study was centered around the assessment of four potential targets under consideration for the future CWP energy supply:

- **Target 1:** 100% renewable energy supply by 2050
- **Target 2:** 100% net-zero carbon energy supply by 2050
- **Target 3:** 80% renewable energy supply by 2035 and then 100% by 2050
- **Target 4:** 80% renewable energy supply by 2035, 100% by 2050, with added capacity for storm resiliency

Net-zero carbon refers to a state in which the greenhouse gases going into the atmosphere are balanced by removing carbon from the atmosphere. Generally, utilities plan to achieve net zero by reducing their carbon emissions and acquiring carbon offsets, carbon credits, or renewable energy credits (RECs) to offset any remaining carbon emissions.

CWP does not consider its power contract with Covanta's municipal waste-to-energy plant renewable or sustainable since it combusts waste to generate electricity, emitting carbon and other harmful emissions to the atmosphere. On the other hand, biomass generation is considered a renewable form of energy, even though it also emits carbon and other emissions. Biomass generation is considered renewable since it is a carbon-neutral fuel that traps carbon from the atmosphere during the growth cycle of biofuels and then releases only the same amount of carbon during the combustion process. In addition, unlike solar PV, biomass generation is generally a "dispatchable" (on-demand) power source available at any time of day.

It is important to note that while a net-zero carbon scenario was analyzed, CWP is primarily focused on roadmaps based upon 100% renewable or carbon-free targets. This is primarily due to net-zero carbon plans using carbon offsets or renewable energy credits to reach the intended goal instead of reaching a sustainability goal oriented around true zero-carbon options (see Appendix B: List of Abbreviations and Acronyms for term definitions).

2.2 Scope of Work

The scope of work for the contracted study primarily involved the following activities:

1. **Data gathering:** Quanta Technology presented CWP with a list of over 25 data items to be analyzed and serve as the basis for many of the inputs used in the subsequent modeling effort. CWP diligently provided the data items, including electric utility organization and staff descriptions, maps and descriptions of transmission interconnections, data on generators or energy storage owned by CWP and power purchase agreements, system consumption data including load profiles, historical energy consumption data peak demand, energy forecasts, photovoltaic (PV) data, electric vehicle (EV) data, home electrification forecasts, and historical and current city carbon levels. This data was sometimes supplemented with relevant industry sources where CWP data was unavailable.

2. **Initiation workshop and strategic discussions:** CWP and Quanta Technology held a one-day workshop comprised of several core sessions with targeted discussion, including background discussion, an overview of Quanta Technology's probabilistic integrated resource planning (IRP) process, an alignment around metrics and modeled scenarios, a review and preliminary analysis of supplied data, and several discussions on assumptions and next steps.

3. **Modeling plausible scenarios to reach zero emissions:** Utilizing the provided data items along with the information learned from the initiation workshop, Quanta Technology commenced an effort to customize its IRP process using the supplied data and learned information and used its proprietary capacity expansion program known as probabilistic integrated resource planning (pIRP).

   The three agreed scenarios (100% renewable 2050, 100% net-zero carbon 2050, and 80% renewable 2035) were analyzed. They were augmented by capturing a total of 15 different scenarios representing variations in key scenario elements such as adoption rates, load forecasts, pricing variations, and cost of capital/debt. These results better assist CWP in selecting the best path, targets, and portfolio mix to reduce the carbon emissions from their electricity consumption. Ultimately, CWP will need to balance the achievement of targets against affordability, available generation options in Florida, and CWP's comfort level in adopting new generation technologies (e.g., biofuels and green hydrogen).

4. **Results compilation:** Quanta Technology worked collaboratively with the CWP to review draft results and align on assumptions and material to be presented. Additional questions for key stakeholders were also considered and addressed as part of the presentation of the final results. Results are captured in this report and summarized in an executive stakeholder presentation.

5. **Stakeholder presentations:** The executive stakeholder presentation was delivered to a joint session of the Utilities Advisory Board and the Keep Winter Park Beautiful and Sustainable Advisory Board, as well as a separate presentation for the City Commission.

3 PROBABILISTIC IRP MODELING OVERVIEW

3.1 Philosophy and Approach

The robust response from regulators, utilities, and corporations to climate change in recent years has culminated in many declaring their commitments to carbon reduction goals reaching 100% between 2035–2050.

Traditional IRP processes and tools have served the industry well over the past 30 years. However, they are increasingly challenged due to the following:

- Increased uncertainties in load development, electrification, technology, and grid development.
- Reliability concerns are not modeled due to the high penetration of inverter-based resources (IBRs including batteries, solar, and wind).
- The dependence of resource development on the availability of transmission and distribution (T&D) hosting capacities is not co-optimized.
- Resilience requirements associated with intermittent weather-dependent resources and grid vulnerabilities are not modeled.
- Energy storage capacity (i.e., duration) is pre-selected and not optimized.
- Energy storage value is often restricted to energy balancing, while the full benefits stack is not exploited.

Quanta Technology, LLC, and Sandia National Laboratories embarked on a multi-year effort to create a probabilistic IRP (pIRP) software tool to address these challenges and ensure robust pathways to reaching 100% carbon reduction goals while preserving system reliability and resilience.

pIRP is a significant enhancement to traditional IRP tools to assist utilities in evaluating and selecting decision pathways that are flexible and adaptable in the face of increasing uncertainty and changes in technology, policy, consumption patterns, and business models. The traditional scenario planning and sensitivity analysis approaches are augmented with probabilistic analysis and real option valuation methods to balance the costs and risks properly.

The drive to high renewable futures based on intermittent technologies such as solar PV and wind will necessarily drive the need for flexible companion assets such as battery energy storage and demand response (DR), long-duration storage options, and renewable fuel-based solutions. pIRP optimizes the capacity buildout to reduce the overall cost to ratepayers while achieving renewable goals and maintaining system reliability.

Figure 1 shows the complete process of capacity planning, starting with defining policy drivers and resource strategies to derive a set of study scenarios. Policy drivers can include carbon reduction goals, electrification adoption rates, and affordability targets, among other factors. Resource strategy includes the practical aspects of resource development options, such as focusing on self-sufficiency or reliance on imports and a preference toward centralized versus microgrids and distributed resources. The set of scenarios bound the range of various factors that are important to decision-makers.

In addition to defining discrete scenarios, pIRP allows the development of probabilistic uncertainty models of key drivers and factors for more complete characterizations of risks and uncertainties, including resource capacities, cost impacts, and carbon reduction levels.

The output of the pIRP is a set of metrics and resource plans. These can be calculated for each discrete scenario or summarized across the range of probabilistic samples.

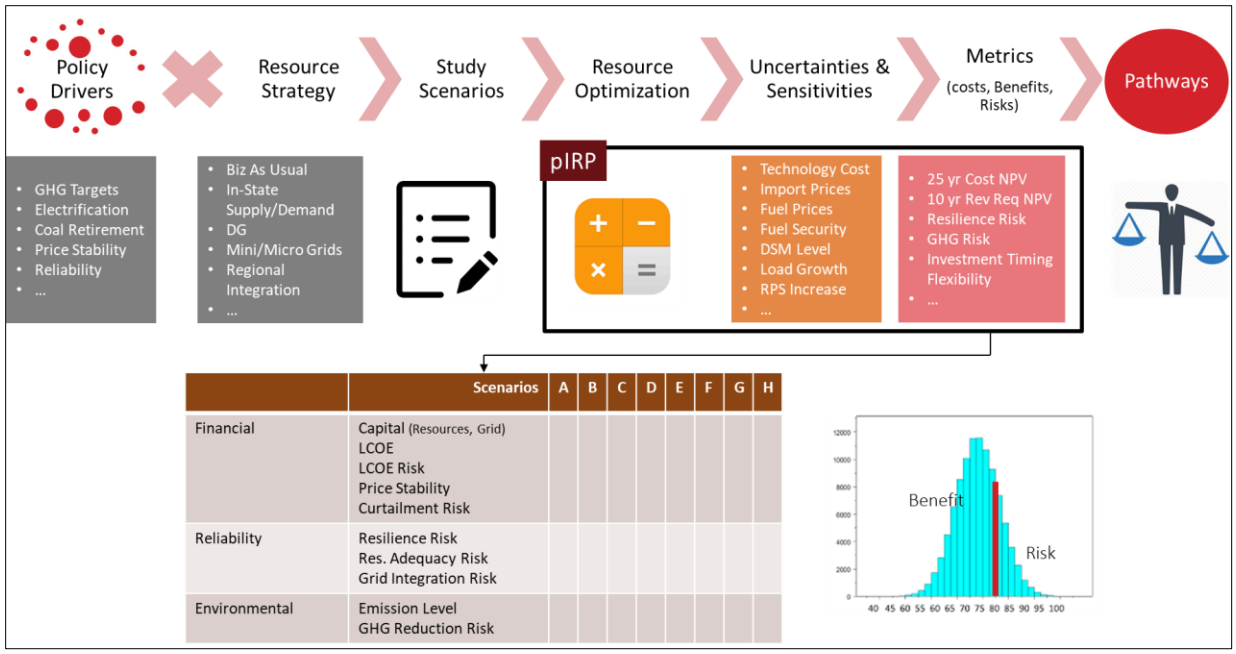


Figure 1. pIRP Process Overview

3.2 pIRP Model Overview

The following are the key modeling features of pIRP:

- The power system is modeled spatially and temporally. pIRP uses a zonal representation for system resources and models distribution hosting capacities, transmission deliverability capability within each zone, and energy transfer capability between zones. The ability to expand these grid capabilities and the associated costs are also modeled. pIRP utilizes time buckets to represent periods of time within a day. The duration of time buckets is flexible, but the finer the resolution, the longer the simulations will require.

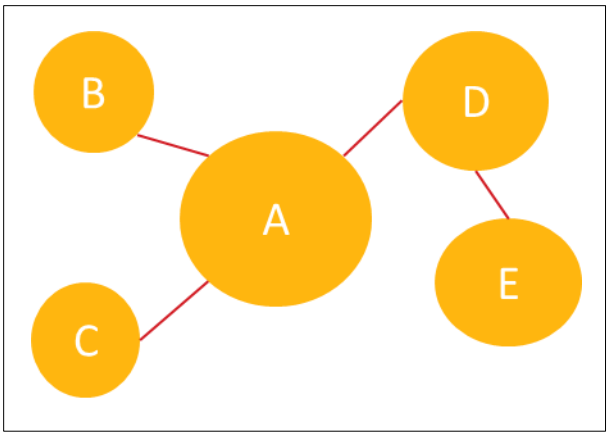


Figure 2. Zonal Representation of the Power System

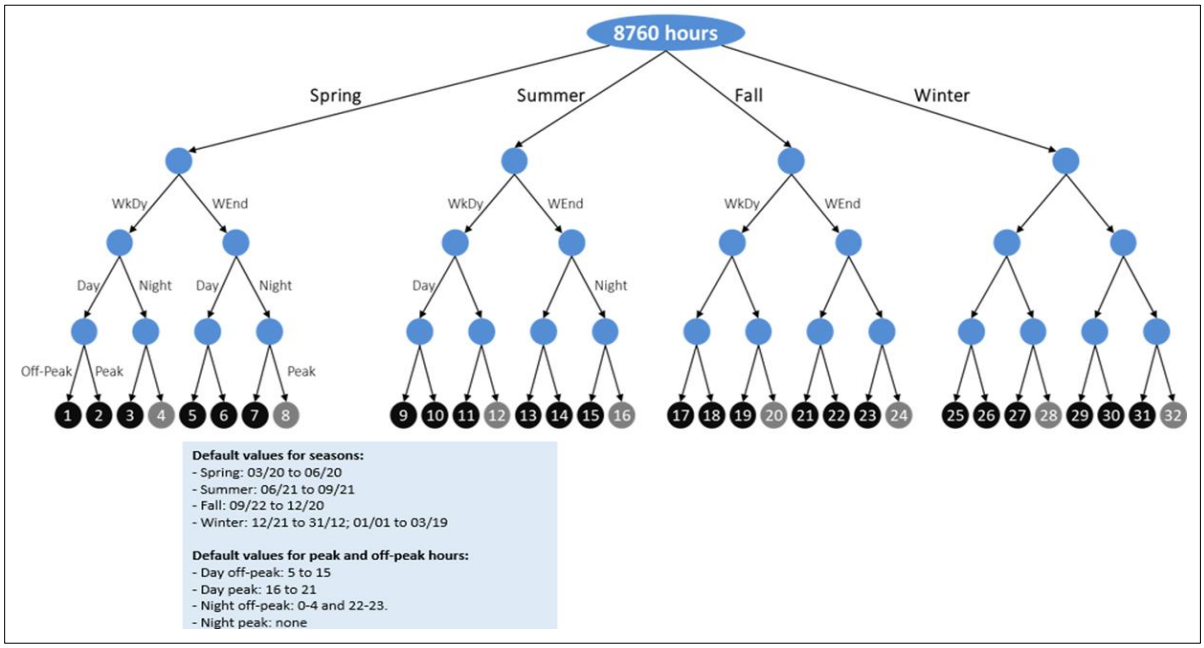


Figure 3. Time Buckets Representation of Time

- The load forecast of each zone can be specified by providing peak and hourly profiles of multiple load components such as residential, commercial, streetlight, EV charging, and storage charge-discharge profiles. The tool provides flexibility in defining load components.
- Users can define many resource types, such as solar PV, nuclear, and renewable energy credits (RECs). Each resource type has many attributes that differentiate it from other resources, such as its capacity credit or effective load carrying capability (ELCC), asset life, ability to store energy, and duration of storage.
- Fuels can be specified regarding their cost projections, carbon content, and whether they are renewable.
- The user specifies existing resources and acceptable types of future resources in each zone. Each resource will have many attributes such as its connectivity to transmission or distribution system, heat

rate, outage rates, per unit capital and operational costs, fuel selection, capacity buildout capability annually, and in total, 8760 production profiles, if applicable, maximum operational hours in a year, minimum generation levels, ramp rates, etc.

- T&D hosting capacities and tie-line power transfer capabilities. The maximum expansion capability and per-unit costs can be specified.
- Uncertainty can be modeled using statistical functions and associated parameters. Data inputs (such as peak load, load growth rates, fuel cost, ELCC, etc.) can be treated as uncertain.
- Resilience against renewable drought can be specified, such as lack of solar or wind resource production over several consecutive days. This resilience aspect, including energy supply during and after storm events, was out of scope for this study. Average weather was assumed in the development of resource portfolios.
- pIRP imposes several constraints, including energy balance for each zone at the time bucket, capacity requirements in each zone, including reserve margins, ramping requirements to ensure frequency stability, variable resource penetration limits, and resilience targets.
- pIRP formulates the capacity expansion as a linear program (LP) and runs a Monte Carlo using Latin hypercube sampling to generate probable outcomes.
- The user specifies for each zone the renewable targets over time.
- The user selects the duration of the optimizations (1–30 years).
- pIRP co-optimizes resource capacity buildout (including retirements), resource dispatch and curtailments, and T&D grid expansion to achieve minimal cost to ratepayers while achieving renewable targets and reliability constraints. Figure 4 summarizes the various components of pIRP.

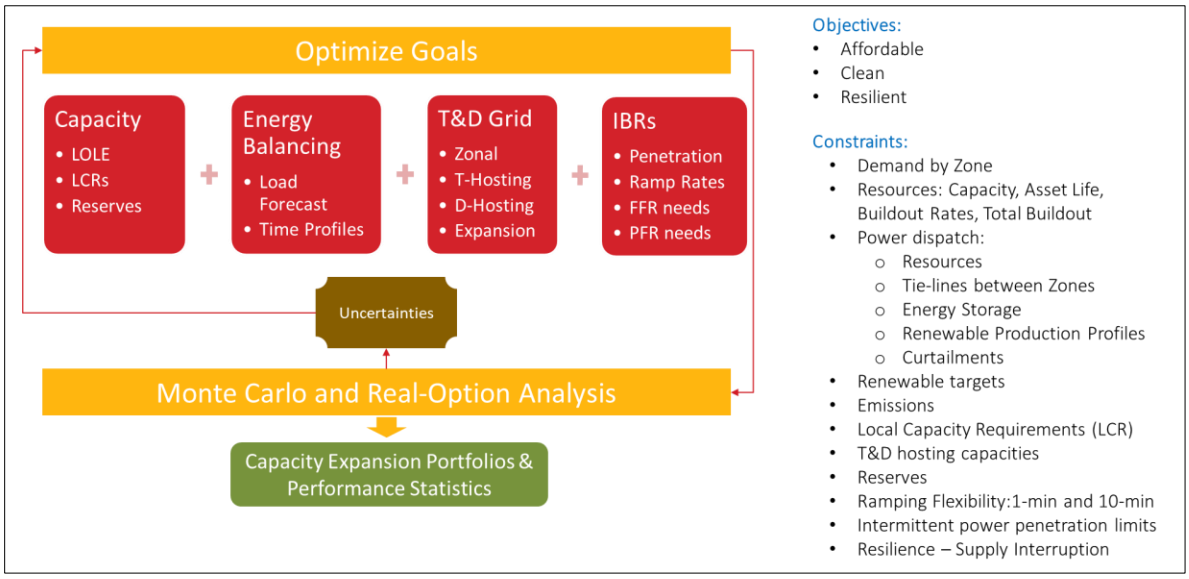


Figure 4. pIRP Modeling Capability

- The output of pIRP can be summarized physically and financially for each zone and each year (sample output is shown in Figure 5, Figure 6[1], and Figure 7).

[1] Technologies referenced in Figure 6 and elsewhere in the report are defined in Table 16 in Appendix B: List of Abbreviations and Acronyms.

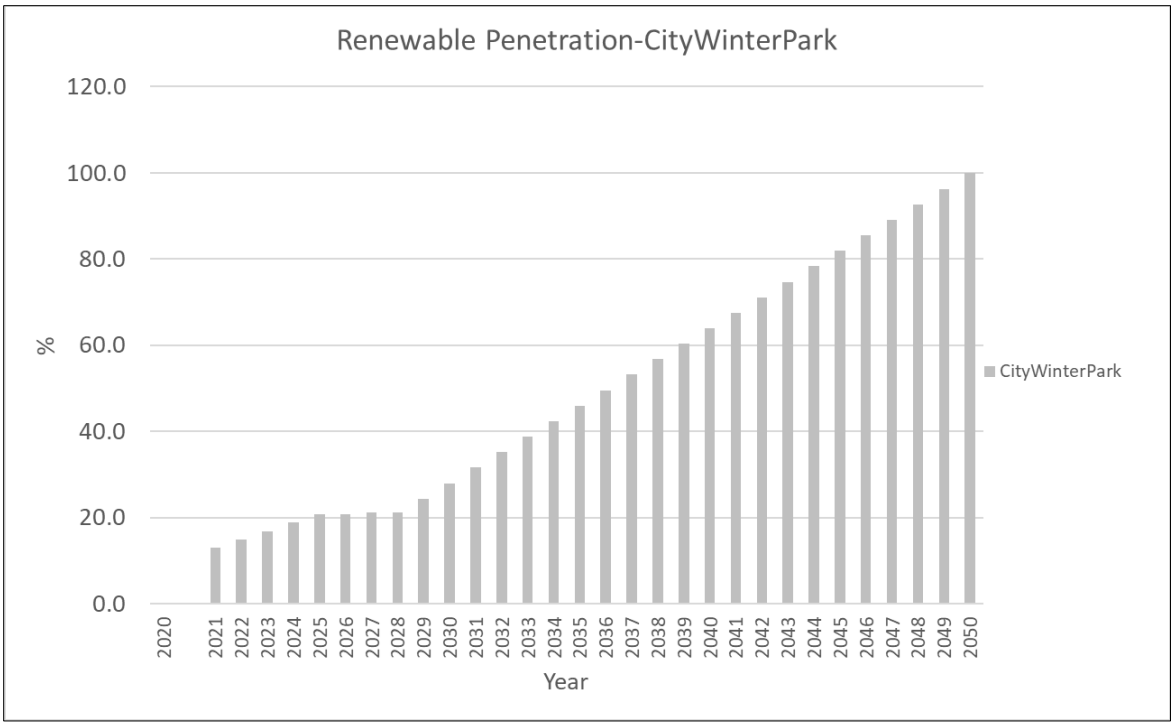


Figure 5. pIRP Sample Output 1

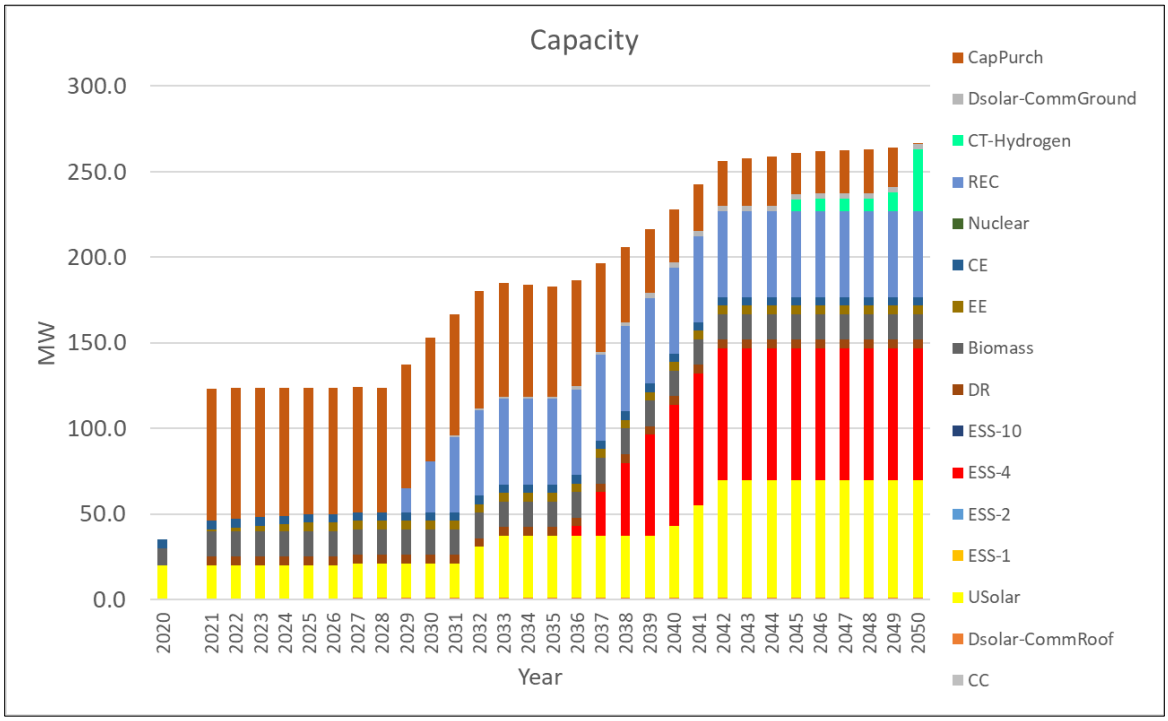


Figure 6. pIRP Sample Output 2

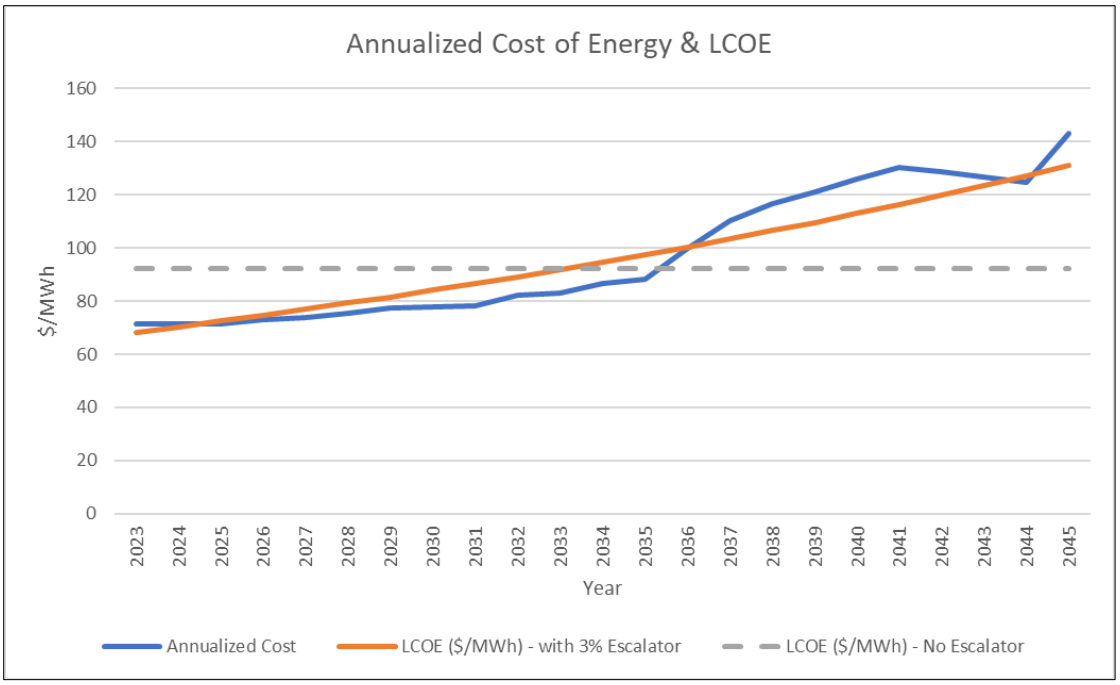


Figure 7. pIRP Sample Output 3

4 FORECASTS AND OTHER DATA INPUTS

4.1 Overview

Any long-range analysis of supply resource options requires much data, including historical data, current and future energy resource characteristics, and forecasts regarding future conditions and costs. The data requirements required for this study can be generally categorized into the following topics:

1. Load forecast
2. Distributed solar and storage
3. EV growth
4. Renewables and battery storage costs
5. Energy efficiency (EE) and DR forecast
6. Natural gas fuel price forecast
7. Renewable energy credit (REC) Pricing
8. Financial assumptions

Quanta Technology worked with CWP to develop a set of historical data and then determine forecasting methods and assumptions that would provide the needed input data to the terminal year of the study (2050). These forecasted data and assumptions provide the foundation of the technical analysis used to select the preferred resource portfolios that could meet CWP renewable targets at the lowest costs. Since developing a single accurate forecast for the next 27 years is nearly impossible, planners typically develop multiple forecasts of conditions intended to provide a likely range of future outcomes for most of the needed assumptions.

The following subsections summarize the data sources and methods used to create forecasts for each planning element.

4.2 Gross Customer Usage

To estimate the type and cost of energy resources needed by CWP to achieve its 2050 renewable targets, the analysis must first start with a forecast of the energy and peak demand of CWP customers. CWP was able to provide Quanta Technology with ten years of historical data. The most recent ten years of CWP annual energy are shown in Figure 8.

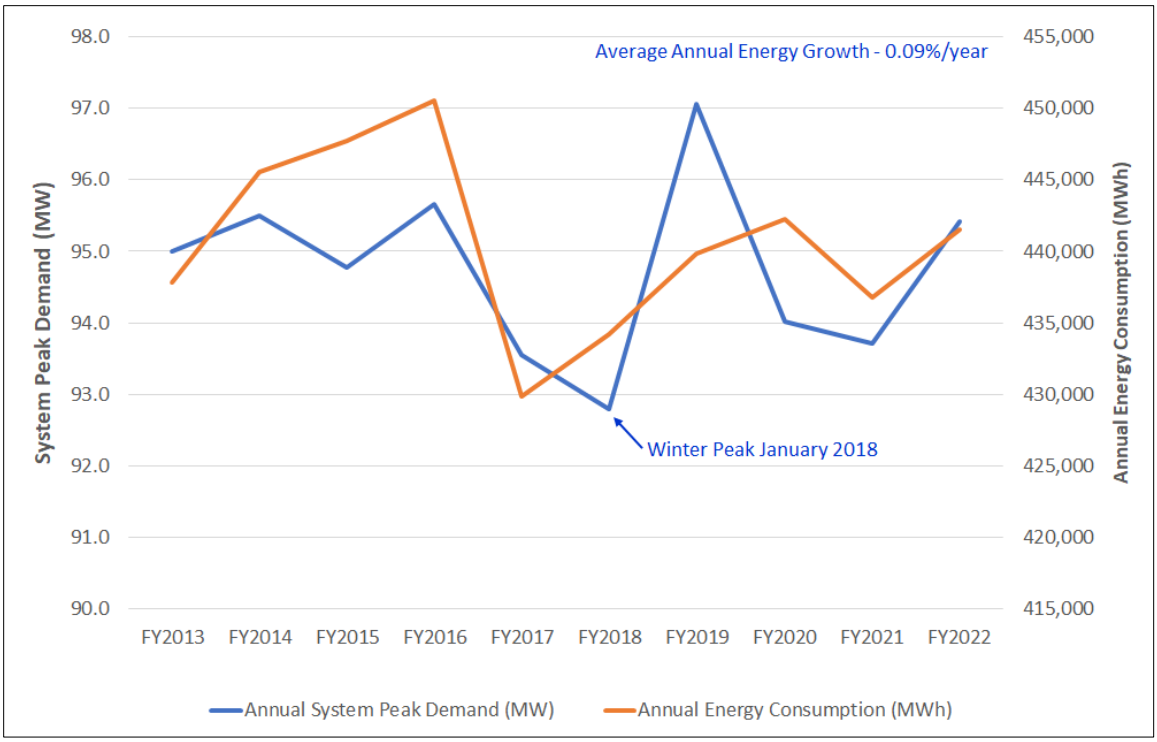


Figure 8. Historical Annual CWP Energy Consumption and System Peak Demand

The average annual energy use growth rate for these last ten years has been 0.09%. This was virtually zero growth in sales when much of this time included a generally robust economy and real estate market. Each of the last six years (2017–2022) has recorded lower annual sales than the previous three years (2014–2016). While a six-year downward trend is significant, the time period included multiple years of impacts from the COVID-19 pandemic and may not predict future energy consumption.

provides the historical annual load factor for CWP for the last ten years, which has been remarkably consistent, indicating that there has been very little change in the demand served by CWP.

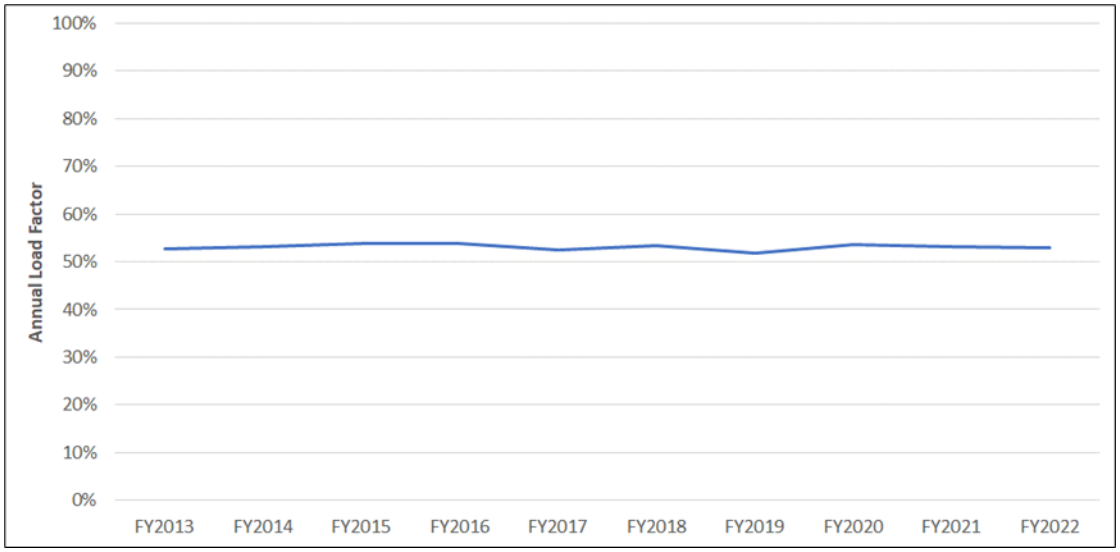


Figure 9. CWP Annual System Load Factor

CWP did not have a recent, long-range energy and demand forecast that could be used for this analysis. Developing a long-range forecast of CWP energy and demand using typical methods[2] was beyond the scope of this analysis. Even with excellent data and a rigorous methodology, forecasting is an inexact science. Since this analysis aimed to assess the feasibility of CWP achieving its 100% renewable targets, creating a precise CWP forecast was less important to the results than analyzing results across a range of forecasts that would serve to bracket the CWP energy forecast. Since central Florida is served by multiple utilities, Quanta Technology and CWP staff decided that the load growth projections of other nearby Florida utilities could serve as potential, reasonable proxies for the CWP's expected growth.

The Florida Public Service Commission (PSC) requires that each of the large utilities in Florida file a ten-year site plan (TYSP) in April of each year, which includes information on the utilities in the state. Among the data in these filings is an annual forecast of its energy requirement for the next ten years. Quanta Technology reviewed the individual 2022 TYSP filings of the utilities and the summary of all the files prepared by PSC: Review of the 2022 TYSP of Florida's Electric Utilities[3]. From the reporting utilities, Quanta Technology selected four utilities that were believed to provide useful input to estimate the future CWP growth rate: OUC, FMPA, Florida Power and Light (FPL), and Tampa Electric Company (TECO). The ten-year energy forecasts for each of these utilities were normalized to their respective 2022 sales and then charted in Figure 10.

[2] Typical energy forecasts for long range utility resource planning are based on weather normalized data and end-use or class-differentiated, econometric, multivariable regression.

[3] FL PSC Review of the 2022 Ten-Year Site Plans of Florida's Electric Utilities, October 2022.

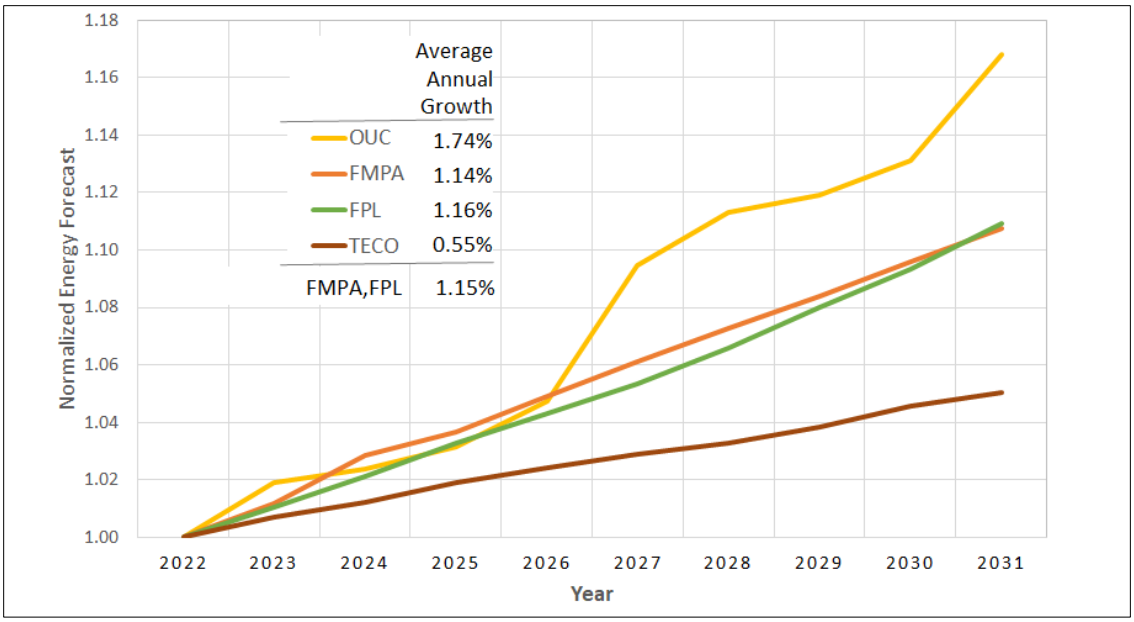


Figure 10. Forecast of Florida Utility Growth Rates

As can be seen in Figure 10, the average annual growth rates vary from a high of 1.74% for OUC to a low of 0.55% for TECO. OUC, FMPA, and FPL have a similar growth trajectory in the first four years (2022–2026) until OUC diverges with a significantly higher growth rate in the last five years (2027–2031) than the other two utilities.

CWP is already densely developed with limited opportunity for future growth from new customers or developing vacant land. Its historic growth over the last nine years has been virtually flat, averaging only 0.09% yearly. CWP's future growth will be driven by the expanded energy use from its existing customers through increasing the energy density of existing customers, such as by expanding floor space and end uses on existing residential and commercial lots.

After reviewing the growth projections in the 2022 TYSP of the nearby utilities, Quanta Technology selected an expected CWP energy growth rate consistent with CWP's average annual growth rate over the last ten years, or 0.09%. This average reflects a continuation of virtually flat load growth for the embedded end users and customers. This expected load growth does not explicitly consider the potential impacts of end-use electrification (e.g., changing gas space and water heating to electric appliances). However, as discussed later in this report, Quanta Technology has addressed the forecasted impacts from increased distributed generation (principally distributed solar), distributed batteries, and EV charging separately as energy and load modifiers to the embedded system energy and peak demand.

Quanta Technology selected the annual average of the projected FMPA and FPL energy growth, or 1.15%, as the value of the high- or upper-end load forecast for this CWP study. While still low, this 1.15% represents a significant annual growth for embedded load, particularly when the growth rate does not include the expected impacts from EV charging. Quanta Technology believes the 1.15% annual growth should be on the upper end of growth rates that CWP could expect. This upper-end growth was selected for CWP since a higher growth rate was thought to make achieving the target renewable generation more

difficult. Figure 11 below shows the expected and high energy forecast for CWP, and Figure 12 provides a forecast of the CWP system's peak demand.

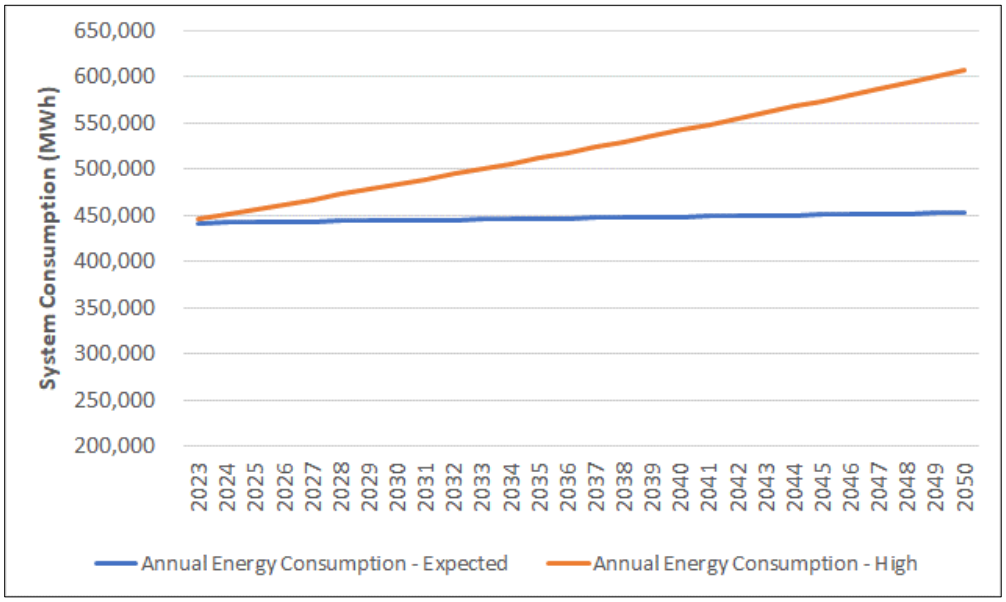


Figure 11. CWP Forecasted Annual Energy Consumption

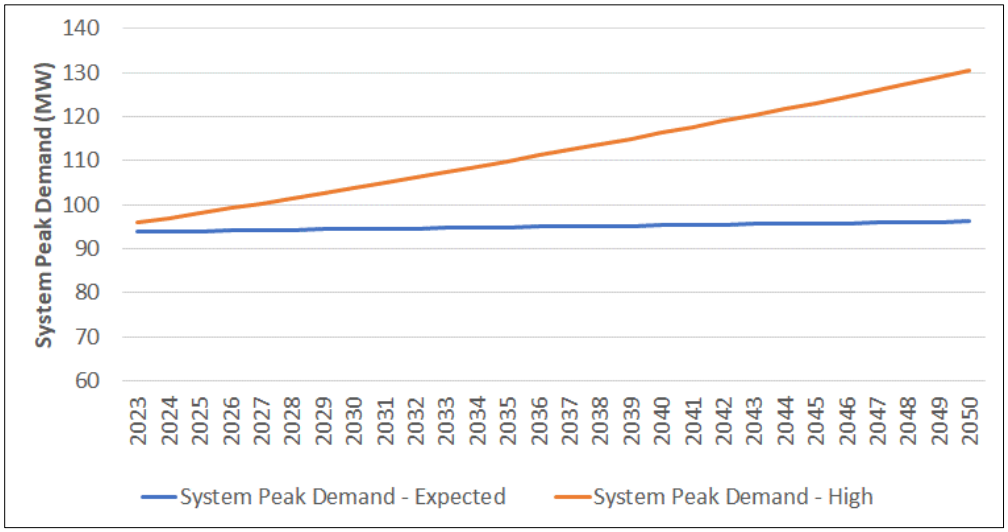


Figure 12. CWP Forecasted System Peak Demand

The energy and demand forecasts in the prior charts are forecast prior to any adjustment for the impacts of EE, DR, and electric vehicles (EV). Future loads are expected to vary from the values in Figure 11 and Figure 12 due to increases in EV charging loads and reductions due to energy efficiency programs that CWP plans to implement for both customer and city-owned facilities.

4.3 Distributed Solar and Storage

Distributed solar and storage are highly dependent on various industry forces, including technology advancements in EVs, storage, and PVs, as well as consumer adoption. The technology model for distributed solar and storage is considered mature technology that assumes:

- EV chargers will incrementally improve
- PV modules will incrementally improve
- Battery storage is commercially available for households and modeled after the size of a Tesla Powerwall

CWP and its residents have some influence on distributed solar and storage adoption rates, and these rates have further been segmented into different categories:

- Residential single-family homes
- Multifamily homes
- Commercial buildings
- CWP assets
  - Commercial buildings
  - Industrial areas

Appendix D: NREL PVWatts Solar Production Estimate shows the NREL PV power estimate for a 1000 sq ft roof, which was used on a unit basis to provide estimates for solar production. Multiple residential single-family homes (SFH) adoption assumptions for solar, storage, and EV were created for this study. Solar rooftop installations in Florida expanded due to state tax credits. Without tax credits, adoption slowed drastically. We do not assume tax credits will be the sole driver of adoption, but they will certainly be one of the key drivers. Early EV adopters have also been shown to be closely aligned with those SFH that have installed solar PV. Our model assumes growth across a mix of three types of SFHs with rooftop solar PV, batteries, and EV chargers:

1. An SFH with 500 sq ft of solar PV panels, a Tesla Powerwall battery, and an EV charger that draws, on average, 24 kWh per day.
2. An SFH with 743 sq ft of solar PV panels and a Tesla Powerwall battery that has a net-zero energy draw per day. A net-zero energy installation has sufficient solar PV energy production capacity to offset 100% of the location's annual energy consumption. No EV is included in this SFH variation.
3. An SFH with 928 sq ft of solar PV panels, a Tesla Powerwall battery, and an EV charger that has a net-zero energy draw per day.

Forecasts for the residential solar PV and batteries are provided in Appendix E: Residential ROoftop Solar and Battery Forecasts and Appendix F: FOrecast of Rooftop and Ground Mount Solar PV on CWP-Owned Property. The residential batteries in these installations are assumed to be controlled by the homeowner.

Multifamily homes and commercial buildings are considered net consumers of energy. Forecasting solar PV and EV charger installations on landlord-owned multifamily homes is complex principally because they are site-specific and landlord-specific. It is likely that solar PV and EV chargers on landlord-owned, multifamily homes will significantly lag the installations for SFHs and have only a small impact on CWP

loads within the next 5–10 years. For these reasons, Quanta Technology did not include a separate forecast for the multifamily homes.

For CWP-owned assets, the adoption rate of solar on these commercial buildings was based on the year of expected roof replacements. For buildings that did not have an estimated year of roof replacement, the expected solar kWs were evenly distributed until 2050. Industrial areas such as the CWP lift stations were included in this analysis.

In addition, Quanta Technology developed an estimate of the EV charging that will be performed by business commuters who work within the CWP and charge their vehicles at work during the day.

For each of the elements discussed in this section, an expected forecast was created, as well as a high and low forecast. These three forecasts of the contributions from the distributed solar, storage, and EV charges were then added to the different scenarios as noted in Table 8 and Table 9.

This study did not consider or include any potential electric grid upgrades that may be needed to enable the expected large influx of distributed solar and EV charges. Evaluating the grid requirements as residents install more distributed solar and EV chargers will be part of future studies.

4.4 Electric Vehicles

Like the development of the CWP energy forecasts for this study, Quanta Technology looked to the forecasts of other Florida Utilities and their 2022 TYSP to develop a forecast of CWP EV charging loads. Table 1 summarizes the expected growth in the number of EVs in each of the utilities noted[4].

Table 1. 2022 TYSP: Estimated Number of EVs

Year	FPL	DEF	TECO	JEA	GRU	TAL	Total
2022	116,202	33,325	12,218	4,220	1,065	1,158	168,722
2023	162,141	42,404	14,890	5,477	1,331	1,469	227,712
2024	220,697	52,918	17,742	6,939	1,664	1,832	301,792
2025	293,809	65,134	20,785	8,589	2,080	2,253	392,650
2026	391,240	79,267	24,119	10,419	2,600	2,736	510,381
2027	512,104	95,455	27,808	12,441	3,250	3,288	654,346
2028	657,776	114,021	31,977	14,689	4,063	3,921	826,447
2029	831,693	135,439	36,561	17,187	5,078	4,640	1,030,598
2030	1,037,328	160,059	41,599	19,951	6,348	5,459	1,270,744
2031	1,273,609	188,139	47,156	22,993	7,935	6,378	1,546,210

[4] FL PSC Review of the 2022 Ten-Year Site Plans of Florida's Electric Utilities, October 2022, Table 2.

Table 2 summarizes the expected annual energy consumption for cumulative EV charging in each utility noted.[5]

Table 2. 2022 TYSP: Estimates EV Annual Charging Consumption (GWh)

Year	FPL	DEF	TECO	JEA	GRU	TAL	Total
2022	231	24	35	17	4	4	314
2023	401	54	46	24	5	5	534
2024	623	92	57	32	6	6	816
2025	908	139	70	41	8	7	1,173
2026	1,289	199	-	51	9	8	1,642
2027	1,771	275	101	62	12	10	2,231
2028	2,361	367	118	75	15	12	2,948
2029	3,075	470	138	89	18	14	3,804
2030	3,930	586	160	104	23	17	4,819
2031	4,913	712	183	121	29	20	5,977

Table 3 summarizes the expected annual energy consumption per vehicle for charging EVs in each utility noted. The per-vehicle energy consumption in Table 3 is derived by dividing the annual charging energy for all EVs shown in Table 2 by the annual number of EVs in Table 1.

Table 3. Annual Energy Consumption Per EV (kWh)

Year	FPL	DEF	TECO	JEA	GRU	TAL	Average
2022	1,988	720	2,832	4,076	3,568	3,022	1,862
2023	2,473	1,276	3,056	4,400	3,606	3,063	2,345
2024	2,823	1,737	3,230	4,626	3,606	3,057	2,704
2025	3,090	2,133	3,382	4,797	3,606	3,063	2,987
2026	3,295	2,511	-	4,914	3,615	3,070	3,216
2027	3,458	2,876	3,625	5,008	3,600	3,072	3,409
2028	3,589	3,217	3,700	5,085	3,593	3,086	3,567
2029	3,697	3,473	3,772	5,149	3,604	3,103	3,691
2030	3,789	3,662	3,834	5,198	3,607	3,114	3,792
2031	3,858	3,785	3,881	5,241	3,604	3,120	3,866

[5] FL PSC Review of the 2022 Ten-Year Site Plans of Florida's Electric Utilities, October 2022, Figure 15.

Quanta Technology used the FPL data in the tables above, together with FPL service territory population and FL State vehicle registration data, to estimate the percent registered vehicles in FPL's service territory expected to be EVs for the next ten years.

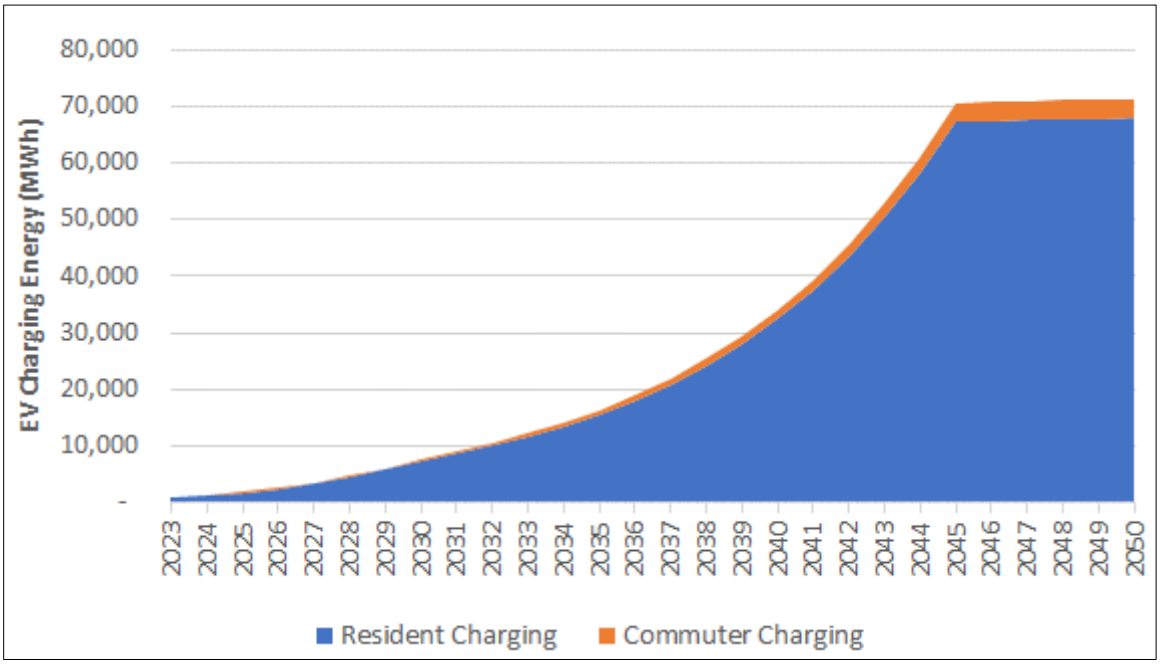


Figure 13. Resident and Commuter Annual EV-LDV Charging Energy: Expected Scenario

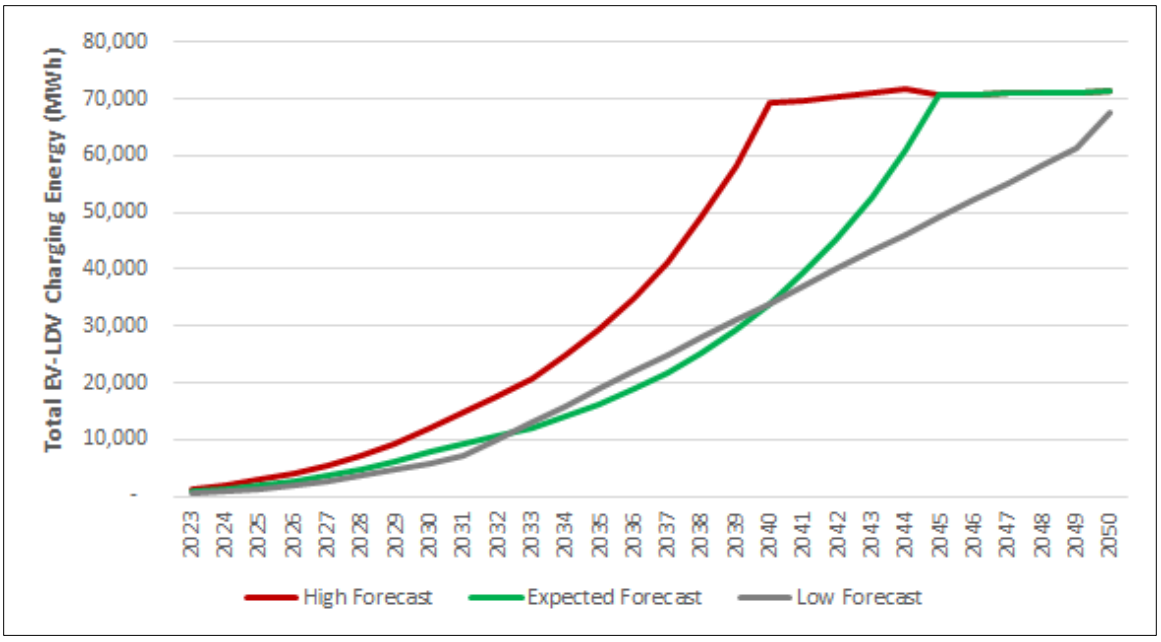


Figure 14. Annual Resident and Commuter EV-LDV Charging Energy

As seen in Figure 14, the high and expected forecasts each reach a maximum EV penetration, estimated to be 95% of registered light-duty vehicles (LDVs). The high forecast reached this maximum in 2040, and the expected forecast reached this maximum in 2045. The low forecast is still growing in the final year of the forecast and will reach a maximum of 90% penetration in the year 2050. Since EVs and their charging load are a new addition to utility planning, much uncertainty is associated with forecasting how rapidly the charging load will grow. Assessing higher growth rates of EVs that, in turn, have higher charging impacts is prudent in a feasibility analysis such as this study. In assessing new loads, it is better to be conservatively high rather than too low when assessing the costs of serving customer loads with a new set of resources. The forecasts of the LDV EVs for CWP residents are provided in Appendix G.

Adoption of residential electric vehicles, solar panels, and energy storage/batteries are assumed to be closely aligned and increasingly adopted as roofs and vehicles are replaced. The study expects a reduction in net energy supplied to residents. The study does NOT assume significant buyback of solar power under net metering. It does not include any potential "Virtual Power Plant" benefits, although both may occur if "Time of Use" rates are implemented as recommended. The study projects that residents will invest in electric vehicles, rooftop solar, and batteries voluntarily at personal cost with the following forecasts by 2042:

- Up to 95% of the registered vehicles in CWP may be electric vehicles.
- Approximately 35% of residential rooftops will have solar PV installed, with the capacity to generate approximately 49,000 MWh of energy per year, which is approximately 11% of the total CWP requirement.
- Approximately 35% of residences will have battery energy storage systems (BESS) installed.

4.5 Generation Technologies and Battery Storage

Quanta Technology used PPA pricing from existing CWP contracts and other data available for Florida power costs to estimate that future purchases from the Florida grid would. Florida currently relies principally on fossil-fueled resources. However, as FPL and other utilities evolve their system to cleaner resources, the power costs from the Florida grid are estimated to escalate at 2% annually, regardless of the CWP decisions for its power supply. Quanta Technology also assumed that the purchased power market in Florida would continue to provide CWP options to purchase specific types of power from large suppliers, such as FPL, OUC, and the FMPA.

Quanta Technology used the technical characteristics for optional new resources that could be constructed in the future to fulfill the needs of CWP and other Florida utilities. It cost data from the National Renewable Energy Laboratory (NREL) Annual Technology Baseline (ATB) and a 2022 NREL Solar and Energy Storage Cost Benchmarks Analysis[6] (collectively referred to as NREL data). While FMPA will be the source of some early solar PV contracts, it may not be the provider for future contracts. The source of our future cost estimates is based on NREL and DOE data. The NREL data provides an extensive database on renewable, fossil, and energy storage technologies that are regularly used as a basis for future costs in utility resource planning. The NREL data also provides projected costs of technologies, for example, the decreases expected in solar PV and battery costs from greater manufacturing volume and other

[6] Ramasamy, Vignesh, Jarett Zuboy, Eric O'Shaughnessy, David Feldman, Jal Desai, Michael Woodhouse, Paul Basore, and Robert Margolis. 2022. U.S. Solar Photovoltaic System and Energy Storage Cost Benchmarks, With Minimum Sustainable Price Analysis: Q1 2022. Golden, CO: National Renewable Energy Laboratory. NREL/TP-7A40-83586. www.nrel.gov/docs/fy22osti/83586.pdf.

technology advances. Table 4 provides a summary of the costs for the set of technologies that were considered in the resource plan for CWP.

Table 4. Generation and Storage Technologies Costs

Technology	Installed Cost $/kW (REC in $/MWh)	Cost Year	Annual Cost Escalation	Cost Stabilization Year	Fixed O&M ($/KW-yr)	Variable O&M ($/MWh)
Combustion Turbine (CT)	$1,000	2021	2%	10	15.00	2.00
Internal Combustion Engine (CE)	$650	2021	2%	5	30.00	10.00
Green Hydrogen-Fueled CT (CT-Hydrogen)	$1,500	2021	2%	10	20.00	4.00
City Owned Distributed Solar, Rooftop (Dsolar-CommRoof)	$2,208	2021	-2%	10	18.10	0.00
City Owned Distributed Solar, Ground-mount (Dsolar-CommGround)	$2,328	2021	-2%	10	17.20	0.00
Utility Scale Solar PV (USolar)	$1,386	2021	-2%	10	16.10	0.00
Battery Energy Storage System (BESS)–1 hr. (ESS-1)	$710	2021	-2%	5	15.00	0.00
BESS–2 hr. (ESS-2)	$1,070	2021	-2%	5	14.00	0.00
BESS–4 hr. (ESS-4)	$1.790	2021	-2%	5	12.00	0.00
BESS–10 hr. (ESS-10)	$3,950	2021	-2%	5	10.00	0.00
Biofuel Internal Combustion Reciprocating Engine(Biomass)	$500	2021	2%	5	10.00	0.00
Demand Response (DR)	$50	2021	2%	5	10.00	0.00
Energy Efficiency (EE)	$20	2021	2%	5	10.00	0.00
Renewable Energy Credit (REC)	$2.5	2021	2%	10	0.00	0.00

The general industry consensus is that the forecasted installed cost for solar and battery storage technologies will continue to decline in cost for the foreseeable future through continued manufacturing and solar PV performance improvements. In addition, legacy technologies such as combustion turbines are expected to continue to increase in cost based on inflationary pressures. The NREL ATB projects cost declines in renewable technologies and battery storage and cost increases in legacy technologies through 2050. Supply disruptions and changing tariff structures resulted in an increase in solar PV costs in 2021 and 2022. These recent cost increases are expected to be temporary as the solar PV manufacturers adjust in response to the changing world market.

To remain conservative in the cost projections of future technology costs used in this study, Quanta Technology estimated a lower near-term price decline for solar PV and batteries than the NREL ATB estimate. In addition, Quanta Technology estimated the price declines would stabilize after ten years for solar PV and after five years for battery storage. Further price increases for the legacy generation technologies also had a similar end to their forecasted continuing escalation where their costs would stabilize. The combination of these adjustments to the future escalation of technology costs provides a conservatively high cost for solar PV and battery storage and a conservatively low cost for legacy technologies.

The graph shown in Figure 15 presents the annual costs of the subset of technologies that were ultimately included in the supply portfolios described later in this report.

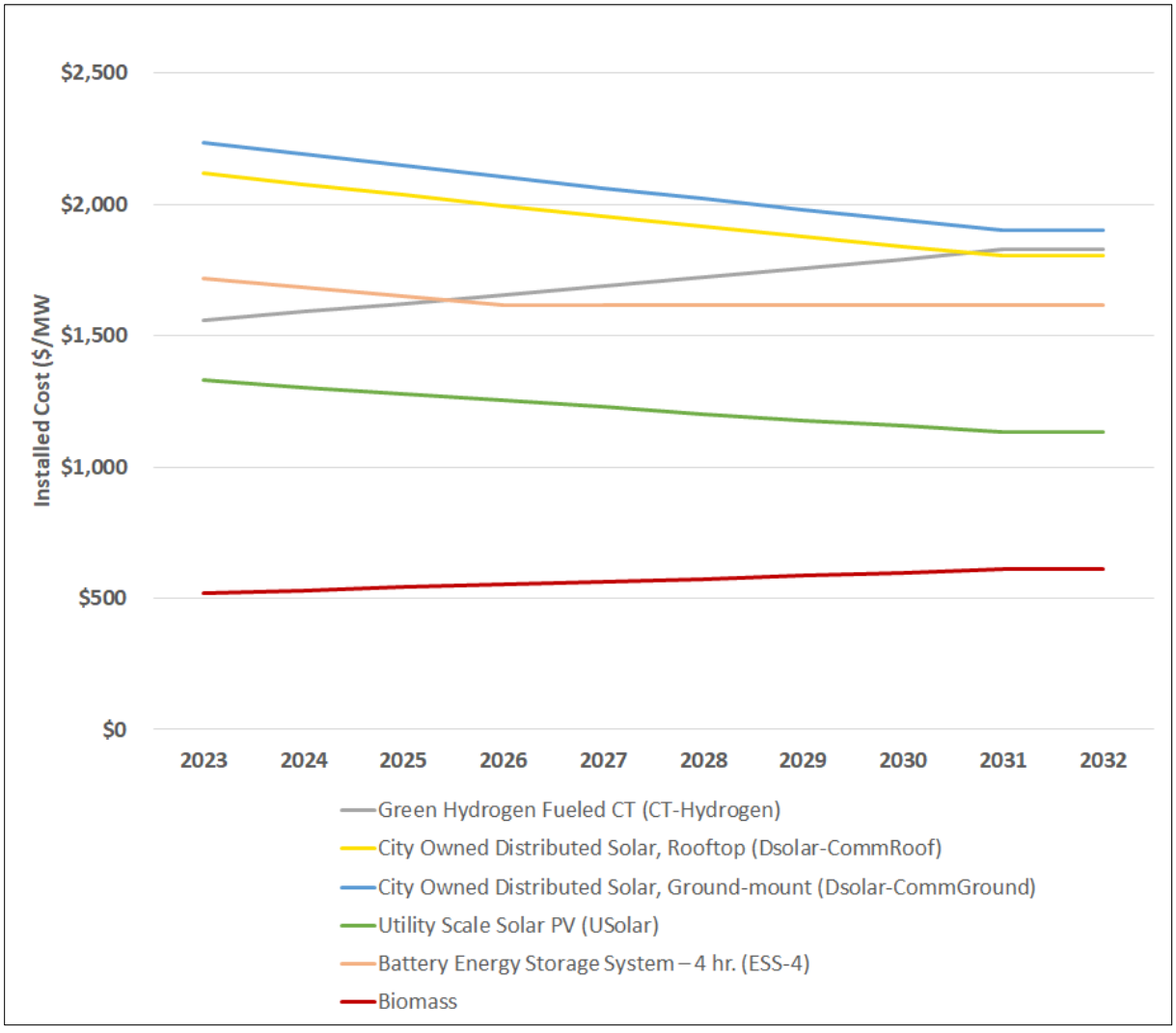


Figure 15. Projections of Generation and Storage Technologies Installed Costs

Table 5 summarizes the projected solar PV costs.

Table 5. Solar PV Costs for Key Milestone Years (Installed Cost–$/kW)

Solar PV Technology	2023	2035	2042	2050
Residential Rooftop Solar	$3,400	$2,892	$2,892	$2,892
Commercial Solar PV, Rooftop (Dsolar-CommRoof)	$2,121	$1,804	$1,804	$1,804
Commercial Solar PV, Ground-mount (Dsolar-CommGround)	$2,236	$1,902	$1,902	$1,902
Utility Scale Solar PV (USolar)	$1,331	$1,253	$1,253	$1,253

Table 6 summarizes the costs for battery storage installations.

Table 6. Battery Storage Costs for Key Milestone Years (Installed Cost–$/kWh)

Battery Energy Storage Technology	2023	2035	2042	2050
Residential BESS–2.5 hr	$1,443	$1,359	$1,359	$1,359
Commercial BESS–4 hr	$774	$729	$729	$729
Utility Scale BESS–4 hr (ESS-4)	$514	$484	$484	$484

Quanta Technology did not consider some of the technologies listed in the NREL data since they were inappropriate for CWP and Florida (e.g., hydroelectric, pumped storage, and distributed wind technologies). The CAPEX costs shown in Table 4 include assumed interconnections costs but do not include any grid upgrades. The costs of solar PV and utility-scale battery storage technologies are assumed to decline by 2% annually (based on the Annual Cost Escalation data) until 2026 (based on the Cost Stabilization Year data) and remain flat afterward. In 2021, a utility-scale solar PV cost was assumed to be $1,386/kWac (assuming a DC-to-AC ratio of 1.2).

The cost of natural gas is assumed to be $3.00/MMBTU in 2019, and it is expected to increase at a 2% escalation per annum.

The utility and transportation industries are planning to use an increasing quantity of batteries in their efforts to reduce carbon emissions. Mining minerals, manufacturing, and disposing of these increasing quantities of batteries bring environmental issues to a scale new to the world economy. At the request of CWP, Quanta Technology has prepared a summary of the lifecycle considerations of batteries in Appendix C: Battery Lifecycle Considerations.

4.6 Energy Efficiency and Demand Response

According to the United States Department of Energy, EE and DR can be described as:

> *Energy efficiency is the use of less energy to perform the same task or produce the same result. Energy-efficient homes and buildings use less energy to heat, cool, and run appliances and electronics, and energy-efficient manufacturing facilities use less energy to produce goods.*

Energy efficiency is one of the easiest and most cost-effective ways to combat climate change, reduce energy costs for consumers, and improve the competitiveness of U.S. businesses. Energy efficiency is also a vital component in achieving net-zero emissions of carbon dioxide through decarbonization.[7]

Demand response provides an opportunity for consumers to play a significant role in the operation of the electric grid by reducing or shifting their electricity usage during peak periods in response to time-based rates or other forms of financial incentives.[8]

Quanta Technology's experience with other utilities confirms this statement. Most utilities find that numerous EE measures, such as programs that incentivize the shift to higher efficiency appliances and building envelopes[9], are much less expensive than purchasing or generating the electricity saved by these programs. In essence, many EE measures cost the utility less to manage the EE program and pay incentives than to generate or buy the energy. It is widely accepted that any program to reduce the environmental impacts of electric energy supply should include a robust energy efficiency program that first attempts to reduce the energy required cost-effectively.

DR programs are focused on reducing a utility's peak demand on a daily or seasonal basis. The value of the system peak demand dictates the generation and storage capacity that must be built or purchased and the capacity of the transmission and distribution system needed to deliver the energy. Reducing the system peak demand can reduce, delay, or eliminate costs through the utility system. DR programs use various measures to reduce or eliminate the demand for electrical end uses during peak demand. With the introduction of distributed solar and batteries in homes and businesses, DR programs can be designed to incentivize customers to use a portion of their battery's stored energy when the most energy is needed. Like the EE programs, Quanta Technology recommends that CWP implement a comprehensive DR program for city facilities and residential and commercial customers to minimize CWP's future generation, transmission, and distribution capacity needs.

Quanta Technology had limited data on CWP's forecasted plans and projected impacts of energy efficiency programs for the CWP system. However, since these energy efficiency programs can generally offer the lowest cost "energy resource" available to utilities, Quanta Technology estimated the impacts that the future energy efficiency programs implemented by CWP, together with the energy efficiency improvements implemented by CWP customers on their own, will be approximately 2% of the total CWP energy requirement in the early years of the study and grow to approximately 10% in 5 years and remain approximately constant for the remainder of the study[10]. The DR was estimated to be constant at 5 MW for the study period. A total DR of 5 MW was considered easily achievable in a program that includes customer and city-owned facilities. These high-level estimates were deemed reasonable because CWP does not have an existing EE and DR program in place for its retail customers.

[7] U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, https://www.energy.gov/eere/energy-efficiency.

[8] U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, https://www.energy.gov/oe/demand-response.

[9] Examples of EE measures include light-emitting diode (LED) lighting, heat pumps to replace air conditioners and resistance heating, increased attic and wall Insulation, window and doors with better insulation values and air seals.

[10] The EE estimate does not address growth of individual end-use energy efficiency improvements. It should be noted that while EE programs do result in lost utility revenue due to the reduction in MWh sold, these programs are also accompanied by a reduction in energy supply costs. In addition, all DR and EE measures should be selected based on the ability to implement and manage them with a positive benefit to cost ratio.

4.7 Fuel Price

Each Florida utility filing a TYSP also files a fuel price forecast for the fuel used in their plans. The PSC has compiled and averaged the fuel price forecasts in the plan reviews. Figure 16 summarizes the filing utilities' average historical and forecasted fuel prices. Quanta Technology chose to extrapolate the average fuel forecasts shown in the TYSPs for use in the CWP study.

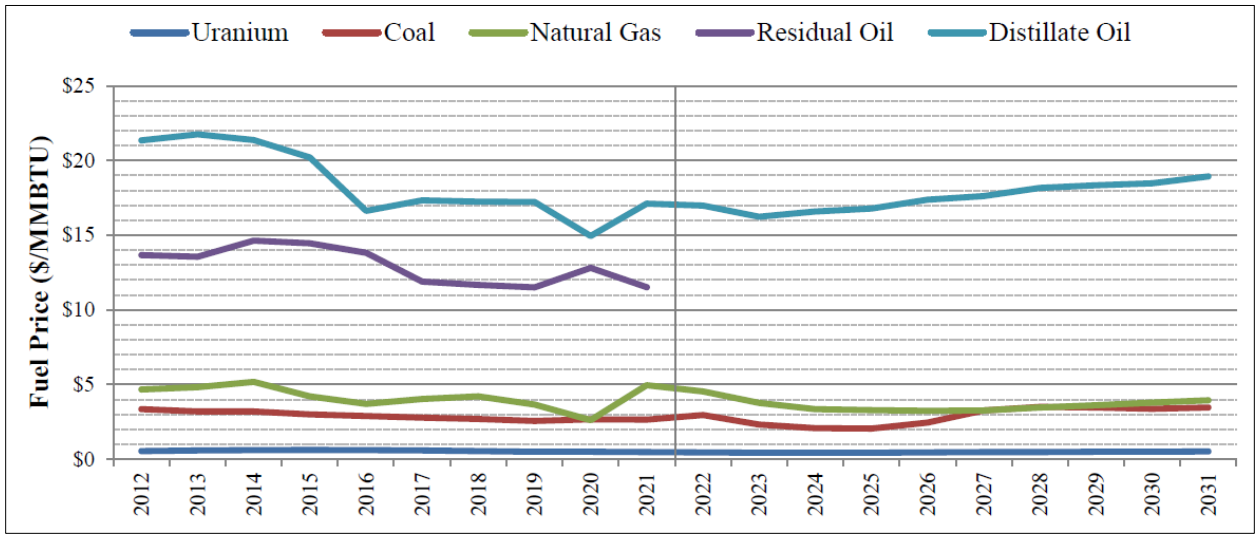


Figure 16. TYSP Utilities: Average Fuel Price of Reporting Electric Utilities

However, the TYSP are filed in April of each year. The 2022 TYSP apparently used historical natural gas prices that did not reflect the full impact of the significant increase in natural gas prices in 2022, reaching the highest prices seen since 2008. Figure 17 provide the ten year history the Henry Hub Spot. Henry Hub is a location in Erath, Louisiana, that is a junction point for a number of natural gas transmission lines. The price of natural gas delivered to Henry Hub is used a pricing reference point for the fuel industry.

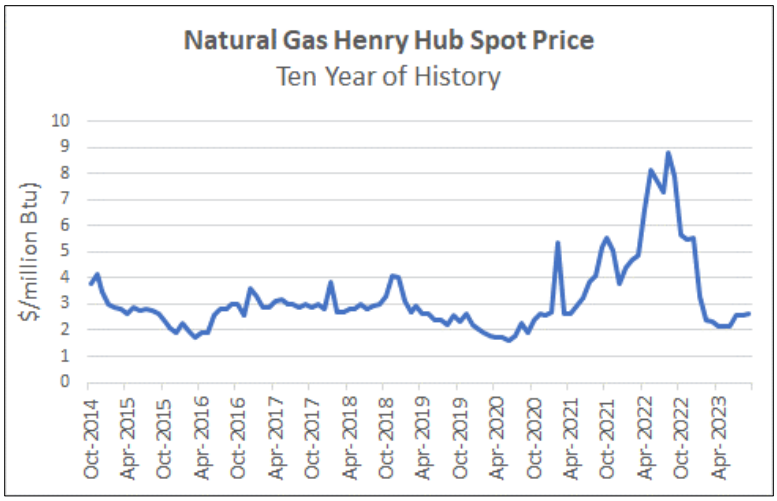


Figure 17. Ten Year History of Natural Gas Henry Hub Spot Price

Since the price spike in 2022, revised natural gas price forecasts are generally projected to return to lower prices and then begin a slow price escalation as the Energy Information Administration (EIA) natural gas price forecast shows in Figure 18. The actual prices shown in Figure 17 have actually dropped faster than the most recent EIA forecast in Figure 18.

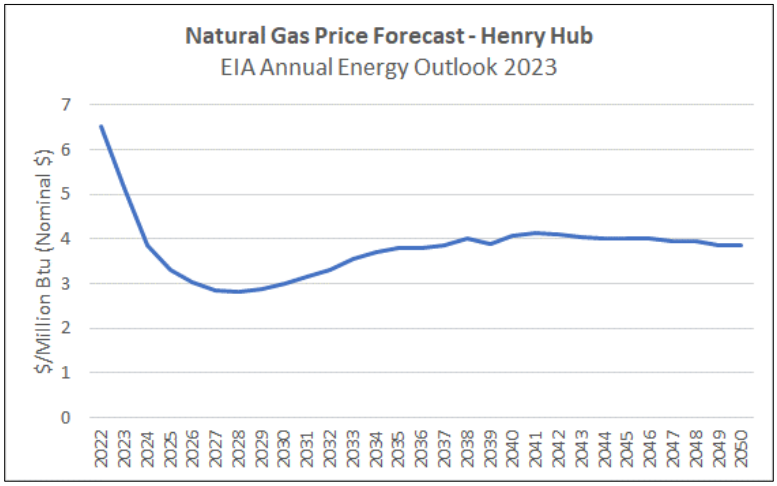


Figure 18. Natural Gas Price Forecast at Henry Hub

Quanta Technology selected three natural gas price forecasts for modeling in the different scenarios:

- **Base** – this forecast started with CWP's most recent fuel costs in late 2022, which reflected the 2022 steep price increase in natural gas prices, and then escalated the price based on available public forecasts. Public forecasts available at the time did not reflect, the 2022 price increase, but only a slow increase in price.
- **Low** – this forecast projected an immediate drop in natural gas fuel prices to recent pre-2022 levels followed by a slow escalation in price consistent with public long term forecasts.

- **High** - this forecast started with CWP's most recent fuel costs in late 2022 and then escalated at a higher annual increase that was reflected in most public forecasts.

Recent natural gas pricing, since the IRP modeling was completed, have been more in-line with the Low natural gas forecast.

4.8 Renewable Energy Credits

One of CWP's three primary renewable targets was achieving a 100% net-zero carbon energy supply by 2050. Net zero implies that some carbon may be released into the atmosphere during electricity generation. However, any carbon released will be counterbalanced by acquiring carbon offsets, carbon credits, or RECs to offset carbon emissions from the energy supply portfolio. The ownership of RECs and carbon credits has become an accepted method to prove to regulators, constituents, or stockholders that an entity has caused the specified renewable energy production or reduction in carbon emissions. Utilities use RECs and carbon credits to prove compliance with legislated renewable portfolio standards (RPS) or the carbon content of their energy supply targets. Cities and corporations use them to demonstrate to constituents and shareholders that they have reduced their carbon footprint by X% or use Y% renewable generation to supply their operations.

Neither the state of Florida nor the Federal government has established any state mandate for carbon emission limitations or RPS for Florida's utilities. While several cities and utilities in Florida have adopted renewable or carbon emission goals, the goals are considered voluntary. The markets for RECs were originally driven by utilities and other entities with a legislative requirement to meet renewable or carbon targets. However, private corporations and cities quickly adopted the use of RECs and carbon credits, similar to CWP, to document their progress toward achieving their voluntary renewable or carbon goals.

The markets have created different types of RECs with different pricing to meet the different needs of their buyers. LevelTen Energy, a player in the REC market, offers the following concise explanation:

> "*RECs are priced differently depending on whether they are compliant or voluntary market RECs. Compliance market RECs are used to meet renewable portfolio standards (RPS), must meet certain criteria in the RPS statutes, and are often more expensive. Voluntary REC markets are almost exclusively driven by climate-related sustainability goals, making them more common for corporate clean energy purchasers. Since there are fewer strings attached, voluntary market RECs have lower prices. Some states have a tier system for RECs to indicate their positive environmental impact. For example, Tier 1 RECs come from new wind and solar projects. The RECs with a higher carbon-reduction impact are typically more expensive than RECs with a lower impact, like those produced in an already clean grid.*[11]"

As noted above, due to the lack of need to meet different state-level requirements for RPS compliance in a specific state, voluntary RECs tend to be much less expensive than compliance RECs. In addition,

[11] Introduction to Renewable Energy Certificates (RECs), RTI Essentials and Best Practices, May 14, 2020, LevelTen Energy, Ben Serrurier.

voluntary market RECS are more locationally fungible in that voluntary RECs created in one state can fulfill voluntary renewable targets in any state.

With the current lack of a Florida RPS, Quanta Technology would recommend that any future REC purchases made by CWP to meet environmental targets should be made from the lowest-priced RECs available, which would be expected to be the voluntary market. Quanta Technology has reviewed various voluntary market historical and current pricing to define a REC pricing projection for this study. The forecast of the voluntary REC pricing for this study was based on forecasts of solar and wind RECs at a national level for the years 2023–2042. Linear regression was then used to extrapolate this data for an additional eight years to 2050. Figure 19 illustrates the input forecast and the extrapolated REC prices. The average price was used as the expected REC price for this study[12].

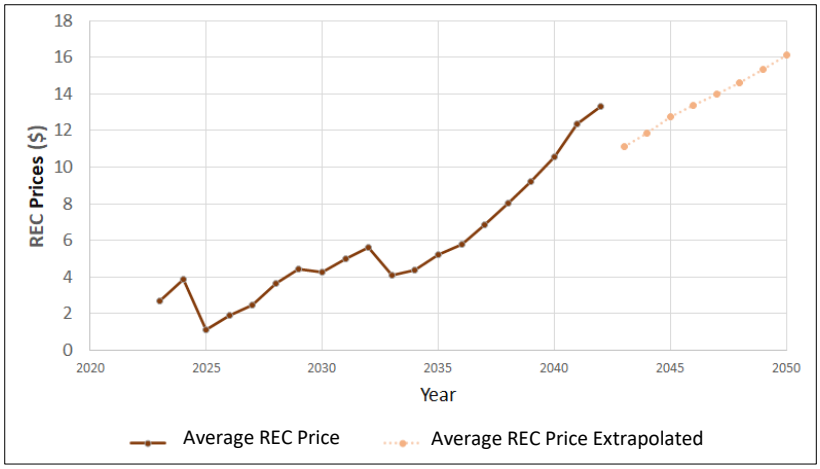


Figure 19. REC Price Forecast

4.9 Financial Assumptions

The primary financial metric to assess optional portfolios of future supply resource options for CWP was the net present value of revenue requirements (PVRR). PVRR is a metric commonly used for public and investor-owned utility decision-making and other industries for analysis that includes multiple years and/or long-lived assets. PVRR is a discounted cash flow analysis that assesses the forecasted cash outlay for capital expenditures, operations, and expenses for each year of the study. For this study, the period of the analysis was 2025–2050. The forecasted annual cash requirements are then discounted based on the cost of capital of CWP. Each year's resulting discounted cash requirements are then summed to arrive at a single value representing the PVRR. This methodology allows different optional supply portfolios to be compared with a single financial metric.

Several financial assumptions are required to perform long-term resource plans and to calculate the PVRR. To assess the possible project financing options available to CWP, Quanta Technology estimated the potential cost of new supply resources being developed and owned by third-party developers and the costs should CWP choose to own new supply resources. The developer's cost of capital determines the cost of new resources for which CWP would contract through a purchase power agreement (PPA). The CWP cost of capital, which represents an estimate of the CWP interest for their future general obligation

[12] REC pricing data compiled from multiple sources.

bonds, is used for estimating the annual costs of CWP ownership of new supply resources and the present value discount factor used for all scenarios.

Table 7. Primary Financial Assumptions

Item	Value
CWP Cost of Capital	3.5%
Developer Cost: Cost of Debt	6.0%
Developer Cost: Cost of Equity	10.0%
Developer Cost: Percentage Debt	50.0%
Developer Cost: Percentage Equity	50.0%
Developer Cost: Cost of Capital	8.0%
Annual Escalation for Capital and O&M Costs	2.0%
Annual Escalation of Purchased Power	2.0%

5 SCENARIO DESCRIPTIONS

5.1 Targets and Scenarios

As noted in early sections, this study was centered around the assessment of three potential targets under consideration for the future CWP energy supply:

- **Target 1:** 100% renewable energy supply by 2050
- **Target 2:** 100% net-zero carbon energy supply by 2050
- **Target 3:** 80% renewable energy supply by 2035 and then 100% by 2050
- **Target 4:** 80% renewable energy supply by 2035, 100% by 2050, with added capacity for storm resiliency

Based on the explicit language in the targets, the study required it to create a forecast and assumption for the year 2050. Since forecasting future conditions (e.g., energy consumption, costs, technology progression, legislative requirements) is such an imprecise science, planners in many industries, including utility resource planners, have adopted scenarios to address the uncertainty of forecasts.

While the scenario is a common term, a definition used in planning is useful for clarity. The following definition is used in this report and commonly understood in planning.

A scenario is a set of future conditions that collectively describe the external environment and conditions within which one is attempting to plan or make a decision. In the case of a resource plan, a scenario description includes a multi-year forecast of external drivers or assumptions important to the analysis. Examples of elements typically included in resource planning scenario descriptions are customer load forecasts, the projected cost of supply options, the forecasted growth of distributed generation installations, etc. A single planning target or input, such as achieving a 100% renewable supply by 2050, does not constitute a scenario, only a single planning input. A scenario requires many planning inputs.

Since it is so difficult to accurately predict future conditions, rather than just planning for a single set of future conditions, a single scenario, planners often create and use multiple scenarios that collectively describe a range of plausible future conditions. Evaluating how resource options perform across a range of potential future conditions enables assessing the resources' flexibility and ability to adapt to changing conditions.

Quanta Technology used this planning methodology with multiple scenarios to assess different options and combinations of resources to achieve each of the three renewable targets that CWP is considering. These three optional targets were expanded into a total of 15 different scenarios:

- Six focused on achieving Target 1 (100% renewable by 2050)
- Five focused on achieving Target 2 (100% net-zero carbon by 2050)
- Five focused on achieving Target 3 (80% renewable supply by 2035 and then 100% by 2050)

- Two focused on achieving Target 4 (80% renewable energy supply by 2035, 100% by 2050, with additional resources added for storm resiliency)

Each of these scenarios looked at different expected forecasts for the following eight categories of planning elements, which were referenced at the beginning of this section:

1. Load forecast
2. Distributed solar and storage
3. EV growth
4. Renewables and battery storage costs
5. EE and DR forecast
6. Natural gas fuel price forecast
7. REC pricing
8. Financial assumptions

Table 8 summarizes scenarios focused on Targets 1 and 2 developed to assess resource options for the first two renewable targets, 100% renewable by 2050 and net-zero carbon by 2050. Table 9 summarizes the remaining additional scenarios developed to assess resource options for the third renewable target, 80% renewables by 2035 and 100% by 2050.

Table 8. Details for Scenarios Focused on Targets 1 and 2

Scenario Count	1	2	3	4	5	6	7	8	9	10	11
Scenario Element	Target 1: 100% Renewable by 2050						Target 2: Net-Zero Carbon by 2050				
	1A	1B	1C	1D	1E	1F	2A	2B	2C	2D	2E
2050 Renewable Target	100%	100%	100%	100%	100%	100%	---	---	---	---	---
2050 Net-Zero Carbon Target	---	---	---	---	---	---	100%	100%	100%	100%	100%
Renewable Electric Supply by 2035	---	---	---	---	---	---	---	---	---	---	---
Load Forecast	Expected	High	Expected	Expected	Expected	Expected	Expected	High	Expected	Expected	Expected
Natural Gas Fuel Price Forecast	Base	Base	Base	Base	High	Low	Base	Base	Base	High	Low
Distributed Solar and Storage	Expected	High	Low	Expected	Expected	Expected	Expected	High	Low	Expected	Expected
New Solar PV on City Rooftops and Land	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EV Growth	Expected	High	Low	Expected	Expected	Expected	Expected	High	Low	Expected	Expected
Technology Costs	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected
EE and DR Forecast	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected
REC Pricing	---	---	---	---	---	---	Expected	Low	High	Expected	Expected
Developer Cost of Capital	8.00%	8.00%	8.00%	-	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
CWP Cost of Capital	---	---	---	3.50%	---	---	---	---	---	---	---
Extra Capacity for Storm Resiliency	No	No	No	No	No	No	No	No	No	No	No

Load forecasts are as follows:

- **Expected:** 0.09%, based on the average of historical CWP growth
- **High:** 1.15%, based on average FMPA and FPL forecasts

Table 9. Details for Scenarios focused on Targets 3 and 4

Scenario Count	12	13	14	15	16	17	18
Scenario Element	Target 3: 80% Renewable by 2035 and 100% by 2050					Target 4: 80% by 2035, 100% by 2050, Capacity for Storm Resiliency	
	3A	3B	3C	3D	3E	4A	4B
2050 Renewable Target	100%	100%	100%	100%	100%	100%	100%
2050 Net-Zero Carbon Target	---	---	---	---	---	---	---
Renewable Electric Supply by 2035	80%	80%	80%	80%	80%	80%	80%
Load Forecast	Expected	Expected	Expected	Expected	Expected	Expected	Expected
Natural Gas Fuel Price Forecast	Base	Base	High	Low	Base	Base	Base
Distributed Solar and Storage	Expected	Expected	Expected	Expected	Expected	Expected	Expected
New Solar PV on City Rooftops and Land	Yes	Yes	Yes	Yes	No	Yes	Yes
EV Growth	Expected	Expected	Expected	Expected	Expected	Expected	Expected
Technology Costs	Expected	Expected	Expected	Expected	Expected	Expected	Expected
EE and DR Forecast	Expected	Expected	Expected	Expected	Expected	Expected	Expected
REC Pricing	---	---	---	---	---	---	---
Developer Cost of Capital	8.00%	-	8.00%	8.00%	8.00%	8.00%	8.00%
CWP Cost of Capital	---	3.50%	---	---	---	---	---
Extra Capacity for Storm Resiliency	No	No	No	No	No	Yes with Batteries	Yes, with old fossil units

16 of the 18 scenarios described above assumed that third-party developers/operators would own the utility-scale supply technologies. The power was then sold to CWP through a PPA. Scenarios 1D and 3B provide the resulting costs if CWP owns all or a portion of the new energy technologies sources acquired.

Purchasing utility-scale solar PV and battery storage from a developer is expected to be higher than CWP owning the facilities due primarily to the cost of capital being higher for the developer. The cost of capital for CWP is the interest it must pay on its municipal bonds (assumed to be 3.5% for this study). Whereas the cost of capital for a developer must pay a typically higher interest on its debt (assumed to be 6% for this study) and pay an even higher return to its equity investors (assumed to be 10% for this study). Table 1 summarizes the assumed capital structure (percentage of debt and equity used to finance a project) for developer-owned projects and their resulting weighted average cost of capital (cost of capital) assumed for this study.

Table 10. Developer Weighted Average Cost of Capital

Component	Financing Structure	Cost	Weighted Contribution
Equity	50%	10%	5%
Debt	50%	6%	3%
Weighted Average Cost of Capital			8%

As discussed in Section 4.3, all but Scenarios 3E assumed that CWP would install commercial-scale solar projects on the roofs of a portion of the buildings owned by CWP and on the ground for a portion of the vacant land owned by the CWP. These projects were assumed to be developer-owned projects for which the power was sold to CWP. However, CWP could choose to invest its own capital to install these distributed assets. Table 11 below provides the cumulative capacity and costs of the solar PV facilities assumed to be constructed on CWP-owned buildings and vacant land.

Table 11. Capacity and Costs of Solar PV on CWP Owned Buildings and Vacant Land

Year	Cumulative City Rooftop PV (MW)	Cumulative City Ground Mount PV (MW)	Cumulative Total MW)	Cumulative Cost ($M)
2035	0.98	0.98	1.96	$3.8
2042	0.98	2.95	3.94	$7.5
2050	0.98	2.95	3.94	$7.5

As show in Table 5, the costs of commercial-scale solar rooftop and ground mount projects are forecasted to remain higher than the costs of utility scale projects in this study.

6 COST AND FEASIBILITY COMPARISONS

6.1 Target 1: 100% Renewable Energy Supply by 2050

The first of CWP's potential energy supply targets identified 2050 as the date for achieving a 100% renewable energy supply. Developing and constructing a utility-scale solar photovoltaic generation facility takes multiple years. Developers of these plants typically identify co-owners and those seeking a PPA to purchase power from the plant owners as early as the development cycle. Having the future energy output of the facility fully committed to either owners or buyers will lower the risks associated with the project and, in turn, the costs of financing. Based on this typical multi-year cycle for solar facility development, Quanta Technology has assumed it will take a few years for CWP to find favorable PPA contracts or ownership positions for its renewable supply. Figure 20 provides the projected renewable energy percent of the CWP requirement for Target 1 (100% renewable by 2050) and Target 2 (80% renewable by 2035). While Target 2 shows a more rapid rise in the renewable energy contribution, both show a slower growth in the study's early years, reflecting that it will take time for CWP to identify, negotiate, and execute favorable renewable energy supply options.

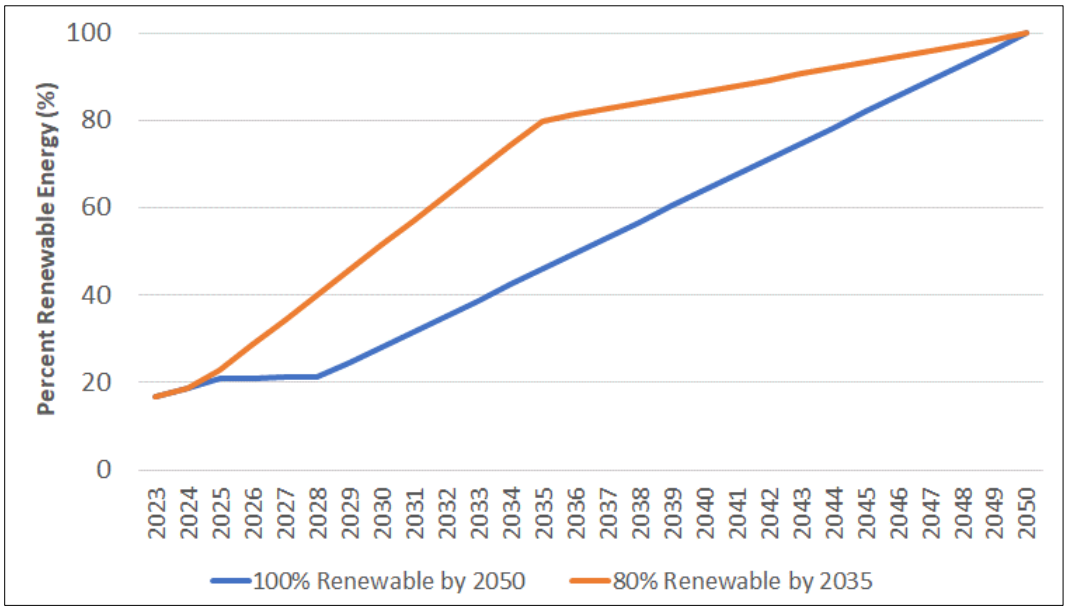


Figure 20. Comparison of Renewable Energy Results for the Two Renewable-Based Targets

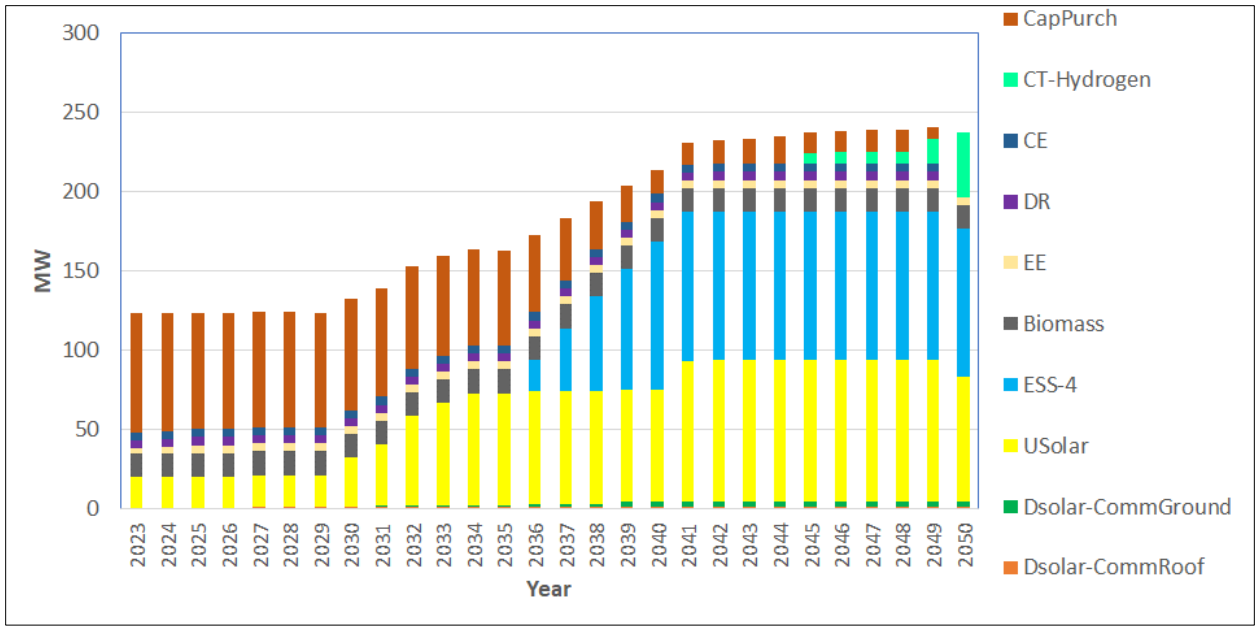


Figure 21 provides a chart showing the detailed technologies selected for the pIRP model as the least cost supply additions for Scenario 1A[13], the first of the six scenarios defined to assess Target 1.

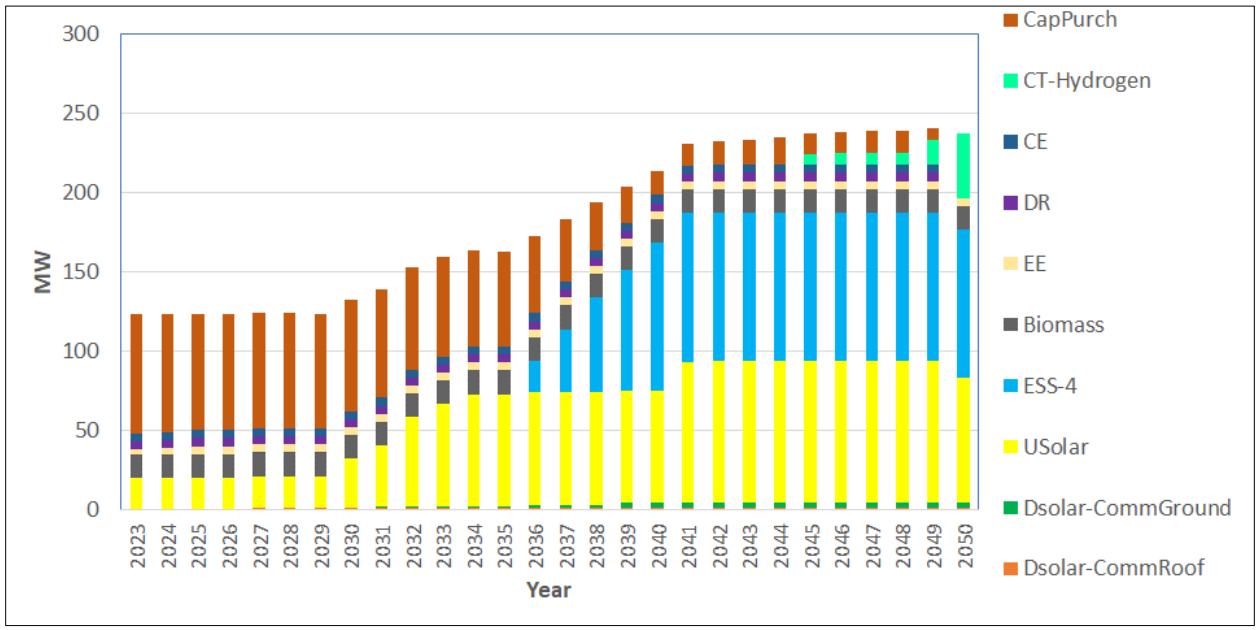


Figure 21. Capacity Additions for Scenario 1A

Solar and wind energy technologies, the two most common renewable energy sources, are considered variable renewable energy (VRE) sources since the energy production of both goes up and down based on

[13] Technologies referenced in Figure 21 and elsewhere in the report are defined in Table 12 in Appendix B.

the amount of solar or wind energy available. Whereas fossil resources, such as natural gas-fueled CTs or combined cycle plants, are described as dispatchable energy sources that can change the output of the energy produced based on the changing requirements of the system.

A system cannot operate with 100% VRE technologies. It must have other dispatchable technologies that can adjust to supply power as needed in response to the up and down production of VREs and the changes to customer demands. In this analysis performed for CWP, the dispatchable technologies selected by the pIRP model included biomass-fueled plants, batteries, CT-Hydrogen, nuclear, concentrated solar power, and geothermal, which were all even more expensive than CT-Hydrogen plants (see Section 4.5). While biomass is assumed to be a less expensive dispatchable resource than CT-Hydrogen in this study, Quanta Technology has limited the amount of biomass generation available for the pIRP to choose to supply CWP energy requirements. Quanta Technology believes that limiting the biomass generation available to CWP is a prudent assumption for several reasons, but primarily by the expectation that the proximity and quantity of biofuels in Florida will be limited and in high demand as all utilities seek to reduce the carbon emissions of their energy supply. Limiting the amount of biomass energy available to the pIRP model selects the next higher-cost energy resource once the biomass generation reaches its limit. A table listing the annual capacity purchases by technology for Scenario 1A can be found in Appendix F, Table 20.

Figure 22 illustrates the annual energy cost for Scenario 1A based on three different measures of energy costs. The first measure in the blue line is the actual projected cost of revenue requirements for the energy supply in nominal dollars (inflation included), divided by the total energy consumptions, shown in $/MWh. Notice the blue line's steep growth in the cost of power beginning in 2045 and the sustained high costs in the final six years of the study (2045–2050). This rise in costs is driven by introducing an extremely high-cost renewable energy technology to meet the needs of CWP. The high-cost technology added, which drives the costs up in the final years, is combustion turbine generators (CT) fueled with green hydrogen (CT-Hydrogen). The pIRP model selected the CT-Hydrogen technology for the final years of the study. This steep cost rise as the supply portfolio approaches 100% clean energy is typical of other 100% renewable and zero-carbon studies. The energy cost of imports and exports between CWP and neighboring utilities is assumed to be $50/MWh in 2021 and is expected to escalate at 2% annually in nominal terms.

Note that the annualized cost in the blue line and the other cost presentation are all based on nominal dollars. The two alternative cost streams discussed below, the levelized cost of energy (LCOE) and the LCOE with an escalator, are constructed using a present value discounting of the annualized costs to 2021 dollars.

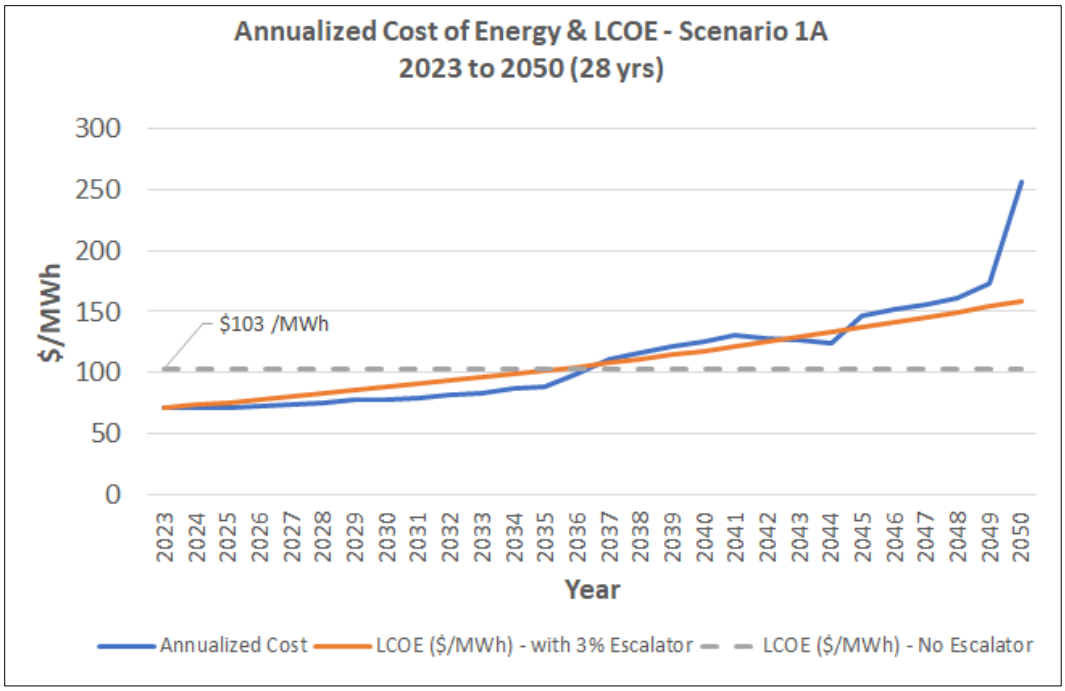


Figure 22. Annualized Cost of Energy and LCOE: Scenario 1A Based on 2023–2050

The dashed horizontal line presents the levelized cost of energy (LCOE) with no annual escalation, $103/MWh, which is the cost of energy equivalent to the blue line's actual energy cost if both were stated on a present value (PV) basis. Note that this report's PV and LCOE values are based on present value discounting to 2021 dollars. The LCOE calculation takes the entire stream of forecasted actual annual costs shown in the blue line and creates an equivalent single constant $/MWh value. The LCOE calculation flattens the year-to-year variations in actual costs and provides a single $/MWh to represent the multi-year stream of differing values shown in the actual costs (blue line). In application, the results of the 1A would provide an LCOE that partially pays for the high costs in the final six years by increasing the costs paid in the prior years.

Finally, the orange line shows the LCOE with an annual escalation of 3%. The 3% escalation is not equivalent to inflation. However, the value Quanta Technology selected to convert the LCOE to an equivalent stream of annual costs better matches the increasing trend in production costs. The orange line is equivalent to the dashed gray and blue lines if all three were compared on a PV basis. An LCOE with an escalation is a common method that provides a lower cost than the LCOE without escalation in the early years and a higher cost later. In these 1A results, note that both LCOE methods provide higher than actual costs in the early years, but both also provide lower than the actual cost in the final years of the study, where a steep climb in forecasted actual costs is seen.

As noted earlier, forecasting future conditions becomes more complex and uncertain the further one extends the analysis into the future. Unfortunately, the final six years of the results of Scenario 1A above have a significant impact on the overall results and the LCOE values shown. Changes to the results of the last six years of the study could, in turn, significantly impact overall LCOE results.

To illustrate the impacts of the later years in the study results, Quanta Technology shortened the period of the results assessed to determine the LCOE values from the original period of 2023–2050, or a total of 28 years, to the period from 2023–2042, or a period of 20 years. The same results from the full 28-year analysis were used to perform this analysis, but only the first 20 years of the results were used to calculate the LCOE with and without escalation. The results of assessing only the first 20 years of the result of Scenario 1 are shown in Figure 23.

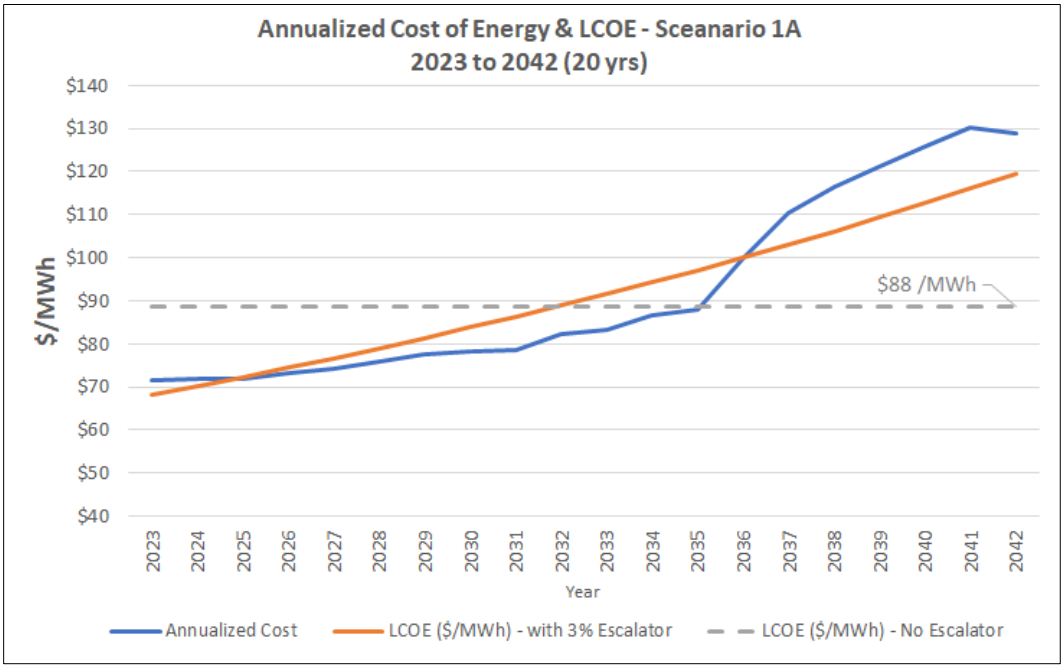


Figure 23. Annualized Cost of Energy and LCOE: Scenario 1A Based on 2023–2042

The results in the 20-year analysis of Figure 23 show an identical blue line as the first 20 years in Figure 19. However, using the shorter time horizon for the present value calculations produces significantly reduced LCOE values. The LCOE with no escalation of $103/MWh for the 28-year analysis in Figure 19 Figure 22 drops to $88/MWh in the 20-year analysis of Figure 23, a 15% reduction in the value. The lower LCOE in the 20-year analysis is driven by eliminating the costs in the final 8 years. Scenario 1A reaches a 71% renewable contribution to the CWP energy supply by 2042.

6.2 Target 2: 100% Net-Zero Carbon by 2050 Target

The chart shown in Figure 24 summarizes the technologies and capacities selected by the pIRP model for Scenario 2A, which focuses on achieving 100% net-zero carbon by 2050. While much of the technologies and capacities selection is similar to Scenario 1A, the notable difference is the fact that the mix of purchases continues to include significant purchases from the fossil generation in the Florida power market to the end of the study period and then includes RECs to offset the fossil generation purchases. A table listing the annual capacity purchases by technology for Scenario 2A can be found in Appendix F, Table 21.

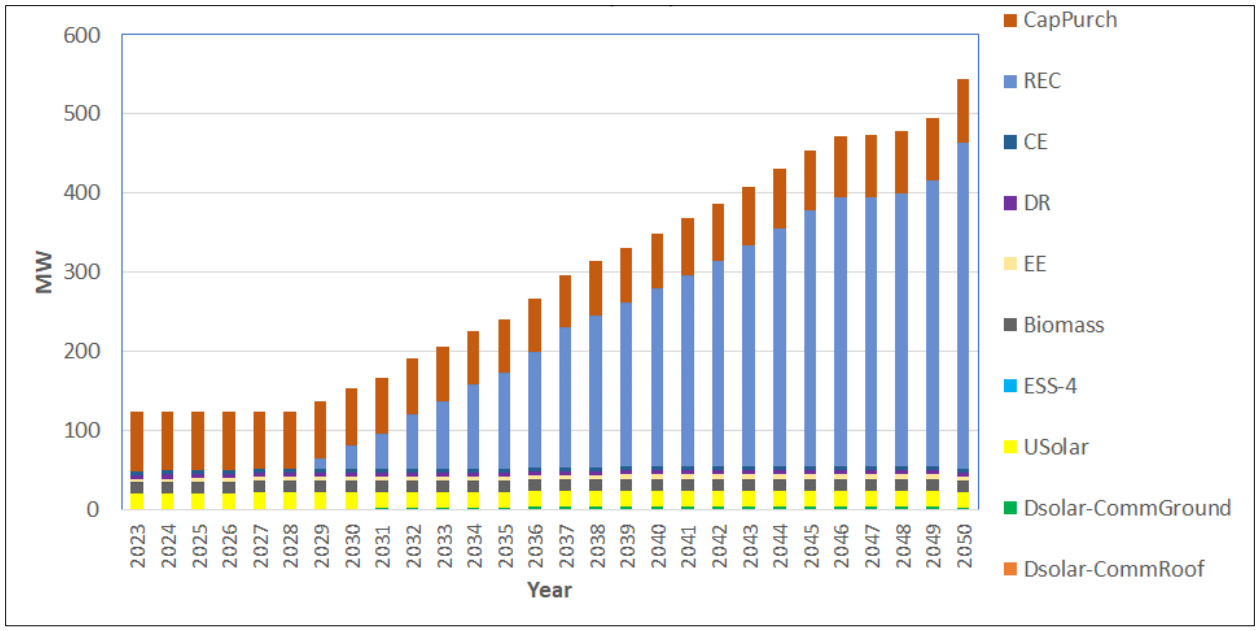


Figure 24. Capacity Additions for Scenario 2A

Figure 25 summarizes Scenario 2A's annual costs, LCOE with no escalation, and LCOE with a 3% annual escalation for the 28 years to 2050. The LCOE of this net-zero carbon scenario with no escalation, $88/MWh, is 15% lower than Scenario 1A, $103/MWh.

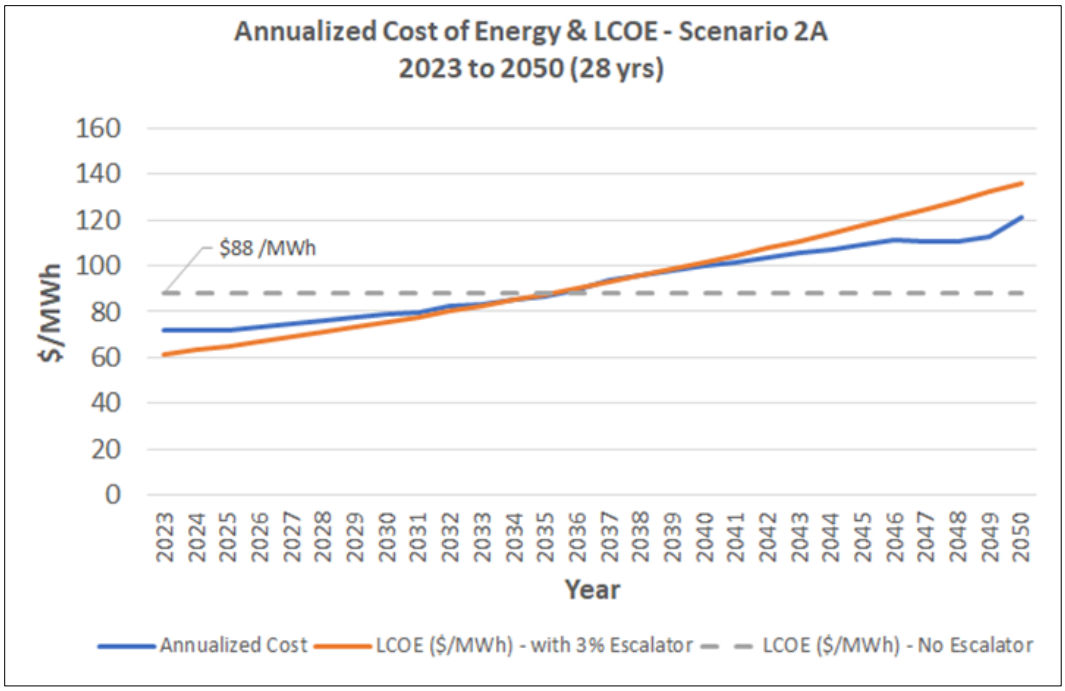


Figure 25. Annualized Cost of Energy and LCOE: Scenario 2A Based on 2023–2050

Figure 26 uses the same annual costs stream to summarize Scenario 3A annual costs, LCOE with no escalation, and LCOE with a 3% annual escalation for the 20 years to 2042.

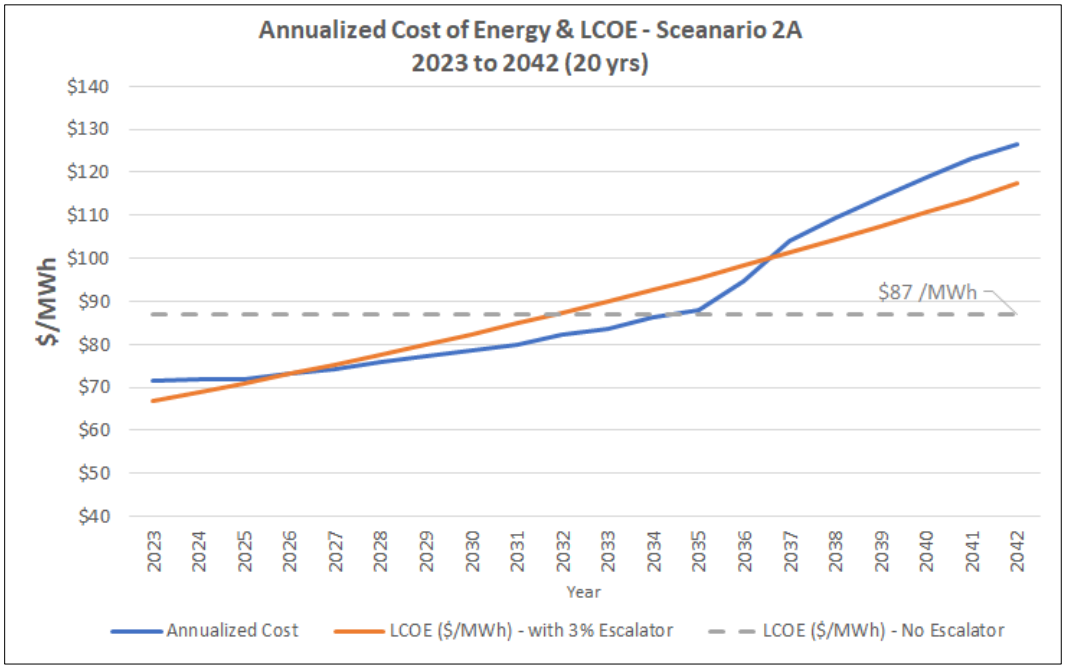


Figure 26. Annualized Cost of Energy and LCOE: Scenario 2A Based on 2023–2042

6.3 Target 3: 80% Renewable by 2035 Target

The chart shown in Figure 27 summarizes the technologies and capacities selected by the pIRP model for Scenario 3A, which focused on achieving 80% renewable by 2035 and 100% by 2050. The technologies selections are identical to Scenario 1A, except they added a more rapid pace in the first years of the analysis to reach the 80% renewable goal by 2035, versus Scenario 1, which does not reach 80% renewables until 2045, 10 years later. The notable difference is that the mix of purchases continues to include significant purchases from the fossil generation in the Florida power market to the end of the study period and then includes RECs to offset the fossil generation purchases. A table listing the annual capacity purchases by technology for Scenario 3A can be found in Appendix F, Table 22.

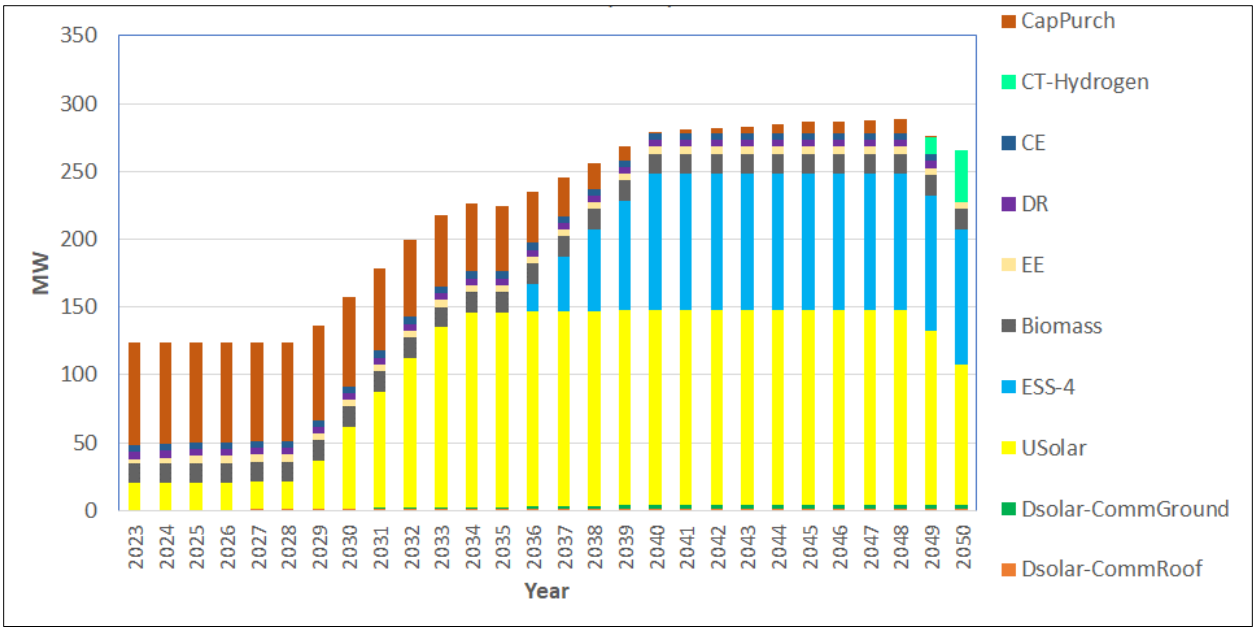


Figure 27. Capacity Additions for Scenario 3A

Figure 28 summarizes Scenario 3A's annual costs, LCOE with no escalation, and LCOE with a 3% annual escalation for the 28 years to 2050. Note that the LCOE for this scenario, $101/MWh, is very similar to the $103/MWh LCOE value of Scenario 1A. Figure 29 uses the same annual costs stream to summarize Scenario 3A's annual costs, LCOE with no escalation, and LCOE with a 3% annual escalation for the 20 years to 2042. The 20-year LCOE for Scenario 3A, $90/MWh, is only $2/MWH, or 2% over the equivalent value for Scenario 1A, $88/MWh.

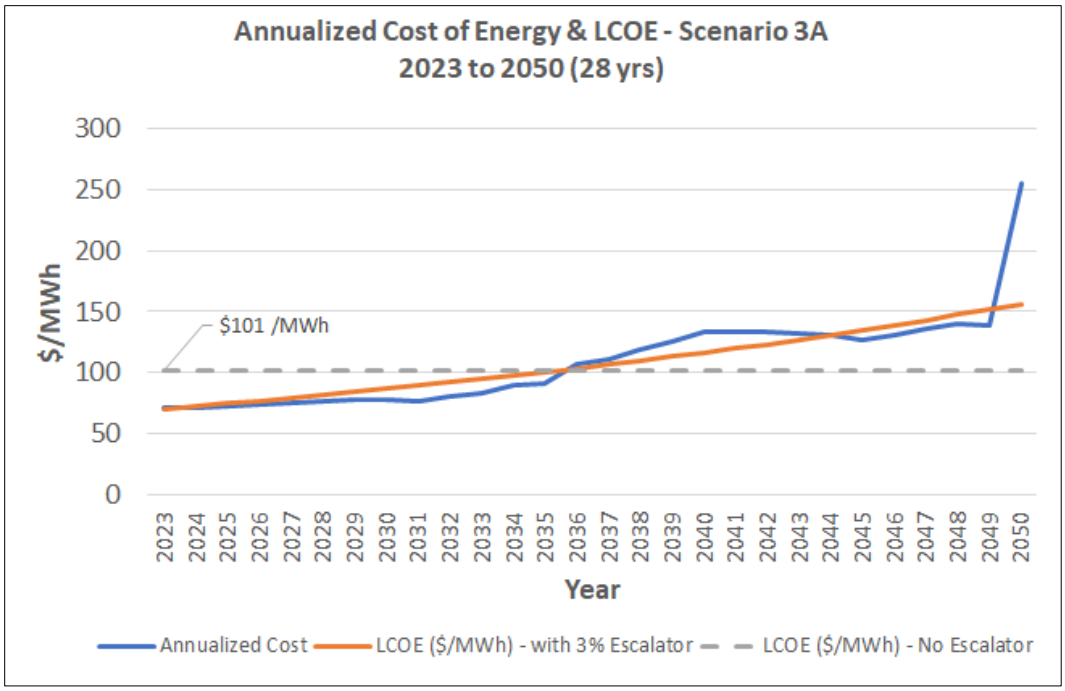


Figure 28. Annualized Cost of Energy and LCOE: Scenario 3A Based on 2023–2050

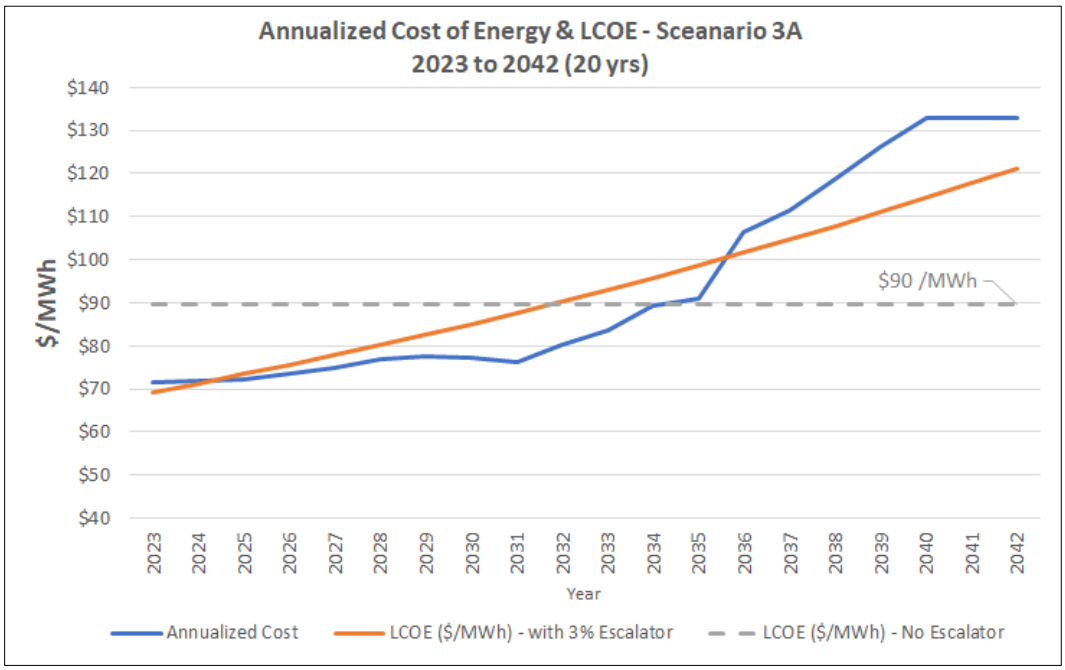


Figure 29. Annualized Cost of Energy and LCOE: Scenario 3A Based on 2023–2042

Figure 30 summarizes Scenario 3D's resulting costs for the 28 years to 2050. Scenario 3D incorporated the low fuel cost estimate, which substantially lowered the early year costs in the scenario when natural gas fueled generation dominate the supply portfolio. Figure 31 uses the same annual costs stream to

summarize Scenario 3D's annual costs, LCOE with no escalation, and LCOE with a 3% annual escalation for the 20 years to 2042.

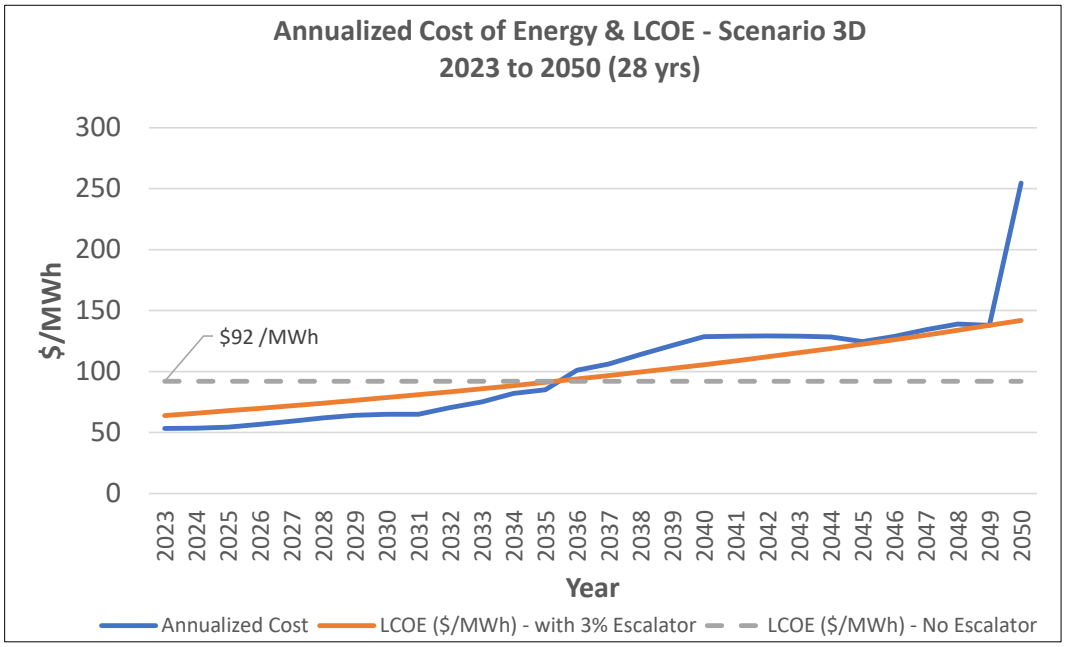


Figure 30. Annualized Cost of Energy and LCOE: Scenario 3D Based on 2023–2042

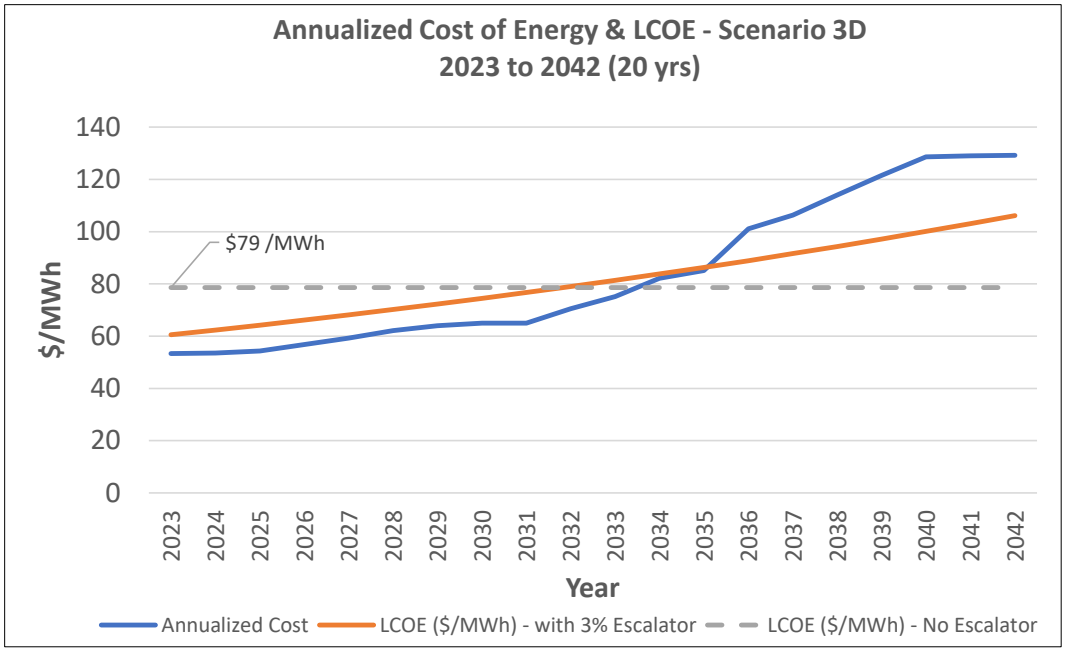


Figure 31. Annualized Cost of Energy and LCOE: Scenario 3D Based on 2023–2042

6.4 Target 4: 80% Renewable by 2035, 200% by 2050, and Storm Resiliency

Target 4 was created at the request of CWP to assess the costs of additional resources required for the portfolio defined in Scenario 3A should solar PV resources become unavailable for a multi-day period, such as during a hurricane or other severe weather event. To estimate the impacts of a severe weather event, Quanta Technology assumed that CWP would be without any solar production for a four-day period. The solar energy during this period would then need to be replaced with energy from other resources. For Scenario 4A, the solar PV production was replaced with energy from additional battery capacity acquired by CWP through PPAs. The second scenario, 4B, assumed that PPAS would supply replacement energy with older and less efficient fossil fuel units. Quanta Technology further assumed there would be multiple years with storm events requiring the replacement energy, which occurred in four years: 2023, 2035, 2042, and 2050. Since CWP is adding more solar generation to achieve progress toward its goals of 80% renewable energy by 2035 and 100% by 2050, each subsequent year requires increasing quantities of replacement energy during the storm events to replace the increasing amount of solar PV energy purchased by CWP.

The results for Scenario 4A for 28 years and 20 years are shown in Figure 32 and Figure 33. The cumulative impacts of the additional battery storage in Scenario 4A result in a higher overall LCOE than Scenario 3A ($115/MWh for 4A vs. $101/MWh for 3A, both for the 28-year analysis).

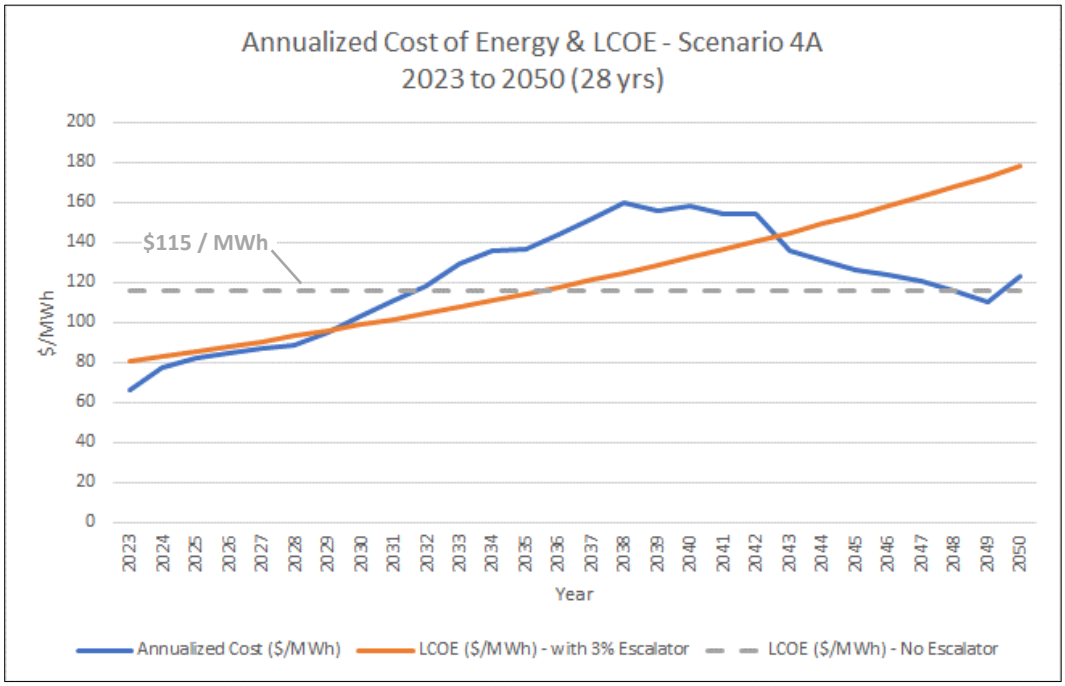


Figure 32. Annualized Cost of Energy and LCOE: Scenario 4A (Battery Capacity) Based on 2023–2050

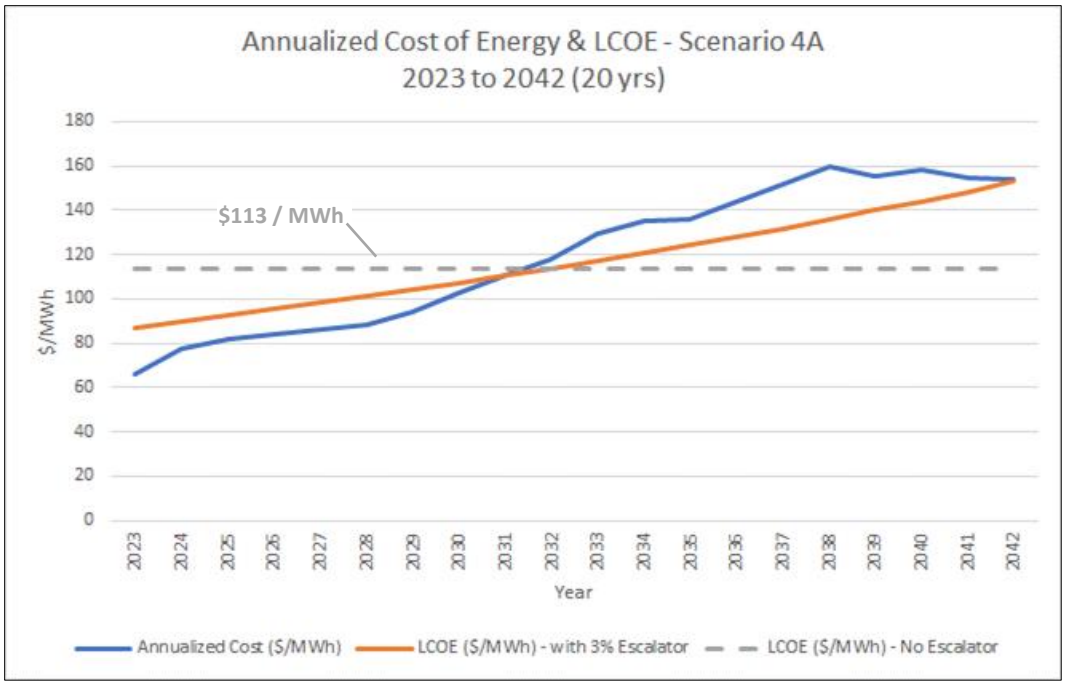


Figure 33. Annualized Cost of Energy and LCOE: Scenario 4A (Battery Capacity) Based on 2023–2042

The results for Scenario 4A for 28 years and 20 years are shown in Figure 32 and Figure 33. The 28-year LCOE results for Scenarios 4A and 4B are virtually identical ($115.30 /MWh versus $114.80 for 4B).

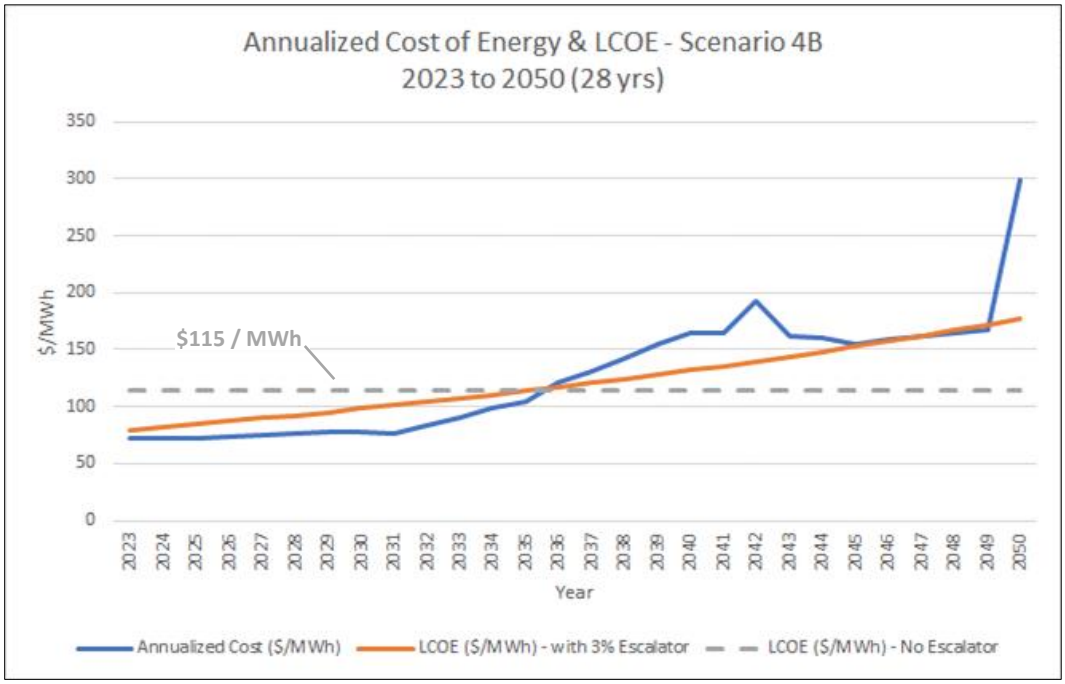


Figure 34. Annualized Cost of Energy and LCOE: Scenario 4B (Old Fossil Capacity) Based on 2023–2050

However, the 20-year LCOE results for Scenario 4B with fossil capacity used for resiliency are lower than the costs of the batteries used for resiliency in Scenario 4A ($99/MWh for 4B versus $113/MWh for 4A).

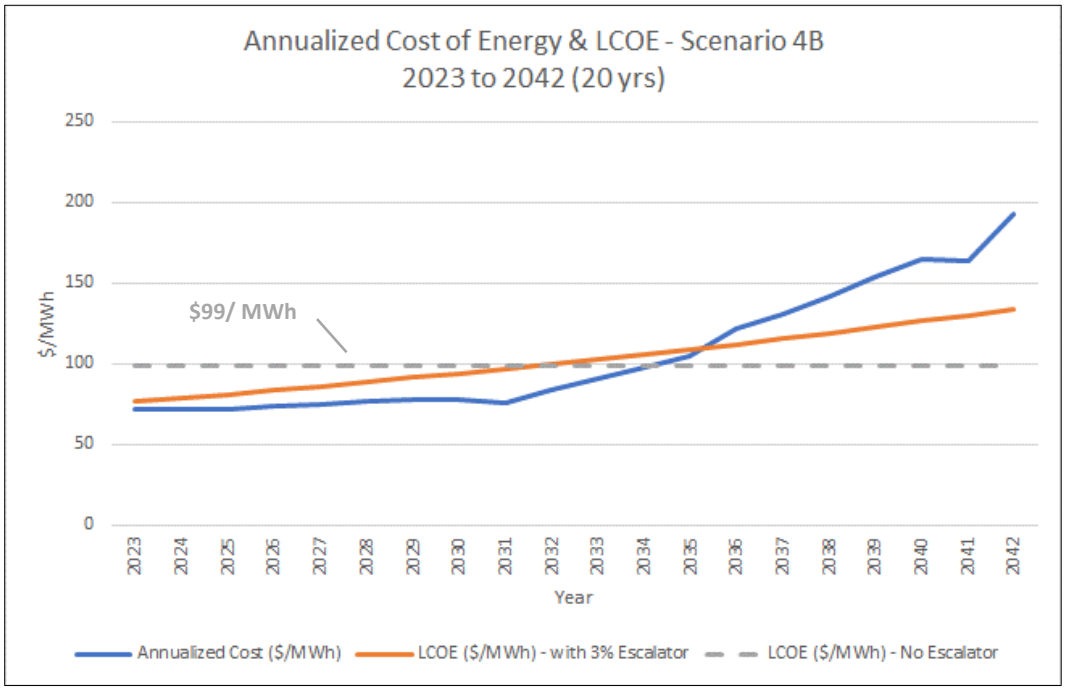


Figure 35. Annualized Cost of Energy and LCOE: Scenario 4B (Old Fossil Capacity) Based on 2023–2042

6.5 Summary of All Scenarios

Figure 36 summarizes the PVRR results for all the scenarios, the full 28-year PVRR, and the PVRR results for only the first 20 years of the analysis. The 28-year PVRR results show that the CWP projected costs, using a simple 3% escalation of the 2022 power costs are in the same range as Scenarios 1A, 2A and 3A which used similar fuels costs projections. Scenarios 1F, 2E, and 3D used a low fuel costs which is more consistent with current natural gas fuel price projections.

However, the 20-year PVRR results show a very tight range of costs. In the 20-year PVRR results, the difference between the forecast CWP costs ($504/MWh) and the average of Scenario 1 variations ($505/MWh) and the average of the Scenario 3 variations ($498/MWh) is only 1%. Scenario 2 variations provide the lowest average LCOE ($479/MWh), but the Scenario 1 variation average is still only 5% lower than the current CWP costs and the Scenario 1 variation.

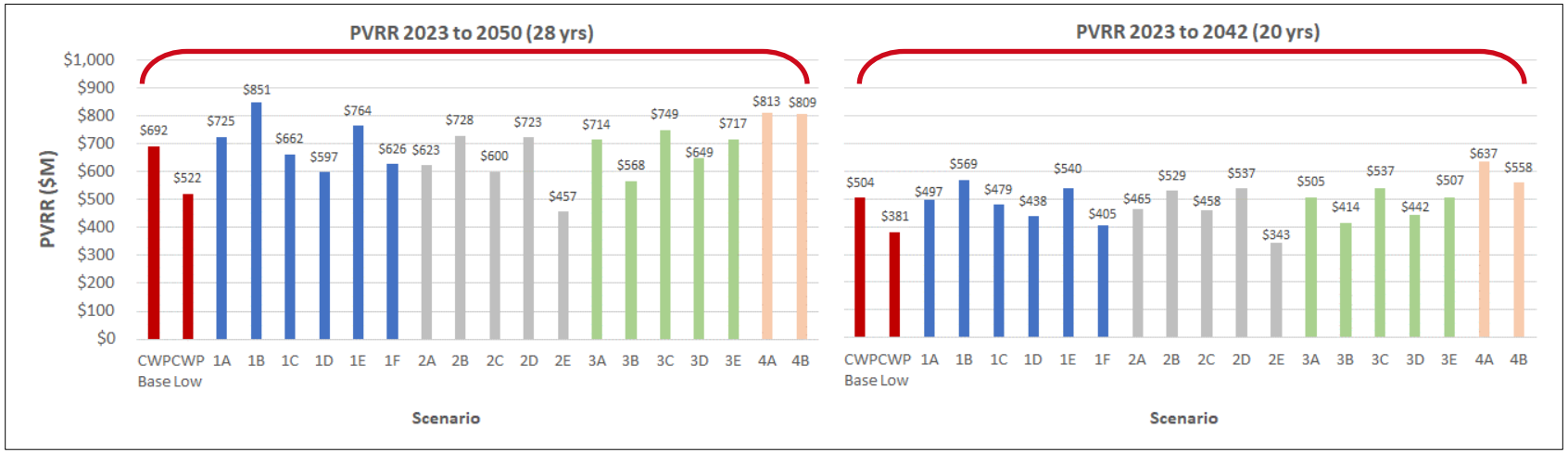


Figure 36. Summary of 28-Year and 20-Year PVRR Results for All Scenarios

Following the presentation of the initial draft results, CWP requested that Quanta Technology focus on the results from the Low natural gas price projections which aligns better with the long term historical costs experienced by CWP. Figure 37 provides a graphical comparison of the results of Scenario 3D power costs, which incorporates a Low fuel cost projection, and the 2023 actual CWP power costs, the projected 2024 costs, then subsequent years are escalated at 3% per year. The two alternatives track very closely for the first 10 to 12 years of the analysis. After 2035, the Scenario 3D costs begin to escalate at a slightly higher rate until 2049, when the green hydrogen fueled combustion turbines are added.

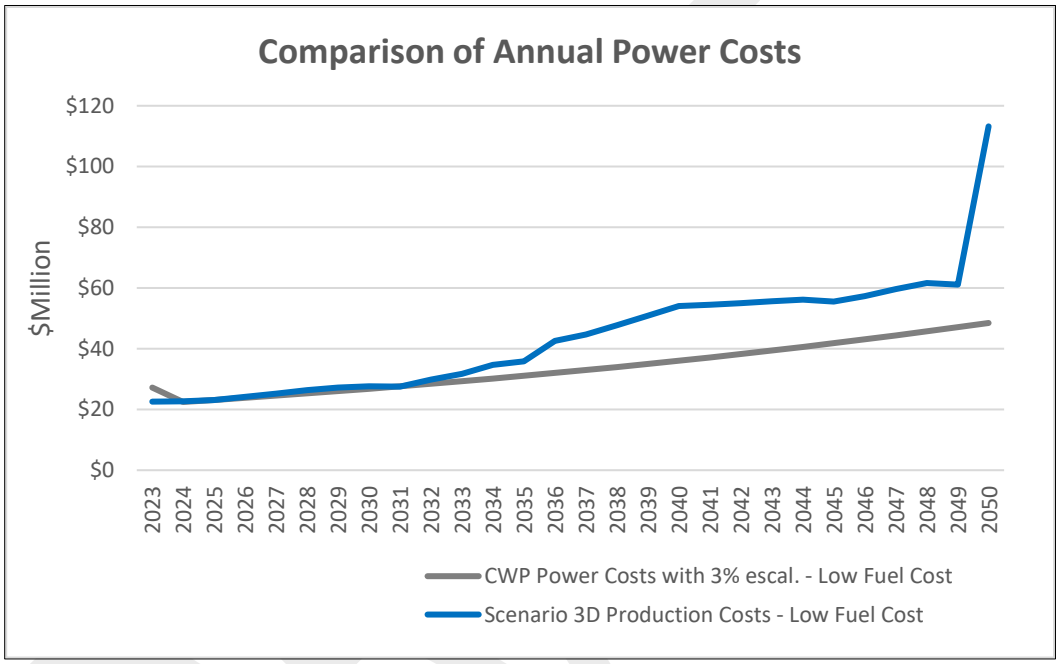


Figure 37. Comparison of Annual Power Costs for Scenario 3D and CWP Escalated

7 CONCLUSIONS AND RECOMMENDED ROADMAP

7.1 Conclusions

During the study, CWP informed Quanta Technology that their primary interest had evolved to a focus on zero carbon resources and renewables (Targets 1 and 3) rather than the net-zero option (Target 2) that would allow the continuation of energy supply from carbon-emitting energy resources. With this refined focus by CWP, this section focuses only on the conclusions related to the scenarios for Targets 1 and 3.

While this study defined a proxy cost estimate for CWP's continuing path of purchasing from energy sources that include a substantial portion of carbon-producing technologies, Quanta Technology believes the proxy of a 3% escalation in costs maybe optimistically low. The actual costs can be expected to be higher if world issues in Ukraine and the Middle East continue to inflict uncertainty on the world fuel markets. However, assessing optimistically low projections of CWP costs for comparison with the results of this study is consistent with the intent of this study to determine the feasibility of the targets under consideration (i.e., if the costs of a renewable transition are acceptable in comparison to an optimistically low CWP costs, then they will be more favorable against higher CWP costs projections).

This analysis indicates that CWP's adoption of a path toward 100% renewables can be accomplished for a reasonable cost of power for the next 20 years. However, beyond the next 20 years (i.e., during the last 8 years analyzed in this report, 2043–2050), the technology selection and the costs remain understandably more uncertain and, based on the technologies options and costs assumed in this study, could bring a substantial increase in CWP's power costs. As noted earlier, the rapid rise in costs near the end of the study period was driven by assumptions on technology costs and availability, which drove the inclusion of green hydrogen-powered CTs in the resource mix and the associated rise in costs.

Quanta Technology believes that additional cost-effective technologies will be available well before 2043. The power industry is expending considerable time and money on identifying options that could deliver lower-priced energy sources, including offshore wind, long-term energy storage technologies, and new technologies for geothermal energy, among others. While the costs projected in the last 6 years of the study are very high, based on the current assumptions, the costs before 2043 are comparable to projected CWP costs and could be lower. CWP should not avoid adopting its renewable targets because of costs that are not expected to occur for over 20 years. CWP should regularly reevaluate its targets and plans for its electric energy supply. Should continuing on a path to 100% renewable prove too costly in future years, CWP can adjust accordingly.

7.2 Recommended Roadmap

This study provides results indicating that Targets 1 and 3 are viable technical and financial options for the next 20 years (i.e., 2023–2042). After 2043, the costs begin to increase substantially due to the recommended additions of CT-hydrogen resources, a high-cost and nascent technology. Based on these results, Quanta Technology recommends the following roadmap for CWP's future.

7.2.1 Next Three Months (May 2023–July 2023)

Within the next three months, Quanta Technology recommends that CWP focus on alignment, definition, and goal-setting/validation activities in the near term. Specifically, the following is recommended:

Table 12. Three-Month Recommendations

Actions	Projects
Define a clear target for CWP's clean energy supply	• CWP would need to coalesce around a clear target for its future clean energy supply. • Establish multiple interim targets for renewable contributions before 2050 by using the findings of this report. An illustrative example of renewable goals to achieve Targets 1 and 2 is shown in Figure 38.
Start CWP IRP program	• Assign and existing employee or hire a program manager to coordinate all aspects of reaching the goal. • Reporting templates should be developed • A timeframe for reporting to citizens should be established.

For example, some potential annual renewable targets may be considered below.

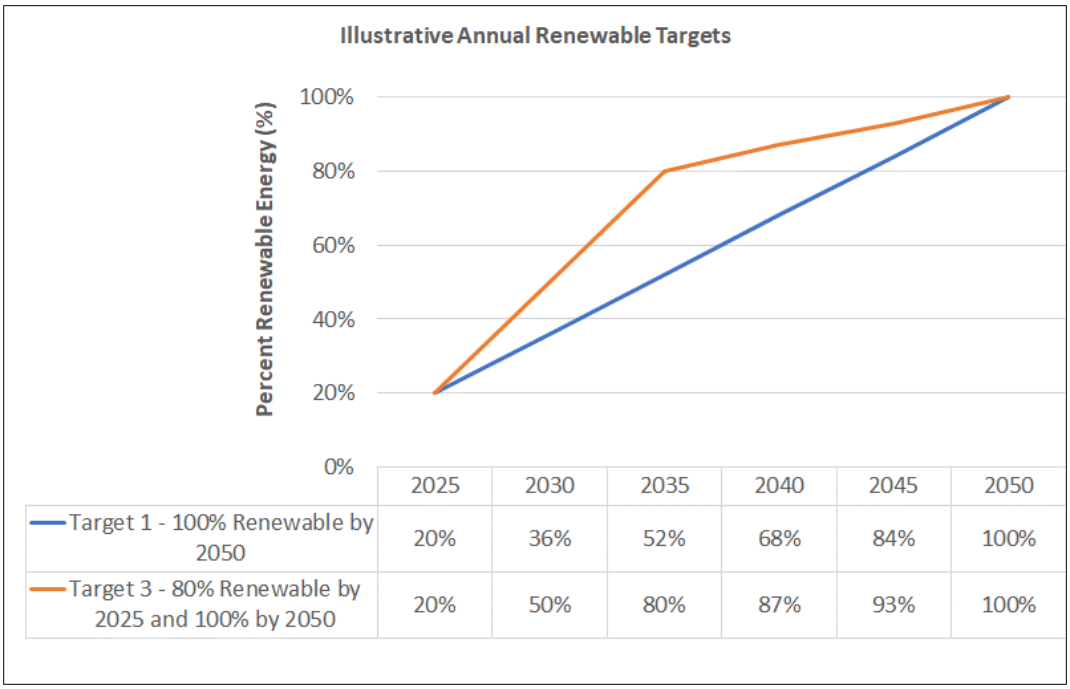


Figure 38. Illustrative Annual Renewable Targets

7.2.2 Next 18 Months (August 2023–February 2025)

Within the next 18 months, Quanta Technology recommends that CWP focus its attention on TOU, DR, and EE and prioritize utility-scale renewable purchases over rooftop solar for PV assets, as well as a number of other actions. Specifically, the following is recommended:

Table 13. 18-Month Recommendations

Actions	Projects
Develop TOU, DR, and EE programs	• Complete a load research study and consider and appliance saturation survey to gather better data to assess and design TOU, EE, and DR programs for CWP, Residential, and Business customers. • Develop forecasts of the load impacts of the future appliance and end-use electrification.

Actions	Projects
Prioritize utility-scale renewable purchases over solar PV on city rooftops	• Utility-scale solar project ownership: prioritize project and PPA negotiations to support CWP's choice of renewable target plan. • Continue to look for opportunities to pool CWP requirements and partner with FMPA and other Florida utilities for renewable and storage project power purchases and project development. • Complete a study of all CWP assets to prioritize which CWP facilities should or should not be included in future plans to add solar and storage to CWP assets. Consider an RFI for City-owned assets to understand costs and options for all possible facilities. • Complete an EV adoption study better to quantify the expected impacts of EV adoption in CWP.
Analyze warehouse rooftop PV installation	• Understand the need for individual building monitoring • Create a roadmap for monitoring and control. • Engage in discussions with vendors to develop an understanding of software in the marketplace.
Explore CWP utility bill financing	• Explore avenues in which CWP guarantees can help with financing solar of customer rooftop solar and storage additions. • Create a billing template to reflect customer savings and contribution to the goal.
Plan CWP IRP updates	• Consider assigning a project manager to provide regular updates on the program • Update the current plan to complete a revised CWP IRP after the development of EE and DR programs are developed and results from the load research study are available. • Commit to regular, periodic updates of IRP, which include a resource technology maturity assessment of new and existing technologies to provide information to adapt CWP's plan to evolving technology capabilities and costs.

7.2.3 Next 48 Months (March 2025–April 2027)

Within the next 48 months, Quanta Technology recommends that CWP focus on implementing programs (EE and TOU). Specifically, the following is recommended:

Table 14. 48-Month Recommendations

Actions	Projects
Update IRP and technology maturity assessments	• Create a roadmap for technology upgrades such as DERMs to support CWP. • Create a roadmap for the implementation of CWP-owned Battery Storage for resiliency.
Create a plan for CWP vehicle electrification	• Complete a study and plan for the electrification of all CWP-owned vehicles.
Implement rate changes	• Create and implement TOU rates with energy costs and demand rates that represent actual energy and demand costs. • Change the NEM rate credited to customers to a cost-based TOU rate that evolves as CWP TOU costs evolve. • New future NEM credit for any excess flow from the customer back to the system should reflect only the actual TOU wholesale energy value to CWP. • The value of NEM backflow power from distributed solar will ultimately go to zero and be of negative value in future years as CWP wholesale solar production exceeds noontime CWP demand, after which CWP will need to purchase energy storage to store the excess solar or interrupt the excess solar.

7.2.4 Beyond 48 Months (Beyond April 2027)

Quanta Technology recommends that CWP follow the course of action with regular project management updates on meeting the renewable targets adopted in Section 7.2.1.

APPENDIX A: TERMS AND DEFINITIONS

Table 15. Report Terms

Term	Definition
100% Renewable	• All energy originates from some form of renewable technology.
Bioenergy or Biomass	• Energy technologies that use biomass as a fuel. • Biomass is a solid or gaseous renewable energy resource derived from plant- and algae-based materials that include: ▪ Crop wastes ▪ Forest residues ▪ Purpose-grown grasses ▪ Woody energy crops ▪ Microalgae ▪ Urban wood waste ▪ Food waste • Even though biofuels are considered renewable, burning biofuels emit carbon and other elements. • When burned as a fuel for electric production, biofuels only release the carbon the plants take from the air and soil during their growth cycle. The process is comparable to moving carbon in and out of the atmosphere and soil but does not contribute incremental increases to the atmospheric carbon. • The biomass energy technologies considered in this study are dispatchable, and their ability to operate continuously, just like a fossil-fueled plant, is only limited by the continuity of the fuel supply to the site and onsite fuel storage.
Electrification	• The process of changing appliances and end uses that use fossil fuels to electric, e.g., changing a natural gas space heater to an electric heat pump or changing a gasoline-fueled vehicle to an electric vehicle.
Energy Neutral	• A CWP or customer facility that generates sufficient annual energy from their distributed energy resources to offset the annual consumption of the facility.
Green Hydrogen	• Green hydrogen is considered a green and renewable fuel source. Green hydrogen is created without emissions or the use of fossil fuels. The typical method considered the likely future source of large quantities of green hydrogen is renewable energy resources supplying power to electrolyzers that split water into pure oxygen and pure hydrogen. • Green hydrogen differs from other types of hydrogen that use different fossil-fueled processes to separate hydrogen from the fuel source.
Net Energy Metering	• A rating program currently in effect in CWP where customers with distributed energy resources are credited at full retail, variable rates for any excess energy (i.e., the energy that exceeds the customer's instantaneous needs) that flows back into the CWP system.
Net-Zero Carbon	• Net zero refers to a state in which the greenhouse gases going into the atmosphere are balanced by removal from the atmosphere. Generally, utilities plan to achieve net-zero carbon by reducing their carbon emissions and acquiring renewable energy credits or other carbon offsets, which counterbalance carbon removal of any remaining carbon emissions resulting from their electric energy production.
Net-Zero Energy	• Sufficient energy is produced from solar PV or other renewable sources to offset the annual energy consumption.

Term	Definition
Renewable Energy	• Energy is generated only from technologies considered to be renewable, including wind, solar, ocean energy, geothermal, hydroelectricity, technologies that burn fuels derived from biomass, and green hydrogen (i.e., hydrogen generated from processes that use water and renewable energy). • Hydroelectricity is a renewable technology but is treated differently than other forms of renewable energy in some states due to its other environmental impacts.
Renewable Energy Credit	• A renewable energy credit (REC) is a market-based instrument that represents the property rights to the environmental, social, and other non-power attributes of renewable electricity generation. • RECs are issued when one megawatt-hour (MWh) of electricity is generated and delivered to the grid from a renewable energy resource. • The ownership of the REC is a certificate that can be owned, sold, or traded separately from the electrical energy that served as the source of the REC creation.
Virtual Power Plant	• Refers to a group of distributed generation or energy storage resources that can be controlled and dispatched by the utility to mimic both the electric capacity and flexibility of a typical utility generation plant or utility energy storage plant.
Zero Carbon	• All energy is created with technologies that do not emit carbon into the atmosphere. • "Real Zero" is a new term recently invented and trademarked by FPL to differentiate its emission goal from other utilities' net-zero carbon goals. However, Real Zero is identical in definition to zero carbon. • For electric generation, zero-carbon energy resources include all forms of generation technology that do not emit carbon (e.g., nuclear and renewable technologies that do not emit carbon into the atmosphere). • Even though biofuels and geothermal are considered renewable, they are not zero-carbon resources since both generally emit carbon into the atmosphere.

APPENDIX B: LIST OF ABBREVIATIONS AND ACRONYMS

Table 16. Report Abbreviations and Acronyms

Term	Definition
ATB	NREL Annual technology baseline
Biomass	Biomass fuel generation
CAPEX	Capital expenditures
CapPurch	Capacity purchases from the Florida energy market, which is assumed to be 100% fossil generation
CE	Internal Combustion Engine fueled with diesel
CT	Combustion turbine generator
CT-Hydrogen	Green hydrogen-fueled combustion turbine
CWP	City of Winter Park
DEF	Duke Energy Florida
Dsolar-CommGround	Distributed solar PV at CWP facility open land
Dsolar-CommRoof	Distributed solar PV on CWP facility rooftops
DR	Demand response
EE	Energy efficiency
EES-4	Battery electric energy storage system with a 4-hour energy capacity
ELCC	Effective load-carrying capability
EV	Electric vehicle
FGBC	Florida Green Building Coalition
FL	Florida
FMPA	Florida Municipal Power Agency
FPL	Florida Power & Light
FY	Fiscal year
GHG	Greenhouse gas
GRU	Gainesville Regional Utilities
GW	Gigawatt
IBR	Inverter-based resources
IRP	Integrated resource plan
pIRP	Probabilistic integrated resource plan
JEA	Jacksonville Electric Authority
KW	Kilowatt
LCOE	Levelized cost of energy
LDV	Light-duty vehicle

Term	Definition
LED	Light emitting diode
LP	Linear program
MW	Megawatt
NREL	National Renewable Energy Laboratory
OUC	Orlando Utilities Commission
PPA	Power purchase agreement
PSC	Public Service Commission
PV	Photovoltaic
REC	Renewable energy credit
RPS	Renewable portfolio standards
SAP	Sustainable action plan
SFH	Single-family homes
T&D	Transmission & Distribution
TAL	Tallahassee
TECO	Tampa Electric Company
TYSP	Ten-year site plan
USolar	Utility-scale solar PV
VRE	Variable renewable energy

APPENDIX C: BATTERY LIFECYCLE CONSIDERATIONS

Two key factors dictate the life of battery-based energy storage systems:

- Capacity fading due to age
- Capacity fading due to charge-discharge cycles

Lithium-ion storage capacity typically fades or degrades with time and use, at 2%–3% per year, if used at an average rate of one full cycle per day. The storage system is designed to deliver a maximum lifetime of around 4000–6000 full cycles before the capacity fades below 70%–80% of its initial capacity. The number of cycles a battery system delivers depends strongly on the depth of discharge in each cycle. The lifecycles increase as the cycle depth of discharge decreases. In addition to lifecycles, lithium-ion batteries typically have a shelf life of around 15 years.

To maintain a battery over its life, operators usually implement an asset management plan that includes annual inspections and capacity augmentations.

However, its modules must be replaced and recycled at the end of a battery system's life. Many components of the battery systems will remain functional, including the housing/containers, electrical balance of the plant, and interconnections. The bi-directional inverters are also replaced every 10–15 years.

The chemistry of lithium-ion batteries differs between technologies and manufacturers. Some use toxic compounds and rare metals (such as cobalt or cadmium), while others use safer, non-toxic, and relatively common materials (such as manganese oxide or phosphate). Unlike lead-acid batteries that recycle 100% of the lead used in their ecosystem, the state of recycling lithium-ion batteries is still evolving. Recycling uses complex and energy-demanding processes that include pyrometallurgy and hydrometallurgy. In pyrometallurgy, battery components are smelted in a high-temperature process that burns and separates a mixed metal alloy of cobalt, copper, iron, and nickel. Hydrometallurgy recovers the desired metals by treating the cathode material with an acidic or basic solution. Multiple companies throughout North America are already in the business of reusing or recycling batteries, and many of these have partnered with car companies to aid in the recycling of their electric vehicle batteries. Most companies specializing in this process claim to recover up to 95% of the raw materials, including cobalt, nickel, and lithium. Tesla also recycles batteries independently, claiming to recover 92% of the battery's raw materials.

From a financial point of view, the cost of recycling after 15 years is not certain. Assuming a value of at least $50/kWh in today's dollars is prudent.

APPENDIX D: NREL PVWATTS SOLAR PRODUCTION ESTIMATE

PVWatts Calculator

RESULTS

20,830 kWh/Year*

System output may range from 19,920 to 21,391 kWh per year near this location.

Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)
January	5.10	1,718
February	5.12	1,546
March	6.13	2,022
April	6.27	1,967
May	6.16	1,954
June	5.33	1,623
July	5.32	1,669
August	5.36	1,695
September	5.36	1,660
October	5.45	1,796
November	5.19	1,680
December	4.39	1,500
Annual	5.43	20,830

Figure 39. PVWatts Calculator

Location and Station Identification

Requested Location	401 S Park Ave 32789	
Weather Data Source	Lat, Lng: 28.61, -81.34	1.2 mi
Latitude	28.61° N	
Longitude	81.34° W	

PV System Specifications

DC System Size	13.8 kW
Module Type	Standard
Array Type	Fixed (open rack)
System Losses	14.08%
Array Tilt	30°
Array Azimuth	180°
DC to AC Size Ratio	1.2
Inverter Efficiency	96%
Ground Coverage Ratio	0.4%
Albedo	*From weather file*
Bifacial	No (0)

Monthly Irradiance Loss	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Performance Metrics

DC Capacity Factor	17.2%

Figure 40. PVWatts Information and Metrics

APPENDIX E: RESIDENTIAL ROOFTOP SOLAR AND BATTERY FORECASTS

Table 17. Residential Rooftop Solar PV And Battery Forecasts

Year	Expected		High		Low	
	Residential Distributed Solar (MWh)	Residential Battery (MWh)[14]	Residential Distributed Solar (MWh)	Residential Battery (MWh)[15]	Residential Distributed Solar (MWh)	Residential Battery (MWh)[15]
2025	650	5	1,037	8	387	0
2026	1,297	7	2,069	11	772	0
2027	2,591	8	4,132	13	1,542	0
2028	3,878	10	6,186	16	2,308	0
2029	5,809	12	9,266	19	3,457	0
2030	7,730	13	12,330	21	4,601	0
2031	10,291	15	16,417	24	6,126	0
2032	12,840	17	20,483	27	7,643	0
2033	15,376	18	24,528	29	9,152	0
2034	18,550	20	29,591	32	11,041	0
2035	21,707	22	34,628	35	12,920	0
2036	25,499	23	40,676	37	15,177	0
2037	29,922	25	47,732	40	17,810	0
2038	34,973	27	55,789	43	20,816	0
2039	39,349	28	62,769	45	23,421	0
2040	43,052	30	68,678	48	25,625	0
2041	46,087	32	73,519	51	27,432	0
2042	49,107	33	78,336	54	29,229	0
2043	51,462	35	82,093	56	30,631	0
2044	53,805	37	85,830	59	32,025	0
2045	55,486	38	88,512	62	33,026	0
2046	57,159	40	91,181	64	34,022	0
2047	58,823	42	93,836	67	35,012	0
2048	59,829	43	95,440	70	35,611	0
2049	60,830	45	97,037	72	36,207	0
2050	60,526	47	96,552	75	36,026	0

[14] Battery energy forecasts are based on 80% of rated battery energy capacity.

APPENDIX F: FORECAST OF ROOFTOP AND GROUND MOUNT SOLAR PV ON CWP-OWNED PROPERTY

Table 18. Forecast Of Rooftop And Ground Mount Solar PV On CWP-Owned Property

Year	Expected	
	CWP-Owned Property Rooftop PV (MWh)	CWP-Owned Property Ground Mount PV (MWh)
2025	0	0
2026	0	0
2027	1,780	0
2028	1,780	0
2029	1,780	0
2030	1,780	0
2031	1,780	1,780
2032	1,780	1,780
2033	1,780	1,780
2034	1,780	1,780
2035	1,780	1,780
2036	1,780	2,735
2037	1,780	2,735
2038	1,780	2,735
2039	1,780	3,612
2040	1,780	5,353
2041	1,780	5,353
2042	1,780	5,353
2043	1,780	5,353
2044	1,780	5,353
2045	1,780	5,353
2046	1,780	5,353
2047	1,780	5,353
2048	1,780	5,353
2049	1,780	5,353
2050	1,780	5,353

APPENDIX G: RESIDENTIAL LDV EV FORECASTS

Table 19. Residential LDV EV Forecasts

Year	Expected		High		Low	
	Resident-Owned LDV EV	Resident LDV EV Charging Energy (MWh)	Resident-Owned LDV EV	Resident LDV EV Charging Energy (MWh)	Resident-Owned LDV EV	Resident LDV EV Charging Energy (MWh)
2023	403	797	624	1,235	302	597
2024	542	1,224	840	1,898	407	918
2025	714	1,766	1,107	2,737	536	1,325
2026	942	2,483	1,460	3,849	707	1,862
2027	1,222	3,381	1,894	5,240	917	2,536
2028	1,556	4,469	2,413	6,927	1,167	3,352
2029	1,953	5,775	3,026	8,951	1,464	4,331
2030	2,417	7,327	3,747	11,356	1,813	5,495
2031	2,799	8,638	4,569	14,100	2,211	6,822
2032	3,241	10,002	5,430	16,757	3,191	9,848
2033	3,753	11,582	6,453	19,915	4,172	12,874
2034	4,346	13,411	7,670	23,669	5,152	15,900
2035	5,032	15,529	9,115	28,130	6,133	18,926
2036	5,827	17,981	10,833	33,431	7,113	21,952
2037	6,747	20,821	12,875	39,732	8,094	24,977
2038	7,812	24,109	15,301	47,221	9,074	28,003
2039	9,046	27,917	18,185	56,121	10,055	31,029
2040	10,475	32,326	21,613	66,698	11,035	34,055
2041	12,129	37,431	21,651	66,816	12,016	37,081
2042	14,044	43,342	21,689	66,934	12,996	40,107
2043	16,262	50,186	21,728	67,052	13,977	43,132
2044	18,831	58,112	21,766	67,171	14,957	46,158
2045	21,804	67,289	21,804	67,289	15,938	49,184
2046	21,843	67,408	21,843	67,408	16,918	52,210
2047	21,882	67,527	21,882	67,527	17,899	55,236
2048	21,920	67,647	21,920	67,647	18,879	58,262
2049	21,959	67,766	21,959	67,766	19,860	61,287
2050	21,998	67,886	21,998	67,886	20,840	64,313

APPENDIX H: ANNUAL SCHEDULE OF CAPACITY PURCHASES

Table 20. Scenario 1A: Annual Capacity Purchases (MW)

Year	Utilty Scale Solar (Usolar)	4-hr Battery Energy Storage System (ESS-4)	Biomass	Internal Combustion Engine - Fossil (CE)	Hydrogen Fuel Combustion Turbine (CT Hydrogen)	Demand Response (DR)	Energy Efficiency (EE)	City Property Rooftop Solar (Dsolar-Comm Roof)	City Property Ground Mount Solar (Dsolar-Comm Ground)	FL System Purchase (Cap Purch)
2023	20.0	0.0	15.0	5.0	0.0	5.0	3.0	0.0	0.0	75.5
2024	20.0	0.0	15.0	5.0	0.0	5.0	4.0	0.0	0.0	74.7
2025	20.0	0.0	15.0	5.0	0.0	5.0	5.0	0.0	0.0	73.7
2026	20.0	0.0	15.0	5.0	0.0	5.0	5.0	0.0	0.0	73.4
2027	20.0	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	73.1
2028	20.0	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	72.9
2029	20.0	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	72.4
2030	30.8	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	70.3
2031	38.4	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	68.2
2032	56.1	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	64.8
2033	64.4	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	62.7
2034	70.8	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	60.7
2035	70.8	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	59.7
2036	70.8	20.0	15.0	5.0	0.0	5.0	5.0	1.0	2.0	49.1
2037	70.8	40.0	15.0	5.0	0.0	5.0	5.0	1.0	2.0	39.4
2038	70.8	60.0	15.0	5.0	0.0	5.0	5.0	1.0	2.0	30.3
2039	70.8	76.4	15.0	5.0	0.0	5.0	5.0	1.0	3.0	23.0
2040	70.8	93.7	15.0	5.0	0.0	5.0	5.0	1.0	3.0	15.4
2041	89.3	93.7	15.0	5.0	0.0	5.0	5.0	1.0	3.0	13.8
2042	89.8	93.7	15.0	5.0	0.0	5.0	5.0	1.0	3.0	15.0
2043	89.8	93.7	15.0	5.0	0.0	5.0	5.0	1.0	3.0	16.3
2044	89.8	93.7	15.0	5.0	0.0	5.0	5.0	1.0	3.0	17.8
2045	89.8	93.7	15.0	5.0	6.8	5.0	5.0	1.0	3.0	13.0
2046	89.8	93.7	15.0	5.0	7.4	5.0	5.0	1.0	3.0	13.2
2047	89.8	93.7	15.0	5.0	7.4	5.0	5.0	1.0	3.0	13.9
2048	89.8	93.7	15.0	5.0	7.4	5.0	5.0	1.0	3.0	14.5
2049	89.8	93.7	15.0	5.0	16.2	5.0	5.0	1.0	3.0	7.0
2050	78.9	93.7	15.0	0.0	41.2	0.0	5.0	1.0	3.0	0.0

Table 21. Scenario 2A: Annual Capacity Purchases (MW)

	Utilty Scale Solar (Usolar)	Biomass	Internal Combustion Engine - Fossil (CE)	Renewable Energy Credits (REC)	Hydrogen Fuel Combustion Turbine (CT Hydrogen)	Demand Response (DR)	Energy Efficiency (EE)	City Property Rooftop Solar (Dsolar-Comm Roof)	City Property Ground Mount Solar (Dsolar-Comm Ground)	FL System Purchase (Cap Purch)
2023	20.0	15.0	5.0	0.0	0.0	5.0	3.0	0.0	0.0	75.5
2024	20.0	15.0	5.0	0.0	0.0	5.0	4.0	0.0	0.0	74.7
2025	20.0	15.0	5.0	0.0	0.0	5.0	5.0	0.0	0.0	73.7
2026	20.0	15.0	5.0	0.0	0.0	5.0	5.0	0.0	0.0	73.4
2027	20.0	15.0	5.0	0.0	0.0	5.0	5.0	1.0	0.0	73.1
2028	20.0	15.0	5.0	0.0	0.0	5.0	5.0	1.0	0.0	72.9
2029	20.0	15.0	5.0	14.1	0.0	5.0	5.0	1.0	0.0	72.4
2030	20.0	15.0	5.0	29.9	0.0	5.0	5.0	1.0	0.0	71.9
2031	20.0	15.0	5.0	43.7	0.0	5.0	5.0	1.0	1.0	71.0
2032	20.0	15.0	5.0	68.7	0.0	5.0	5.0	1.0	1.0	70.2
2033	20.0	15.0	5.0	84.5	0.0	5.0	5.0	1.0	1.0	69.4
2034	20.0	15.0	5.0	105.5	0.0	5.0	5.0	1.0	1.0	68.3
2035	20.0	15.0	5.0	121.4	0.0	5.0	5.0	1.0	1.0	67.3
2036	20.0	15.0	5.0	146.9	0.0	5.0	5.0	1.0	2.0	66.7
2037	20.0	15.0	5.0	176.6	0.0	5.0	5.0	1.0	2.0	67.0
2038	20.0	15.0	5.0	192.6	0.0	5.0	5.0	1.0	2.0	68.0
2039	20.0	15.0	5.0	208.3	0.0	5.0	5.0	1.0	3.0	68.8
2040	20.0	15.0	5.0	225.0	0.0	5.0	5.0	1.0	3.0	69.9
2041	20.0	15.0	5.0	242.5	0.0	5.0	5.0	1.0	3.0	71.0
2042	20.0	15.0	5.0	260.9	0.0	5.0	5.0	1.0	3.0	72.3
2043	20.0	15.0	5.0	280.4	0.0	5.0	5.0	1.0	3.0	73.6
2044	20.0	15.0	5.0	300.9	0.0	5.0	5.0	1.0	3.0	75.1
2045	20.0	15.0	5.0	323.7	0.0	5.0	5.0	1.0	3.0	76.7
2046	20.0	15.0	5.0	340.1	0.0	5.0	5.0	1.0	3.0	77.4
2047	20.0	15.0	5.0	341.0	0.0	5.0	5.0	1.0	3.0	78.1
2048	20.0	15.0	5.0	345.8	0.0	5.0	5.0	1.0	3.0	78.8
2049	20.0	15.0	5.0	361.9	0.0	5.0	5.0	1.0	3.0	79.4
2050	20.0	15.0	5.0	412.1	0.0	5.0	5.0	0.0	1.5	80.4

Table 22. Scenario 3A: Annual Capacity Purchases (MW)

Year	Utilty Scale Solar (Usolar)	4-hr Battery Energy Storage System (ESS-4)	Biomass	Internal Combustion Engine - Fossil (CE)	Hydrogen Fuel Combustion Turbine (CT Hydrogen)	Demand Response (DR)	Energy Efficiency (EE)	City Property Rooftop Solar (Dsolar-Comm Roof)	City Property Ground Mount Solar (Dsolar-Comm Ground)	FL System Purchase (Cap Purch)
2023	20.0	0.0	15.0	5.0	0.0	5.0	3.0	0.0	0.0	75.5
2024	20.0	0.0	15.0	5.0	0.0	5.0	4.0	0.0	0.0	74.7
2025	20.0	0.0	15.0	5.0	0.0	5.0	5.0	0.0	0.0	73.7
2026	20.0	0.0	15.0	5.0	0.0	5.0	5.0	0.0	0.0	73.4
2027	20.0	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	73.1
2028	20.0	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	72.9
2029	35.7	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	70.0
2030	60.7	0.0	15.0	5.0	0.0	5.0	5.0	1.0	0.0	65.8
2031	85.7	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	61.1
2032	110.7	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	56.6
2033	133.0	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	52.4
2034	144.1	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	49.7
2035	144.1	0.0	15.0	5.0	0.0	5.0	5.0	1.0	1.0	48.7
2036	144.1	20.0	15.0	5.0	0.0	5.0	5.0	1.0	2.0	38.1
2037	144.1	40.0	15.0	5.0	0.0	5.0	5.0	1.0	2.0	28.4
2038	144.1	60.0	15.0	5.0	0.0	5.0	5.0	1.0	2.0	19.3
2039	144.1	80.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	10.2
2040	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	1.3
2041	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	2.4
2042	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	3.7
2043	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	5.0
2044	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	6.5
2045	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	8.1
2046	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	8.8
2047	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	9.5
2048	144.1	100.0	15.0	5.0	0.0	5.0	5.0	1.0	3.0	10.1
2049	128.5	100.0	15.0	5.0	12.9	5.0	5.0	1.0	3.0	1.2
2050	103.5	100.0	15.0	0.0	37.9	0.0	5.0	1.0	3.0	0.0

Tab#	Tab Name
1	Index
2	ProForma Rev+IRP Pwr Cost
3	ProForma Rev.+3% Escalate Pwr
4	CWP Budget vs Proforma
5	Valued Rate Scenarios
6	Revenue and Sales by Class
7	CWP Baseline 10 yr Budget
8	Other Operating Revenues
9	Investment Earnings
10	Transfers in
11	G&A Expense
12	Operating Expenses
13	Routine Capital
14	Debt
15	Operating Transfers Out
16	Other Capital Projects
17	Undergrounding
18	Rate Calculation
19	Hist. Sales By Class
20	IRP Bulk Power Details

Description	Purpose
Index sheet	Index
Proforma that includes 2023 rates escalated at % shown in row 3. This Proforma also assumes the Purchased Power (PP) costs from the Quanta Technology IRP.	Summary Proforma
Proforma that includes 2023 rates escalated at % shown in row 3. Also includes CWP 2023 purchase power costs escalated at 3% per year	Summary Proforma
Compares select line items for the CWP 10 year Budget vs the results of the two Proformas in this worksheet	Results Summary
Shows results for multiple different assumptions regarding annual rate increases	Results Summary
Calculated revenue for residential and a combined class that includes commercial, public authority and lighting.	Calculation Sheet
CWP Baseline 10 year budget project	Input Data
Calculates other operating revenues based on extending methodology used in CWP Baseline 10-year budget	Calculation Sheet
Calculates investment earnings based on extending methodology used in CWP Baseline 10-year budget	Input data and calculations
Calculates transfers in based on extending methodology used in CWP Baseline 10-year budget	Input data and calculations
Calculates G&A Expense based on extending methodology used in CWP Baseline 10-year budget	Input data and calculations
Calculates operating expense based on extending methodology used in CWP Baseline 10-year budget	Input data and calculations
Calculates routine capital based on extending methodology used in CWP Baseline 10-year budget	Input data and calculations
Calculates debt balances and P&I payments for existing city bonds	Input data and calculations
Calculates operating transfers out based on extending methodology used in CWP Baseline 10-year budget	Input data and calculations
Calculates other capital projects based on extending methodology used in CWP Baseline 10-year budget	Input data and calculations
Uses data contained within CWP Baseline 10-year budget	Input data
Data from Oct 2022 COS report and calculations indicating COS is approximately equal for residential and all other classes combined, i.e., support equal rates for the two class projected in the Proformas	Input data and calculations
2018 to 2022 Historical CWP sales	Support data
Power costs from Quanta Technology IRP, Scenario 3D	Input data

Annual Rate Change	2.34%	2.34%	2.34%
	FY2024	**FY2025**	**FY2026**
Electric Revenue:			
Residential	$ 21,824,911	$ 22,351,621	$ 22,899,653
Commercial	$ 24,810,069	$ 25,408,821	$ 26,031,812
Public Authority	$ 2,762,302	$ 2,828,966	$ 2,898,328
Streetlighting	$ 236,747	$ 236,920	$ 237,183
Total Electric Revenue	**$ 49,634,029**	**$ 50,826,328**	**$ 52,066,976**
Other Operating Revenues	$ 764,537	$ 749,813	$ 738,636
Investment Earnings	$ 29,588	$ 58,985	$ 55,895
Transfers in	$ 177,527	$ 187,180	$ 195,027
Total Inflows	**$ 50,605,681**	**$ 51,822,305**	**$ 53,056,533**
General and Administrative	$ 2,712,088	$ 2,844,235	$ 2,953,616
Operating Expenses	$ 6,582,666	$ 6,804,309	$ 6,985,485
Purchase Power Expense	$ 22,730,000	$ 23,110,000	$ 24,180,000
Total Operating Expense	**$ 32,024,754**	**$ 32,758,545**	**$ 34,119,101**
Routine Capital	$ 2,278,222	$ 2,363,633	$ 2,451,354
Principal Payment	$ 3,225,000	$ 3,340,000	$ 3,465,000
Interest on Debt	$ 1,483,690	$ 1,341,553	$ 1,215,733
Total Outflows	**$ 39,011,666**	**$ 39,803,730**	**$ 41,251,188**
Available Funds	**$ 11,594,015**	**$ 12,018,575**	**$ 11,805,345**
Operating Transfers Out	$ 2,937,365	$ 2,990,405	$ 3,034,160
Other Capital Projects	$ -	$ 650,000	$ 500,000
Undergrounding Power Lines	$ 7,761,600	$ 8,149,680	$ 8,557,164
Annual Surplus/(Deficit)	**895,050**	**228,490**	**(285,980)**
Cumulative Reserves Balance (Working Capital)	$ 11,718,177	$ 11,946,667	$ 11,660,687
Number of Days of Working Capital	134	133	125
Bonds Outstanding	$ 40,330,000	$ 36,865,000	$ 33,275,000

Summary

Annual Rate Change	2.34%	2.34%	2.34%
Total Electric Revenue	$ 49,634,029	$ 50,826,328	$ 52,066,976
Purchase Power Expense	$ 22,730,000	$ 23,110,000	$ 24,180,000
Reserves Surplus/(Deficit)	895,050	228,490	(285,980)
Working Capital - Cumulative Reserves Balance	$ 11,718,177	$ 11,946,667	$ 11,660,687
Number of Days of Working Capital	134	133	125
Total Consumption (MWh)	424,921	425,232	425,703

Average Retail Rate ($/kWh)	$ 0.117	$ 0.120	$ 0.122
Power Costs ($/kWh)	$ 0.053	$ 0.054	$ 0.057

2.34%	2.34%	2.34%	2.34%	2.06%	2.06%	2.06%
FY2027	**FY2028**	**FY2029**	**FY2030**	**FY2031**	**FY2032**	**FY2033**
$ 23,435,779	$ 23,996,056	$ 24,545,697	$ 25,123,568	$ 25,593,204	$ 26,076,309	$ 26,582,055
$ 26,641,268	$ 27,278,178	$ 27,902,997	$ 28,559,908	$ 29,093,780	$ 29,642,962	$ 30,217,884
$ 2,966,184	$ 3,037,096	$ 3,106,662	$ 3,179,802	$ 3,239,242	$ 3,300,387	$ 3,364,397
$ 237,189	$ 237,310	$ 237,199	$ 237,235	$ 236,787	$ 236,383	$ 236,099
$ 53,280,420	**$ 54,548,641**	**$ 55,792,555**	**$ 57,100,513**	**$ 58,163,013**	**$ 59,256,040**	**$ 60,400,435**
$ 730,409	$ 724,644	$ 720,937	$ 718,957	$ 718,433	$ 695,763	$ 701,636
$ 52,712	$ 33,236	$ 15,281	$ (1,318)	$ (4,900)	$ (8,590)	$ (12,390)
$ 202,191	$ 209,366	$ 216,634	$ 224,194	$ 232,057	$ 240,241	$ 248,759
$ 54,265,732	**$ 55,515,886**	**$ 56,745,407**	**$ 58,042,345**	**$ 59,108,603**	**$ 60,183,454**	**$ 61,338,439**
$ 3,051,668	$ 3,153,326	$ 3,258,744	$ 3,368,085	$ 3,481,519	$ 3,599,226	$ 3,721,396
$ 7,172,332	$ 7,359,701	$ 7,499,027	$ 7,494,433	$ 7,646,146	$ 7,854,404	$ 8,069,455
$ 25,210,000	$ 26,460,000	$ 27,260,000	$ 27,650,000	$ 27,610,000	$ 29,890,000	$ 31,820,000
$ 35,434,001	**$ 36,973,027**	**$ 38,017,771**	**$ 38,512,517**	**$ 38,737,665**	**$ 41,343,630**	**$ 43,610,851**
$ 2,541,387	$ 2,635,696	$ 2,699,767	$ 2,765,760	$ 2,833,732	$ 2,903,744	$ 2,975,857
$ 3,590,000	$ 3,680,000	$ 3,795,000	$ 3,860,000	$ 3,935,000	$ 3,690,000	$ 3,815,000
$ 1,098,556	$ 991,114	$ 879,949	$ 761,325	$ 636,465	$ 514,384	$ 394,197
$ 42,663,944	**$ 44,279,837**	**$ 45,392,486**	**$ 45,899,602**	**$ 46,142,862**	**$ 48,451,759**	**$ 50,795,904**
$ 11,601,789	**$ 11,236,049**	**$ 11,352,920**	**$ 12,142,743**	**$ 12,965,741**	**$ 11,731,695**	**$ 10,542,535**
$ 3,062,826	$ 3,116,749	$ 3,152,033	$ 3,187,803	$ 3,224,097	$ 3,260,832	$ 3,298,143
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ 8,985,022	$ 9,434,273	$ 9,905,987	$ 10,401,286	$ -	$ -	$ -
(946,060)	**(1,814,973)**	**(2,205,099)**	**(1,946,346)**	**9,241,644**	**7,970,863**	**6,744,392**
$ 10,714,627	$ 8,899,653	$ 6,694,554	$ 4,748,208	$ 13,989,852	$ 21,960,715	$ 28,705,107
110	88	64	45	132	194	240
$ 29,595,000	$ 25,800,000	$ 21,940,000	$ 18,005,000	$ 14,315,000	$ 10,500,000	$ 6,570,000

2.34%	2.34%	2.34%	2.34%	2.06%	2.06%	2.06%
$ 53,280,420	$ 54,548,641	$ 55,792,555	$ 57,100,513	$ 58,163,013	$ 59,256,040	$ 60,400,435
$ 25,210,000	$ 26,460,000	$ 27,260,000	$ 27,650,000	$ 27,610,000	$ 29,890,000	$ 31,820,000
(946,060)	(1,814,973)	(2,205,099)	(1,946,346)	9,241,644	7,970,863	6,744,392
$ 10,714,627	$ 8,899,653	$ 6,694,554	$ 4,748,208	$ 13,989,852	$ 21,960,715	$ 28,705,107
110	88	64	45	132	194	240
425,714	425,931	425,732	425,797	424,993	424,267	423,758

$	0.125	$	0.128	$	0.131	$	0.134	$	0.137	$	0.140	$	0.143
$	0.059	$	0.062	$	0.064	$	0.065	$	0.065	$	0.070	$	0.075

2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
FY2034	**FY2035**	**FY2036**	**FY2037**	**FY2038**	**FY2039**	**FY2040**
$ 27,072,922	$ 27,593,365	$ 28,104,611	$ 28,609,616	$ 29,112,201	$ 29,709,449	$ 30,412,713
$ 30,775,890	$ 31,367,518	$ 31,948,691	$ 32,522,769	$ 33,094,097	$ 33,773,035	$ 34,572,489
$ 3,426,524	$ 3,492,395	$ 3,557,102	$ 3,621,018	$ 3,684,629	$ 3,760,220	$ 3,849,230
$ 235,601	$ 235,279	$ 234,796	$ 234,187	$ 233,486	$ 233,462	$ 234,160
$ 61,510,937	**$ 62,688,556**	**$ 63,845,201**	**$ 64,987,590**	**$ 66,124,413**	**$ 67,476,167**	**$ 69,068,592**
$ 707,685	$ 713,915	$ 720,333	$ 726,943	$ 733,751	$ 740,764	$ 747,987
$ (16,305)	$ (20,336)	$ (24,489)	$ (28,766)	$ (33,172)	$ (37,710)	$ (42,384)
$ 257,579	$ 266,711	$ 276,168	$ 285,960	$ 296,099	$ 306,597	$ 317,468
$ 62,459,896	**$ 63,648,846**	**$ 64,817,212**	**$ 65,971,727**	**$ 67,121,090**	**$ 68,485,818**	**$ 70,091,663**
$ 3,848,227	$ 3,979,929	$ 4,116,723	$ 4,258,841	$ 4,406,529	$ 4,560,045	$ 4,719,661
$ 8,291,557	$ 8,520,982	$ 8,758,012	$ 9,002,943	$ 9,256,088	$ 9,517,769	$ 9,788,328
$ 34,750,000	$ 35,930,000	$ 42,600,000	$ 44,680,000	$ 47,760,000	$ 50,900,000	$ 54,070,000
$ 46,889,784	**$ 48,430,910**	**$ 55,474,734**	**$ 57,941,785**	**$ 61,422,616**	**$ 64,977,814**	**$ 68,577,989**
$ 3,050,132	$ 3,126,636	$ 3,205,435	$ 3,286,598	$ 3,370,196	$ 3,456,302	$ 3,544,991
$ 3,930,000	$ 2,090,000	$ 2,095,000	$ 1,175,000	$ 1,210,000	$ -	$ -
$ 270,127	$ 173,448	$ 106,017	$ 54,675	$ 18,900	$ -	$ -
$ 54,140,043	**$ 53,820,995**	**$ 60,881,187**	**$ 62,458,058**	**$ 66,021,713**	**$ 68,434,116**	**$ 72,122,980**
$ 8,319,852	**$ 9,827,852**	**$ 3,936,026**	**$ 3,513,669**	**$ 1,099,378**	**$ 51,702**	**$ (2,031,317)**
$ 3,335,966	$ 3,374,308	$ 3,413,181	$ 3,452,594	$ 3,492,555	$ 3,533,077	$ 3,574,168
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ -	$ -	$ -	$ -	$ -	$ -	$ -
4,483,887	**5,953,543**	**22,844**	**(438,925)**	**(2,893,178)**	**(3,981,375)**	**(6,105,486)**
$ 33,188,994	$ 39,142,537	$ 39,165,382	$ 38,726,457	$ 35,833,279	$ 31,851,904	$ 25,746,418
258	295	258	244	213	179	137
$ 4,480,000	$ 2,385,000	$ 1,210,000	$ -	$ -	$ -	$ -

2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
$ 61,510,937	$ 62,688,556	$ 63,845,201	$ 64,987,590	$ 66,124,413	$ 67,476,167	$ 69,068,592
$ 34,750,000	$ 35,930,000	$ 42,600,000	$ 44,680,000	$ 47,760,000	$ 50,900,000	$ 54,070,000
4,483,887	5,953,543	22,844	(438,925)	(2,893,178)	(3,981,375)	(6,105,486)
$ 33,188,994	$ 39,142,537	$ 39,165,382	$ 38,726,457	$ 35,833,279	$ 31,851,904	$ 25,746,418
258	295	258	244	213	179	137
422,864	422,286	421,420	420,325	419,068	419,025	420,278

$ 0.145	$ 0.148	$ 0.152	$ 0.155	$ 0.158	$ 0.161	$ 0.164	
$ 0.082	$ 0.085	$ 0.101	$ 0.106	$ 0.114	$ 0.121	$ 0.129	

2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
FY2041	**FY2042**	**FY2043**	**FY2044**	**FY2045**	**FY2046**	**FY2047**
$ 31,235,069	$ 32,142,617	$ 33,199,989	$ 34,376,250	$ 35,744,007	$ 36,417,754	$ 37,110,043
$ 35,507,325	$ 36,539,005	$ 37,741,002	$ 39,078,149	$ 40,632,985	$ 41,398,885	$ 42,185,864
$ 3,953,313	$ 4,068,178	$ 4,202,006	$ 4,350,881	$ 4,523,993	$ 4,609,267	$ 4,696,887
$ 235,633	$ 237,581	$ 240,438	$ 243,927	$ 248,509	$ 248,077	$ 247,686
$ 70,931,340	**$ 72,987,381**	**$ 75,383,435**	**$ 78,049,207**	**$ 81,149,493**	**$ 82,673,983**	**$ 84,240,480**
$ 755,426	$ 763,089	$ 770,982	$ 779,111	$ 787,484	$ 796,109	$ 804,992
$ (47,198)	$ (52,156)	$ (57,264)	$ (62,524)	$ (67,942)	$ (73,523)	$ (79,272)
$ 328,724	$ 340,379	$ 352,448	$ 364,944	$ 377,884	$ 391,282	$ 405,155
$ 71,968,292	**$ 74,038,693**	**$ 76,449,601**	**$ 79,130,738**	**$ 82,246,919**	**$ 83,787,850**	**$ 85,371,356**
$ 4,885,666	$ 5,058,363	$ 5,238,073	$ 5,425,133	$ 5,619,903	$ 5,822,760	$ 6,034,103
$ 10,068,121	$ 10,357,522	$ 10,656,923	$ 10,966,735	$ 11,287,390	$ 11,619,342	$ 11,963,066
$ 54,570,000	$ 55,090,000	$ 55,640,000	$ 56,220,000	$ 55,530,000	$ 57,320,000	$ 59,670,000
$ 69,523,787	**$ 70,505,885**	**$ 71,534,995**	**$ 72,611,868**	**$ 72,437,293**	**$ 74,762,102**	**$ 77,667,169**
$ 3,636,341	$ 3,730,431	$ 3,827,344	$ 3,927,165	$ 4,029,980	$ 4,135,879	$ 4,244,955
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 73,160,128	**$ 74,236,316**	**$ 75,362,339**	**$ 76,539,033**	**$ 76,467,273**	**$ 78,897,981**	**$ 81,912,124**
$ (1,191,836)	**$ (197,623)**	**$ 1,087,261**	**$ 2,591,705**	**$ 5,779,646**	**$ 4,889,870**	**$ 3,459,232**
$ 3,615,840	$ 3,658,103	$ 3,700,969	$ 3,744,448	$ 3,788,553	$ 3,833,296	$ 3,878,688
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ -	$ -	$ -	$ -	$ -	$ -	$ -
(5,307,676)	**(4,355,726)**	**(3,113,707)**	**(1,652,743)**	**1,491,093**	**556,574**	**(919,456)**
$ 20,438,743	$ 16,083,017	$ 12,969,309	$ 11,316,566	$ 12,807,659	$ 13,364,233	$ 12,444,777
107	83	66	57	65	65	58
$ -	$ -	$ -	$ -	$ -	$ -	$ -

2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
$ 70,931,340	$ 72,987,381	$ 75,383,435	$ 78,049,207	$ 81,149,493	$ 82,673,983	$ 84,240,480
$ 54,570,000	$ 55,090,000	$ 55,640,000	$ 56,220,000	$ 55,530,000	$ 57,320,000	$ 59,670,000
(5,307,676)	(4,355,726)	(3,113,707)	(1,652,743)	1,491,093	556,574	(919,456)
$ 20,438,743	$ 16,083,017	$ 12,969,309	$ 11,316,566	$ 12,807,659	$ 13,364,233	$ 12,444,777
107	83	66	57	65	65	58
422,922	426,417	431,547	437,809	446,031	445,257	444,555

$ 0.168	$ 0.171	$ 0.175	$ 0.178	$ 0.182	$ 0.186	$ 0.189	
$ 0.129	$ 0.129	$ 0.129	$ 0.128	$ 0.124	$ 0.129	$ 0.134	

2.06%	2.06%	2.06%
FY2048	**FY2049**	**FY2050**
$ 37,833,202	$ 38,570,893	$ 39,438,796
$ 43,007,935	$ 43,846,526	$ 44,833,138
$ 4,788,415	$ 4,881,782	$ 2,881,066
$ 247,411	$ 247,139	$ 247,595
$ 85,876,964	**$ 87,546,340**	**$ 87,400,595**
$ 814,142	$ 823,566	$ 833,273
$ (85,192)	$ (91,291)	$ (97,572)
$ 419,521	$ 434,395	$ 449,797
$ 87,025,434	**$ 88,713,011**	**$ 88,586,094**
$ 6,254,356	$ 6,483,965	$ 6,724,360
$ 12,319,061	$ 12,687,855	$ 13,069,998
$ 61,670,000	$ 61,140,000	$ 113,200,000
$ 80,243,417	**$ 80,311,820**	**$ 132,994,358**
$ 4,357,304	$ 4,473,023	$ 4,592,214
$ -	$ -	$ -
$ -	$ -	$ -
$ 84,600,721	**$ 84,784,843**	**$ 137,586,572**
$ 2,424,713	**$ 3,928,168**	**$ (49,000,478)**
$ 3,924,743	$ 3,971,472	$ 4,018,890
$ 500,000	$ 500,000	$ 500,000
$ -	$ -	$ -
(2,000,030)	**(543,304)**	**(53,519,368)**
$ 10,444,746	$ 9,901,442	$ (43,617,926)
48	45	(120)
$ -	$ -	$ -

2.06%	2.06%	2.06%
$ 85,876,964	$ 87,546,340	$ 87,400,595
$ 61,670,000	$ 61,140,000	$ 113,200,000
(2,000,030)	(543,304)	(53,519,368)
$ 10,444,746	$ 9,901,442	$ (43,617,926)
48	45	(120)
444,061	443,573	444,391

$ 0.193	$ 0.197	$ 0.197
$ 0.139	$ 0.138	$ 0.255

Comments

from Revenue and Sales by Class tab
from Revenue and Sales by Class tab
from Revenue and Sales by Class tab
from Revenue and Sales by Class tab

from Other Operating Revenues tab
from Investment Earnings tab
from Transfers In tab

from G&A Expense tab
from Operating Expenses tab

from pIRP model, see pIRP Bulk Power Details tab

from Routine Capital tab
from Debt tab
from Debt tab

from Operating Transfers Out tab
from Other Capital Projects tab
from Undergrounding tab

Cum. balance from ann. Reserves Surplus/(Deficit), FY2004 starting balance $10,823,127
Based on CWP budget formula dividing cum. wkg capital by avg daily oper. expenses

from Debt tab

Annual Rate Change	2.34%	2.34%	2.34%
	FY2024	**FY2025**	**FY2026**
Electric Revenue:			
Residential	$ 21,824,911	$ 22,351,621	$ 22,899,653
Commercial	$ 24,810,069	$ 25,408,821	$ 26,031,812
Public Authority	$ 2,762,302	$ 2,828,966	$ 2,898,328
Streetlighting	$ 236,747	$ 236,920	$ 237,183
Total Electric Revenue	**$ 49,634,029**	**$ 50,826,328**	**$ 52,066,976**
Other Operating Revenues	$ 764,537	$ 749,813	$ 738,636
Investment Earnings	$ 29,588	$ 58,985	$ 55,895
Transfers in	$ 177,527	$ 187,180	$ 195,027
Total Inflows	**$ 50,605,681**	**$ 51,822,305**	**$ 53,056,533**
General and Administrative	$ 2,712,088	$ 2,844,235	$ 2,953,616
Operating Expenses	$ 6,582,666	$ 6,804,309	$ 6,985,485
Annual Purchase Power Increase		3%	3%
Purchase Power Expense	$ 22,501,105	$ 23,193,086	$ 23,915,340
Total Operating Expense	**$ 31,795,859**	**$ 32,841,630**	**$ 33,854,441**
Routine Capital	$ 2,278,222	$ 2,363,633	$ 2,451,354
Principal Payment	$ 3,225,000	$ 3,340,000	$ 3,465,000
Interest on Debt	$ 1,483,690	$ 1,341,553	$ 1,215,733
Total Outflows	**$ 38,782,771**	**$ 39,886,816**	**$ 40,986,528**
Available Funds	**$ 11,822,910**	**$ 11,935,489**	**$ 12,070,005**
Operating Transfers Out	$ 2,937,365	$ 2,990,405	$ 3,034,160
Other Capital Projects	$ -	$ 650,000	$ 500,000
Undergrounding Power Lines	$ 7,761,600	$ 8,149,680	$ 8,557,164
Annual Surplus/(Deficit)	**$ 1,123,945**	**$ 145,404**	**$ (21,319)**
Cumulative Reserves Balance (Working Capital)	$ 11,947,072	$ 12,092,476	$ 12,071,156
Number of Days of Working Capital	150	147	143
Bonds Outstanding	$ 40,330,000	$ 36,865,000	$ 33,275,000

Summary

Annual Rate Change	2.34%	2.34%	2.34%
Total Electric Revenue	$ 49,634,029	$ 50,826,328	$ 52,066,976
Purchase Power Expense	$ 22,501,105	$ 23,193,086	$ 23,915,340
Reserves Surplus/(Deficit)	1,123,945	145,404	(21,319)
Working Capital - Cumulative Reserves Balance	$ 11,947,072	$ 12,092,476	$ 12,071,156
Number of Days of Working Capital	150	147	143
Total Consumption (MWh)	424,921	425,232	425,703

Average Retail Rate ($/kWh)	$ 0.117	$ 0.120	$ 0.122
Power Costs ($/kWh)	$ 0.053	$ 0.055	$ 0.056

2.34%	2.34%	2.34%	2.34%	2.06%	2.06%	2.06%
FY2027	**FY2028**	**FY2029**	**FY2030**	**FY2031**	**FY2032**	**FY2033**
$ 23,435,779	$ 23,996,056	$ 24,545,697	$ 25,123,568	$ 25,593,204	$ 26,076,309	$ 26,582,055
$ 26,641,268	$ 27,278,178	$ 27,902,997	$ 28,559,908	$ 29,093,780	$ 29,642,962	$ 30,217,884
$ 2,966,184	$ 3,037,096	$ 3,106,662	$ 3,179,802	$ 3,239,242	$ 3,300,387	$ 3,364,397
$ 237,189	$ 237,310	$ 237,199	$ 237,235	$ 236,787	$ 236,383	$ 236,099
$ 53,280,420	**$ 54,548,641**	**$ 55,792,555**	**$ 57,100,513**	**$ 58,163,013**	**$ 59,256,040**	**$ 60,400,435**
$ 730,409	$ 724,644	$ 720,937	$ 718,957	$ 718,433	$ 695,763	$ 701,636
$ 52,712	$ 33,236	$ 15,281	$ (1,318)	$ (4,900)	$ (8,590)	$ (12,390)
$ 202,191	$ 209,366	$ 216,634	$ 224,194	$ 232,057	$ 240,241	$ 248,759
$ 54,265,732	**$ 55,515,886**	**$ 56,745,407**	**$ 58,042,345**	**$ 59,108,603**	**$ 60,183,454**	**$ 61,338,439**
$ 3,051,668	$ 3,153,326	$ 3,258,744	$ 3,368,085	$ 3,481,519	$ 3,599,226	$ 3,721,396
$ 7,172,332	$ 7,359,701	$ 7,499,027	$ 7,494,433	$ 7,646,146	$ 7,854,404	$ 8,069,455
3%	3%	3%	3%	3%	3%	3%
$ 24,633,447	$ 25,385,388	$ 26,134,695	$ 26,922,881	$ 27,678,218	$ 28,459,864	$ 29,278,479
$ 34,857,448	**$ 35,898,415**	**$ 36,892,466**	**$ 37,785,398**	**$ 38,805,882**	**$ 39,913,494**	**$ 41,069,330**
$ 2,541,387	$ 2,635,696	$ 2,699,767	$ 2,765,760	$ 2,833,732	$ 2,903,744	$ 2,975,857
$ 3,590,000	$ 3,680,000	$ 3,795,000	$ 3,860,000	$ 3,935,000	$ 3,690,000	$ 3,815,000
$ 1,098,556	$ 991,114	$ 879,949	$ 761,325	$ 636,465	$ 514,384	$ 394,197
$ 42,087,391	**$ 43,205,225**	**$ 44,267,182**	**$ 45,172,483**	**$ 46,211,080**	**$ 47,021,623**	**$ 48,254,383**
$ 12,178,342	**$ 12,310,661**	**$ 12,478,225**	**$ 12,869,862**	**$ 12,897,523**	**$ 13,161,831**	**$ 13,084,056**
$ 3,062,826	$ 3,116,749	$ 3,152,033	$ 3,187,803	$ 3,224,097	$ 3,260,832	$ 3,298,143
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ 8,985,022	$ 9,434,273	$ 9,905,987	$ 10,401,286	$ -	$ -	$ -
$ (369,507)	**$ (740,362)**	**$ (1,079,795)**	**$ (1,219,227)**	**$ 9,173,426**	**$ 9,400,999**	**$ 9,285,913**
$ 11,701,649	$ 10,961,288	$ 9,881,493	$ 8,662,266	$ 17,835,692	$ 27,236,692	$ 36,522,605
134	122	107	92	184	274	357
$ 29,595,000	$ 25,800,000	$ 21,940,000	$ 18,005,000	$ 14,315,000	$ 10,500,000	$ 6,570,000

2.34%	2.34%	2.34%	2.34%	2.06%	2.06%	2.06%
$ 53,280,420	$ 54,548,641	$ 55,792,555	$ 57,100,513	$ 58,163,013	$ 59,256,040	$ 60,400,435
$ 24,633,447	$ 25,385,388	$ 26,134,695	$ 26,922,881	$ 27,678,218	$ 28,459,864	$ 29,278,479
(369,507)	(740,362)	(1,079,795)	(1,219,227)	9,173,426	9,400,999	9,285,913
$ 11,701,649	$ 10,961,288	$ 9,881,493	$ 8,662,266	$ 17,835,692	$ 27,236,692	$ 36,522,605
134	122	107	92	184	274	357
425,714	425,931	425,732	425,797	424,993	424,267	423,758

$	0.125	$	0.128	$	0.131	$	0.134	$	0.137	$	0.140	$	0.143
$	0.058	$	0.060	$	0.061	$	0.063	$	0.065	$	0.067	$	0.069

2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
FY2034	**FY2035**	**FY2036**	**FY2037**	**FY2038**	**FY2039**	**FY2040**
$ 27,072,922	$ 27,593,365	$ 28,104,611	$ 28,609,616	$ 29,112,201	$ 29,709,449	$ 30,412,713
$ 30,775,890	$ 31,367,518	$ 31,948,691	$ 32,522,769	$ 33,094,097	$ 33,773,035	$ 34,572,489
$ 3,426,524	$ 3,492,395	$ 3,557,102	$ 3,621,018	$ 3,684,629	$ 3,760,220	$ 3,849,230
$ 235,601	$ 235,279	$ 234,796	$ 234,187	$ 233,486	$ 233,462	$ 234,160
$ 61,510,937	**$ 62,688,556**	**$ 63,845,201**	**$ 64,987,590**	**$ 66,124,413**	**$ 67,476,167**	**$ 69,068,592**
$ 707,685	$ 713,915	$ 720,333	$ 726,943	$ 733,751	$ 740,764	$ 747,987
$ (16,305)	$ (20,336)	$ (24,489)	$ (28,766)	$ (33,172)	$ (37,710)	$ (42,384)
$ 257,579	$ 266,711	$ 276,168	$ 285,960	$ 296,099	$ 306,597	$ 317,468
$ 62,459,896	**$ 63,648,846**	**$ 64,817,212**	**$ 65,971,727**	**$ 67,121,090**	**$ 68,485,818**	**$ 70,091,663**
$ 3,848,227	$ 3,979,929	$ 4,116,723	$ 4,258,841	$ 4,406,529	$ 4,560,045	$ 4,719,661
$ 8,291,557	$ 8,520,982	$ 8,758,012	$ 9,002,943	$ 9,256,088	$ 9,517,769	$ 9,788,328
3%	3%	3%	3%	3%	3%	3%
$ 30,093,197	$ 30,953,596	$ 31,816,857	$ 32,686,241	$ 33,566,127	$ 34,569,575	$ 35,713,124
$ 42,232,981	**$ 43,454,506**	**$ 44,691,591**	**$ 45,948,025**	**$ 47,228,743**	**$ 48,647,388**	**$ 50,221,113**
$ 3,050,132	$ 3,126,636	$ 3,205,435	$ 3,286,598	$ 3,370,196	$ 3,456,302	$ 3,544,991
$ 3,930,000	$ 2,090,000	$ 2,095,000	$ 1,175,000	$ 1,210,000	$ -	$ -
$ 270,127	$ 173,448	$ 106,017	$ 54,675	$ 18,900	$ -	$ -
$ 49,483,240	**$ 48,844,591**	**$ 50,098,044**	**$ 50,464,299**	**$ 51,827,840**	**$ 52,103,691**	**$ 53,766,104**
$ 12,976,655	**$ 14,804,256**	**$ 14,719,168**	**$ 15,507,428**	**$ 15,293,251**	**$ 16,382,127**	**$ 16,325,558**
$ 3,335,966	$ 3,374,308	$ 3,413,181	$ 3,452,594	$ 3,492,555	$ 3,533,077	$ 3,574,168
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 9,140,690	**$ 10,929,947**	**$ 10,805,987**	**$ 11,554,834**	**$ 11,300,695**	**$ 12,349,050**	**$ 12,251,390**
$ 45,663,294	$ 56,593,242	$ 67,399,229	$ 78,954,063	$ 90,254,758	$ 102,603,809	$ 114,855,199
434	523	606	691	769	849	921
$ 4,480,000	$ 2,385,000	$ 1,210,000	$ -	$ -	$ -	$ -

2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
$ 61,510,937	$ 62,688,556	$ 63,845,201	$ 64,987,590	$ 66,124,413	$ 67,476,167	$ 69,068,592
$ 30,093,197	$ 30,953,596	$ 31,816,857	$ 32,686,241	$ 33,566,127	$ 34,569,575	$ 35,713,124
9,140,690	10,929,947	10,805,987	11,554,834	11,300,695	12,349,050	12,251,390
$ 45,663,294	$ 56,593,242	$ 67,399,229	$ 78,954,063	$ 90,254,758	$ 102,603,809	$ 114,855,199
434	523	606	691	769	849	921
422,864	422,286	421,420	420,325	419,068	419,025	420,278

$ 0.145	$ 0.148	$ 0.152	$ 0.155	$ 0.158	$ 0.161	$ 0.164	
$ 0.071	$ 0.073	$ 0.075	$ 0.078	$ 0.080	$ 0.082	$ 0.085	

	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
	FY2041	**FY2042**	**FY2043**	**FY2044**	**FY2045**	**FY2046**	**FY2047**
	$ 31,235,069	$ 32,142,617	$ 33,199,989	$ 34,376,250	$ 35,744,007	$ 36,417,754	$ 37,110,043
	$ 35,507,325	$ 36,539,005	$ 37,741,002	$ 39,078,149	$ 40,632,985	$ 41,398,885	$ 42,185,864
	$ 3,953,313	$ 4,068,178	$ 4,202,006	$ 4,350,881	$ 4,523,993	$ 4,609,267	$ 4,696,887
	$ 235,633	$ 237,581	$ 240,438	$ 243,927	$ 248,509	$ 248,077	$ 247,686
	$ 70,931,340	**$ 72,987,381**	**$ 75,383,435**	**$ 78,049,207**	**$ 81,149,493**	**$ 82,673,983**	**$ 84,240,480**
	$ 755,426	$ 763,089	$ 770,982	$ 779,111	$ 787,484	$ 796,109	$ 804,992
	$ (47,198)	$ (52,156)	$ (57,264)	$ (62,524)	$ (67,942)	$ (73,523)	$ (79,272)
	$ 328,724	$ 340,379	$ 352,448	$ 364,944	$ 377,884	$ 391,282	$ 405,155
	$ 71,968,292	**$ 74,038,693**	**$ 76,449,601**	**$ 79,130,738**	**$ 82,246,919**	**$ 83,787,850**	**$ 85,371,356**
	$ 4,885,666	$ 5,058,363	$ 5,238,073	$ 5,425,133	$ 5,619,903	$ 5,822,760	$ 6,034,103
	$ 10,068,121	$ 10,357,522	$ 10,656,923	$ 10,966,735	$ 11,287,390	$ 11,619,342	$ 11,963,066
	3%	3%	3%	3%	3%	3%	3%
	$ 37,015,907	$ 38,441,507	$ 40,071,017	$ 41,872,044	$ 43,938,189	$ 45,177,825	$ 46,459,750
	$ 51,969,694	**$ 53,857,392**	**$ 55,966,012**	**$ 58,263,913**	**$ 60,845,483**	**$ 62,619,927**	**$ 64,456,919**
	$ 3,636,341	$ 3,730,431	$ 3,827,344	$ 3,927,165	$ 4,029,980	$ 4,135,879	$ 4,244,955
	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$ 55,606,035	**$ 57,587,823**	**$ 59,793,356**	**$ 62,191,077**	**$ 64,875,462**	**$ 66,755,806**	**$ 68,701,874**
	$ 16,362,257	**$ 16,450,870**	**$ 16,656,245**	**$ 16,939,661**	**$ 17,371,457**	**$ 17,032,045**	**$ 16,669,482**
	$ 3,615,840	$ 3,658,103	$ 3,700,969	$ 3,744,448	$ 3,788,553	$ 3,833,296	$ 3,878,688
	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$ 12,246,417	**$ 12,292,767**	**$ 12,455,276**	**$ 12,695,212**	**$ 13,082,904**	**$ 12,698,749**	**$ 12,290,794**
	$ 127,101,617	$ 139,394,383	$ 151,849,659	$ 164,544,872	$ 177,627,775	$ 190,326,524	$ 202,617,318
	985	1,043	1,093	1,137	1,174	1,223	1,266
	$ -	$ -	$ -	$ -	$ -	$ -	$ -

	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%	2.06%
	$ 70,931,340	$ 72,987,381	$ 75,383,435	$ 78,049,207	$ 81,149,493	$ 82,673,983	$ 84,240,480
	$ 37,015,907	$ 38,441,507	$ 40,071,017	$ 41,872,044	$ 43,938,189	$ 45,177,825	$ 46,459,750
	12,246,417	12,292,767	12,455,276	12,695,212	13,082,904	12,698,749	12,290,794
	$ 127,101,617	$ 139,394,383	$ 151,849,659	$ 164,544,872	$ 177,627,775	$ 190,326,524	$ 202,617,318
	985	1,043	1,093	1,137	1,174	1,223	1,266
	422,922	426,417	431,547	437,809	446,031	445,257	444,555

$ 0.168	$ 0.171	$ 0.175	$ 0.178	$ 0.182	$ 0.186	$ 0.189	
$ 0.088	$ 0.090	$ 0.093	$ 0.096	$ 0.099	$ 0.101	$ 0.105	

	2.06%	2.06%	2.06%
	FY2048	**FY2049**	**FY2050**
	$ 37,833,202	$ 38,570,893	$ 39,438,796
	$ 43,007,935	$ 43,846,526	$ 44,833,138
	$ 4,788,415	$ 4,881,782	$ 2,881,066
	$ 247,411	$ 247,139	$ 247,595
	$ 85,876,964	**$ 87,546,340**	**$ 87,400,595**
	$ 814,142	$ 823,566	$ 833,273
	$ (85,192)	$ (91,291)	$ (97,572)
	$ 419,521	$ 434,395	$ 449,797
	$ 87,025,434	**$ 88,713,011**	**$ 88,586,094**
	$ 6,254,356	$ 6,483,965	$ 6,724,360
	$ 12,319,061	$ 12,687,855	$ 13,069,998
	3%	3%	3%
	$ 47,800,425	$ 49,180,349	$ 50,749,154
	$ 66,373,843	**$ 68,352,169**	**$ 70,543,512**
	$ 4,357,304	$ 4,473,023	$ 4,592,214
	$ -	$ -	$ -
	$ -	$ -	$ -
	$ 70,731,147	**$ 72,825,192**	**$ 75,135,726**
	$ 16,294,287	**$ 15,887,820**	**$ 13,450,368**
	$ 3,924,743	$ 3,971,472	$ 4,018,890
	$ 500,000	$ 500,000	$ 500,000
	$ -	$ -	$ -
	$ 11,869,545	**$ 11,416,347**	**$ 8,931,478**
	$ 214,486,863	$ 225,903,210	$ 234,834,688
	1,302	1,333	1,343
	$ -	$ -	$ -

	2.06%	2.06%	2.06%
	$ 85,876,964	$ 87,546,340	$ 87,400,595
	$ 47,800,425	$ 49,180,349	$ 50,749,154
	11,869,545	11,416,347	8,931,478
	$ 214,486,863	$ 225,903,210	$ 234,834,688
	1,302	1,333	1,343
	444,061	443,573	444,391

$ 0.193	$ 0.197	$ 0.197
$ 0.108	$ 0.111	$ 0.114

Comments

from Revenue and Sales by Class tab
from Revenue and Sales by Class tab
from Revenue and Sales by Class tab
from Revenue and Sales by Class tab

from Other Operating Revenues tab
from Investment Earnings tab
from Transfers In tab

from G&A Expense tab
from Operating Expenses tab

from pIRP model, see pIRP Bulk Power Details tab

from Routine Capital tab
from Debt tab
from Debt tab

from Operating Transfers Out tab
from Other Capital Projects tab
from Undergrounding tab

Cum. balance from ann. Reserves Surplus/(Deficit), FY2004 starting balance $10,823,127
Based on CWP budget formula dividing cum. wkg capital by avg daily oper. expenses

from Debt tab

Case	Element		FY2024
Base Case - Renewable Supply - Results with Existing 2023 Rates Escalated at Increase Noted and IRP			
1	**Case Objective - Set Annual Revenue Change to Create Steady Change from 2023**		
	Annual Revenue Change		2.34%
	Total Electric Revenue	$	49,634,029
	Purchase Power Expense	$	22,730,000
	Annual Surplus/(Deficit)		895,050
	Working Capital - Cumulative Reserves Balance	$	11,718,177
	Number of Days of Working Capital		134
	Total Consumption (MWh)		424,921
	Average Retail Rate	$	0.117
	Power Costs ($/kWh)	$	0.053
Results with 2023 Existing Rates Escalated at Increase Noted and CWP Pwr Costs Escalated at 3%			
2	**Case Objective - Set Annual Revenue Change to Create Steady Change from 2023**		
	Annual Revenue Change		2.04%
	Total Electric Revenue	$	49,489,674
	Purchase Power Expense	$	22,501,105
	Annual Surplus/(Deficit)		979,589
	Working Capital - Cumulative Reserves Balance	$	11,802,716
	Number of Days of Working Capital		148
	Total Consumption (MWh)		424,921
	Average Retail Rate	$	0.116
	Presumed Competitor Power Cost per MWH ($/kWh)	$	0.053

Alternative Cases with 3 rate changes

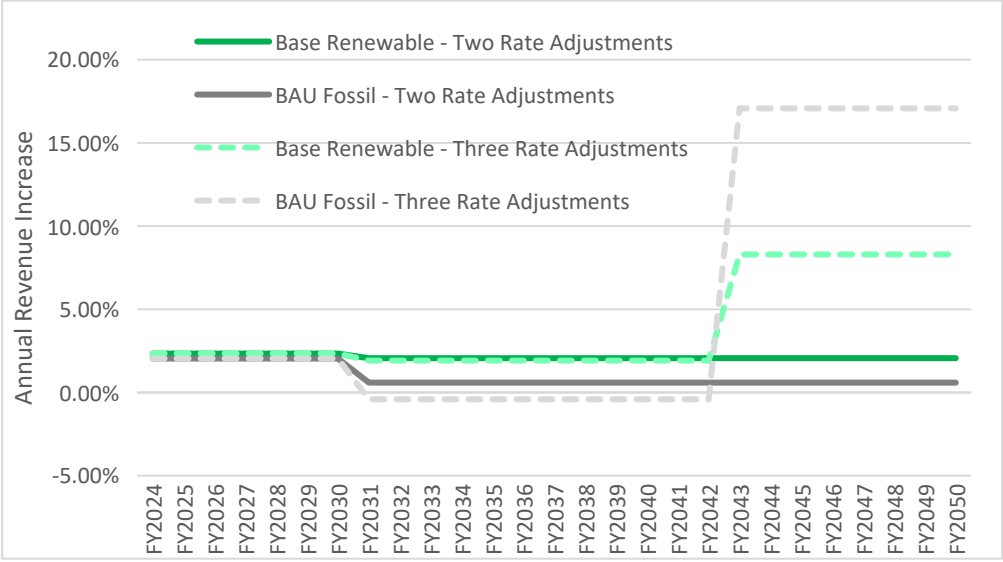
Case 1a - Case Objective - Set Annual Revenue Change to Create Steady Change from 2023 to 2030 and

	Summary		
	Annual Rate Change		2.34%
	Total Electric Revenue	$	49,634,029
	Purchase Power Expense	$	22,730,000
	Annual Surplus/(Deficit)		895,050
	Working Capital - Cumulative Reserves Balance	$	11,718,177
	Number of Days of Working Capital		134
	Total Consumption (MWh)		424,921
	Average Retail Rate ($/kWh)	$	0.117

Power Costs ($/kWh)	$	0.053

Case 2a - Case Objective - Set Annual Revenue Change to Create Steady Change from 2023 to 2030 and

Summary		
Annual Rate Change		2.04%
Total Electric Revenue	$	49,489,674
Purchase Power Expense	$	22,501,105
Annual Surplus/(Deficit)		979,589
Working Capital - Cumulative Reserves Balance	$	11,802,716
Number of Days of Working Capital		148
Total Consumption (MWh)		424,921
Average Retail Rate ($/kWh)	$	0.116
Power Costs ($/kWh)	$	0.053



	FY2025	FY2026	FY2027	FY2028	FY2029
Scenario 3D Power Costs					
to 2030 and WC ≥ 45 days, then a new steady rate to 2049 with WC ≥ 45 days					
	2.34%	2.34%	2.34%	2.34%	2.34%
$	50,826,328	$ 52,066,976	$ 53,280,420	$ 54,548,641	$ 55,792,555
$	23,110,000	$ 24,180,000	$ 25,210,000	$ 26,460,000	$ 27,260,000
	228,490	(285,980)	(946,060)	(1,814,973)	(2,205,099)
$	11,946,667	$ 11,660,687	$ 10,714,627	$ 8,899,653	$ 6,694,554
	133	125	110	88	64
	425,232	425,703	$ 425,714.183	425,931	425,732
$	0.120	$ 0.122	$ 0.125	$ 0.128	$ 0.131
$	0.054	$ 0.057	$ 0.059	$ 0.062	$ 0.064
to 2030 and WC ≥ 45 days, then a new steady rate to 2049 with WC ≥ 45 days					
	2.04%	2.04%	2.04%	2.04%	2.04%
$	50,531,081	$ 51,613,911	$ 52,663,092	$ 53,759,686	$ 54,825,537
$	23,193,086	$ 23,915,340	$ 24,633,447	$ 25,385,388	$ 26,134,695
	(149,842)	(474,385)	(986,834)	(1,529,316)	(2,046,813)
$	11,652,874	$ 11,178,490	$ 10,191,655	$ 8,662,339	$ 6,615,526
	142	132	117	97	72
	425,232	425,703	425,714	425,931	425,732
$	0.119	$ 0.121	$ 0.124	$ 0.126	$ 0.129
$	0.055	$ 0.056	$ 0.058	$ 0.060	$ 0.061

WC ≥ 45 days, then 2031 to 2042 and 4043 to 2049 both with WC ≥ 45 days

	2.34%	2.34%	2.34%	2.34%	2.34%
$	50,826,328	$ 52,066,976	$ 53,280,420	$ 54,548,641	$ 55,792,555
$	23,110,000	$ 24,180,000	$ 25,210,000	$ 26,460,000	$ 27,260,000
	228,490	(285,980)	(946,060)	(1,814,973)	(2,205,099)
$	11,946,667	$ 11,660,687	$ 10,714,627	$ 8,899,653	$ 6,694,554
	133	125	110	88	64
	425,232	425,703	425,714	425,931	425,732
$	0.120	$ 0.122	$ 0.125	$ 0.128	$ 0.131

$ 0.054	$ 0.057	$ 0.059	$ 0.062	$ 0.064	

l WC ≥ 45 days, then 2031 to 2042 and 4043 to 2049 both with WC ≥ 45 days

2.04%	2.04%	2.04%	2.04%	2.04%
$ 50,531,081	$ 51,613,911	$ 52,663,092	$ 53,759,686	$ 54,825,537
$ 23,193,086	$ 23,915,340	$ 24,633,447	$ 25,385,388	$ 26,134,695
(149,842)	(474,385)	(986,834)	(1,529,316)	(2,046,813)
$ 11,652,874	$ 11,178,490	$ 10,191,655	$ 8,662,339	$ 6,615,526
142	132	117	97	72
425,232	425,703	425,714	425,931	425,732
$ 0.119	$ 0.121	$ 0.124	$ 0.126	$ 0.129
$ 0.055	$ 0.056	$ 0.058	$ 0.060	$ 0.061

	FY2030	FY2031	FY2032	FY2033	FY2034
	2.34%	2.06%	2.06%	2.06%	2.06%
$	57,100,513	$ 58,163,013	$ 59,256,040	$ 60,400,435	$ 61,510,937
$	27,650,000	$ 27,610,000	$ 29,890,000	$ 31,820,000	$ 34,750,000
	(1,946,346)	9,241,644	7,970,863	6,744,392	4,483,887
$	4,748,208	$ 13,989,852	$ 21,960,715	$ 28,705,107	$ 33,188,994
	45	132	194	240	258
	425,797	424,993	424,267	423,758	422,864
$	0.134	$ 0.137	$ 0.140	$ 0.143	$ 0.145
$	0.065	$ 0.065	$ 0.070	$ 0.075	$ 0.082
	2.04%	0.59%	0.59%	0.59%	0.59%
$	55,947,447	$ 56,171,286	$ 56,406,173	$ 56,670,879	$ 56,884,961
$	26,922,881	$ 27,678,218	$ 28,459,864	$ 29,278,479	$ 30,093,197
	(2,372,293)	7,181,699	6,551,132	5,556,357	4,514,714
$	4,243,234	$ 11,424,933	$ 17,976,064	$ 23,532,422	$ 28,047,135
	45	118	181	230	267
	425,797	424,993	424,267	423,758	422,864
$	0.131	$ 0.132	$ 0.133	$ 0.134	$ 0.135
$	0.063	$ 0.065	$ 0.067	$ 0.069	$ 0.071
	2.34%	1.92%	1.92%	1.92%	1.92%
$	57,100,513	$ 58,080,563	$ 59,088,147	$ 60,143,894	$ 61,162,813
$	27,650,000	$ 27,610,000	$ 29,890,000	$ 31,820,000	$ 34,750,000
	(1,946,346)	9,159,194	7,802,970	6,487,850	4,135,763
$	4,748,208	$ 13,907,402	$ 21,710,372	$ 28,198,222	$ 32,333,985
	45	131	192	236	252
	425,797	424,993	424,267	423,758	422,864
$	0.134	$ 0.137	$ 0.139	$ 0.142	$ 0.145

$ 0.065	$ 0.065	$ 0.070	$ 0.075	$ 0.082

2.04%	-0.41%	-0.41%	-0.41%	-0.41%
$ 55,947,447	$ 55,614,056	$ 55,292,599	$ 55,000,984	$ 54,661,064
$ 26,922,881	$ 27,678,218	$ 28,459,864	$ 29,278,479	$ 30,093,197
(2,372,293)	6,624,469	5,437,558	3,886,462	2,290,817
$ 4,243,234	$ 10,867,702	$ 16,305,261	$ 20,191,723	$ 22,482,539
45	112	164	197	214
425,797	424,993	424,267	423,758	422,864
$ 0.131	$ 0.131	$ 0.130	$ 0.130	$ 0.129
$ 0.063	$ 0.065	$ 0.067	$ 0.069	$ 0.071

	FY2035	FY2036	FY2037	FY2038	FY2039
	2.06%	2.06%	2.06%	2.06%	2.06%
$	62,688,556	$ 63,845,201	$ 64,987,590	$ 66,124,413	$ 67,476,167
$	35,930,000	$ 42,600,000	$ 44,680,000	$ 47,760,000	$ 50,900,000
	5,953,543	22,844	(438,925)	(2,893,178)	(3,981,375)
$	39,142,537	$ 39,165,382	$ 38,726,457	$ 35,833,279	$ 31,851,904
	295	258	244	213	179
	422,286	421,420	420,325	419,068	419,025
$	0.148	$ 0.152	$ 0.155	$ 0.158	$ 0.161
$	0.085	$ 0.101	$ 0.106	$ 0.114	$ 0.121
	0.59%	0.59%	0.59%	0.59%	0.59%
$	57,142,337	$ 57,361,696	$ 57,550,295	$ 57,716,735	$ 58,051,382
$	30,953,596	$ 31,816,857	$ 32,686,241	$ 33,566,127	$ 34,569,575
	5,383,728	4,322,482	4,117,539	2,893,018	2,924,265
$	33,430,863	$ 37,753,346	$ 41,870,885	$ 44,763,903	$ 47,688,168
	309	340	367	382	395
	422,286	421,420	420,325	419,068	419,025
$	0.135	$ 0.136	$ 0.137	$ 0.138	$ 0.139
$	0.073	$ 0.075	$ 0.078	$ 0.080	$ 0.082
	1.92%	1.92%	1.92%	1.92%	1.92%
$	62,245,351	$ 63,303,886	$ 64,345,166	$ 65,377,846	$ 66,619,658
$	35,930,000	$ 42,600,000	$ 44,680,000	$ 47,760,000	$ 50,900,000
	5,510,338	(518,470)	(1,081,350)	(3,639,744)	(4,837,884)
$	37,844,324	$ 37,325,854	$ 36,244,504	$ 32,604,760	$ 27,766,876
	285	246	228	194	156
	422,286	421,420	420,325	419,068	419,025
$	0.147	$ 0.150	$ 0.153	$ 0.156	$ 0.159

$ 0.085	$ 0.101	$ 0.106	$ 0.114	$ 0.121
-0.41%	-0.41%	-0.41%	-0.41%	-0.41%
$ 54,363,660	$ 54,030,964	$ 53,670,829	$ 53,292,058	$ 53,069,286
$ 30,953,596	$ 31,816,857	$ 32,686,241	$ 33,566,127	$ 34,569,575
2,605,051	991,751	238,073	(1,531,660)	(2,057,830)
$ 25,087,591	$ 26,079,341	$ 26,317,415	$ 24,785,755	$ 22,727,925
232	235	230	211	188
422,286	421,420	420,325	419,068	419,025
$ 0.129	$ 0.128	$ 0.128	$ 0.127	$ 0.127
$ 0.073	$ 0.075	$ 0.078	$ 0.080	$ 0.082

	FY2040	FY2041	FY2042	FY2043	FY2044
	2.06%	2.06%	2.06%	2.06%	2.06%
$	69,068,592	$ 70,931,340	$ 72,987,381	$ 75,383,435	$ 78,049,207
$	54,070,000	$ 54,570,000	$ 55,090,000	$ 55,640,000	$ 56,220,000
	(6,105,486)	(5,307,676)	(4,355,726)	(3,113,707)	(1,652,743)
$	25,746,418	$ 20,438,743	$ 16,083,017	$ 12,969,309	$ 11,316,566
	137	107	83	66	57
	420,278	422,922	426,417	431,547	437,809
$	0.164	$ 0.168	$ 0.171	$ 0.175	$ 0.178
$	0.129	$ 0.129	$ 0.129	$ 0.129	$ 0.128
	0.59%	0.59%	0.59%	0.59%	0.59%
$	58,568,544	$ 59,284,765	$ 60,127,521	$ 61,209,875	$ 62,464,547
$	35,713,124	$ 37,015,907	$ 38,441,507	$ 40,071,017	$ 41,872,044
	1,751,343	599,843	(567,093)	(1,718,284)	(2,889,447)
$	49,439,511	$ 50,039,354	$ 49,472,261	$ 47,753,977	$ 44,864,530
	397	388	370	344	310
	420,278	422,922	426,417	431,547	437,809
$	0.139	$ 0.140	$ 0.141	$ 0.142	$ 0.143
$	0.085	$ 0.088	$ 0.090	$ 0.093	$ 0.096
	1.92%	1.92%	1.92%	8.30%	8.30%
$	68,095,080	$ 69,832,302	$ 71,754,470	$ 78,623,996	$ 86,364,156
$	54,070,000	$ 54,570,000	$ 55,090,000	$ 55,640,000	$ 56,220,000
	(7,078,997)	(6,406,713)	(5,588,636)	126,854	6,662,206
$	20,687,879	$ 14,281,166	$ 8,692,529	$ 8,819,383	$ 15,481,589
	110	75	45	45	78
	420,278	422,922	426,417	431,547	437,809
$	0.162	$ 0.165	$ 0.168	$ 0.182	$ 0.197

$ 0.129	$ 0.129	$ 0.129	$ 0.129	$ 0.128	
-0.41%	-0.41%	-0.41%	17.07%	17.07%	
$ 53,010,884	$ 53,126,795	$ 53,347,452	$ 63,165,970	$ 74,982,084	
$ 35,713,124	$ 37,015,907	$ 38,441,507	$ 40,071,017	$ 41,872,044	
(3,806,318)	(5,558,127)	(7,347,162)	237,811	9,628,090	
$ 18,921,607	$ 13,363,480	$ 6,016,318	$ 6,254,130	$ 15,882,220	
152	104	45	45	110	
420,278	422,922	426,417	431,547	437,809	
$ 0.126	$ 0.126	$ 0.125	$ 0.146	$ 0.171	
$ 0.085	$ 0.088	$ 0.090	$ 0.093	$ 0.096	

	FY2045	FY2046	FY2047	FY2048	FY2049
	2.06%	2.06%	2.06%	2.06%	2.06%
$	81,149,493	$ 82,673,983	$ 84,240,480	$ 85,876,964	$ 87,546,340
$	55,530,000	$ 57,320,000	$ 59,670,000	$ 61,670,000	$ 61,140,000
	1,491,093	556,574	(919,456)	(2,000,030)	(543,304)
$	12,807,659	$ 13,364,233	$ 12,444,777	$ 10,444,746	$ 9,901,442
	65	65	58	48	45
	446,031	445,257	444,555	444,061	443,573
$	0.182	$ 0.186	$ 0.189	$ 0.193	$ 0.197
$	0.124	$ 0.129	$ 0.134	$ 0.139	$ 0.138
	0.59%	0.59%	0.59%	0.59%	0.59%
$	64,013,260	$ 64,279,358	$ 64,556,735	$ 64,865,681	$ 65,176,858
$	43,938,189	$ 45,177,825	$ 46,459,750	$ 47,800,425	$ 49,180,349
	(4,053,329)	(5,695,876)	(7,392,951)	(9,141,738)	(10,953,136)
$	40,811,201	$ 35,115,325	$ 27,722,373	$ 18,580,636	$ 7,627,500
	270	226	173	113	45
	446,031	445,257	444,555	444,061	443,573
$	0.144	$ 0.144	$ 0.145	$ 0.146	$ 0.147
$	0.099	$ 0.101	$ 0.105	$ 0.108	$ 0.111
	8.30%	8.30%	8.30%	8.30%	8.30%
$	95,267,314	$ 102,973,782	$ 111,322,880	$ 120,406,983	$ 130,235,545
$	55,530,000	$ 57,320,000	$ 59,670,000	$ 61,670,000	$ 61,140,000
	15,608,913	20,856,373	26,162,944	32,529,990	42,145,900
$	31,090,502	$ 51,946,876	$ 78,109,819	$ 110,639,809	$ 152,785,709
	157	254	367	503	694
	446,031	445,257	444,555	444,061	443,573
$	0.214	$ 0.231	$ 0.250	$ 0.271	$ 0.294

$ 0.124	$ 0.129	$ 0.134	$ 0.139	$ 0.138	
17.07%	17.07%	17.07%	17.07%	17.07%	
$ 89,390,445	$ 104,428,692	$ 122,023,251	$ 142,656,181	$ 166,787,026	
$ 43,938,189	$ 45,177,825	$ 46,459,750	$ 47,800,425	$ 49,180,349	
21,323,855	34,453,458	50,073,565	68,648,762	90,657,033	
$ 37,206,075	$ 71,659,533	$ 121,733,098	$ 190,381,859	$ 281,038,892	
246	461	761	1,156	1,658	
446,031	445,257	444,555	444,061	443,573	
$ 0.200	$ 0.235	$ 0.274	$ 0.321	$ 0.376	
$ 0.099	$ 0.101	$ 0.105	$ 0.108	$ 0.111	

	FY2050	Average Annual Revenue Increase 2024 to 2030	Average Annual Revenue Increase 2024 to 2042	Average Annual Revenue Increase 2024 to 2050	Notes
	2.06%				
$	87,400,595	2.4%	2.2%	2.2%	
$	113,200,000				
	(53,519,368)				
$	(43,617,926)				
	(120)				
	444,391				
$	0.197				
$	0.255				
	0.59%				
$	64,862,898	2.1%	1.1%	1.1%	
$	50,749,154				
	(13,606,219)				
$	(5,978,719)				
	(34)				
	444,391				
$	0.146				
$	0.114				
	8.30%				
$	136,453,426				
$	113,200,000				
	(4,466,538)				
$	148,319,171				
	407				
	444,391				
$	0.307				

$	0.255
	17.07%
$	187,963,023
$	50,749,154
	109,493,906
$	390,532,798
	2,234
	444,391
$	0.423
$	0.114

Account Description	FY2024	FY2025
CWP Budget		
Total Sales (MWh)	425,000	429,250
Total Inflows - Revenue ($)	$ 49,485,906	$ 50,048,923
Purchase Power Expense ($)	$ 22,505,275	$ 23,116,081
Non-Purchased Power Cost ($)	$ 26,980,629	$ 28,483,814
Reserves Surplus/(Deficit)	$ 2	$ (1,550,972)
Average Revenue ($/kWh)	$ 0.116	$ 0.117
Average Power Cost ($/kWh)	$ 0.053	$ 0.054
Average Rev - Power Cost ($/kWh)	$ 0.063	$ 0.063
QTech Pro-Forma With Existing Rates- pIRP Purchased Power Cost		
Annual Rate Change	2.34%	2.34%
Total Sales (MWh)	424,921	425,232
Total Revenue ($)	$ 50,605,681	$ 51,822,305
Purchase Power Expense ($)	$ 22,730,000	$ 23,110,000
Non-Purchased Power Cost ($)	$ 26,980,631	$ 28,483,815
Reserves Surplus/(Deficit)	$ 895,050	$ 228,490
Average Revenue ($/kWh)	$ 0.119	$ 0.122
Average Power Cost ($/kWh)	$ 0.053	$ 0.054
Average Rev - Power Cost ($/kWh)	$ 0.066	$ 0.068
QTech Pro-Forma With Existing Rates- 3% Purchased Power Annual Increase		
Annual Rate Change	2.34%	2.34%
Total Sales (MWh)	424,921	425,232
Total Revenue ($)	$ 50,605,681	$ 51,822,305
Purchase Power Expense ($)	$ 22,501,105	$ 23,193,086
Non-Purchased Power Cost ($)	$ 26,980,631	$ 28,483,815
Reserves Surplus/(Deficit)	$ 1,123,945	$ 145,404
Average Revenue ($/kWh)	$ 0.119	$ 0.122
Average Power Cost ($/kWh)	$ 0.053	$ 0.055
Average Rev - Power Cost ($/kWh)	$ 0.066	$ 0.067
Difference QTech Pro-Forma With Existing Rates- pIRP Purchased Power Cost less CWP Bu		
Total Sales (MWh)	(79)	(4,018)
Total Inflows - Revenue ($)	1,119,775	1,773,382
Purchase Power Expense ($)	224,725	(6,081)
Non-Purchased Power Cost ($)	2	2
Reserves Surplus/(Deficit)	895,048	1,779,461
Difference QTech Pro-Forma With Existing Rates- 3% Purchased Power Annual Increase les		
Total Sales (MWh)	(79)	(4,018)
Total Inflows - Revenue ($)	1,119,775	1,773,382
Purchase Power Expense ($)	(4,170)	77,005

Non-Purchased Power Cost ($)	2	2
Reserves Surplus/(Deficit)	1,123,943	1,696,376

Difference QTech Pro-Forma With Existing Rates- pIRP Purchased Power Cost less QTech P

Total Sales (MWh)	-	-
Total Inflows - Revenue ($)	-	-
Purchase Power Expense ($)	228,895	(83,086)
Non-Purchased Power Cost ($)	-	-
Reserves Surplus/(Deficit)	(228,895)	83,086

	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031
	433,543	437,878	442,257	446,679	451,146	455,658
$	50,588,188	$ 51,136,739	$ 51,678,700	$ 52,231,690	$ 52,795,537	$ 53,381,772
$	23,767,267	$ 24,462,577	$ 25,206,127	$ 26,002,438	$ 26,856,478	$ 27,773,709
$	29,162,511	$ 30,001,791	$ 30,870,858	$ 31,690,504	$ 32,338,689	$ 22,256,957
$	(2,341,591)	$ (3,327,629)	$ (4,398,285)	$ (5,461,252)	$ (6,399,631)	$ 3,351,105
$	0.117	$ 0.117	$ 0.117	$ 0.117	$ 0.117	$ 0.117
$	0.055	$ 0.056	$ 0.057	$ 0.058	$ 0.060	$ 0.061
$	0.062	$ 0.061	$ 0.060	$ 0.059	$ 0.057	$ 0.056
	2.34%	2.34%	2.34%	2.34%	2.34%	2.06%
	425,703	425,714	425,931	425,732	425,797	424,993
$	53,056,533	$ 54,265,732	$ 55,515,886	$ 56,745,407	$ 58,042,345	$ 59,108,603
$	24,180,000	$ 25,210,000	$ 26,460,000	$ 27,260,000	$ 27,650,000	$ 27,610,000
$	29,162,513	$ 30,001,792	$ 30,870,860	$ 31,690,506	$ 32,338,691	$ 22,256,959
$	(285,980)	$ (946,060)	$ (1,814,973)	$ (2,205,099)	$ (1,946,346)	$ 9,241,644
$	0.125	$ 0.127	$ 0.130	$ 0.133	$ 0.136	$ 0.139
$	0.057	$ 0.059	$ 0.062	$ 0.064	$ 0.065	$ 0.065
$	0.068	$ 0.068	$ 0.068	$ 0.069	$ 0.071	$ 0.074
	2.34%	2.34%	2.34%	2.34%	2.34%	2.06%
	425,703	425,714	425,931	425,732	425,797	424,993
$	53,056,533	$ 54,265,732	$ 55,515,886	$ 56,745,407	$ 58,042,345	$ 59,108,603
$	23,915,340	$ 24,633,447	$ 25,385,388	$ 26,134,695	$ 26,922,881	$ 27,678,218
$	29,162,513	$ 30,001,792	$ 30,870,860	$ 31,690,506	$ 32,338,691	$ 22,256,959
$	(21,319)	$ (369,507)	$ (740,362)	$ (1,079,795)	$ (1,219,227)	$ 9,173,426
$	0.125	$ 0.127	$ 0.130	$ 0.133	$ 0.136	$ 0.139
$	0.056	$ 0.058	$ 0.060	$ 0.061	$ 0.063	$ 0.065
$	0.068	$ 0.070	$ 0.071	$ 0.072	$ 0.073	$ 0.074
dget						
	(7,839)	(12,164)	(16,325)	(20,948)	(25,349)	(30,664)
	2,468,346	3,128,993	3,837,186	4,513,717	5,246,808	5,726,831
	412,733	747,423	1,253,873	1,257,562	793,522	(163,709)
	2	2	2	2	2	2
	2,055,611	2,381,569	2,583,312	3,256,153	4,453,285	5,890,539
ss CWP Budget						
	(7,839)	(12,164)	(16,325)	(20,948)	(25,349)	(30,664)
	2,468,346	3,128,993	3,837,186	4,513,717	5,246,808	5,726,831
	148,073	170,870	179,261	132,257	66,402	(95,492)

2	2	2	2	2	2
2,320,271	2,958,122	3,657,924	4,381,458	5,180,404	5,822,321

Pro-Forma With Existing Rates- 3% Purchased Power Annual Increase

-	-	-	-	-	-
-	-	-	-	-	-
264,660	576,553	1,074,612	1,125,305	727,119	(68,218)
-	-	-	-	-	-
(264,660)	(576,553)	(1,074,612)	(1,125,305)	(727,119)	68,218

	FY2032		FY2033
	460,214		464,816
$	53,953,815	$	54,562,504
$	28,760,132	$	29,822,345
$	22,322,589	$	22,774,046
$	2,871,094	$	1,966,113
$	0.117	$	0.117
$	0.062	$	0.064
$	0.055	$	0.053
	2.06%		2.06%
	424,267		423,758
$	60,183,454	$	61,338,439
$	29,890,000	$	31,820,000
$	22,322,590	$	22,774,047
$	7,970,863	$	6,744,392
$	0.142	$	0.145
$	0.070	$	0.075
$	0.071	$	0.070
	2.06%		2.06%
	424,267		423,758
$	60,183,454	$	61,338,439
$	28,459,864	$	29,278,479
$	22,322,590	$	22,774,047
$	9,400,999	$	9,285,913
$	0.142	$	0.145
$	0.067	$	0.069
$	0.075	$	0.076
	(35,947)		(41,058)
	6,229,638		6,775,935
	1,129,868		1,997,655
	2		2
	5,099,769		4,778,279
	(35,947)		(41,058)
	6,229,638		6,775,935
	(300,269)		(543,866)

2	2
6,529,905	7,319,800
-	-
-	-
1,430,136	2,541,521
-	-
(1,430,136)	(2,541,521)

Comment

2023 sales are estimated by applying 2022 data for remainder of FY2023 data in the Electic Revenues By Class workbook. 2024 sales (kWh) is estimated on CWP "Electric Revenues By Class.xlsx". This sales estimate is escalated by 1% per year after 2024, an escalation rate suggested in the CWP 10-year pro forma for electric
Total revenue from CWP 10-year pro-forma, see CWP Baseline 10yr Budget tab
Total revenue from CWP 10-year pro-forma, see CWP Baseline 10yr Budget tab

From CWP 10-year pro-forma.

Annual rate increase from cell D3 on tab "Revenue-Existing Rates".
Extracted from QTech pIRP.
Sales data from QTech pIRP with $/kWh extracted from 2022 historical CWP data.
Extracted from QTech pIRP Scenario 3D

Extracted from QTech pIRP.
Calculated 2.19% average annual growth rate
Calculated 3.84% average annual growth rate
Calculated 0.67% average annual growth rate

Annual rate increase from cell D3 on tab "Revenue-Existing Rates".
Extracted from QTech pIRP.
Sales data from QTech pIRP with $/kWh extracted from 2022 historical CWP data.
2023 Purchased power expense extracted from pIRP then escalated 3% per year.

Extracted from QTech pIRP.
Calculated 2.19% average annual growth rate
Calculated 3% average annual growth rate
Calculated 1.5% average annual growth rate

Annual Rate Change for Res., Commer., Public Authority	0.00%	2.34%
Annual Rate Change for Lighting	0.00%	0.00%

Account Description	**FY2023 (Actual + Budget)**	**FY2024**
Total Quanta pIRP Consumption (MWh)	424,115	424,921
Sales by Customer Class		
Residential	186,469	186,824
Commercial	211,974	212,377
Public Authority	23,601	23,646
Street Lighting	2,070	2,074
Total Sales	**424,115**	**424,921**
Current Rate by Class ($/kWh)		
Residential	$ 0.125	$ 0.114
Commercial	$ 0.125	$ 0.114
Public Authority	$ 0.125	$ 0.114
Street Lighting	$ 0.125	$ 0.114
Rate with Increase by Class ($/kWh)		
Residential	$ 0.125	$ 0.117
Commercial	$ 0.125	$ 0.117
Public Authority	$ 0.125	$ 0.117
Street Lighting	$ 0.125	$ 0.114
Revenue by Class		
Residential	$ 23,349,612	$ 21,824,911
Total Commercial (Com., PA, Lighting)($)	$ 26,543,315	$ 24,810,069
Public Authority	$ 2,955,278	$ 2,762,302
Street Lighting	$ 259,210	$ 236,747
Total Revenue	**$ 53,107,414**	**$ 49,634,029**

	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%
	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	FY2025	**FY2026**	**FY2027**	**FY2028**	**FY2029**	**FY2030**
	425,232	425,703	425,714	425,931	425,732	425,797
	186,961	187,168	187,173	187,268	187,180	187,209
	212,533	212,768	212,774	212,882	212,783	212,815
	23,663	23,689	23,690	23,702	23,691	23,694
	2,075	2,078	2,078	2,079	2,078	2,078
	425,232	**425,703**	**425,714**	**425,931**	**425,732**	**425,797**
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.120	$ 0.122	$ 0.125	$ 0.128	$ 0.131	$ 0.134
$	0.120	$ 0.122	$ 0.125	$ 0.128	$ 0.131	$ 0.134
$	0.120	$ 0.122	$ 0.125	$ 0.128	$ 0.131	$ 0.134
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	22,351,621	$ 22,899,653	$ 23,435,779	$ 23,996,056	$ 24,545,697	$ 25,123,568
$	25,408,821	$ 26,031,812	$ 26,641,268	$ 27,278,178	$ 27,902,997	$ 28,559,908
$	2,828,966	$ 2,898,328	$ 2,966,184	$ 3,037,096	$ 3,106,662	$ 3,179,802
$	236,920	$ 237,183	$ 237,189	$ 237,310	$ 237,199	$ 237,235
$	**50,826,328**	**$ 52,066,976**	**$ 53,280,420**	**$ 54,548,641**	**$ 55,792,555**	**$ 57,100,513**

	2.06%	2.06%	2.06%	2.06%	2.06%
	0.00%	0.00%	0.00%	0.00%	0.00%

	FY2031	**FY2032**	**FY2033**	**FY2034**	**FY2035**
	424,993	424,267	423,758	422,864	422,286
	186,856	186,537	186,313	185,920	185,665
	212,414	212,051	211,796	211,349	211,060
	23,650	23,609	23,581	23,531	23,499
	2,074	2,071	2,068	2,064	2,061
	424,993	**424,267**	**423,758**	**422,864**	**422,286**
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
				$ 1.000	
$	0.137	$ 0.140	$ 0.143	$ 0.146	$ 0.149
$	0.137	$ 0.140	$ 0.143	$ 0.146	$ 0.149
$	0.137	$ 0.140	$ 0.143	$ 0.146	$ 0.149
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	25,593,204	$ 26,076,309	$ 26,582,055	$ 27,072,922	$ 27,593,365
$	29,093,780	$ 29,642,962	$ 30,217,884	$ 30,775,890	$ 31,367,518
$	3,239,242	$ 3,300,387	$ 3,364,397	$ 3,426,524	$ 3,492,395
$	236,787	$ 236,383	$ 236,099	$ 235,601	$ 235,279
$	**58,163,013**	**$ 59,256,040**	**$ 60,400,435**	**$ 61,510,937**	**$ 62,688,556**

	2.06%	2.06%	2.06%	2.06%	2.06%
	0.00%	0.00%	0.00%	0.00%	0.00%
	FY2036	**FY2037**	**FY2038**	**FY2039**	**FY2040**
	421,420	420,325	419,068	419,025	420,278
	185,285	184,803	184,251	184,232	184,783
	210,628	210,080	209,452	209,431	210,057
	23,451	23,390	23,320	23,318	23,387
	2,057	2,052	2,045	2,045	2,051
	421,420	**420,325**	**419,068**	**419,025**	**420,278**
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.152	$ 0.155	$ 0.158	$ 0.161	$ 0.165
$	0.152	$ 0.155	$ 0.158	$ 0.161	$ 0.165
$	0.152	$ 0.155	$ 0.158	$ 0.161	$ 0.165
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	28,104,611	$ 28,609,616	$ 29,112,201	$ 29,709,449	$ 30,412,713
$	31,948,691	$ 32,522,769	$ 33,094,097	$ 33,773,035	$ 34,572,489
$	3,557,102	$ 3,621,018	$ 3,684,629	$ 3,760,220	$ 3,849,230
$	234,796	$ 234,187	$ 233,486	$ 233,462	$ 234,160
$	**63,845,201**	**$ 64,987,590**	**$ 66,124,413**	**$ 67,476,167**	**$ 69,068,592**

	2.06%	2.06%	2.06%	2.06%	2.06%
	0.00%	0.00%	0.00%	0.00%	0.00%

	FY2041	**FY2042**	**FY2043**	**FY2044**	**FY2045**
	422,922	426,417	431,547	437,809	446,031
	185,945	187,482	189,737	192,490	196,105
	211,378	213,125	215,689	218,819	222,928
	23,534	23,729	24,014	24,363	24,820
	2,064	2,081	2,106	2,137	2,177
	422,922	**426,417**	**431,547**	**437,809**	**446,031**
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.168	$ 0.171	$ 0.175	$ 0.179	$ 0.182
$	0.168	$ 0.171	$ 0.175	$ 0.179	$ 0.182
$	0.168	$ 0.171	$ 0.175	$ 0.179	$ 0.182
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	31,235,069	$ 32,142,617	$ 33,199,989	$ 34,376,250	$ 35,744,007
$	35,507,325	$ 36,539,005	$ 37,741,002	$ 39,078,149	$ 40,632,985
$	3,953,313	$ 4,068,178	$ 4,202,006	$ 4,350,881	$ 4,523,993
$	235,633	$ 237,581	$ 240,438	$ 243,927	$ 248,509
$	**70,931,340**	**$ 72,987,381**	**$ 75,383,435**	**$ 78,049,207**	**$ 81,149,493**

	2.06%	2.06%	2.06%	2.06%	2.06%
	0.00%	0.00%	0.00%	0.00%	0.00%

	FY2046	**FY2047**	**FY2048**	**FY2049**	**FY2050**
	445,257	444,555	444,061	443,573	444,391
	195,765	195,456	195,239	195,025	195,384
	222,541	222,190	221,944	221,700	222,109
	24,777	24,738	24,711	24,684	24,729
	2,173	2,170	2,167	2,165	2,169
	445,257	**444,555**	**444,061**	**443,573**	**444,391**
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	0.186	$ 0.190	$ 0.194	$ 0.198	$ 0.202
$	0.186	$ 0.190	$ 0.194	$ 0.198	$ 0.202
$	0.186	$ 0.190	$ 0.194	$ 0.198	$ 0.117
$	0.114	$ 0.114	$ 0.114	$ 0.114	$ 0.114
$	36,417,754	$ 37,110,043	$ 37,833,202	$ 38,570,893	$ 39,438,796
$	41,398,885	$ 42,185,864	$ 43,007,935	$ 43,846,526	$ 44,833,138
$	4,609,267	$ 4,696,887	$ 4,788,415	$ 4,881,782	$ 2,881,066
$	248,077	$ 247,686	$ 247,411	$ 247,139	$ 247,595
$	**82,673,983**	**$ 84,240,480**	**$ 85,876,964**	**$ 87,546,340**	**$ 87,400,595**

Comment

Sales numbers extracted from Qtech IRP report (WB: "Response to MM email request.xlsx")

Allocation total sales to sales by class based on historic sales by class
Allocation total sales to sales by class based on historic sales by class
Allocation total sales to sales by class based on historic sales by class
Allocation total sales to sales by class based on historic sales by class
Check sum against sale from Q Tech report projections

Average system rate from first year (2024) of CWP Baseline 10 yr Budget'
Average system rate from first year (2024) of CWP Baseline 10 yr Budget'
Average system rate from first year (2024) of CWP Baseline 10 yr Budget'
Average system rate from first year (2024) of CWP Baseline 10 yr Budget'

Increased rate based on 1st year (2024) of CWP Baseline 10 yr Budget time rate increase
Increased rate based on 1st year (2024) of CWP Baseline 10 yr Budget time rate increase
Increased rate based on 1st year (2024) of CWP Baseline 10 yr Budget time rate increase
Increased rate based on 1st year (2024) of CWP Baseline 10 yr Budget time rate increase

Sales time increased rate
Sales time increased rate
Sales time increased rate
Sales time increased rate

	FY 2023	FY 2024	FY 2025	FY 2026
Sales (kWh)				
Residential	186,177,997	192,000,000	193,920,000	195,859,200
Commercial	215,680,053	207,853,096	209,931,627	212,030,944
Public Authority	23,234,736	23,146,904	23,378,373	23,612,156
Street Lighting	2,112,656	2,000,000	2,020,000	2,040,200
Total	**427,205,442**	**425,000,000**	**429,250,000**	**433,542,500**
Avg Retail Rate	$ 0.125	$ 0.114	$ 0.114	$ 0.114
Electric Sales:				
Fuel	$ 18,905,305	$ 13,437,320	$ 13,571,693	$ 13,707,410
Non-Fuel	$ 34,589,140	$ 35,076,934	$ 35,481,252	$ 35,891,220
Total Retail Rates	**$ 53,494,445**	**$ 48,514,254**	**$ 49,052,945**	**$ 49,598,630**
Intergovernmental Revenues	$ -	$ -	$ -	$ -
Other Operating Revenues	$ 748,000	$ 764,537	$ 749,813	$ 738,636
Investment Earnings	$ (200,000)	$ 29,588	$ 58,985	$ 55,895
Transfers in	$ 166,590	$ 177,527	$ 187,180	$ 195,027
Total Inflows	**$ 54,209,035**	**$ 49,485,906**	**$ 50,048,923**	**$ 50,588,188**
General and Administrative	$ 2,362,723	$ 2,712,088	$ 2,844,235	$ 2,953,616
Operating Expenses	$ 6,420,378	$ 6,582,666	$ 6,804,309	$ 6,985,485
Purchased Power	$ 27,274,436	$ 22,505,275	$ 23,116,081	$ 23,767,267
Routine Capital	$ 2,258,211	$ 2,278,222	$ 2,363,633	$ 2,451,354
Principal on Debt	$ 3,125,000	$ 3,225,000	$ 3,340,000	$ 3,465,000
Interest on Debt	$ 1,600,917	$ 1,483,690	$ 1,341,553	$ 1,215,733
Total Outflows	**$ 43,041,665**	**$ 38,786,941**	**$ 39,809,811**	**$ 40,838,455**
Available Funds	**$ 11,167,370**	**$ 10,698,965**	**$ 10,239,112**	**$ 9,749,732**
Operating Transfers Out	$ 3,151,141	$ 2,937,365	$ 2,990,405	$ 3,034,160
Other Capital Projects	$ 500,000	$ -	$ 650,000	$ 500,000
Undergrounding Power Lines	$ 7,392,000	$ 7,761,600	$ 8,149,680	$ 8,557,164
Reserves Surplus/Deficit	**$ 124,229**	**$ -**	**$ (1,550,973)**	**$ (2,341,592)**
Est. Working Capital		$ 10,823,127	$ 9,272,154	$ 6,930,562
No. of Days of Working Capital		124	103	75
Bonds Outstanding		$ 43,670,000	$ 40,330,000	$ 36,865,000
Debt Service Coverage		3.72	3.65	3.56

**Currently Covanta supplies 10 MWh of power to the city and this scenario assumes that the agreer*

Plant Assets	161,544,232	172,057,544	183,066,062
Accumulated Depreciation	(61,110,748)	(66,495,555)	(72,230,807)
Plant Assets, Net of Depreciation	100433484	105561988.9	110835255.7

FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
197,817,792	199,795,970	201,793,930	203,811,869	205,849,988	207,908,487	209,987,572
214,151,253	216,292,766	218,455,693	220,640,250	222,846,653	225,075,119	227,325,870
23,848,278	24,086,761	24,327,628	24,570,905	24,816,614	25,064,780	25,315,428
2,060,602	2,081,208	2,102,020	2,123,040	2,144,271	2,165,713	2,187,371
437,877,925	**442,256,704**	**446,679,271**	**451,146,064**	**455,657,525**	**460,214,100**	**464,816,241**
$ 0.115	$ 0.115	$ 0.115	$ 0.115	$ 0.115	$ 0.115	$ 0.115
$ 13,844,484	$ 13,982,929	$ 14,122,758	$ 14,263,986	$ 14,406,626	$ 14,550,692	$ 14,696,199
$ 36,306,942	$ 36,728,526	$ 37,156,080	$ 37,589,719	$ 38,029,556	$ 38,475,710	$ 38,928,301
$ 50,151,426	**$ 50,711,455**	**$ 51,278,839**	**$ 51,853,705**	**$ 52,436,182**	**$ 53,026,402**	**$ 53,624,500**
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 730,409	$ 724,644	$ 720,937	$ 718,957	$ 718,433	$ 695,763	$ 701,636
$ 52,712	$ 33,236	$ 15,280	$ (1,318)	$ (4,900)	$ (8,590)	$ (12,390)
$ 202,191	$ 209,366	$ 216,634	$ 224,194	$ 232,057	$ 240,241	$ 248,759
$ 51,136,739	**$ 51,678,700**	**$ 52,231,690**	**$ 52,795,537**	**$ 53,381,772**	**$ 53,953,815**	**$ 54,562,504**
$ 3,051,668	$ 3,153,326	$ 3,258,744	$ 3,368,085	$ 3,481,519	$ 3,599,226	$ 3,721,396
$ 7,172,332	$ 7,359,701	$ 7,499,027	$ 7,494,433	$ 7,646,146	$ 7,854,404	$ 8,069,455
$ 24,462,577	$ 25,206,127	$ 26,002,438	$ 26,856,478	$ 27,773,709	$ 28,760,132	$ 29,822,345
$ 2,541,387	$ 2,635,696	$ 2,699,767	$ 2,765,760	$ 2,833,732	$ 2,903,744	$ 2,975,857
$ 3,590,000	$ 3,680,000	$ 3,795,000	$ 3,860,000	$ 3,935,000	$ 3,690,000	$ 3,815,000
$ 1,098,556	$ 991,114	$ 879,949	$ 761,325	$ 636,465	$ 514,384	$ 394,197
$ 41,916,521	**$ 43,025,964**	**$ 44,134,924**	**$ 45,106,080**	**$ 46,306,571**	**$ 47,321,891**	**$ 48,798,249**
$ 9,220,218	**$ 8,652,735**	**$ 8,096,766**	**$ 7,689,457**	**$ 7,075,200**	**$ 6,631,924**	**$ 5,764,255**
$ 3,062,826	$ 3,116,749	$ 3,152,033	$ 3,187,803	$ 3,224,097	$ 3,260,832	$ 3,298,143
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ 8,985,022	$ 9,434,273	$ 9,905,987	$ 10,401,286	$ -	$ -	$ -
$ (3,327,631)	**$ (4,398,287)**	**$ (5,461,254)**	**$ (6,399,632)**	**$ 3,351,103**	**$ 2,871,093**	**$ 1,966,112**
$ 3,602,931	$ (795,356)	$ (6,256,610)	$ (12,656,242)	$ (9,305,139)	$ (6,434,046)	$ (4,467,935)
38	(8)	(62)	(122)	(87)	(58)	(39)
$ 33,275,000	$ 29,595,000	$ 25,800,000	$ 21,940,000	$ 18,005,000	$ 14,315,000	$ 10,500,000
3.47	3.37	3.26	3.21	3.12	3.21	3.02

ment would be renewed at current pricing in FY24.

194,592,472	206,662,441	219,268,194	232,435,240	235,268,973	238,172,717	241,148,574
(78,333,009)	(84,819,425)	(91,708,173)	(99,017,112)	(106,764,954)	(114,607,253)	(122,546,343)
116259463	121843016.3	127560021.8	133418127.9	128504018.8	123565464.1	118602230.1

2024 to 2033 Avg %	Comment
	2023 data from
1.00%	2024 sales (kWh) from CWP "Electric Revenues By Class.xlsx". This sales estimate is
1.00%	
1.00%	
1.00%	
1.00%	
0.12%	
1.00%	
1.16%	
1.12%	
-0.95%	
-190.78%	
3.82%	
1.09%	
3.58%	
2.29%	
3.18%	
3.01%	
1.88%	
-13.69%	
-6.64%	
1.30%	

escalated by 1% per year, an escalation rate suggested in the CWP 10-year pro forma for electric demand growth

ו.

Account Description	FY2023 (Actual + Budget)	FY2024	FY2025	FY2026
Other Revenues Annual Escalation			3%	3%
Attachment fees annual De-escalation			80%	80%
MISC SERVICE CHARGES	$ (1,000)	$ (8,000)	$ (8,240)	$ (8,487)
OTH CHG PHYS-EL CONNECT FEES	$ (6,000)	$ (5,000)	$ (5,150)	$ (5,305)
OTH CHG PHYS-TURN ON/OFF CHRGE	$ (80,000)	$ (80,000)	$ (82,400)	$ (84,872)
OTH CHG PHYS-POLE ATTACH FEES	$ (100,000)	$ (110,000)	$ (90,640)	$ (74,687)
OTH CHG PHYS-EQUIPMENT RENTAL	$ (72,000)	$ (70,000)	$ (72,100)	$ (74,263)
OTH CHG PHYS-TEMP POLE SERVICE	$ (10,000)	$ (7,000)	$ (7,210)	$ (7,426)
OTH CHG PHYS-SURGE&WIRE PROTEC	$ (60,000)	$ (60,000)	$ (61,800)	$ (63,654)
OTH CHG PHYS-CONT IN AID CONST	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)
OTH CHG PHYS-CONT FOR PLUGIN	$ -	$ -	$ -	$ -
OTH CHG PHYS-RES U/G SVC DROPS	$ -	$ -	$ -	$ -
OTH CHG PHYS-BAD DEBT EXPENSE	$ 150,000	$ 172,463	$ 177,637	$ 182,966
OTH CHG PHYS-DEMO DISCONNECT	$ (24,000)	$ (22,000)	$ (22,660)	$ (23,340)
SALE OF SURPLUS MATERIALS	$ (25,000)	$ (40,000)	$ (41,200)	$ (42,436)
INSURANCE SETTLEMENTS	$ -	$ -	$ -	$ -
THIRD PARTY SETTLEMENTS	$ -	$ -	$ -	$ -
OTHER MISCELLANEOUS REVENUES	$ (20,000)	$ (35,000)	$ (36,050)	$ (37,132)

	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033
	3%	3%	3%	3%	3%	3%	3%
	80%	80%	80%	80%	80%	0%	0%
$	(8,742)	$ (9,004)	$ (9,274)	$ (9,552)	$ (9,839)	$ (10,134)	$ (10,438)
$	(5,464)	$ (5,628)	$ (5,796)	$ (5,970)	$ (6,149)	$ (6,334)	$ (6,524)
$	(87,418)	$ (90,041)	$ (92,742)	$ (95,524)	$ (98,390)	$ (101,342)	$ (104,382)
$	(61,542)	$ (50,711)	$ (41,786)	$ (34,432)	$ (28,372)	$ -	$ -
$	(76,491)	$ (78,786)	$ (81,149)	$ (83,584)	$ (86,091)	$ (88,674)	$ (91,334)
$	(7,649)	$ (7,879)	$ (8,115)	$ (8,358)	$ (8,609)	$ (8,867)	$ (9,133)
$	(65,564)	$ (67,531)	$ (69,556)	$ (71,643)	$ (73,792)	$ (76,006)	$ (78,286)
$	(500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)
$	-	$ -	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -	$ -
$	188,455	$ 194,109	$ 199,932	$ 205,930	$ 212,108	$ 218,471	$ 225,025
$	(24,040)	$ (24,761)	$ (25,504)	$ (26,269)	$ (27,057)	$ (27,869)	$ (28,705)
$	(43,709)	$ (45,020)	$ (46,371)	$ (47,762)	$ (49,195)	$ (50,671)	$ (52,191)
$	-	$ -	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -	$ -
$	(38,245)	$ (39,393)	$ (40,575)	$ (41,792)	$ (43,046)	$ (44,337)	$ (45,667)

FY2034	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040
3%	3%	3%	3%	3%	3%	3%
0%	0%	0%	0%	0%	0%	0%
$ (10,751)	$ (11,074)	$ (11,406)	$ (11,748)	$ (12,101)	$ (12,464)	$ (12,838)
$ (6,720)	$ (6,921)	$ (7,129)	$ (7,343)	$ (7,563)	$ (7,790)	$ (8,024)
$ (107,513)	$ (110,739)	$ (114,061)	$ (117,483)	$ (121,007)	$ (124,637)	$ (128,377)
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (94,074)	$ (96,896)	$ (99,803)	$ (102,797)	$ (105,881)	$ (109,058)	$ (112,329)
$ (9,407)	$ (9,690)	$ (9,980)	$ (10,280)	$ (10,588)	$ (10,906)	$ (11,233)
$ (80,635)	$ (83,054)	$ (85,546)	$ (88,112)	$ (90,755)	$ (93,478)	$ (96,282)
$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 231,776	$ 238,729	$ 245,891	$ 253,268	$ 260,866	$ 268,692	$ 276,752
$ (29,566)	$ (30,453)	$ (31,367)	$ (32,308)	$ (33,277)	$ (34,275)	$ (35,304)
$ (53,757)	$ (55,369)	$ (57,030)	$ (58,741)	$ (60,504)	$ (62,319)	$ (64,188)
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (47,037)	$ (48,448)	$ (49,902)	$ (51,399)	$ (52,941)	$ (54,529)	$ (56,165)

FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047
3%	3%	3%	3%	3%	3%	3%
0%	0%	0%	0%	0%	0%	0%
$ (13,223)	$ (13,619)	$ (14,028)	$ (14,449)	$ (14,882)	$ (15,329)	$ (15,789)
$ (8,264)	$ (8,512)	$ (8,768)	$ (9,031)	$ (9,301)	$ (9,581)	$ (9,868)
$ (132,228)	$ (136,195)	$ (140,280)	$ (144,489)	$ (148,824)	$ (153,288)	$ (157,887)
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (115,699)	$ (119,170)	$ (122,745)	$ (126,428)	$ (130,221)	$ (134,127)	$ (138,151)
$ (11,570)	$ (11,917)	$ (12,275)	$ (12,643)	$ (13,022)	$ (13,413)	$ (13,815)
$ (99,171)	$ (102,146)	$ (105,210)	$ (108,367)	$ (111,618)	$ (114,966)	$ (118,415)
$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 285,055	$ 293,607	$ 302,415	$ 311,487	$ 320,832	$ 330,457	$ 340,371
$ (36,363)	$ (37,454)	$ (38,577)	$ (39,734)	$ (40,926)	$ (42,154)	$ (43,419)
$ (66,114)	$ (68,097)	$ (70,140)	$ (72,244)	$ (74,412)	$ (76,644)	$ (78,943)
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (57,850)	$ (59,585)	$ (61,373)	$ (63,214)	$ (65,110)	$ (67,064)	$ (69,076)

FY2048	FY2049	FY2050
3%	3%	3%
0%	0%	0%
$ (16,262)	$ (16,750)	$ (17,253)
$ (10,164)	$ (10,469)	$ (10,783)
$ (162,624)	$ (167,502)	$ (172,527)
$ -	$ -	$ -
$ (142,296)	$ (146,564)	$ (150,961)
$ (14,230)	$ (14,656)	$ (15,096)
$ (121,968)	$ (125,627)	$ (129,395)
$ (500,000)	$ (500,000)	$ (500,000)
$ -	$ -	$ -
$ -	$ -	$ -
$ 350,582	$ 361,099	$ 371,932
$ (44,721)	$ (46,063)	$ (47,445)
$ (81,312)	$ (83,751)	$ (86,264)
$ -	$ -	$ -
$ -	$ -	$ -
$ (71,148)	$ (73,282)	$ (75,481)

Comment
Annual escalation rate from CWP 10-year pro-forma calculation sheet. Continued at 3% increase to 2050 Decreases attachment fee revenue as this service will be eliminated with undergrounding.
All accounts are from CWP 10-year pro-forma. Forecast is extended using 3% annual increase.

Account Description	FY2023 (Actual + Budget)	FY2024	FY2025
Investment earnings annual % change			25%
Annual Escalation of Cust Deposits		3%	3%
INT-CHECKING AND SAVINGS	$ -	$ -	$ -
INT-MONEY MARKET	$ -	$ -	$ -
INT-INVESTMENT PORTFOLIO EARNG	$ -	$ (129,588)	$ (161,985)
INT-INT PAID ON CUST DEPOSITS	$ 200,000	$ 100,000	$ 103,000
INT-SEACOAST SRB ACCOUNT	$ -	$ -	$ -

	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031
	0%	0%	-10%	-10%	-10%	0%
	3%	3%	3%	3%	3%	3%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	(161,985)	$ (161,985)	$ (145,787)	$ (131,208)	$ (118,087)	$ (118,087)
$	106,090	$ 109,273	$ 112,551	$ 115,927	$ 119,405	$ 122,987
$	-	$ -	$ -	$ -	$ -	$ -

FY2032	FY2033	FY2034	FY2035	FY2036	FY2037
0%	0%	0%	0%	0%	0%
3%	3%	3%	3%	3%	3%
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ (118,087)	$ (118,087)	$ (118,087)	$ (118,087)	$ (118,087)	$ (118,087)
$ 126,677	$ 130,477	$ 134,392	$ 138,423	$ 142,576	$ 146,853
$ -	$ -	$ -	$ -	$ -	$ -

	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043
	0%	0%	0%	0%	0%	0%
	3%	3%	3%	3%	3%	3%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	(118,087)	$ (118,087)	$ (118,087)	$ (118,087)	$ (118,087)	$ (118,087)
$	151,259	$ 155,797	$ 160,471	$ 165,285	$ 170,243	$ 175,351
$	-	$ -	$ -	$ -	$ -	$ -

	FY2044	FY2045	FY2046	FY2047	FY2048	FY2049
	0%	0%	0%	0%	0%	0%
	3%	3%	3%	3%	3%	3%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	(118,087)	$ (118,087)	$ (118,087)	$ (118,087)	$ (118,087)	$ (118,087)
$	180,611	$ 186,029	$ 191,610	$ 197,359	$ 203,279	$ 209,378
$	-	$ -	$ -	$ -	$ -	$ -

FY2050	Comments
0%	Investment earnings % change adopted from CWP 10-year proforma calculation sheet. %
3%	Customer deposit escalation is from CWP 10-year pro-forma calculation sheet, "Other Re
$ -	
$ -	
$ (118,087)	
$ 215,659	
$ -	

change goes to zero in 2031 and is assumed to remain at zero through 2050.
venues".

Account Description	FY2023 (Actual + Budget)	FY2024	FY2025
Annual % Change		6.565%	5.437%
TRANSFER FROM ELEC ACQ FUND	$ -	$ -	$ -
TRANSFER FROM ELEC BOND FUND	$ -	$ -	$ -
CONTRIBUTION FROM W&S OPS	$ (166,590)	$ (177,527)	$ (187,180)
CONTRIBUTION FROM ELECTRIC ACQ	$ -	$ -	$ -

	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031
	4.192%	3.674%	3.548%	3.472%	3.489%	3.508%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	(195,027)	$ (202,191)	$ (209,366)	$ (216,634)	$ (224,194)	$ (232,057)
$	-	$ -	$ -	$ -	$ -	$ -

	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037
	3.526%	3.546%	3.546%	3.546%	3.546%	3.546%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	(240,241)	$ (248,759)	$ (257,579)	$ (266,711)	$ (276,168)	$ (285,960)
$	-	$ -	$ -	$ -	$ -	$ -

	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043
	3.546%	3.546%	3.546%	3.546%	3.546%	3.546%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	(296,099)	$ (306,597)	$ (317,468)	$ (328,724)	$ (340,379)	$ (352,448)
$	-	$ -	$ -	$ -	$ -	$ -

	FY2044	FY2045	FY2046	FY2047	FY2048	FY2049
	3.546%	3.546%	3.546%	3.546%	3.546%	3.546%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	(364,944)	$ (377,884)	$ (391,282)	$ (405,156)	$ (419,521)	$ (434,395)
$	-	$ -	$ -	$ -	$ -	$ -

	FY2050
	3.546%
$	-
$	-
$	(449,797)
$	-

Comments
%change between 2032 and 2033 is used to calculate Contribution from W&S Ops. No information is given about
Increased annually by % change between the last two forecast years of the CSP pro-forma.

annual escalation in the CWP 10-year pro-forma calculation sheet.

Account Description	FY2023 (Actual + Budget)	FY2024
Projected Personnel Cost Annual Escalation		
Health/dental Insurance Annual Escalation		
General Other Operating Expense Annual Escalation		
Alt Fuel Pass Through Change		
REGULAR SALARIES AND WAGES	$ 777,215	$ 948,615
OTHER WAGES - PART TIME/TEMP	$ -	$ 27,015
OVERTIME WAGES	$ 5,000	$ 6,000
FICA TAXES	$ 59,457	$ 74,068
RETIREMENT CONTRIBUTIONS - 401	$ 54,405	$ 65,883
RETIREMENT CONTRIBUTIONS - 457	$ 7,593	$ 14,518
EMPLOYEE INS - HEALTH & DENTAL	$ 99,200	$ 118,800
EMPLOYEE INS - LIFE	$ 1,554	$ 1,882
EMPLOYEE INS - AD&D	$ 184	$ 201
EMPLOYEE INS - DISABILITY	$ 1,865	$ 2,259
WORKERS COMPENSATION	$ 8,200	$ 13,312
UNEMPLOYMENT COMPENSATION	$ 728	$ 819
PROF SVCS - CITY ATTORNEY	$ 50,000	$ 45,000
PROF SVCS - OTHER LEGAL SVCS	$ -	$ -
ACCOUNTING AND AUDITING	$ 25,000	$ 21,333
OTHER SERVICES - CONTRACTUAL	$ 170,000	$ 90,000
TRAVEL AND PER DIEM	$ 6,500	$ 6,500
COMM SERVICES - EQUIP CHARGES	$ 2,873	$ 2,899
COMM SERVICES - AIRCARDS	$ -	
COMM SERVICES - MOBILE DEVICES	$ 3,500	$ 3,700
FREIGHT & POSTAGE SERVICES	$ -	$ -
RENTALS - COPIER	$ 740	$ 740
INSURANCE - GENERAL LIABILITY	$ 39,425	$ 36,279
INSURANCE - RISK MGMT OPS	$ 13,229	$ 10,703
REPAIR & MAINT - CONTRACTS	$ 55,000	$ 55,000
PRINTING AND BINDING	$ -	$ -
PRINTING - COPIER	$ 471	$ 471
PROMOTIONAL ACTIVITIES	$ -	$ -
OTHER - REFUND UG FEE	$ -	$ -
OTHER - REGULATORY ASSESS FEE	$ 25,000	$ 26,000
OTHER - CURRENT CHARGES	$ -	$ -
OPERATING SUPPLIES - GENERAL	$ 12,000	$ 10,000
OPERATING SUPPLIES - UNIFORMS	$ 1,500	$ 1,500
OPERATING EQUIP UNDER $5000	$ 3,000	$ 3,000
BOOKS & PERIODICALS	$ -	$ -
PUBLICATIONS AND MEMBERSHIPS	$ 70,594	$ 70,594
TRAINING - EDUCATIONAL COSTS	$ 6,000	$ 6,000
TRAINING - EMPLOYEE DEVELOPMNT	$ -	$ -
CAPITAL OUTLAY - MACH & EQUIP	$ -	$ -

CAPITAL OUTLAY - SOFTWARE	$	-	$	-
REGULAR SALARIES AND WAGES	$	233,825	$	313,473
TEMPORARY SUPERVISOR WAGES	$	-	$	-
OTHER WAGES - PART TIME/TEMP	$	38,390	$	20,152
OVERTIME WAGES	$	-	$	8,000
FICA TAXES	$	20,824	$	24,606
RETIREMENT CONTRIBUTIONS - 401	$	17,697	$	18,606
RETIREMENT CONTRIBUTIONS - 457	$	1,204	$	1,412
EMPLOYEE INS - HEALTH & DENTAL	$	59,520	$	84,480
EMPLOYEE INS - LIFE	$	506	$	577
EMPLOYEE INS - AD&D	$	55	$	69
EMPLOYEE INS - DISABILITY	$	607	$	692
WORKERS COMPENSATION	$	1,100	$	1,468
UNEMPLOYMENT COMPENSATION	$	546	$	619
OTHER SERVICES - CONTRACTUAL	$	1,000	$	33,000
OTHER SERVICES - CR CARD FEES	$	345,000	$	380,000
CONTRACTUAL SERV - PRINT BILLS	$	20,000	$	22,000
CONTRACTUAL SERV - SURGE&WIRE	$	45,000	$	45,000
TRAVEL AND PER DIEM	$	500	$	1,492
COMM SERVICES - EQUIP CHARGES	$	-	$	-
COMM SERVICES - MOBILE DEVICES	$	-	$	-
COMM SERVICES - LONG DISTANCE	$	-	$	-
FREIGHT & POSTAGE SERVICES	$	45,000	$	50,000
RENTALS - OTHER	$	700	$	700
RENTALS - EQUIP REPLACEMENT FD	$	-	$	-
RENTALS - COPIER	$	605	$	605
INSURANCE - GENERAL LIABILITY	$	10,047	$	12,504
INSURANCE - RISK MGMT OPS	$	3,371	$	3,689
REPAIR & MAINT - NON IBM	$	3,480	$	3,480
REPAIR & MAINT - EQUIPMENT	$	3,100	$	3,900
REPAIR & MAINT - VEHICLE	$	-	$	-
REPAIR & MAINT - FLEET MAINT	$	-	$	-
PRINTING AND BINDING	$	500	$	500
PRINTING - COPIER	$	563	$	563
PROMOTIONAL ACTIVITIES	$	250	$	250
OFFICE SUPPLIES	$	1,000	$	800
OPERATING SUPPLIES - GENERAL	$	1,500	$	3,000
OPERATING SUPPLIES - FUEL	$	-	$	-
OPERATING SUPPLIES - UNIFORMS	$	500	$	410
OPERATING EQUIP UNDER $5000	$	5,600	$	10,200
PUBLICATIONS AND MEMBERSHIPS	$	-	$	-
TRAINING - EDUCATIONAL COSTS	$	500	$	1,510
CAPITAL OUTLAY - FURN & FIX	$	-	$	1,240
CAPITAL OUTLAY - MACH & EQUIP	$	-	$	-
CAPITAL OUTLAY - SOFTWARE	$	-	$	-

FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031
5.00%	3.50%	3.00%	3.00%	3.00%	3.00%	3.00%
8.00%	8.00%	7.00%	7.00%	7.00%	7.00%	7.00%
4.00%	3.50%	3.00%	3.00%	3.00%	3.00%	3.00%
-10%	5%	2%	3%	3%	3%	3%
$ 996,046	$ 1,030,907	$ 1,061,835	$ 1,093,690	$ 1,126,500	$ 1,160,295	$ 1,195,104
$ 28,366	$ 29,359	$ 30,239	$ 31,146	$ 32,081	$ 33,043	$ 34,035
$ 6,300	$ 6,521	$ 6,716	$ 6,918	$ 7,125	$ 7,339	$ 7,559
$ 77,771	$ 80,493	$ 82,908	$ 85,395	$ 87,957	$ 90,596	$ 93,314
$ 69,177	$ 71,598	$ 73,746	$ 75,959	$ 78,237	$ 80,585	$ 83,002
$ 15,244	$ 15,777	$ 16,251	$ 16,738	$ 17,240	$ 17,758	$ 18,290
$ 128,304	$ 138,568	$ 148,268	$ 158,647	$ 169,752	$ 181,635	$ 194,349
$ 1,976	$ 2,045	$ 2,107	$ 2,170	$ 2,235	$ 2,302	$ 2,371
$ 211	$ 218	$ 225	$ 232	$ 239	$ 246	$ 253
$ 2,372	$ 2,455	$ 2,529	$ 2,604	$ 2,683	$ 2,763	$ 2,846
$ 13,978	$ 14,467	$ 14,901	$ 15,348	$ 15,808	$ 16,283	$ 16,771
$ 860	$ 890	$ 917	$ 944	$ 973	$ 1,002	$ 1,032
$ 46,800	$ 48,438	$ 49,891	$ 51,388	$ 52,930	$ 54,517	$ 56,153
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 22,186	$ 22,963	$ 23,652	$ 24,361	$ 25,092	$ 25,845	$ 26,620
$ 93,600	$ 96,876	$ 99,782	$ 102,776	$ 105,859	$ 109,035	$ 112,306
$ 6,760	$ 6,997	$ 7,206	$ 7,423	$ 7,645	$ 7,875	$ 8,111
$ 3,015	$ 3,120	$ 3,214	$ 3,311	$ 3,410	$ 3,512	$ 3,617
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 3,848	$ 3,983	$ 4,102	$ 4,225	$ 4,352	$ 4,483	$ 4,617
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 740	$ 740	$ 740	$ 740	$ 740	$ 740	$ 740
$ 37,730	$ 39,051	$ 40,222	$ 41,429	$ 42,672	$ 43,952	$ 45,270
$ 11,238	$ 11,631	$ 11,980	$ 12,340	$ 12,710	$ 13,091	$ 13,484
$ 57,200	$ 59,202	$ 60,978	$ 62,807	$ 64,692	$ 66,632	$ 68,631
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 490	$ 507	$ 522	$ 538	$ 554	$ 571	$ 588
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 27,040	$ 27,986	$ 28,826	$ 29,691	$ 30,581	$ 31,499	$ 32,444
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 10,400	$ 10,764	$ 11,087	$ 11,420	$ 11,762	$ 12,115	$ 12,478
$ 1,560	$ 1,615	$ 1,663	$ 1,713	$ 1,764	$ 1,817	$ 1,872
$ 3,120	$ 3,229	$ 3,326	$ 3,426	$ 3,529	$ 3,634	$ 3,744
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 73,418	$ 75,987	$ 78,267	$ 80,615	$ 83,033	$ 85,524	$ 88,090
$ 6,240	$ 6,458	$ 6,652	$ 6,852	$ 7,057	$ 7,269	$ 7,487
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 329,147	$ 340,667	$ 350,887	$ 361,413	$ 372,256	$ 383,423	$ 394,926
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 21,160	$ 21,900	$ 22,557	$ 23,234	$ 23,931	$ 24,649	$ 25,388
$ 8,400	$ 8,694	$ 8,955	$ 9,223	$ 9,500	$ 9,785	$ 10,079
$ 25,836	$ 26,741	$ 27,543	$ 28,369	$ 29,220	$ 30,097	$ 31,000
$ 19,536	$ 20,220	$ 20,827	$ 21,451	$ 22,095	$ 22,758	$ 23,441
$ 1,483	$ 1,534	$ 1,581	$ 1,628	$ 1,677	$ 1,727	$ 1,779
$ 91,238	$ 98,537	$ 105,435	$ 112,816	$ 120,713	$ 129,163	$ 138,204
$ 606	$ 627	$ 646	$ 665	$ 685	$ 706	$ 727
$ 72	$ 75	$ 77	$ 80	$ 82	$ 84	$ 87
$ 727	$ 752	$ 775	$ 798	$ 822	$ 846	$ 872
$ 1,541	$ 1,595	$ 1,643	$ 1,693	$ 1,743	$ 1,796	$ 1,849
$ 650	$ 673	$ 693	$ 714	$ 735	$ 757	$ 780
$ 34,320	$ 35,521	$ 36,587	$ 37,684	$ 38,815	$ 39,979	$ 41,179
$ 395,200	$ 409,032	$ 421,303	$ 433,942	$ 446,960	$ 460,369	$ 474,180
$ 22,880	$ 23,681	$ 24,391	$ 25,123	$ 25,877	$ 26,653	$ 27,453
$ 46,800	$ 48,438	$ 49,891	$ 51,388	$ 52,930	$ 54,517	$ 56,153
$ 1,552	$ 1,606	$ 1,654	$ 1,704	$ 1,755	$ 1,808	$ 1,862
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 52,000	$ 53,820	$ 55,435	$ 57,098	$ 58,811	$ 60,575	$ 62,392
$ 728	$ 753	$ 776	$ 799	$ 823	$ 848	$ 873
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 605	$ 605	$ 605	$ 605	$ 605	$ 605	$ 605
$ 13,004	$ 13,459	$ 13,863	$ 14,279	$ 14,707	$ 15,149	$ 15,603
$ 3,873	$ 4,009	$ 4,129	$ 4,253	$ 4,381	$ 4,512	$ 4,648
$ 3,619	$ 3,746	$ 3,858	$ 3,974	$ 4,093	$ 4,216	$ 4,342
$ 4,056	$ 4,198	$ 4,324	$ 4,454	$ 4,587	$ 4,725	$ 4,867
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 520	$ 538	$ 554	$ 571	$ 588	$ 606	$ 624
$ 586	$ 606	$ 624	$ 643	$ 662	$ 682	$ 703
$ 260	$ 269	$ 277	$ 285	$ 294	$ 303	$ 312
$ 832	$ 861	$ 887	$ 914	$ 941	$ 969	$ 998
$ 3,120	$ 3,229	$ 3,326	$ 3,426	$ 3,529	$ 3,634	$ 3,744
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 426	$ 441	$ 455	$ 468	$ 482	$ 497	$ 512
$ 10,608	$ 10,979	$ 11,309	$ 11,648	$ 11,997	$ 12,357	$ 12,728
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 1,570	$ 1,625	$ 1,674	$ 1,724	$ 1,776	$ 1,829	$ 1,884
$ 1,290	$ 1,335	$ 1,375	$ 1,416	$ 1,459	$ 1,502	$ 1,547
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
3%	3%	3%	3%	3%	3%	3%
$ 1,230,957	$ 1,267,886	$ 1,305,923	$ 1,345,100	$ 1,385,453	$ 1,427,017	$ 1,469,827
$ 35,056	$ 36,107	$ 37,191	$ 38,306	$ 39,455	$ 40,639	$ 41,858
$ 7,786	$ 8,019	$ 8,260	$ 8,508	$ 8,763	$ 9,026	$ 9,297
$ 96,113	$ 98,997	$ 101,967	$ 105,026	$ 108,176	$ 111,422	$ 114,764
$ 85,492	$ 88,057	$ 90,699	$ 93,420	$ 96,222	$ 99,109	$ 102,082
$ 18,839	$ 19,404	$ 19,986	$ 20,586	$ 21,204	$ 21,840	$ 22,495
$ 207,954	$ 222,510	$ 238,086	$ 254,752	$ 272,585	$ 291,666	$ 312,082
$ 2,442	$ 2,515	$ 2,591	$ 2,669	$ 2,749	$ 2,831	$ 2,916
$ 261	$ 269	$ 277	$ 285	$ 294	$ 302	$ 311
$ 2,931	$ 3,019	$ 3,110	$ 3,203	$ 3,299	$ 3,398	$ 3,500
$ 17,274	$ 17,792	$ 18,326	$ 18,876	$ 19,442	$ 20,025	$ 20,626
$ 1,063	$ 1,095	$ 1,127	$ 1,161	$ 1,196	$ 1,232	$ 1,269
$ 57,838	$ 59,573	$ 61,360	$ 63,201	$ 65,097	$ 67,050	$ 69,061
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 27,419	$ 28,241	$ 29,089	$ 29,961	$ 30,860	$ 31,786	$ 32,740
$ 115,675	$ 119,145	$ 122,720	$ 126,401	$ 130,193	$ 134,099	$ 138,122
$ 8,354	$ 8,605	$ 8,863	$ 9,129	$ 9,403	$ 9,685	$ 9,975
$ 3,726	$ 3,838	$ 3,953	$ 4,072	$ 4,194	$ 4,319	$ 4,449
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 4,756	$ 4,898	$ 5,045	$ 5,196	$ 5,352	$ 5,513	$ 5,678
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 740	$ 740	$ 740	$ 740	$ 740	$ 740	$ 740
$ 46,629	$ 48,027	$ 49,468	$ 50,952	$ 52,481	$ 54,055	$ 55,677
$ 13,889	$ 14,305	$ 14,734	$ 15,176	$ 15,632	$ 16,101	$ 16,584
$ 70,690	$ 72,811	$ 74,995	$ 77,245	$ 79,563	$ 81,949	$ 84,408
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 605	$ 624	$ 642	$ 661	$ 681	$ 702	$ 723
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 33,417	$ 34,420	$ 35,452	$ 36,516	$ 37,611	$ 38,740	$ 39,902
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 12,853	$ 13,238	$ 13,636	$ 14,045	$ 14,466	$ 14,900	$ 15,347
$ 1,928	$ 1,986	$ 2,045	$ 2,107	$ 2,170	$ 2,235	$ 2,302
$ 3,856	$ 3,972	$ 4,091	$ 4,213	$ 4,340	$ 4,470	$ 4,604
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 90,733	$ 93,455	$ 96,259	$ 99,146	$ 102,121	$ 105,184	$ 108,340
$ 7,712	$ 7,943	$ 8,181	$ 8,427	$ 8,680	$ 8,940	$ 9,208
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 406,774	$ 418,977	$ 431,546	$ 444,493	$ 457,828	$ 471,562	$ 485,709
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 26,150	$ 26,934	$ 27,743	$ 28,575	$ 29,432	$ 30,315	$ 31,224
$ 10,381	$ 10,693	$ 11,013	$ 11,344	$ 11,684	$ 12,035	$ 12,396
$ 31,930	$ 32,888	$ 33,874	$ 34,890	$ 35,937	$ 37,015	$ 38,126
$ 24,144	$ 24,868	$ 25,614	$ 26,383	$ 27,174	$ 27,989	$ 28,829
$ 1,832	$ 1,887	$ 1,944	$ 2,002	$ 2,062	$ 2,124	$ 2,188
$ 147,878	$ 158,230	$ 169,306	$ 181,157	$ 193,838	$ 207,407	$ 221,925
$ 749	$ 771	$ 794	$ 818	$ 843	$ 868	$ 894
$ 90	$ 92	$ 95	$ 98	$ 101	$ 104	$ 107
$ 898	$ 925	$ 953	$ 981	$ 1,011	$ 1,041	$ 1,072
$ 1,905	$ 1,962	$ 2,021	$ 2,082	$ 2,144	$ 2,208	$ 2,275
$ 803	$ 827	$ 852	$ 878	$ 904	$ 931	$ 959
$ 42,414	$ 43,687	$ 44,997	$ 46,347	$ 47,738	$ 49,170	$ 50,645
$ 488,406	$ 503,058	$ 518,149	$ 533,694	$ 549,705	$ 566,196	$ 583,182
$ 28,276	$ 29,124	$ 29,998	$ 30,898	$ 31,825	$ 32,780	$ 33,763
$ 57,838	$ 59,573	$ 61,360	$ 63,201	$ 65,097	$ 67,050	$ 69,061
$ 1,918	$ 1,975	$ 2,034	$ 2,095	$ 2,158	$ 2,223	$ 2,290
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 64,264	$ 66,192	$ 68,178	$ 70,223	$ 72,330	$ 74,499	$ 76,734
$ 900	$ 927	$ 954	$ 983	$ 1,013	$ 1,043	$ 1,074
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 605	$ 605	$ 605	$ 605	$ 605	$ 605	$ 605
$ 16,071	$ 16,553	$ 17,050	$ 17,561	$ 18,088	$ 18,631	$ 19,190
$ 4,787	$ 4,931	$ 5,079	$ 5,231	$ 5,388	$ 5,549	$ 5,716
$ 4,473	$ 4,607	$ 4,745	$ 4,888	$ 5,034	$ 5,185	$ 5,341
$ 5,013	$ 5,163	$ 5,318	$ 5,477	$ 5,642	$ 5,811	$ 5,985
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 643	$ 662	$ 682	$ 702	$ 723	$ 745	$ 767
$ 724	$ 745	$ 768	$ 791	$ 814	$ 839	$ 864
$ 321	$ 331	$ 341	$ 351	$ 362	$ 372	$ 384
$ 1,028	$ 1,059	$ 1,091	$ 1,124	$ 1,157	$ 1,192	$ 1,228
$ 3,856	$ 3,972	$ 4,091	$ 4,213	$ 4,340	$ 4,470	$ 4,604
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 527	$ 543	$ 559	$ 576	$ 593	$ 611	$ 629
$ 13,110	$ 13,503	$ 13,908	$ 14,325	$ 14,755	$ 15,198	$ 15,654
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 1,941	$ 1,999	$ 2,059	$ 2,121	$ 2,184	$ 2,250	$ 2,317
$ 1,594	$ 1,642	$ 1,691	$ 1,742	$ 1,794	$ 1,848	$ 1,903
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045
3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
3%	3%	3%	3%	3%	3%	3%
$ 1,513,922	$ 1,559,340	$ 1,606,120	$ 1,654,304	$ 1,703,933	$ 1,755,051	$ 1,807,702
$ 43,114	$ 44,407	$ 45,740	$ 47,112	$ 48,525	$ 49,981	$ 51,480
$ 9,576	$ 9,863	$ 10,159	$ 10,463	$ 10,777	$ 11,101	$ 11,434
$ 118,207	$ 121,753	$ 125,406	$ 129,168	$ 133,043	$ 137,035	$ 141,146
$ 105,145	$ 108,299	$ 111,548	$ 114,894	$ 118,341	$ 121,891	$ 125,548
$ 23,170	$ 23,865	$ 24,581	$ 25,318	$ 26,078	$ 26,860	$ 27,666
$ 333,928	$ 357,303	$ 382,314	$ 409,076	$ 437,712	$ 468,352	$ 501,136
$ 3,004	$ 3,094	$ 3,186	$ 3,282	$ 3,381	$ 3,482	$ 3,586
$ 321	$ 330	$ 340	$ 351	$ 361	$ 372	$ 383
$ 3,605	$ 3,713	$ 3,825	$ 3,940	$ 4,058	$ 4,179	$ 4,305
$ 21,245	$ 21,882	$ 22,539	$ 23,215	$ 23,911	$ 24,629	$ 25,368
$ 1,307	$ 1,346	$ 1,387	$ 1,428	$ 1,471	$ 1,515	$ 1,561
$ 71,133	$ 73,267	$ 75,465	$ 77,729	$ 80,061	$ 82,462	$ 84,936
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 33,722	$ 34,733	$ 35,775	$ 36,849	$ 37,954	$ 39,093	$ 40,265
$ 142,266	$ 146,534	$ 150,930	$ 155,458	$ 160,121	$ 164,925	$ 169,873
$ 10,275	$ 10,583	$ 10,900	$ 11,227	$ 11,564	$ 11,911	$ 12,269
$ 4,583	$ 4,720	$ 4,862	$ 5,007	$ 5,158	$ 5,312	$ 5,472
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 5,849	$ 6,024	$ 6,205	$ 6,391	$ 6,583	$ 6,780	$ 6,984
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 740	$ 740	$ 740	$ 740	$ 740	$ 740	$ 740
$ 57,347	$ 59,068	$ 60,840	$ 62,665	$ 64,545	$ 66,481	$ 68,476
$ 17,081	$ 17,594	$ 18,121	$ 18,665	$ 19,225	$ 19,802	$ 20,396
$ 86,940	$ 89,548	$ 92,235	$ 95,002	$ 97,852	$ 100,787	$ 103,811
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 745	$ 767	$ 790	$ 814	$ 838	$ 863	$ 889
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 41,099	$ 42,332	$ 43,602	$ 44,910	$ 46,257	$ 47,645	$ 49,074
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 15,807	$ 16,282	$ 16,770	$ 17,273	$ 17,791	$ 18,325	$ 18,875
$ 2,371	$ 2,442	$ 2,515	$ 2,591	$ 2,669	$ 2,749	$ 2,831
$ 4,742	$ 4,884	$ 5,031	$ 5,182	$ 5,337	$ 5,497	$ 5,662
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 111,590	$ 114,938	$ 118,386	$ 121,937	$ 125,596	$ 129,363	$ 133,244
$ 9,484	$ 9,769	$ 10,062	$ 10,364	$ 10,675	$ 10,995	$ 11,325
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 500,281	$ 515,289	$ 530,748	$ 546,670	$ 563,070	$ 579,962	$ 597,361
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 32,161	$ 33,126	$ 34,120	$ 35,143	$ 36,198	$ 37,284	$ 38,402
$ 12,767	$ 13,150	$ 13,545	$ 13,951	$ 14,370	$ 14,801	$ 15,245
$ 39,269	$ 40,448	$ 41,661	$ 42,911	$ 44,198	$ 45,524	$ 46,890
$ 29,694	$ 30,585	$ 31,502	$ 32,447	$ 33,421	$ 34,423	$ 35,456
$ 2,253	$ 2,321	$ 2,391	$ 2,462	$ 2,536	$ 2,612	$ 2,691
$ 237,460	$ 254,082	$ 271,868	$ 290,899	$ 311,262	$ 333,050	$ 356,363
$ 921	$ 948	$ 977	$ 1,006	$ 1,036	$ 1,068	$ 1,100
$ 110	$ 113	$ 117	$ 120	$ 124	$ 128	$ 131
$ 1,104	$ 1,138	$ 1,172	$ 1,207	$ 1,243	$ 1,280	$ 1,319
$ 2,343	$ 2,413	$ 2,486	$ 2,560	$ 2,637	$ 2,716	$ 2,797
$ 988	$ 1,018	$ 1,048	$ 1,079	$ 1,112	$ 1,145	$ 1,180
$ 52,164	$ 53,729	$ 55,341	$ 57,001	$ 58,711	$ 60,472	$ 62,287
$ 600,677	$ 618,698	$ 637,259	$ 656,376	$ 676,068	$ 696,350	$ 717,240
$ 34,776	$ 35,819	$ 36,894	$ 38,001	$ 39,141	$ 40,315	$ 41,524
$ 71,133	$ 73,267	$ 75,465	$ 77,729	$ 80,061	$ 82,462	$ 84,936
$ 2,358	$ 2,429	$ 2,502	$ 2,577	$ 2,654	$ 2,734	$ 2,816
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 79,036	$ 81,408	$ 83,850	$ 86,365	$ 88,956	$ 91,625	$ 94,374
$ 1,107	$ 1,140	$ 1,174	$ 1,209	$ 1,245	$ 1,283	$ 1,321
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 605	$ 605	$ 605	$ 605	$ 605	$ 605	$ 605
$ 19,765	$ 20,358	$ 20,969	$ 21,598	$ 22,246	$ 22,914	$ 23,601
$ 5,887	$ 6,064	$ 6,246	$ 6,433	$ 6,626	$ 6,825	$ 7,030
$ 5,501	$ 5,666	$ 5,836	$ 6,011	$ 6,191	$ 6,377	$ 6,568
$ 6,165	$ 6,350	$ 6,540	$ 6,736	$ 6,939	$ 7,147	$ 7,361
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 790	$ 814	$ 838	$ 864	$ 890	$ 916	$ 944
$ 890	$ 917	$ 944	$ 972	$ 1,002	$ 1,032	$ 1,063
$ 395	$ 407	$ 419	$ 432	$ 445	$ 458	$ 472
$ 1,265	$ 1,303	$ 1,342	$ 1,382	$ 1,423	$ 1,466	$ 1,510
$ 4,742	$ 4,884	$ 5,031	$ 5,182	$ 5,337	$ 5,497	$ 5,662
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 648	$ 668	$ 688	$ 708	$ 729	$ 751	$ 774
$ 16,123	$ 16,607	$ 17,105	$ 17,619	$ 18,147	$ 18,691	$ 19,252
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 2,387	$ 2,459	$ 2,532	$ 2,608	$ 2,686	$ 2,767	$ 2,850
$ 1,960	$ 2,019	$ 2,079	$ 2,142	$ 2,206	$ 2,272	$ 2,340
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

	FY2046	FY2047	FY2048	FY2049	FY2050
	3.00%	3.00%	3.00%	3.00%	3.00%
	7.00%	7.00%	7.00%	7.00%	7.00%
	3.00%	3.00%	3.00%	3.00%	3.00%
	3%	3%	3%	3%	3%
$	1,861,933	$ 1,917,791	$ 1,975,325	$ 2,034,585	$ 2,095,622
$	53,025	$ 54,616	$ 56,254	$ 57,942	$ 59,680
$	11,777	$ 12,130	$ 12,494	$ 12,869	$ 13,255
$	145,380	$ 149,741	$ 154,234	$ 158,861	$ 163,627
$	129,315	$ 133,194	$ 137,190	$ 141,306	$ 145,545
$	28,496	$ 29,351	$ 30,231	$ 31,138	$ 32,072
$	536,216	$ 573,751	$ 613,913	$ 656,887	$ 702,869
$	3,694	$ 3,805	$ 3,919	$ 4,037	$ 4,158
$	395	$ 406	$ 419	$ 431	$ 444
$	4,434	$ 4,567	$ 4,704	$ 4,845	$ 4,990
$	26,129	$ 26,913	$ 27,720	$ 28,552	$ 29,408
$	1,608	$ 1,656	$ 1,705	$ 1,757	$ 1,809
$	87,484	$ 90,109	$ 92,812	$ 95,597	$ 99,420
$	-	$ -	$ -	$ -	$ -
$	41,473	$ 42,718	$ 43,999	$ 45,319	$ 46,679
$	174,969	$ 180,218	$ 185,624	$ 191,193	$ 196,929
$	12,637	$ 13,016	$ 13,406	$ 13,808	$ 14,223
$	5,636	$ 5,805	$ 5,979	$ 6,159	$ 6,343
$	-	$ -	$ -	$ -	$ -
$	7,193	$ 7,409	$ 7,631	$ 7,860	$ 8,096
$	-	$ -	$ -	$ -	$ -
$	740	$ 740	$ 740	$ 740	$ 740
$	70,530	$ 72,646	$ 74,825	$ 77,070	$ 79,382
$	21,008	$ 21,638	$ 22,287	$ 22,956	$ 23,644
$	106,925	$ 110,133	$ 113,437	$ 116,840	$ 120,345
$	-	$ -	$ -	$ -	$ -
$	916	$ 943	$ 971	$ 1,001	$ 1,031
$	-	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -
$	50,547	$ 52,063	$ 53,625	$ 55,234	$ 56,891
$	-	$ -	$ -	$ -	$ -
$	19,441	$ 20,024	$ 20,625	$ 21,244	$ 21,881
$	2,916	$ 3,004	$ 3,094	$ 3,187	$ 3,282
$	5,832	$ 6,007	$ 6,187	$ 6,373	$ 6,564
$	-	$ -	$ -	$ -	$ -
$	137,242	$ 141,359	$ 145,600	$ 149,968	$ 154,467
$	11,665	$ 12,015	$ 12,375	$ 12,746	$ 13,129
$	-	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -

$ -	$ -	$ -	$ -	$ -
$ 615,282	$ 633,741	$ 652,753	$ 672,335	$ 692,505
$ -	$ -	$ -	$ -	$ -
$ 39,554	$ 40,741	$ 41,963	$ 43,222	$ 44,519
$ 15,702	$ 16,173	$ 16,659	$ 17,158	$ 17,673
$ 48,296	$ 49,745	$ 51,238	$ 52,775	$ 54,358
$ 36,520	$ 37,615	$ 38,744	$ 39,906	$ 41,103
$ 2,771	$ 2,855	$ 2,940	$ 3,028	$ 3,119
$ 381,309	$ 408,001	$ 436,561	$ 467,120	$ 499,818
$ 1,133	$ 1,167	$ 1,202	$ 1,238	$ 1,275
$ 135	$ 139	$ 144	$ 148	$ 152
$ 1,358	$ 1,399	$ 1,441	$ 1,484	$ 1,529
$ 2,881	$ 2,968	$ 3,057	$ 3,149	$ 3,243
$ 1,215	$ 1,251	$ 1,289	$ 1,328	$ 1,367
$ 64,155	$ 66,080	$ 68,062	$ 70,104	$ 72,207
$ 738,757	$ 760,920	$ 783,748	$ 807,260	$ 831,478
$ 42,770	$ 44,053	$ 45,375	$ 46,736	$ 48,138
$ 87,484	$ 90,109	$ 92,812	$ 95,597	$ 98,464
$ 2,901	$ 2,988	$ 3,077	$ 3,170	$ 3,265
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ 97,205	$ 100,121	$ 103,125	$ 106,218	$ 109,405
$ 1,361	$ 1,402	$ 1,444	$ 1,487	$ 1,532
$ -	$ -	$ -	$ -	$ -
$ 605	$ 605	$ 605	$ 605	$ 605
$ 24,309	$ 25,038	$ 25,789	$ 26,563	$ 27,360
$ 7,241	$ 7,458	$ 7,682	$ 7,912	$ 8,150
$ 6,765	$ 6,968	$ 7,177	$ 7,393	$ 7,615
$ 7,582	$ 7,809	$ 8,044	$ 8,285	$ 8,534
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -
$ 972	$ 1,001	$ 1,031	$ 1,062	$ 1,094
$ 1,095	$ 1,127	$ 1,161	$ 1,196	$ 1,232
$ 486	$ 501	$ 516	$ 531	$ 547
$ 1,555	$ 1,602	$ 1,650	$ 1,699	$ 1,750
$ 5,832	$ 6,007	$ 6,187	$ 6,373	$ 6,564
$ -	$ -	$ -	$ -	$ -
$ 797	$ 821	$ 846	$ 871	$ 897
$ 19,830	$ 20,425	$ 21,037	$ 21,669	$ 22,319
$ -	$ -	$ -	$ -	$ -
$ 2,936	$ 3,024	$ 3,114	$ 3,208	$ 3,304
$ 2,411	$ 2,483	$ 2,557	$ 2,634	$ 2,713
$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -

Comments

Annual escalation rates are taken from CWP 10-year pro-forma calculation workbook. The rates are projected

Each account line-item is projected using the same methodology used in the CWP 10-year pro-forma.

ł out to 2050 based on the last year's value of the original projection rate.

Account Description	FY2023 (Actual + Budget)	FY2024
Projected Personnel Cost Annual Escalation		
Health/dental Insurance Annual Escalation		
General Other Operating Expense Annual Escalation		
Equipment Rental Lines in Budgets Annual Change		
Alt Fuel Pass Through Change		
Annual % change on accnt REIMB - ADMIN TO GENERAL FUND		20%
Annual Demand Growth		
WORK ORDER WASH ACCT - EQUIP	$ -	$ -
WORK ORDER WASH ACCT - OTHER	$ -	$ -
REGULAR SALARIES AND WAGES	$ 627,448	$ 772,612
TEMPORARY SUPERVISOR WAGES	$ -	$ -
OTHER WAGES - PART TIME/TEMP	$ -	$ -
OVERTIME WAGES	$ 20,000	$ 15,000
FICA TAXES	$ 48,000	$ 59,105
RETIREMENT CONTRIBUTIONS - 401	$ 39,094	$ 54,083
RETIREMENT CONTRIBUTIONS - 457	$ -	$ -
EMPLOYEE INS - HEALTH & DENTAL	$ 91,760	$ 118,800
EMPLOYEE INS - LIFE	$ 1,255	$ 1,545
EMPLOYEE INS - AD&D	$ 149	$ 185
EMPLOYEE INS - DISABILITY	$ 1,506	$ 1,854
WORKERS COMPENSATION	$ 9,600	$ 12,079
UNEMPLOYMENT COMPENSATION	$ 673	$ 819
OTHER SERVICES - CONTRACTUAL	$ 89,000	$ 36,000
CONTRACTUAL SERV - BULK POWER		
BULK POWER FUEL		
BULK POWER NONFUEL		
CONTRACTUAL SERV - ENCO OT	$ -	$ -
CONTRACTUAL SERV - SUBSTATION	$ 275,000	$ 75,000
CONTRACTUAL SERV - ENCO CALL	$ 35,000	$ 35,000
CONTRACTUAL SERV - TRANSMISSON		
CONTRACTUAL SERV - ENCO OPS	$ -	$ -
CONTRACTUAL SERV - ENCO ADDNDM	$ -	$ -
CONTRACTUAL SERV - ENCO 3RD PT	$ -	$ -
CONTRACTUAL SERV - CONTR N AID		
CONTRACTUAL SERV - SURGE PROT		
CONTRACTUAL SERV - EL CAPITAL		
CONTRACTUAL SERV - ENERGY CONS	$ 125,000	$ 175,000
CONTRACTUAL SERV - LOCATOR SVC	$ -	$ -
CONTRACTUAL SERV - RES UG CONV		
CONTRACTUAL SERV - OUTAGE REST	$ 50,000	$ 30,000
TRAVEL AND PER DIEM	$ 5,000	$ 5,000
COMM SERVICES - EQUIP CHARGES	$ 13,098	$ 3,261
COMM SERVICES - AIRCARDS	$ -	$ -

COMM SERVICES - MOBILE DEVICES	$ 6,000	$ 6,000
UTILITY SERVICES - WATER	$ 3,200	$ 4,000
UTILITY SERVICES - ELECTRICITY	$ 12,000	$ 12,000
RENTALS - BUILDING	$ -	$ -
RENTALS - EQUIP REPLACEMENT FD	$ 76,494	$ 85,713
RENTALS - VEHICLE	$ 4,000	$ -
INSURANCE - GENERAL LIABILITY	$ 26,442	$ 33,496
INSURANCE - RISK MGMT OPS	$ 8,873	$ 9,882
INSURANCE - VEHICLE	$ 7,403	$ 6,035
REPAIR & MAINT - BUILDING	$ -	$ -
REPAIR & MAINT - VEHICLE	$ 58,578	$ 90,263
REPAIR & MAINT - FLEET MAINT	$ 5,121	$ 6,803
REPAIR & MAINT - EL LINES	$ -	$ -
REPAIR & MAINT - OTHER	$ 5,000	$ 4,000
INT PAID ON UT CUST DEPOSITS	$ -	$ -
OTHER - REFUND UG FEE	$ -	$ -
OTHER - GROSS RECEIPTS TAX	$ 1,337,360	$ 1,212,855
OTHER - BAD DEBT EXPENSE	$ -	$ -
OPERATING SUPPLIES - GENERAL	$ 60,000	$ 50,000
OPERATING SUPPLIES - FUEL	$ 26,860	$ 28,684
OPERATING SUPPLIES - ENCO	$ -	$ -
OPERATING SUPPLIES - INVENTORY	$ 180,000	$ 120,000
OPERATING SUPPLIES - UNIFORMS	$ 18,000	$ 18,000
OPERATING EQUIP UNDER $5000	$ 7,500	$ 5,000
OPERATING - WAREHSE OVER/SHORT	$ -	$ -
TRAINING - EDUCATIONAL COSTS	$ -	$ -
CAPITAL OUTLAY - BUILDINGS	$ -	$ -
CAPITAL OUTLAY - EL WAREHOUSE	$ -	$ -
CAPITAL OUTLAY - MACH & EQUIP	$ -	$ -
CAPITAL OUTLAY - SOFTWARE	$ -	$ -
CAPITAL PROJECTS - CONTRA EXP	$ -	$ -
WORK ORDER WASH ACCT - OTHER	$ -	$ -
TRAVEL AND PER DIEM	$ -	$ -
COMM SERVICES - EQUIP CHARGES	$ -	$ -
UTILITY SERVICES - GAS	$ -	$ -
INSURANCE - RISK MGMT OPS	$ -	$ -
REPAIR & MAINT - STR LTS LABOR	$ -	$ -
REPAIR & MAINT - STR LTS MAT	$ 141,000	$ 100,000
PRINTING - COPIER	$ -	$ -
PROMOTIONAL ACTIVITIES	$ -	$ -
OPERATING SUPPLIES -SL INVNTRY	$ -	$ -
OPERATING - WAREHSE OVER/SHORT	$ -	$ -
PUBLICATIONS AND MEMBERSHIPS	$ -	$ -
TRAINING - EDUCATIONAL COSTS	$ -	$ -
CAPITAL OUTLAY - STR LTS LABOR		
CAPITAL OUTLAY - STR LTS MATLS		
CAPITAL OUTLAY - MACH & EQUIP	$ -	$ -
CAPITAL OUTLAY - SOFTWARE	$ -	$ -
CAPITAL PROJECTS - CONTRA EXP	$ -	$ -

REGULAR SALARIES AND WAGES	$ 22,540	$ 47,120
TEMPORARY SUPERVISOR WAGES	$ -	$ -
OVERTIME WAGES	$ -	$ -
SPECIAL PAY - INCENTIVE PAY	$ -	$ -
FICA TAXES	$ 1,724	$ 3,605
RETIREMENT CONTRIBUTIONS - 401	$ 1,578	$ 1,698
RETIREMENT CONTRIBUTIONS - 457	$ -	$ 457
EMPLOYEE INS - HEALTH & DENTAL	$ 4,960	$ 10,560
EMPLOYEE INS - LIFE	$ 45	$ 94
EMPLOYEE INS - AD&D	$ 5	$ 11
EMPLOYEE INS - DISABILITY	$ 54	$ 113
WORKERS COMPENSATION	$ 850	$ 1,120
UNEMPLOYMENT COMPENSATION	$ 36	$ 73
OTHER SERVICES - CONTRACTUAL	$ 3,000	$ 3,000
TRAVEL AND PER DIEM	$ 2,000	$ 2,000
COMM SERVICES - EQUIP CHARGES	$ -	$ -
COMM SERVICES - AIRCARDS	$ -	$ -
COMM SERVICES - MOBILE DEVICES	$ 2,000	$ 2,000
FREIGHT & POSTAGE SERVICES	$ -	$ -
UTILITY SERVICES - ELECTRICITY	$ -	$ -
RENTALS - EQUIP REPLACEMENT FD	$ 5,086	$ 4,706
INSURANCE - GENERAL LIABILITY	$ 970	$ 2,043
INSURANCE - RISK MGMT OPS	$ 326	$ 603
INSURANCE - VEHICLE	$ 492	$ 321
REPAIR & MAINT - CONTRACTS	$ 84,000	$ 89,000
REPAIR & MAINT - SOFTWARE	$ -	$ -
REPAIR & MAINT - EQUIPMENT	$ -	$ -
REPAIR & MAINT - EL METERS	$ 75,000	$ 50,000
REPAIR & MAINT - VEHICLE	$ 4,286	$ 3,338
REPAIR & MAINT - FLEET MAINT	$ 375	$ 251
PRINTING AND BINDING	$ -	$ -
PRINTING - COPIER	$ -	$ -
PROMOTIONAL ACTIVITIES	$ 125	$ 125
OPERATING SUPPLIES - GENERAL	$ -	$ -
OPERATING SUPPLIES - FUEL	$ 7,455	$ 9,418
OPERATING SUPPLIES - UNIFORMS	$ 2,300	$ 2,300
OPERATING EQUIP UNDER $5000	$ 10,000	$ 10,000
PUBLICATIONS AND MEMBERSHIPS	$ -	$ -
TRAINING - EDUCATIONAL COSTS	$ 1,000	$ 1,000
CAPITAL OUTLAY - MACH & EQUIP	$ -	$ -
REGULAR SALARIES AND WAGES	$ 59,792	$ 60,889
OVERTIME WAGES	$ -	$ -
FICA TAXES	$ 4,574	$ 4,658
RETIREMENT CONTRIBUTIONS - 401	$ 4,185	$ 1,955
RETIREMENT CONTRIBUTIONS - 457	$ 650	$ 659
EMPLOYEE INS - HEALTH & DENTAL	$ 12,400	$ 13,200
EMPLOYEE INS - LIFE	$ 120	$ 122

EMPLOYEE INS - AD&D	$ 14	$ 15
EMPLOYEE INS - DISABILITY	$ 144	$ 146
WORKERS COMPENSATION	$ 2,300	$ 1,591
UNEMPLOYMENT COMPENSATION	$ 91	$ 91
CONTRACTUAL SERV - TREE TRIM	$ 375,000	$ 375,000
CONTRACTUAL SERV - DEBRIS RMV	$ 50,000	$ 50,000
COMM SERVICES - MOBILE DEVICES	$ -	$ -
INSURANCE - GENERAL LIABILITY	$ 2,563	$ 2,640
INSURANCE - RISK MGMT OPS	$ 860	$ 779
OPERATING SUPPLIES - TREES	$ 150,000	$ 150,000
TRAINING - EDUCATIONAL COSTS	$ -	$ -
REGULAR SALARIES AND WAGES	$ 188,073	$ 200,033
OTHER WAGES - PART TIME/TEMP	$ -	$ -
OVERTIME WAGES	$ 2,500	$ 2,500
FICA TAXES	$ 14,388	$ 15,302
RETIREMENT CONTRIBUTIONS - 401	$ 13,165	$ 14,002
RETIREMENT CONTRIBUTIONS - 457	$ 1,676	$ 1,762
EMPLOYEE INS - HEALTH & DENTAL	$ 37,200	$ 39,600
EMPLOYEE INS - LIFE	$ 376	$ 400
EMPLOYEE INS - AD&D	$ 45	$ 48
EMPLOYEE INS - DISABILITY	$ 451	$ 480
WORKERS COMPENSATION	$ 4,000	$ 4,743
UNEMPLOYMENT COMPENSATION	$ 273	$ 273
OTHER SERVICES - CONTRACTUAL	$ 5,000	$ 5,000
TRAVEL AND PER DIEM	$ 2,500	$ 2,500
COMM SERVICES - EQUIP CHARGES	$ 862	$ 1,087
COMM SERVICES - MOBILE DEVICES	$ 3,200	$ 3,200
UTILITY SERVICES - WATER	$ -	$ -
UTILITY SERVICES - ELECTRICITY	$ -	$ -
RENTALS - EQUIP REPLACEMENT FD	$ 9,567	$ 9,380
RENTALS - COPIER	$ 309	$ 309
INSURANCE - GENERAL LIABILITY	$ 8,053	$ 8,672
INSURANCE - RISK MGMT OPS	$ 2,702	$ 2,559
INSURANCE - VEHICLE	$ 926	$ 788
REPAIR & MAINT - CONTRACTS	$ 7,500	$ 7,500
REPAIR & MAINT - EQUIPMENT	$ 5,000	$ 5,000
REPAIR & MAINT - VEHICLE	$ 6,272	$ 8,131
REPAIR & MAINT - FLEET MAINT	$ 548	$ 613
PRINTING - COPIER	$ 214	$ 214
OPERATING SUPPLIES - GENERAL	$ 15,000	$ 15,000
OPERATING SUPPLIES - FUEL	$ 299	$ 560
OPERATING SUPPLIES - INVENTORY	$ -	$ -
OPERATING SUPPLIES - UNIFORMS	$ 1,000	$ 1,000
OPERATING EQUIP UNDER $5000	$ 5,000	$ 5,000
OPERATING - WAREHSE OVER/SHORT	$ -	$ -
PUBLICATIONS AND MEMBERSHIPS	$ -	$ -
TRAINING - EDUCATIONAL COSTS	$ -	$ -
CAPITAL OUTLAY - MACH & EQUIP	$ -	$ -
CAPITAL OUTLAY - SOFTWARE	$ -	$ -

CAPITAL PROJECTS - CONTRA EXP	$ -	$ -
REIMB - ADMIN TO GENERAL FUND	1775965	2132235
REIMB - WATER & SEWER FUND	0	0

	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
	5.00%	3.50%	3.00%	3.00%	3.00%	3.00%
	8.00%	8.00%	7.00%	7.00%	7.00%	7.00%
	4.00%	3.50%	3.00%	3.00%	3.00%	3.00%
	10%	10%	10%	5%	2%	2%
	-10%	5%	2%	3%	3%	3%
	5%	4%	3%	3%	3%	3%
	1%	1%	1%	1%	1%	1%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	811,243	$ 839,636	$ 864,825	$ 890,770	$ 917,493	$ 945,018
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	15,750	$ 16,301	$ 16,790	$ 17,294	$ 17,813	$ 18,347
$	62,060	$ 64,232	$ 66,159	$ 68,144	$ 70,188	$ 72,294
$	56,787	$ 58,775	$ 60,538	$ 62,354	$ 64,225	$ 66,151
$	-	$ -	$ -	$ -	$ -	$ -
$	128,304	$ 138,568	$ 148,268	$ 158,647	$ 169,752	$ 181,635
$	1,622	$ 1,679	$ 1,729	$ 1,781	$ 1,835	$ 1,890
$	194	$ 201	$ 207	$ 213	$ 220	$ 226
$	1,947	$ 2,015	$ 2,075	$ 2,138	$ 2,202	$ 2,268
$	12,683	$ 13,127	$ 13,521	$ 13,926	$ 14,344	$ 14,774
$	860	$ 890	$ 917	$ 944	$ 973	$ 1,002
$	37,440	$ 38,750	$ 39,913	$ 41,110	$ 42,344	$ 43,614
$	-	$ -	$ -	$ -	$ -	$ -
$	78,000	$ 80,730	$ 83,152	$ 85,646	$ 88,216	$ 90,862
$	35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	207,000	$ 214,245	$ 220,672	$ 227,293	$ 234,111	$ 241,135
$	-	$ -	$ -	$ -	$ -	$ -
$	31,200	$ 32,292	$ 33,261	$ 34,259	$ 35,286	$ 36,345
$	5,200	$ 5,382	$ 5,543	$ 5,710	$ 5,881	$ 6,057
$	3,391	$ 3,510	$ 3,615	$ 3,724	$ 3,836	$ 3,951
$	-	$ -	$ -	$ -	$ -	$ -

$ 6,240	$ 6,458	$ 6,652	$ 6,852	$ 7,057	$ 7,269	
$ 4,160	$ 4,306	$ 4,435	$ 4,568	$ 4,705	$ 4,846	
$ 12,480	$ 12,917	$ 13,304	$ 13,703	$ 14,115	$ 14,538	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 94,284	$ 103,713	$ 114,084	$ 119,788	$ 122,184	$ 124,628	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 34,836	$ 36,055	$ 37,137	$ 38,251	$ 39,398	$ 40,580	
$ 10,376	$ 10,739	$ 11,061	$ 11,393	$ 11,735	$ 12,087	
$ 6,276	$ 6,496	$ 6,691	$ 6,892	$ 7,098	$ 7,311	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 93,874	$ 97,159	$ 100,074	$ 103,076	$ 106,168	$ 109,353	
$ 7,075	$ 7,323	$ 7,542	$ 7,769	$ 8,002	$ 8,242	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 4,160	$ 4,306	$ 4,435	$ 4,568	$ 4,705	$ 4,846	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 1,224,984	$ 1,237,233	$ 1,249,606	$ 1,262,102	$ 1,274,723	$ 1,287,470	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 52,000	$ 53,820	$ 55,435	$ 57,098	$ 58,811	$ 60,575	
$ 25,816	$ 27,106	$ 27,649	$ 28,478	$ 29,332	$ 30,212	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 124,800	$ 129,168	$ 133,043	$ 137,034	$ 141,145	$ 145,380	
$ 18,720	$ 19,375	$ 19,956	$ 20,555	$ 21,172	$ 21,807	
$ 5,200	$ 5,382	$ 5,543	$ 5,710	$ 5,881	$ 6,057	
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$ 104,000	$ 107,640	$ 110,869	$ 114,195	$ 117,621	$ 121,150	
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$ -	$ -	$ -	$ -	$ -	$ -	

$ 49,476	$ 51,208	$ 52,744	$ 54,326	$ 55,956	$ 57,635
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 3,785	$ 3,918	$ 4,035	$ 4,156	$ 4,281	$ 4,409
$ 1,783	$ 1,845	$ 1,901	$ 1,958	$ 2,016	$ 2,077
$ 480	$ 497	$ 512	$ 527	$ 543	$ 559
$ 11,405	$ 12,317	$ 13,179	$ 14,102	$ 15,089	$ 16,145
$ 99	$ 102	$ 105	$ 108	$ 112	$ 115
$ 12	$ 12	$ 12	$ 13	$ 13	$ 13
$ 119	$ 123	$ 126	$ 130	$ 134	$ 138
$ 1,176	$ 1,217	$ 1,254	$ 1,291	$ 1,330	$ 1,370
$ 77	$ 79	$ 82	$ 84	$ 87	$ 89
$ 3,120	$ 3,229	$ 3,326	$ 3,426	$ 3,529	$ 3,634
$ 2,080	$ 2,153	$ 2,217	$ 2,284	$ 2,352	$ 2,423
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 2,080	$ 2,153	$ 2,217	$ 2,284	$ 2,352	$ 2,423
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 5,177	$ 5,694	$ 6,264	$ 6,577	$ 6,708	$ 6,843
$ 2,125	$ 2,199	$ 2,265	$ 2,333	$ 2,403	$ 2,475
$ 633	$ 655	$ 675	$ 695	$ 716	$ 738
$ 334	$ 346	$ 356	$ 367	$ 378	$ 389
$ 92,560	$ 95,800	$ 98,674	$ 101,634	$ 104,683	$ 107,823
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 52,000	$ 53,820	$ 55,435	$ 57,098	$ 58,811	$ 60,575
$ 3,472	$ 3,593	$ 3,701	$ 3,812	$ 3,926	$ 4,044
$ 261	$ 270	$ 278	$ 287	$ 295	$ 304
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 130	$ 135	$ 139	$ 143	$ 147	$ 151
$ -	$ -	$ -	$ -	$ -	$ -
$ 8,476	$ 8,900	$ 9,078	$ 9,350	$ 9,631	$ 9,920
$ 2,392	$ 2,476	$ 2,550	$ 2,626	$ 2,705	$ 2,786
$ 10,400	$ 10,764	$ 11,087	$ 11,420	$ 11,762	$ 12,115
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,040	$ 1,076	$ 1,109	$ 1,142	$ 1,176	$ 1,211
$ -	$ -	$ -	$ -	$ -	$ -
$ 63,933	$ 66,171	$ 68,156	$ 70,201	$ 72,307	$ 74,476
$ -	$ -	$ -	$ -	$ -	$ -
$ 4,891	$ 5,062	$ 5,214	$ 5,370	$ 5,531	$ 5,697
$ 2,053	$ 2,125	$ 2,188	$ 2,254	$ 2,322	$ 2,391
$ 692	$ 716	$ 738	$ 760	$ 783	$ 806
$ 14,256	$ 15,396	$ 16,474	$ 17,627	$ 18,861	$ 20,182
$ 128	$ 133	$ 137	$ 141	$ 145	$ 149

$ 16	$ 16	$ 17	$ 17	$ 18	$ 18
$ 153	$ 159	$ 163	$ 168	$ 173	$ 179
$ 1,671	$ 1,729	$ 1,781	$ 1,834	$ 1,889	$ 1,946
$ 96	$ 99	$ 102	$ 105	$ 108	$ 111
$ 325,000	$ 300,000	$ 300,000	$ 300,000	$ 250,000	$ 50,000
$ 52,000	$ 53,820	$ 55,435	$ 57,098	$ 58,811	$ 60,575
$ -	$ -	$ -	$ -	$ -	$ -
$ 2,746	$ 2,842	$ 2,927	$ 3,015	$ 3,105	$ 3,198
$ 818	$ 847	$ 872	$ 898	$ 925	$ 953
$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000
$ -	$ -	$ -	$ -	$ -	$ -
$ 210,035	$ 217,386	$ 223,907	$ 230,625	$ 237,543	$ 244,670
$ -	$ -	$ -	$ -	$ -	$ -
$ 2,625	$ 2,717	$ 2,798	$ 2,882	$ 2,969	$ 3,058
$ 16,067	$ 16,629	$ 17,128	$ 17,642	$ 18,171	$ 18,717
$ 14,702	$ 15,217	$ 15,673	$ 16,143	$ 16,628	$ 17,127
$ 1,850	$ 1,915	$ 1,972	$ 2,031	$ 2,092	$ 2,155
$ 42,768	$ 46,189	$ 49,423	$ 52,882	$ 56,584	$ 60,545
$ 420	$ 435	$ 448	$ 461	$ 475	$ 489
$ 50	$ 52	$ 54	$ 55	$ 57	$ 59
$ 504	$ 522	$ 537	$ 553	$ 570	$ 587
$ 4,980	$ 5,154	$ 5,309	$ 5,468	$ 5,632	$ 5,801
$ 287	$ 297	$ 306	$ 315	$ 324	$ 334
$ 5,200	$ 5,382	$ 5,543	$ 5,710	$ 5,881	$ 6,057
$ 2,600	$ 2,691	$ 2,772	$ 2,855	$ 2,941	$ 3,029
$ 1,130	$ 1,170	$ 1,205	$ 1,241	$ 1,279	$ 1,317
$ 3,328	$ 3,444	$ 3,548	$ 3,654	$ 3,764	$ 3,877
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 10,318	$ 11,350	$ 12,485	$ 13,109	$ 13,371	$ 13,639
$ 309	$ 309	$ 309	$ 309	$ 309	$ 309
$ 9,019	$ 9,335	$ 9,615	$ 9,903	$ 10,200	$ 10,506
$ 2,687	$ 2,781	$ 2,864	$ 2,950	$ 3,039	$ 3,130
$ 820	$ 848	$ 874	$ 900	$ 927	$ 955
$ 7,800	$ 8,073	$ 8,315	$ 8,565	$ 8,822	$ 9,086
$ 5,200	$ 5,382	$ 5,543	$ 5,710	$ 5,881	$ 6,057
$ 8,456	$ 8,752	$ 9,015	$ 9,285	$ 9,564	$ 9,851
$ 638	$ 660	$ 680	$ 700	$ 721	$ 743
$ 223	$ 230	$ 237	$ 244	$ 252	$ 259
$ 15,600	$ 16,146	$ 16,630	$ 17,129	$ 17,643	$ 18,172
$ 504	$ 529	$ 540	$ 556	$ 573	$ 590
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,040	$ 1,076	$ 1,109	$ 1,142	$ 1,176	$ 1,211
$ 5,200	$ 5,382	$ 5,543	$ 5,710	$ 5,881	$ 6,057
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
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2238846.750	2317206.3860	2386722.5780	2458324.2550	2532073.9830	2608036.2020

FY2031	FY2032	FY2033	FY2034	FY2035	FY2036
3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
2%	2%	2%	2%	2%	2%
3%	3%	3%	3%	3%	3%
3%	3%	3%	3%	3%	3%
1%	1%	1%	1%	1%	1%
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 973,368	$ 1,002,569	$ 1,032,646	$ 1,063,626	$ 1,095,535	$ 1,128,401
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 18,898	$ 19,465	$ 20,048	$ 20,650	$ 21,269	$ 21,908
$ 74,463	$ 76,697	$ 78,998	$ 81,368	$ 83,809	$ 86,323
$ 68,136	$ 70,180	$ 72,285	$ 74,454	$ 76,688	$ 78,988
$ -	$ -	$ -	$ -	$ -	$ -
$ 194,349	$ 207,954	$ 222,510	$ 238,086	$ 254,752	$ 272,585
$ 1,946	$ 2,005	$ 2,065	$ 2,127	$ 2,191	$ 2,256
$ 233	$ 240	$ 247	$ 255	$ 262	$ 270
$ 2,336	$ 2,406	$ 2,478	$ 2,552	$ 2,629	$ 2,708
$ 15,218	$ 15,674	$ 16,144	$ 16,629	$ 17,128	$ 17,641
$ 1,032	$ 1,063	$ 1,095	$ 1,127	$ 1,161	$ 1,196
$ 44,922	$ 46,270	$ 47,658	$ 49,088	$ 50,560	$ 52,077
$ -	$ -	$ -	$ -	$ -	$ -
$ 93,588	$ 96,396	$ 99,288	$ 102,266	$ 105,334	$ 108,494
$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 248,369	$ 255,820	$ 263,494	$ 271,399	$ 279,541	$ 287,927
$ -	$ -	$ -	$ -	$ -	$ -
$ 37,435	$ 38,558	$ 39,715	$ 40,907	$ 42,134	$ 43,398
$ 6,239	$ 6,426	$ 6,619	$ 6,818	$ 7,022	$ 7,233
$ 4,069	$ 4,191	$ 4,317	$ 4,447	$ 4,580	$ 4,717
$ -	$ -	$ -	$ -	$ -	$ -

$ 7,487	$ 7,712	$ 7,943	$ 8,181	$ 8,427	$ 8,680
$ 4,991	$ 5,141	$ 5,295	$ 5,454	$ 5,618	$ 5,786
$ 14,974	$ 15,423	$ 15,886	$ 16,363	$ 16,853	$ 17,359
$ -	$ -	$ -	$ -	$ -	$ -
$ 127,120	$ 129,663	$ 132,256	$ 134,901	$ 137,599	$ 140,351
$ -	$ -	$ -	$ -	$ -	$ -
$ 41,798	$ 43,052	$ 44,343	$ 45,674	$ 47,044	$ 48,455
$ 12,450	$ 12,823	$ 13,208	$ 13,604	$ 14,012	$ 14,433
$ 7,531	$ 7,757	$ 7,989	$ 8,229	$ 8,476	$ 8,730
$ -	$ -	$ -	$ -	$ -	$ -
$ 112,634	$ 116,013	$ 119,493	$ 123,078	$ 126,771	$ 130,574
$ 8,489	$ 8,744	$ 9,006	$ 9,276	$ 9,555	$ 9,841
$ -	$ -	$ -	$ -	$ -	$ -
$ 4,991	$ 5,141	$ 5,295	$ 5,454	$ 5,618	$ 5,786
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,300,345	$ 1,313,348	$ 1,326,482	$ 1,339,746	$ 1,353,144	$ 1,366,675
$ -	$ -	$ -	$ -	$ -	$ -
$ 62,392	$ 64,264	$ 66,192	$ 68,178	$ 70,223	$ 72,330
$ 31,119	$ 32,052	$ 33,014	$ 34,004	$ 35,024	$ 36,075
$ -	$ -	$ -	$ -	$ -	$ -
$ 149,741	$ 154,233	$ 158,860	$ 163,626	$ 168,535	$ 173,591
$ 22,461	$ 23,135	$ 23,829	$ 24,544	$ 25,280	$ 26,039
$ 6,239	$ 6,426	$ 6,619	$ 6,818	$ 7,022	$ 7,233
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
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$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 124,784	$ 128,528	$ 132,384	$ 136,355	$ 140,446	$ 144,659
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
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$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

$ 59,364	$ 61,145	$ 62,979	$ 64,868	$ 66,814	$ 68,819
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 4,542	$ 4,678	$ 4,818	$ 4,963	$ 5,112	$ 5,265
$ 2,139	$ 2,203	$ 2,269	$ 2,338	$ 2,408	$ 2,480
$ 576	$ 593	$ 611	$ 629	$ 648	$ 667
$ 17,275	$ 18,485	$ 19,779	$ 21,163	$ 22,645	$ 24,230
$ 118	$ 122	$ 126	$ 129	$ 133	$ 137
$ 14	$ 14	$ 15	$ 15	$ 16	$ 16
$ 142	$ 147	$ 151	$ 156	$ 160	$ 165
$ 1,411	$ 1,453	$ 1,497	$ 1,542	$ 1,588	$ 1,636
$ 92	$ 95	$ 98	$ 100	$ 104	$ 107
$ 3,744	$ 3,856	$ 3,972	$ 4,091	$ 4,213	$ 4,340
$ 2,496	$ 2,571	$ 2,648	$ 2,727	$ 2,809	$ 2,893
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 2,496	$ 2,571	$ 2,648	$ 2,727	$ 2,809	$ 2,893
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 6,979	$ 7,119	$ 7,261	$ 7,407	$ 7,555	$ 7,706
$ 2,549	$ 2,626	$ 2,705	$ 2,786	$ 2,869	$ 2,955
$ 760	$ 782	$ 806	$ 830	$ 855	$ 881
$ 401	$ 413	$ 425	$ 438	$ 451	$ 464
$ 111,058	$ 114,390	$ 117,821	$ 121,356	$ 124,997	$ 128,747
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 62,392	$ 64,264	$ 66,192	$ 68,178	$ 70,223	$ 72,330
$ 4,165	$ 4,290	$ 4,419	$ 4,552	$ 4,688	$ 4,829
$ 313	$ 323	$ 332	$ 342	$ 353	$ 363
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 156	$ 161	$ 165	$ 170	$ 176	$ 181
$ -	$ -	$ -	$ -	$ -	$ -
$ 10,217	$ 10,524	$ 10,840	$ 11,165	$ 11,500	$ 11,845
$ 2,870	$ 2,956	$ 3,045	$ 3,136	$ 3,230	$ 3,327
$ 12,478	$ 12,853	$ 13,238	$ 13,636	$ 14,045	$ 14,466
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,248	$ 1,285	$ 1,324	$ 1,364	$ 1,404	$ 1,447
$ -	$ -	$ -	$ -	$ -	$ -
$ 76,710	$ 79,012	$ 81,382	$ 83,824	$ 86,338	$ 88,928
$ -	$ -	$ -	$ -	$ -	$ -
$ 5,868	$ 6,044	$ 6,226	$ 6,412	$ 6,605	$ 6,803
$ 2,463	$ 2,537	$ 2,613	$ 2,691	$ 2,772	$ 2,855
$ 830	$ 855	$ 881	$ 907	$ 934	$ 962
$ 21,594	$ 23,106	$ 24,723	$ 26,454	$ 28,306	$ 30,287
$ 154	$ 158	$ 163	$ 168	$ 173	$ 178

$ 19	$ 19	$ 20	$ 21	$ 21	$ 22	
$ 184	$ 189	$ 195	$ 201	$ 207	$ 213	
$ 2,004	$ 2,065	$ 2,126	$ 2,190	$ 2,256	$ 2,324	
$ 115	$ 118	$ 122	$ 125	$ 129	$ 133	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 62,392	$ 64,264	$ 66,192	$ 68,178	$ 70,223	$ 72,330	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 3,294	$ 3,393	$ 3,495	$ 3,600	$ 3,708	$ 3,819	
$ 981	$ 1,011	$ 1,041	$ 1,072	$ 1,105	$ 1,138	
$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 252,010	$ 259,570	$ 267,357	$ 275,378	$ 283,639	$ 292,148	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 3,150	$ 3,244	$ 3,341	$ 3,442	$ 3,545	$ 3,651	
$ 19,278	$ 19,856	$ 20,452	$ 21,066	$ 21,698	$ 22,349	
$ 17,640	$ 18,170	$ 18,715	$ 19,276	$ 19,854	$ 20,450	
$ 2,220	$ 2,286	$ 2,355	$ 2,426	$ 2,498	$ 2,573	
$ 64,783	$ 69,318	$ 74,170	$ 79,362	$ 84,917	$ 90,862	
$ 504	$ 519	$ 535	$ 551	$ 567	$ 584	
$ 60	$ 62	$ 64	$ 66	$ 68	$ 70	
$ 605	$ 623	$ 642	$ 661	$ 681	$ 701	
$ 5,975	$ 6,155	$ 6,339	$ 6,530	$ 6,725	$ 6,927	
$ 344	$ 354	$ 365	$ 376	$ 387	$ 399	
$ 6,239	$ 6,426	$ 6,619	$ 6,818	$ 7,022	$ 7,233	
$ 3,120	$ 3,213	$ 3,310	$ 3,409	$ 3,511	$ 3,616	
$ 1,356	$ 1,397	$ 1,439	$ 1,482	$ 1,527	$ 1,572	
$ 3,993	$ 4,113	$ 4,236	$ 4,363	$ 4,494	$ 4,629	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 13,911	$ 14,190	$ 14,473	$ 14,763	$ 15,058	$ 15,359	
$ 309	$ 309	$ 309	$ 309	$ 309	$ 309	
$ 10,821	$ 11,146	$ 11,480	$ 11,825	$ 12,179	$ 12,545	
$ 3,224	$ 3,321	$ 3,420	$ 3,523	$ 3,629	$ 3,737	
$ 983	$ 1,013	$ 1,043	$ 1,074	$ 1,107	$ 1,140	
$ 9,359	$ 9,640	$ 9,929	$ 10,227	$ 10,533	$ 10,849	
$ 6,239	$ 6,426	$ 6,619	$ 6,818	$ 7,022	$ 7,233	
$ 10,146	$ 10,451	$ 10,764	$ 11,087	$ 11,420	$ 11,762	
$ 765	$ 788	$ 812	$ 836	$ 861	$ 887	
$ 267	$ 275	$ 283	$ 292	$ 301	$ 310	
$ 18,718	$ 19,279	$ 19,858	$ 20,453	$ 21,067	$ 21,699	
$ 608	$ 626	$ 645	$ 664	$ 684	$ 704	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 1,248	$ 1,285	$ 1,324	$ 1,364	$ 1,404	$ 1,447	
$ 6,239	$ 6,426	$ 6,619	$ 6,818	$ 7,022	$ 7,233	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
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2686277.2880	2766865.6070	2849871.5750	$ 2,935,368	$ 3,023,429	$ 3,114,132	

	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
	2%	2%	2%	2%	2%	2%
	3%	3%	3%	3%	3%	3%
	3%	3%	3%	3%	3%	3%
	1%	1%	1%	1%	1%	1%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	1,162,253	$ 1,197,120	$ 1,233,034	$ 1,270,025	$ 1,308,126	$ 1,347,369
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	22,565	$ 23,242	$ 23,939	$ 24,657	$ 25,397	$ 26,159
$	88,913	$ 91,580	$ 94,327	$ 97,157	$ 100,072	$ 103,074
$	81,358	$ 83,799	$ 86,313	$ 88,902	$ 91,569	$ 94,316
$	-	$ -	$ -	$ -	$ -	$ -
$	291,666	$ 312,082	$ 333,928	$ 357,303	$ 382,314	$ 409,076
$	2,324	$ 2,394	$ 2,466	$ 2,540	$ 2,616	$ 2,694
$	278	$ 287	$ 295	$ 304	$ 313	$ 323
$	2,789	$ 2,873	$ 2,959	$ 3,048	$ 3,139	$ 3,233
$	18,171	$ 18,716	$ 19,277	$ 19,856	$ 20,451	$ 21,065
$	1,232	$ 1,269	$ 1,307	$ 1,346	$ 1,387	$ 1,428
$	53,640	$ 55,249	$ 56,906	$ 58,613	$ 60,372	$ 62,183
$	-	$ -	$ -	$ -	$ -	$ -
$	111,749	$ 115,102	$ 118,555	$ 122,111	$ 125,775	$ 129,548
$	35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	296,565	$ 305,462	$ 314,626	$ 324,065	$ 333,787	$ 343,800
$	-	$ -	$ -	$ -	$ -	$ -
$	44,700	$ 46,041	$ 47,422	$ 48,845	$ 50,310	$ 51,819
$	7,450	$ 7,673	$ 7,904	$ 8,141	$ 8,385	$ 8,637
$	4,859	$ 5,005	$ 5,155	$ 5,309	$ 5,469	$ 5,633
$	-	$ -	$ -	$ -	$ -	$ -

$ 8,940	$ 9,208	$ 9,484	$ 9,769	$ 10,062	$ 10,364
$ 5,960	$ 6,139	$ 6,323	$ 6,513	$ 6,708	$ 6,909
$ 17,880	$ 18,416	$ 18,969	$ 19,538	$ 20,124	$ 20,728
$ -	$ -	$ -	$ -	$ -	$ -
$ 143,158	$ 146,021	$ 148,942	$ 151,920	$ 154,959	$ 158,058
$ -	$ -	$ -	$ -	$ -	$ -
$ 49,909	$ 51,406	$ 52,948	$ 54,537	$ 56,173	$ 57,858
$ 14,866	$ 15,312	$ 15,771	$ 16,244	$ 16,731	$ 17,233
$ 8,992	$ 9,262	$ 9,540	$ 9,826	$ 10,121	$ 10,424
$ -	$ -	$ -	$ -	$ -	$ -
$ 134,491	$ 138,526	$ 142,681	$ 146,962	$ 151,371	$ 155,912
$ 10,136	$ 10,440	$ 10,754	$ 11,076	$ 11,409	$ 11,751
$ -	$ -	$ -	$ -	$ -	$ -
$ 5,960	$ 6,139	$ 6,323	$ 6,513	$ 6,708	$ 6,909
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,380,342	$ 1,394,146	$ 1,408,087	$ 1,422,168	$ 1,436,390	$ 1,450,753
$ -	$ -	$ -	$ -	$ -	$ -
$ 74,499	$ 76,734	$ 79,036	$ 81,408	$ 83,850	$ 86,365
$ 37,157	$ 38,272	$ 39,420	$ 40,603	$ 41,821	$ 43,075
$ -	$ -	$ -	$ -	$ -	$ -
$ 178,799	$ 184,163	$ 189,688	$ 195,378	$ 201,240	$ 207,277
$ 26,820	$ 27,624	$ 28,453	$ 29,307	$ 30,186	$ 31,092
$ 7,450	$ 7,673	$ 7,904	$ 8,141	$ 8,385	$ 8,637
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
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$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 148,999	$ 153,469	$ 158,073	$ 162,815	$ 167,700	$ 172,731
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
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$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

$ 70,883	$ 73,010	$ 75,200	$ 77,456	$ 79,780	$ 82,173	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 5,423	$ 5,586	$ 5,753	$ 5,926	$ 6,104	$ 6,287	
$ 2,554	$ 2,631	$ 2,710	$ 2,791	$ 2,875	$ 2,961	
$ 687	$ 708	$ 729	$ 751	$ 774	$ 797	
$ 25,926	$ 27,741	$ 29,683	$ 31,760	$ 33,983	$ 36,362	
$ 141	$ 146	$ 150	$ 155	$ 159	$ 164	
$ 17	$ 17	$ 18	$ 18	$ 19	$ 19	
$ 170	$ 175	$ 180	$ 186	$ 191	$ 197	
$ 1,685	$ 1,735	$ 1,787	$ 1,841	$ 1,896	$ 1,953	
$ 110	$ 113	$ 117	$ 120	$ 124	$ 127	
$ 4,470	$ 4,604	$ 4,742	$ 4,884	$ 5,031	$ 5,182	
$ 2,980	$ 3,069	$ 3,161	$ 3,256	$ 3,354	$ 3,455	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 2,980	$ 3,069	$ 3,161	$ 3,256	$ 3,354	$ 3,455	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 7,860	$ 8,017	$ 8,178	$ 8,341	$ 8,508	$ 8,678	
$ 3,044	$ 3,135	$ 3,229	$ 3,326	$ 3,426	$ 3,529	
$ 907	$ 934	$ 962	$ 991	$ 1,021	$ 1,052	
$ 478	$ 493	$ 507	$ 523	$ 538	$ 554	
$ 132,609	$ 136,587	$ 140,685	$ 144,905	$ 149,253	$ 153,730	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 74,499	$ 76,734	$ 79,036	$ 81,408	$ 83,850	$ 86,365	
$ 4,974	$ 5,123	$ 5,276	$ 5,435	$ 5,598	$ 5,766	
$ 374	$ 385	$ 397	$ 409	$ 421	$ 434	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 186	$ 192	$ 198	$ 204	$ 210	$ 216	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 12,200	$ 12,566	$ 12,943	$ 13,331	$ 13,731	$ 14,143	
$ 3,427	$ 3,530	$ 3,636	$ 3,745	$ 3,857	$ 3,973	
$ 14,900	$ 15,347	$ 15,807	$ 16,282	$ 16,770	$ 17,273	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 1,490	$ 1,535	$ 1,581	$ 1,628	$ 1,677	$ 1,727	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 91,596	$ 94,344	$ 97,175	$ 100,090	$ 103,092	$ 106,185	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 7,007	$ 7,217	$ 7,434	$ 7,657	$ 7,887	$ 8,123	
$ 2,941	$ 3,029	$ 3,120	$ 3,214	$ 3,310	$ 3,409	
$ 991	$ 1,021	$ 1,052	$ 1,083	$ 1,116	$ 1,149	
$ 32,407	$ 34,676	$ 37,103	$ 39,700	$ 42,479	$ 45,453	
$ 184	$ 189	$ 195	$ 201	$ 207	$ 213	

$ 23	$ 23	$ 24	$ 25	$ 25	$ 26	
$ 220	$ 226	$ 233	$ 240	$ 247	$ 255	
$ 2,393	$ 2,465	$ 2,539	$ 2,615	$ 2,694	$ 2,775	
$ 137	$ 141	$ 145	$ 150	$ 154	$ 159	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 74,499	$ 76,734	$ 79,036	$ 81,408	$ 83,850	$ 86,365	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 3,934	$ 4,052	$ 4,173	$ 4,298	$ 4,427	$ 4,560	
$ 1,172	$ 1,207	$ 1,243	$ 1,281	$ 1,319	$ 1,359	
$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 300,913	$ 309,940	$ 319,238	$ 328,816	$ 338,680	$ 348,840	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 3,761	$ 3,874	$ 3,990	$ 4,110	$ 4,233	$ 4,360	
$ 23,019	$ 23,710	$ 24,421	$ 25,154	$ 25,908	$ 26,685	
$ 21,063	$ 21,695	$ 22,346	$ 23,017	$ 23,707	$ 24,418	
$ 2,651	$ 2,730	$ 2,812	$ 2,896	$ 2,983	$ 3,073	
$ 97,222	$ 104,027	$ 111,309	$ 119,101	$ 127,438	$ 136,359	
$ 602	$ 620	$ 638	$ 658	$ 677	$ 698	
$ 72	$ 74	$ 77	$ 79	$ 81	$ 84	
$ 722	$ 744	$ 766	$ 789	$ 813	$ 837	
$ 7,135	$ 7,349	$ 7,569	$ 7,797	$ 8,030	$ 8,271	
$ 411	$ 423	$ 436	$ 449	$ 462	$ 476	
$ 7,450	$ 7,673	$ 7,904	$ 8,141	$ 8,385	$ 8,637	
$ 3,725	$ 3,837	$ 3,952	$ 4,070	$ 4,192	$ 4,318	
$ 1,620	$ 1,668	$ 1,718	$ 1,770	$ 1,823	$ 1,878	
$ 4,768	$ 4,911	$ 5,058	$ 5,210	$ 5,366	$ 5,527	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 15,666	$ 15,980	$ 16,299	$ 16,625	$ 16,958	$ 17,297	
$ 309	$ 309	$ 309	$ 309	$ 309	$ 309	
$ 12,921	$ 13,309	$ 13,708	$ 14,119	$ 14,543	$ 14,979	
$ 3,850	$ 3,965	$ 4,084	$ 4,207	$ 4,333	$ 4,463	
$ 1,174	$ 1,209	$ 1,246	$ 1,283	$ 1,321	$ 1,361	
$ 11,175	$ 11,510	$ 11,855	$ 12,211	$ 12,577	$ 12,955	
$ 7,450	$ 7,673	$ 7,904	$ 8,141	$ 8,385	$ 8,637	
$ 12,115	$ 12,479	$ 12,853	$ 13,239	$ 13,636	$ 14,045	
$ 913	$ 941	$ 969	$ 998	$ 1,028	$ 1,059	
$ 319	$ 328	$ 338	$ 348	$ 359	$ 370	
$ 22,350	$ 23,020	$ 23,711	$ 24,422	$ 25,155	$ 25,910	
$ 725	$ 747	$ 770	$ 793	$ 816	$ 841	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 1,490	$ 1,535	$ 1,581	$ 1,628	$ 1,677	$ 1,727	
$ 7,450	$ 7,673	$ 7,904	$ 8,141	$ 8,385	$ 8,637	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	

$ -	$ -	$ -	$ -	$ -	$ -
$ 3,207,556	$ 3,303,782	$ 3,402,896	$ 3,504,983	$ 3,610,132	$ 3,718,436
0	0	0	0	0	0

	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
	2%	2%	2%	2%	2%	2%
	3%	3%	3%	3%	3%	3%
	3%	3%	3%	3%	3%	3%
	1%	1%	1%	1%	1%	1%
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	1,387,791	$ 1,429,424	$ 1,472,307	$ 1,516,476	$ 1,561,970	$ 1,608,830
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	26,943	$ 27,752	$ 28,584	$ 29,442	$ 30,325	$ 31,235
$	106,166	$ 109,351	$ 112,632	$ 116,011	$ 119,491	$ 123,076
$	97,146	$ 100,060	$ 103,062	$ 106,154	$ 109,338	$ 112,618
$	-	$ -	$ -	$ -	$ -	$ -
$	437,712	$ 468,352	$ 501,136	$ 536,216	$ 573,751	$ 613,913
$	2,775	$ 2,858	$ 2,944	$ 3,033	$ 3,123	$ 3,217
$	332	$ 342	$ 353	$ 363	$ 374	$ 385
$	3,330	$ 3,430	$ 3,533	$ 3,639	$ 3,748	$ 3,861
$	21,697	$ 22,348	$ 23,018	$ 23,709	$ 24,420	$ 25,152
$	1,471	$ 1,515	$ 1,561	$ 1,608	$ 1,656	$ 1,705
$	64,049	$ 65,970	$ 67,949	$ 69,988	$ 72,087	$ 74,250
$	-	$ -	$ -	$ -	$ -	$ -
$	133,434	$ 137,437	$ 141,561	$ 145,807	$ 150,182	$ 154,687
$	35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	354,114	$ 364,738	$ 375,680	$ 386,950	$ 398,559	$ 410,516
$	-	$ -	$ -	$ -	$ -	$ -
$	53,374	$ 54,975	$ 56,624	$ 58,323	$ 60,073	$ 61,875
$	8,896	$ 9,162	$ 9,437	$ 9,720	$ 10,012	$ 10,312
$	5,802	$ 5,976	$ 6,155	$ 6,340	$ 6,530	$ 6,726
$	-	$ -	$ -	$ -	$ -	$ -

$ 10,675	$ 10,995	$ 11,325	$ 11,665	$ 12,015	$ 12,375
$ 7,117	$ 7,330	$ 7,550	$ 7,776	$ 8,010	$ 8,250
$ 21,350	$ 21,990	$ 22,650	$ 23,329	$ 24,029	$ 24,750
$ -	$ -	$ -	$ -	$ -	$ -
$ 161,219	$ 164,444	$ 167,732	$ 171,087	$ 174,509	$ 177,999
$ -	$ -	$ -	$ -	$ -	$ -
$ 59,594	$ 61,381	$ 63,223	$ 65,120	$ 67,073	$ 69,085
$ 17,750	$ 18,283	$ 18,831	$ 19,396	$ 19,978	$ 20,578
$ 10,737	$ 11,059	$ 11,391	$ 11,733	$ 12,085	$ 12,447
$ -	$ -	$ -	$ -	$ -	$ -
$ 160,589	$ 165,407	$ 170,369	$ 175,480	$ 180,745	$ 186,167
$ 12,103	$ 12,466	$ 12,840	$ 13,226	$ 13,622	$ 14,031
$ -	$ -	$ -	$ -	$ -	$ -
$ 7,117	$ 7,330	$ 7,550	$ 7,776	$ 8,010	$ 8,250
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,465,261	$ 1,479,914	$ 1,494,713	$ 1,509,660	$ 1,524,756	$ 1,540,004
$ -	$ -	$ -	$ -	$ -	$ -
$ 88,956	$ 91,625	$ 94,374	$ 97,205	$ 100,121	$ 103,125
$ 44,368	$ 45,699	$ 47,070	$ 48,482	$ 49,936	$ 51,434
$ -	$ -	$ -	$ -	$ -	$ -
$ 213,495	$ 219,900	$ 226,497	$ 233,292	$ 240,291	$ 247,499
$ 32,024	$ 32,985	$ 33,975	$ 34,994	$ 36,044	$ 37,125
$ 8,896	$ 9,162	$ 9,437	$ 9,720	$ 10,012	$ 10,312
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 177,913	$ 183,250	$ 188,747	$ 194,410	$ 200,242	$ 206,249
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -

$ 84,638	$ 87,178	$ 89,793	$ 92,487	$ 95,261	$ 98,119
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 6,475	$ 6,670	$ 6,870	$ 7,076	$ 7,288	$ 7,507
$ 3,050	$ 3,142	$ 3,236	$ 3,333	$ 3,433	$ 3,536
$ 821	$ 846	$ 871	$ 897	$ 924	$ 952
$ 38,908	$ 41,631	$ 44,545	$ 47,664	$ 51,000	$ 54,570
$ 169	$ 174	$ 179	$ 185	$ 190	$ 196
$ 20	$ 20	$ 21	$ 22	$ 22	$ 23
$ 203	$ 209	$ 215	$ 222	$ 228	$ 235
$ 2,012	$ 2,072	$ 2,134	$ 2,198	$ 2,264	$ 2,332
$ 131	$ 135	$ 139	$ 143	$ 148	$ 152
$ 5,337	$ 5,497	$ 5,662	$ 5,832	$ 6,007	$ 6,187
$ 3,558	$ 3,665	$ 3,775	$ 3,888	$ 4,005	$ 4,125
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 3,558	$ 3,665	$ 3,775	$ 3,888	$ 4,005	$ 4,125
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 8,852	$ 9,029	$ 9,209	$ 9,393	$ 9,581	$ 9,773
$ 3,635	$ 3,744	$ 3,856	$ 3,972	$ 4,091	$ 4,214
$ 1,083	$ 1,116	$ 1,149	$ 1,184	$ 1,219	$ 1,256
$ 571	$ 588	$ 606	$ 624	$ 643	$ 662
$ 158,342	$ 163,092	$ 167,985	$ 173,025	$ 178,215	$ 183,562
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 88,956	$ 91,625	$ 94,374	$ 97,205	$ 100,121	$ 103,125
$ 5,939	$ 6,117	$ 6,300	$ 6,489	$ 6,684	$ 6,885
$ 447	$ 460	$ 474	$ 488	$ 503	$ 518
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 222	$ 229	$ 236	$ 243	$ 250	$ 258
$ -	$ -	$ -	$ -	$ -	$ -
$ 14,568	$ 15,005	$ 15,455	$ 15,918	$ 16,396	$ 16,888
$ 4,092	$ 4,215	$ 4,341	$ 4,471	$ 4,606	$ 4,744
$ 17,791	$ 18,325	$ 18,875	$ 19,441	$ 20,024	$ 20,625
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,779	$ 1,832	$ 1,887	$ 1,944	$ 2,002	$ 2,062
$ -	$ -	$ -	$ -	$ -	$ -
$ 109,371	$ 112,652	$ 116,031	$ 119,512	$ 123,098	$ 126,791
$ -	$ -	$ -	$ -	$ -	$ -
$ 8,367	$ 8,618	$ 8,876	$ 9,143	$ 9,417	$ 9,699
$ 3,512	$ 3,617	$ 3,725	$ 3,837	$ 3,952	$ 4,071
$ 1,184	$ 1,219	$ 1,256	$ 1,293	$ 1,332	$ 1,372
$ 48,635	$ 52,039	$ 55,682	$ 59,580	$ 63,750	$ 68,213
$ 219	$ 226	$ 232	$ 239	$ 247	$ 254

$ 27	$ 28	$ 29	$ 29	$ 30	$ 31	
$ 262	$ 270	$ 278	$ 287	$ 295	$ 304	
$ 2,858	$ 2,944	$ 3,032	$ 3,123	$ 3,216	$ 3,313	
$ 163	$ 168	$ 173	$ 179	$ 184	$ 189	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 88,956	$ 91,625	$ 94,374	$ 97,205	$ 100,121	$ 103,125	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 4,697	$ 4,838	$ 4,983	$ 5,132	$ 5,286	$ 5,445	
$ 1,399	$ 1,441	$ 1,484	$ 1,529	$ 1,575	$ 1,622	
$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 359,306	$ 370,085	$ 381,187	$ 392,623	$ 404,402	$ 416,534	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 4,491	$ 4,625	$ 4,764	$ 4,907	$ 5,054	$ 5,206	
$ 27,486	$ 28,311	$ 29,160	$ 30,035	$ 30,936	$ 31,864	
$ 25,151	$ 25,905	$ 26,683	$ 27,483	$ 28,307	$ 29,157	
$ 3,165	$ 3,260	$ 3,358	$ 3,458	$ 3,562	$ 3,669	
$ 145,904	$ 156,117	$ 167,045	$ 178,739	$ 191,250	$ 204,638	
$ 718	$ 740	$ 762	$ 785	$ 809	$ 833	
$ 86	$ 89	$ 91	$ 94	$ 97	$ 100	
$ 862	$ 888	$ 915	$ 942	$ 970	$ 1,000	
$ 8,520	$ 8,775	$ 9,038	$ 9,310	$ 9,589	$ 9,876	
$ 490	$ 505	$ 520	$ 536	$ 552	$ 568	
$ 8,896	$ 9,162	$ 9,437	$ 9,720	$ 10,012	$ 10,312	
$ 4,448	$ 4,581	$ 4,719	$ 4,860	$ 5,006	$ 5,156	
$ 1,934	$ 1,992	$ 2,052	$ 2,113	$ 2,177	$ 2,242	
$ 5,693	$ 5,864	$ 6,040	$ 6,221	$ 6,408	$ 6,600	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 17,643	$ 17,996	$ 18,356	$ 18,723	$ 19,097	$ 19,479	
$ 309	$ 309	$ 309	$ 309	$ 309	$ 309	
$ 15,429	$ 15,891	$ 16,368	$ 16,859	$ 17,365	$ 17,886	
$ 4,597	$ 4,734	$ 4,876	$ 5,023	$ 5,173	$ 5,329	
$ 1,402	$ 1,444	$ 1,487	$ 1,532	$ 1,578	$ 1,625	
$ 13,343	$ 13,744	$ 14,156	$ 14,581	$ 15,018	$ 15,469	
$ 8,896	$ 9,162	$ 9,437	$ 9,720	$ 10,012	$ 10,312	
$ 14,466	$ 14,900	$ 15,347	$ 15,807	$ 16,282	$ 16,770	
$ 1,091	$ 1,123	$ 1,157	$ 1,192	$ 1,227	$ 1,264	
$ 381	$ 392	$ 404	$ 416	$ 429	$ 441	
$ 26,687	$ 27,487	$ 28,312	$ 29,161	$ 30,036	$ 30,937	
$ 866	$ 892	$ 919	$ 947	$ 975	$ 1,004	
$ -	$ -	$ -	$ -	$ -	$ -	
$ 1,779	$ 1,832	$ 1,887	$ 1,944	$ 2,002	$ 2,062	
$ 8,896	$ 9,162	$ 9,437	$ 9,720	$ 10,012	$ 10,312	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	

$ -	$ -	$ -	$ -	$ -	$ -
$ 3,829,989	$ 3,944,889	$ 4,063,235	$ 4,185,132	$ 4,310,686	$ 4,440,007
0	0	0	0	0	0

	FY2049		FY2050
	3.00%		3.00%
	7.00%		7.00%
	3.00%		3.00%
	2%		2%
	3%		3%
	3%		3%
	1%		1%
$	-	$	-
$	-	$	-
$	1,657,094	$	1,706,807
$	-	$	-
$	-	$	-
$	32,172	$	33,137
$	126,768	$	130,571
$	115,997	$	119,477
$	-	$	-
$	656,887	$	702,869
$	3,314	$	3,413
$	397	$	409
$	3,976	$	4,096
$	25,907	$	26,684
$	1,757	$	1,809
$	76,477	$	78,772
$	-	$	-
$	159,328	$	164,107
$	35,000	$	35,000
$	-	$	-
$	-	$	-
$	-	$	-
$	422,831	$	435,516
$	-	$	-
$	63,731	$	65,643
$	10,622	$	10,940
$	6,928	$	7,135
$	-	$	-

$ 12,746	$ 13,129
$ 8,497	$ 8,752
$ 25,492	$ 26,257
$ -	$ -
$ 181,559	$ 185,190
$ -	$ -
$ 71,158	$ 73,293
$ 21,195	$ 21,831
$ 12,821	$ 13,205
$ -	$ -
$ 191,752	$ 197,504
$ 14,452	$ 14,886
$ -	$ -
$ 8,497	$ 8,752
$ -	$ -
$ -	$ -
$ 1,555,404	$ 1,570,958
$ -	$ -
$ 106,218	$ 109,405
$ 52,977	$ 54,567
$ -	$ -
$ 254,924	$ 262,572
$ 38,239	$ 39,386
$ 10,622	$ 10,940
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ 212,437	$ 218,810
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -

$ 101,063	$ 104,095
$ -	$ -
$ -	$ -
$ -	$ -
$ 7,732	$ 7,964
$ 3,642	$ 3,751
$ 980	$ 1,010
$ 58,390	$ 62,477
$ 202	$ 208
$ 24	$ 24
$ 242	$ 250
$ 2,402	$ 2,474
$ 157	$ 161
$ 6,373	$ 6,564
$ 4,249	$ 4,376
$ -	$ -
$ -	$ -
$ 4,249	$ 4,376
$ -	$ -
$ -	$ -
$ 9,968	$ 10,168
$ 4,340	$ 4,470
$ 1,293	$ 1,332
$ 682	$ 702
$ 189,069	$ 194,741
$ -	$ -
$ -	$ -
$ 106,218	$ 109,405
$ 7,091	$ 7,304
$ 533	$ 549
$ -	$ -
$ -	$ -
$ 266	$ 274
$ -	$ -
$ 17,394	$ 17,916
$ 4,886	$ 5,033
$ 21,244	$ 21,881
$ -	$ -
$ 2,124	$ 2,188
$ -	$ -
$ 130,594	$ 134,512
$ -	$ -
$ 9,990	$ 10,290
$ 4,193	$ 4,319
$ 1,413	$ 1,456
$ 72,987	$ 78,097
$ 262	$ 270

$ 32	$ 33
$ 313	$ 323
$ 3,412	$ 3,515
$ 195	$ 201
$ -	$ -
$ 106,218	$ 109,405
$ -	$ -
$ 5,608	$ 5,777
$ 1,671	$ 1,721
$ 150,000	$ 150,000
$ -	$ -
$ 429,030	$ 441,901
$ -	$ -
$ 5,362	$ 5,523
$ 32,820	$ 33,804
$ 30,031	$ 30,932
$ 3,779	$ 3,893
$ 218,962	$ 234,290
$ 858	$ 884
$ 103	$ 106
$ 1,030	$ 1,060
$ 10,173	$ 10,478
$ 586	$ 603
$ 10,622	$ 10,940
$ 5,311	$ 5,470
$ 2,309	$ 2,378
$ 6,798	$ 7,002
$ -	$ -
$ -	$ -
$ 19,869	$ 20,266
$ 309	$ 309
$ 18,423	$ 18,975
$ 5,489	$ 5,653
$ 1,674	$ 1,724
$ 15,933	$ 16,411
$ 10,622	$ 10,940
$ 17,273	$ 17,791
$ 1,302	$ 1,341
$ 455	$ 468
$ 31,866	$ 32,821
$ 1,034	$ 1,065
$ -	$ -
$ 2,124	$ 2,188
$ 10,622	$ 10,940
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -
$ -	$ -

$ -	$ -
$ 4,573,207	$ 4,710,403
0	0

Comments

Annual escalation rates are taken from CWP 10-year pro-forma calculation workbook. The rates are projected out

Percent change between the last two years in the CWP 10-year pro-forma are used to project forward for the accc

Each account line-item is projected using the same methodology used in the CWP 10-year pro-forma.

Percent change between the last two years in the CWP 10-year pro-forma are used to project forward for the accc

: to 2050 based on the last year's value of the original projection rate.

ɔunt

ɔunt REIMB - ADMIN TO GENERAL FUND.

Account Description	FY2023 (Actual + Budget)	FY2024
Other Revenues Annual Escalation		
General Other Operating Expense Annual Escalation		
CONTRACTUAL SERV - CONTR N AID	$ 500,000	$ 500,000
CONTRACTUAL SERV - SURGE PROT	$ -	$ -
CONTRACTUAL SERV - EL CAPITAL	$ 1,360,211	$ 1,428,222
CONTRACTUAL SERV - RES UG CONV	$ -	$ 150,000
CAPITAL OUTLAY - STR LTS LABOR	$ 200,000	$ 100,000
CAPITAL OUTLAY - STR LTS MATLS	$ 198,000	$ 100,000

	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
	3%	3%	3%	3%	3%	3%
	4.00%	3.50%	3.00%	3.00%	3.00%	3.00%
$	500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$	-	$ -	$ -	$ -	$ -	$ -
$	1,499,633	$ 1,574,614	$ 1,653,345	$ 1,736,012	$ 1,788,093	$ 1,841,735
$	156,000	$ 161,460	$ 166,304	$ 171,293	$ 176,432	$ 181,725
$	104,000	$ 107,640	$ 110,869	$ 114,195	$ 117,621	$ 121,150
$	104,000	$ 107,640	$ 110,869	$ 114,195	$ 117,621	$ 121,150

	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036
	3%	3%	3%	3%	3%	3%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
$	500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$	-	$ -	$ -	$ -	$ -	$ -
$	1,896,987	$ 1,953,897	$ 2,012,514	$ 2,072,889	$ 2,135,076	$ 2,199,128
$	187,176	$ 192,792	$ 198,575	$ 204,533	$ 210,669	$ 216,989
$	124,784	$ 128,528	$ 132,384	$ 136,355	$ 140,446	$ 144,659
$	124,784	$ 128,528	$ 132,384	$ 136,355	$ 140,446	$ 144,659

	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042
	3%	3%	3%	3%	3%	3%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
$	500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$	-	$ -	$ -	$ -	$ -	$ -
$	2,265,102	$ 2,333,055	$ 2,403,047	$ 2,475,138	$ 2,549,392	$ 2,625,874
$	223,498	$ 230,203	$ 237,109	$ 244,223	$ 251,549	$ 259,096
$	148,999	$ 153,469	$ 158,073	$ 162,815	$ 167,700	$ 172,731
$	148,999	$ 153,469	$ 158,073	$ 162,815	$ 167,700	$ 172,731

	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
	3%	3%	3%	3%	3%	3%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
$	500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$	-	$ -	$ -	$ -	$ -	$ -
$	2,704,650	$ 2,785,790	$ 2,869,364	$ 2,955,445	$ 3,044,108	$ 3,135,431
$	266,869	$ 274,875	$ 283,121	$ 291,615	$ 300,363	$ 309,374
$	177,913	$ 183,250	$ 188,747	$ 194,410	$ 200,242	$ 206,249
$	177,913	$ 183,250	$ 188,747	$ 194,410	$ 200,242	$ 206,249

	FY2049		FY2050
	3%		3%
	3.00%		3.00%
$	500,000	$	500,000
$	-	$	-
$	3,229,494	$	3,326,379
$	318,655	$	328,215
$	212,437	$	218,810
$	212,437	$	218,810

Comments

Annual escalation rates are taken from CWP 10-year pro-forma calculation workbook. The rates are projected out

Each account line-item is projected using the same methodology used in the CWP 10-year pro-forma.

: to 2050 based on the last year's value of the original projection rate.

Organization	Object	Account Description	2020	2021
4602908	572027	DEBT INTEREST - SUNTRUST LOC		
		Series 2010		
4602908	571026	DEBT PRINCIPAL - ELEC 2010	250,000	255,000
4602908	572026	DEBT INTEREST - ELEC 2010	109,920	101,840
		Total series 2010	359,920	356,840
		Series 2014		
4602908	571028	DEBT PRINCIPAL - ELEC 2014	345,000	355,000
4602908	572028	DEBT INTEREST - ELEC 2014	167,757	158,166
		Total series 2014	512,757	513,166
		Series 2014A		
4602908	571029	DEBT PRINCIPAL - ELEC 2014A	265,000	275,000
4602908	572029	DEBT INTEREST - ELEC 2014A	143,446	135,373
		Total series 2014A	408,446	410,373
		Series 2016		
4602908	571030	DEBT PRINCIPAL - ELEC 2016	640,000	670,000
4602908	572030	DEBT INTEREST - ELEC 2016	591,418	558,668
		Total series 2016	1,231,418	1,228,668
4602908	571037	DEBT PRINCIPAL - ELEC 2019	400,000	1,360,000
4602908	572037	DEBT INTEREST - ELEC 2019	636,464	846,510
		Total series 2019	1,036,464	2,206,510
		Series 20?		
		Annual Principal payment	0	0
		Annual Interest Payment	0	0
		Total series 2030	0	0
		Series 20?		
		Annual Principal payment	0	0
		Annual Interest Payment	0	0
		Total series 2036	0	0
		Series 20?		
		Annual Principal payment	0	0
		Annual Interest Payment	0	0
		Total series 20?	0	0
		Series 20?		

Annual Principal payment	0	0
Annual Interest Payment	0	0
Total series 20?	0	0
Total Annual Principal Expense	1,900,000	2,915,000
Total Annual Interest Expense	1,649,005	1,800,557
DEBT OTHER COSTS - PAY AGENT		
Total Annual Expense	3,549,005	4,715,557
Total Outstanding Principal	53,030,000	50,020,000

Payment Date	Payment Year	Principal Maturities
	2006	
	2007	
	2008	
4/1	2009	
10/1	2009	
4/1	2010	
10/1	2010	
4/1	2011	
10/1	2011	150,000
4/1	2012	
10/1	2012	200,000
4/1	2013	
10/1	2013	205,000
4/1	2014	
10/1	2014	210,000
4/1	2015	
10/1	2015	220,000
4/1	2016	
10/1	2016	225,000
4/1	2017	
10/1	2017	235,000
4/1	2018	
10/1	2018	240,000
4/1	2019	
10/1	2019	250,000
4/1	2020	
10/1	2020	255,000

4/1	2021	
10/1	2021	265,000
4/1	2022	
10/1	2022	270,000
4/1	2023	
10/1	2023	280,000
4/1	2024	
10/1	2024	290,000
4/1	2025	
10/1	2025	300,000
4/1	2026	
10/1	2026	310,000
4/1	2027	
10/1	2027	320,000
4/1	2028	
10/1	2028	330,000
4/1	2029	
10/1	2029	340,000
4/1	2030	
10/1	2030	350,000
4/1	2031	
10/1	2031	
4/1	2032	
10/1	2032	
4/1	2033	
10/1	2033	
4/1	2034	
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4/1	2038	
10/1	2038	
4/1	2039	
10/1	2039	
4/1	2040	
10/1	2040	
4/1	2041	
10/1	2041	
4/1	2042	
10/1	2042	
4/1	2043	
10/1	2043	
4/1	2044	
10/1	2044	
4/1	2045	

10/1	2045	
4/1	2046	
10/1	2046	
4/1	2047	
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4/1	2048	
10/1	2048	
4/1	2049	
10/1	2049	
4/1	2050	
10/1	2050	
4/1	2051	
10/1	2051	
4/1	2052	
10/1	2052	
4/1	2053	
10/1	2053	
4/1	2054	
10/1	2054	
4/1	2055	
10/1	2055	
4/1	2056	
10/1	2056	
4/1	2057	
10/1	2057	
4/1	2058	
10/1	2058	
4/1	2059	
10/1	2059	
4/1	2060	
10/1	2060	
Totals		**5,245,000**
O/S balance	**@ 2022**	**2,790,000**

2022	2023	2024	2025	2026	2027	2028
	21000	21000	0	0	0	0
265,000	270,000	280,000	290,000	300,000	310,000	320,000
93,520	84,960	76,160	67,040	57,600	47,840	37,760
358,520	354,960	356,160	357,040	357,600	357,840	357,760
365,000	375,000	385,000	395,000	405,000	415,000	430,000
148,302	138,165	127,753	117,066	106,106	94,873	83,296
513,302	513,165	512,753	512,066	511,106	509,873	513,296
280,000	290,000	300,000	310,000	315,000	325,000	335,000
127,076	118,554	109,733	100,614	91,270	81,701	71,834
407,076	408,554	409,733	410,614	406,270	406,701	406,834
705,000	740,000	775,000	815,000	860,000	900,000	915,000
524,293	488,168	450,293	410,543	368,668	338,168	320,018
1,229,293	1,228,168	1,225,293	1,225,543	1,228,668	1,238,168	1,235,018
1,395,000	1,450,000	1,485,000	1,530,000	1,585,000	1,640,000	1,680,000
798,573	749,070	698,001	645,540	591,339	535,224	477,456
2,193,573	2,199,070	2,183,001	2,175,540	2,176,339	2,175,224	2,157,456
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
3,010,000	3,125,000	3,225,000	3,340,000	3,465,000	3,590,000	3,680,000
1,691,764	1,599,917	1,482,940	1,340,803	1,214,983	1,097,806	990,364
	1,000	750	750	750	750	750
4,701,764	4,704,917	4,687,690	4,681,553	4,680,733	4,688,556	4,671,114
46,895,000	43,670,000	40,330,000	36,865,000	33,275,000	29,595,000	25,800,000

Series 2010 (Signature)			Series 2014 (Pinnacle Public Finance)			
Interest 3.20%	**Total P & I**	**O/S Balance**	**Principal Maturities**	**Interest 2.74%**	**Total P & I**	**O/S Balance**
		5,245,000				7,680,000
	0	5,245,000			0	7,680,000
	47,088	5,245,000			0	7,680,000
47,088						
83,920	315,440	5,095,000			0	7,680,000
81,520						
81,520	359,840	4,895,000			0	7,680,000
78,320						
78,320	358,360	4,690,000			0	7,680,000
75,040						
75,040	356,720	4,480,000	95,000	63,130	262,045	7,585,000
71,680				103,915		
71,680	359,840	4,260,000	310,000	103,915	513,582	7,275,000
68,160				99,667		
68,160	357,720	4,035,000	320,000	99,667	514,951	6,955,000
64,560				95,284		
64,560	360,360	3,800,000	325,000	95,284	511,115	6,630,000
60,800				90,831		
60,800	357,760	3,560,000	335,000	90,831	512,073	6,295,000
56,960				86,242		
56,960	359,920	3,310,000	345,000	86,242	512,757	5,950,000
52,960				81,515		
52,960	356,840	3,055,000	355,000	81,515	513,166	5,595,000

48,880				76,651		
48,880	358,520	2,790,000	365,000	76,651	513,302	5,230,000
44,640				71,651		
44,640	354,960	2,520,000	375,000	71,651	513,165	4,855,000
40,320				66,514		
40,320	356,160	2,240,000	385,000	66,514	512,753	4,470,000
35,840				61,239		
35,840	357,040	1,950,000	395,000	61,239	512,066	4,075,000
31,200				55,827		
31,200	357,600	1,650,000	405,000	55,827	511,106	3,670,000
26,400				50,279		
26,400	357,840	1,340,000	415,000	50,279	509,873	3,255,000
21,440				44,594		
21,440	357,760	1,020,000	430,000	44,594	513,296	2,825,000
16,320				38,702		
16,320	357,360	690,000	440,000	38,702	511,376	2,385,000
11,040				32,674		
11,040	356,640	350,000	450,000	32,674	509,183	1,935,000
5,600				26,509		
5,600	355,600	0	465,000	26,509	511,648	1,470,000
				20,139		
	0	0	475,000	20,139	508,771	995,000
				13,632		
	0	0	490,000	13,632	510,550	505,000
				6,918		
	0	0	505,000	6,918	511,918	0
	0	0			0	0
	0	-			0	-

1,914,368	**7,159,368**		**7,680,000**	**2,308,696**	**9,988,696**	
420,960	**3,210,960**		**5,230,000**	**905,705**	**6,135,705**	

2029	2030	2031	2032	2033	2034	2035
0	0	0	0	0	0	0
330,000	340,000	350,000	0	0	0	0
27,360	16,640	5,600	0	0	0	0
357,360	356,640	355,600	0	0	0	0
440,000	450,000	465,000	475,000	490,000	505,000	0
71,376	59,183	46,648	33,771	20,550	6,918	0
511,376	509,183	511,648	508,771	510,550	511,918	0
345,000	355,000	365,000	380,000	390,000	400,000	0
61,668	51,203	40,440	29,302	17,790	5,980	0
406,668	406,203	405,440	409,302	407,790	405,980	0
935,000	955,000	985,000	1,015,000	1,045,000	1,070,000	1,105,000
300,934	276,675	247,575	217,575	186,675	154,950	122,325
1,235,934	1,231,675	1,232,575	1,232,575	1,231,675	1,224,950	1,227,325
1,745,000	1,760,000	1,770,000	1,820,000	1,890,000	1,955,000	985,000
417,861	356,874	295,452	232,986	168,432	101,529	50,373
2,162,861	2,116,874	2,065,452	2,052,986	2,058,432	2,056,529	1,035,373
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
3,795,000	3,860,000	3,935,000	3,690,000	3,815,000	3,930,000	2,090,000
879,199	760,575	635,715	513,634	393,447	269,377	172,698
750	750	750	750	750	750	750
4,674,949	4,621,325	4,571,465	4,204,384	4,209,197	4,200,127	2,263,448
21,940,000	18,005,000	14,315,000	10,500,000	6,570,000	4,480,000	2,385,000

Series 2014A (Pinnacle Public Finance)				Series 2016 (Bank of New Yo		
Principal Maturities	**Interest 2.99%**	**Total P & I**	**O/S Balance**	**Principal Maturities**	**Interest 2.74%**	**Total P & I**
			5,900,000			
		0	5,900,000			
		0	5,900,000			
		0	5,900,000			
		0	5,900,000			
		0	5,900,000			
		72,524	5,900,000			
	72,524					
215,000	88,205	388,196	5,685,000			
	84,991					
245,000	84,991	411,319	5,440,000		246,211	565,045
	81,328				318,834	
250,000	81,328	408,918	5,190,000		318,834	637,668
	77,590				318,834	
260,000	77,590	411,294	4,930,000	605,000	318,834	1,227,543
	73,704				303,709	
265,000	73,704	408,446	4,665,000	640,000	303,709	1,231,418
	69,742				287,709	
275,000	69,742	410,373	4,390,000	670,000	287,709	1,228,668

	65,631				270,959	
280,000	65,631	407,076	4,110,000	705,000	270,959	1,229,293
	61,445				253,334	
290,000	61,445	408,554	3,820,000	740,000	253,334	1,228,168
	57,109				234,834	
300,000	57,109	409,733	3,520,000	775,000	234,834	1,225,293
	52,624				215,459	
310,000	52,624	410,614	3,210,000	815,000	215,459	1,225,543
	47,990				195,084	
315,000	47,990	406,270	2,895,000	860,000	195,084	1,228,668
	43,280				173,584	
325,000	43,280	406,701	2,570,000	900,000	173,584	1,238,168
	38,421				164,584	
335,000	38,421	406,834	2,235,000	915,000	164,584	1,235,018
	33,413				155,434	
345,000	33,413	406,668	1,890,000	935,000	155,434	1,235,934
	28,255				145,500	
355,000	28,255	406,203	1,535,000	955,000	145,500	1,231,675
	22,948				131,175	
365,000	22,948	405,440	1,170,000	985,000	131,175	1,232,575
	17,492				116,400	
380,000	17,492	409,302	790,000	1,015,000	116,400	1,232,575
	11,810				101,175	
390,000	11,810	407,790	400,000	1,045,000	101,175	1,231,675
	5,980				85,500	
400,000	5,980	405,980	0	1,070,000	85,500	1,224,950
					69,450	
		0	0	1,105,000	69,450	1,227,325
					52,875	
		0	-	1,140,000	52,875	1,228,650
					35,775	
				1,175,000	35,775	
					18,150	
				1,210,000	18,150	

5,900,000	**1,908,235**	**7,808,235**		**18,260,000**	**7,542,927**	**23,345,852**
4,110,000	**780,089**	**4,890,089**		**15,640,000**	**4,043,292**	**17,226,217**

2036	2037	2038	2039	2040	2041	2042
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
1,140,000	1,175,000	1,210,000	0	0	0	0
88,650	53,925	18,150	0	0	0	0
1,228,650	1,228,925	1,228,150	0	0	0	0
955,000	0	0	0	0	0	0
16,617	0	0	0	0	0	0
971,617	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
2,095,000	1,175,000	1,210,000	0	0	0	0
105,267	53,925	18,150	0	0	0	0
750	750	750	0	0	0	0
2,201,017	1,229,675	1,228,900	0	0	0	0
1,210,000	-	-	-	-	-	-

ork)	Series 2019 (TD Bank)					
					Bond Duration (ye	
					Initial Value of Bo	
O/S Balance	Principal Maturities	Interest 3.48%	Total P & I	O/S Balance	Period Interest	Period Principal
18,260,000				25,405,000		
				25,405,000		
				25,405,000		
				25,405,000		
				25,405,000		
				25,405,000		
				25,405,000		
				25,405,000		
18,260,000				25,405,000		
18,260,000				25,405,000		
17,655,000				25,405,000		
17,015,000	400,000	201,377	1,036,464	25,005,000		
		435,087				
16,345,000	1,360,000	435,087	2,206,510	23,645,000		

		411,423				
15,640,000	1,395,000	411,423	2,193,573	22,250,000		
		387,150				
14,900,000	1,450,000	387,150	2,199,070	20,800,000		
		361,920				
14,125,000	1,485,000	361,920	2,183,001	19,315,000		
		336,081				
13,310,000	1,530,000	336,081	2,175,540	17,785,000		
		309,459				
12,450,000	1,585,000	309,459	2,176,339	16,200,000		
		281,880				
11,550,000	1,640,000	281,880	2,175,224	14,560,000		
		253,344				
10,635,000	1,680,000	253,344	2,157,456	12,880,000		
		224,112				
9,700,000	1,745,000	224,112	2,162,861	11,135,000		
		193,749				
8,745,000	1,760,000	193,749	2,116,874	9,375,000		
		163,125				
7,760,000	1,770,000	163,125	2,065,452	7,605,000		
		132,327				
6,745,000	1,820,000	132,327	2,052,986	5,785,000		
		100,659				
5,700,000	1,890,000	100,659	2,058,432	3,895,000		
		67,773				
4,630,000	1,955,000	67,773	2,056,529	1,940,000		
		33,756				
3,525,000	985,000	33,756	1,035,373	955,000		
		16,617				
2,385,000	955,000	16,617	971,617	-	1	1
					2	
1,210,000					3	2
					4	
-					5	3
					6	
					7	4
					8	
					9	5
					10	
					11	6
					12	
					13	7
					14	
					15	8
					16	
					17	9
					18	
					19	10
					20	

					21	11
					22	
					23	12
					24	
					25	13
					26	
					27	14
					28	
					29	15
					30	
					31	16
					32	
					33	17
					34	
					35	18
					36	
					37	19
					38	
					39	20
					40	
	25,405,000	**7,618,301**	**33,023,301**			
	22,250,000	**5,336,754**	**27,586,754**			

2043	2044	2045	2046	2047	2048	2049
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
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0	0	0	0	0	0	0
0	0	0	0	0	0	0
-	-	-	-	-	-	-

Series 2034 (Hypothetical)				Series 203		
ears)	20	Payments/Year	2	Bond Duration (years)		
ond	0	Interest Rate	0	Initial Value of Bond		
Principal Maturities	Interest 3.00%	Total P & I	O/S Balance	Interest Period	Principal Period	Principal Maturities

			0			
0	0	0	0			
	0					
0	0	0	0			
	0					
0	0	0	0			
	0					
0	0	0	0	1	1	0
	0			2		
0	0	0	0	3	2	0
	0			4		
0	0	0	0	5	3	0
	0			6		
0	0	0	0	7	4	0
	0			8		
0	0	0	0	9	5	0
	0			10		
0	0	0	0	11	6	0
	0			12		
0	0	0	0	13	7	0
	0			14		

0	0	0	0	15	8	0
	0			16		
0	0	0	0	17	9	0
	0			18		
0	0	0	0	19	10	0
	0			20		
0	0	0	0	21	11	0
	0			22		
0	0	0	0	23	12	0
	0			24		
0	0	0	0	25	13	0
	0			26		
0	0	0	0	27	14	0
	0			28		
0	0	0	0	29	15	0
	0			30		
0	0	0	0	31	16	0
	0			32		
0	0	0	0	33	17	0
	0			34		
				35	18	0
				36		
				37	19	0
				38		
				39	20	0
				40		

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7 (Hypothetical)			Series ?			
20	Payments/Year	2	Bond Duration (years)			Payments/Year
0	Interest Rate	0	Initial Value of Bond			Interest Rate
Interest	Total P & I	O/S Balance	Period	Principal Maturities	Interest	Total P & I

		0				
0	0	0				
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0	0	0				
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	Series ?					Total El	
	Bond Duration (years)			Payments/Year			
	Initial Value of Bond			Interest Rate			
O/S Balance	Period	Principal Maturities	Interest	Total P & I	O/S Balance	Principal Maturities	Interest Maturities
						-	-
						-	-
						-	-
						-	-
						-	-
						-	-
						-	-
						-	47,088
						150,000	83,920
						-	81,520
						200,000	81,520
						-	78,320
						205,000	78,320
						-	75,040
						305,000	138,170
						-	248,119
						745,000	263,800
						-	252,818
						790,000	499,029
						-	560,006
						810,000	560,006
						-	548,055
						1,440,000	548,055
						-	520,615
						1,900,000	721,992
						-	927,013
						2,915,000	927,013

						-	873,544
						3,010,000	873,544
						-	818,220
						3,125,000	818,220
						-	760,697
						3,225,000	760,697
						-	701,243
						3,340,000	701,243
						-	639,560
						3,465,000	639,560
						-	575,423
						3,590,000	575,423
						-	522,383
						3,680,000	522,383
						-	467,981
						3,795,000	467,981
						-	411,218
						3,860,000	411,218
						-	349,357
						3,935,000	349,357
						-	286,358
						3,690,000	286,358
						-	227,276
						3,815,000	227,276
						-	166,171
						3,930,000	166,171
						-	103,206
						2,090,000	103,206
						-	69,492
						2,095,000	69,492
						-	35,775
						1,175,000	35,775
						-	18,150
						1,210,000	18,150
						-	-
						-	-
						-	-
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						-	-
						62,490,000	**21,292,527**
						50,020,000	**11,486,800**

ectric Debt	
Total	**O/S**
P & I	**Balance**
	62,490,000
-	62,490,000
-	
-	62,490,000
-	
-	62,490,000
-	
47,088	62,490,000
-	
315,440	62,340,000
-	
359,840	62,140,000
-	
358,360	61,935,000
-	
691,289	61,630,000
-	
1,261,618	60,885,000
-	
1,849,035	60,095,000
-	
1,918,061	59,285,000
-	
2,508,670	57,845,000
-	
3,549,005	55,945,000
-	
4,715,557	53,030,000

-	
4,701,764	50,020,000
-	
4,703,917	46,895,000
-	
4,686,940	43,670,000
-	
4,680,803	40,330,000
-	
4,679,983	36,865,000
-	
4,687,806	33,275,000
-	
4,670,364	29,595,000
-	
4,674,199	25,800,000
-	
4,620,575	21,940,000
-	
4,570,715	18,005,000
-	
4,203,634	14,315,000
-	
4,208,447	10,500,000
-	
4,199,377	6,570,000
-	
2,262,698	4,480,000
-	
2,200,267	2,385,000
-	
-	1,210,000
-	
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83,782,527	
61,506,800	

Account Description	FY2023 (Actual + Budget)	FY2024	FY2025
Demand Annual Escalation			0.01
Annual Escalation- INTRAGOVT XFERS - DES TRUST		-9.6%	5.98%
Annual Escalation- INTRAGOVT XFERS - CAP PROJ			
INTRAGOVT XFERS - GENERAL FUND	$ 2,824,160	$ 2,677,438	$ 2,704,212
INTRAGOVT XFERS - DES TRUST	$ 130,058	$ 117,619	$ 124,654
INTRAGOVT XFERS - CAP PROJ	$ 196,923	$ 142,308	$ 161,538
INTRAGOVT XFERS - WTR & SEWER	$ -	$ -	$ -
INTRAGOVT XFERS - EL REV BND07	$ -	$ -	$ -
INTRAGOVT XFERS - WATER R&R	$ -	$ -	$ -
INTRAGOVT XFERS - GENERAL INS	$ -	$ -	$ -

	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031
	0.01	0.01	0.01	0.01	0.01	0.01
	1.07%	1.07%	1.05%	1.06%	1.07%	1.10%
				3.00%	3.00%	3.00%
$	2,731,255	$ 2,758,567	$ 2,786,153	$ 2,814,014	$ 2,842,154	$ 2,870,576
$	125,983	$ 127,336	$ 128,673	$ 130,038	$ 131,428	$ 132,874
$	176,923	$ 176,923	$ 201,923	$ 207,981	$ 214,220	$ 220,647
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -

	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037
	0.01	0.01	0.01	0.01	0.01	0.01
	1.06%	1.12%	1.12%	1.12%	1.12%	1.12%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
$	2,899,282	$ 2,928,275	$ 2,957,557	$ 2,987,133	$ 3,017,004	$ 3,047,174
$	134,284	$ 135,784	$ 137,302	$ 138,836	$ 140,387	$ 141,956
$	227,266	$ 234,084	$ 241,107	$ 248,340	$ 255,790	$ 263,464
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -

	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043
	0.01	0.01	0.01	0.01	0.01	0.01
	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
$	3,077,646	$ 3,108,422	$ 3,139,507	$ 3,170,902	$ 3,202,611	$ 3,234,637
$	143,542	$ 145,146	$ 146,767	$ 148,407	$ 150,066	$ 151,742
$	271,368	$ 279,509	$ 287,894	$ 296,531	$ 305,427	$ 314,590
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -

	FY2044	FY2045	FY2046	FY2047	FY2048	FY2049
	0.01	0.01	0.01	0.01	0.01	0.01
	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%
	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
$	3,266,983	$ 3,299,653	$ 3,332,650	$ 3,365,976	$ 3,399,636	$ 3,433,632
$	153,438	$ 155,152	$ 156,886	$ 158,639	$ 160,411	$ 162,204
$	324,027	$ 333,748	$ 343,761	$ 354,073	$ 364,696	$ 375,636
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -
$	-	$ -	$ -	$ -	$ -	$ -

	FY2050	Comments
	0.01	Escalation percentage given for years 2024-2033 in CWP 10-year pro-forma. Percentage
	1.12%	Escalation percentage applies after 2033, based on % increase between 2032-2033.
	3.00%	Escalation percentage applies after 2028.
$	3,467,968	Annual increase by the demand escalation.
$	164,016	First 10 years of data extracted from the CWP 10-year pro forma. Remaining forecast to
$	386,905	From CWP 10-year pro-forma: "Linked to CIP then 3% after".
$	-	
$	-	
$	-	
$	-	

e continued out to 2050.

› 2050 created by increasing each year by the annual growth for 2032-2033 (1.1%).

Account Description	FY2023 (Actual + Budget)	FY2024	FY2025	FY2026
CIP - DUKE ENERGY FAIRBANKS UG	$ -	$ -	$ -	$ -
CIP - FIBER OPTIC LINES UG	$ -	$ -	$ -	$ -
CIP - SUBSTATION TRANSFORMERS	$ -	$ -	$ 650,000	$ 500,000
CIP - SOLAR AWNING PROJECT	$ -	$ -	$ -	$ -
CIP - EL SUBSTATION UPGRADES	$ -	$ -	$ -	$ -
CIP - BULK EL METER REPLACEMEN	$ 500,000	$ -	$ -	$ -

FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

FY2034	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -

FY2048	FY2049	FY2050	Comments
$ -	$ -	$ -	
$ -	$ -	$ -	
$ 500,000	$ 500,000	$ 500,000	From CIP then continues afterwards.
$ -	$ -	$ -	
$ -	$ -	$ -	
$ -	$ -	$ -	

Account Description	FY2023 (Actual + Budget)	FY2024	FY2025	FY2026
CIP - CITYWIDE UNDERGROUNDING	$ 7,392,000	$ 7,761,600	$ 8,149,680	$ 8,557,164
CIP - DUKE ENERGY FAIRBANKS UG	$ -	$ -	$ -	$ -
CIP - FIBER OPTIC LINES UG	$ -	$ -	$ -	$ -

FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
$ 8,985,022	$ 9,434,273	$ 9,905,987	$ 10,401,286	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

FY2036	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

FY2049	FY2050	Comments
$ -	$ -	"Assumed completed in FY30. Linked to CIP and inflates at 5% until done"
$ -	$ -	
$ -	$ -	

Table 2

	Energy Sales by Customer Class (kWh)	2019	2020
1	Residential	190,270,749	192,515,490
2	General Service Non-Demand	11,551,722	10,874,859
3	General Service Non-Demand (100% LF)	453,108	456,874
4	General Service Demand	139,961,499	137,539,052
5	General Service Demand TOU	58,935,480	56,451,434
6	Public Authority	22,732,320	24,286,841
7	Lighting	2,113,590	2,087,998
8	Total	426,018,468	424,212,548
	Total Residential	190,270,749	192,515,490
	Percent Residential	44.7%	45.4%
	Total Commercial, Public Authority & Lighting	235,747,719	231,697,058
	Percent Commercial, Public Authority & Lighting	55.3%	54.6%

Table 3

		Test Year FY2020
Operating Expenses		
1	Operations	
2	Bulk Power	$ 18,696,363
3	Gross Receipts Tax	$ 1,152,998
4	Electric Capital	$ 1,180,000
5	Other Operations	$ 1,836,636
6	Total Operations	$ 22,865,997
7	Undergrounding	$ 4,425,000
8	Other Capital Projects	$ -
9	Tree Trimming	$ 656,996
10	Warehousing	$ 378,031
11	Street Lighting	$ 480,000
12	Utility Billing	$ 713,923
13	Meter Servicing	$ 388,618
14	Administration	$ 1,148,486
15	Total Operating Expenses	$ 31,057,051
Other Revenue Requirements		
16	Debt Service	$ 4,791,526
17	Interfund Admin Services	$ 1,728,412
18	Transfer to General Fund	$ 2,545,301

19	Other Transfers	$	255,698
20	Contingency	$	2,219,838
21	Replenish Cash Reserves	$	2,314,351
22	Total Other Revenue Requirements	$	13,855,126
23	TOTAL REVENUE REQUIREMENTS	$	44,912,177
	Average Revenue ($/kWh)	$	0.106
	Average Power Cost ($/kWh)	$	0.044
	Average Rev Req - Non Power Cost ($/kWh)	$	0.062

Table 6

Line No.	Description		Residential		General Service Non-Demand
17	Total Production Cost	$	14,344,794	$	880,253
71	Total Cost of Service	$	26,995,073	$	1,736,143
72	Check				
73	Total Unit Cost ($/kWh)	$	0.142	$	0.153
74	Base Rate Unit Cost ($/kWh)	$	0.142	$	0.153
	Production Cost ($/kWh)	$	0.075	$	0.078
	Non Production Cost ($/kWh)	$	0.067	$	0.076
	Percentage of Production Cost		47.6%		2.9%
	Percentage of Total Cost of Service		49.8%		3.2%

		Total
Residential Rates		
Production Cost ($/kWh)	$	0.075
Non Production Cost ($/kWh)	$	0.067
Percentage of Production Cost		47.6%
Percentage of Total Cost of Service		49.8%
Commerical, Public Authority, Lighting Rates		
Production Cost ($/kWh)	$	0.068
Non Production Cost ($/kWh)	$	0.050
Production % of Total Cost		52.4%
Non-Production % of Total Cost of Service		50.2%

Table 5

	Residential	General Service Non-Demand
2022 Energy Sales by Customer Class (kWh)	190,210,277	11,319,140

2021	2022	2023 Projected	Average 2020 to 2023	Average 2022 to 2023
190,210,277	190,210,277			
11,319,140	11,319,140			
458,633	458,633			
137,814,702	137,814,702			
57,929,015	57,929,015			
22,358,817	22,358,817			
2,090,327	2,090,327			
422,180,911	422,180,911	422,180,911		
190,210,277	190,210,277			
45.1%	45.1%		45.0%	45.1%
231,970,634	231,970,634			
54.9%	54.9%		55.0%	54.9%

FY2021 Actual	FY2022 Budget	FY2023 Budget
$ 20,633,965	$ 19,678,403	$ 27,274,436
$ 1,117,688	$ 1,099,879	$ 1,337,360
$ 932,165	$ 1,230,982	$ 1,360,211
$ 1,774,959	$ 2,218,889	$ 2,375,492
$ 24,458,777	$ 24,228,153	$ 32,347,499
$ 5,229,881	$ 6,439,743	$ 7,392,000
$ 572,860	$ 2,209,000	$ 500,000
$ 652,192	$ 658,947	$ 660,071
$ 330,775	$ 309,146	$ 327,621
$ 92,643	$ 510,000	$ 539,000
$ 784,270	$ 872,596	$ 830,286
$ 208,300	$ 252,761	$ 229,330
$ 1,393,692	$ 1,466,900	$ 1,643,965
$ 33,723,390	$ 36,947,246	$ 44,469,772
$ 5,071,814	$ 4,783,940	$ 4,725,917
$ 1,740,681	$ 1,696,582	$ 1,775,965
$ 2,470,947	$ 2,428,037	$ 2,824,160

$ 715,317	$ 249,747	$ 368,058
$ -	$ 1,033,364	$ 89,128
$ -	$ -	$ -
$ 9,998,759	$ 10,191,670	$ 9,783,228
$ 43,722,149	$ 47,138,916	$ 54,253,000

$ 0.104	$ 0.112	$ 0.129	$ 0.107	$ 0.120
$ 0.049	$ 0.047	$ 0.065	$ 0.047	$ 0.056
$ 0.055	$ 0.065	$ 0.064	$ 0.061	$ 0.064

General Service

Non-Demand (100% LF)	General Service Demand	Public Authority	Lighting	Total
$ 28,244	$ 13,182,844	$ 1,505,820	$ 165,079	$ 30,107,034
$ 48,757	$ 22,344,325	$ 2,573,529	$ 555,173	$ 54,253,000
$ 0.106	$ 0.114	$ 0.115	$ 0.266	$ 0.129
$ 0.106	$ 0.114	$ 0.115	$ 0.266	$ 0.129
$ 0.062	$ 0.067	$ 0.067	$ 0.079	$ 0.071
$ 0.045	$ 0.047	$ 0.048	$ 0.187	$ 0.057
0.1%	43.8%	5.0%	0.5%	100.0%
0.1%	41.2%	4.7%	1.0%	100.0%

General Service Non-Demand (100% LF)	General Service Demand	Public Authority	Lighting	Total
458,633	195,743,717	22,358,817	2,090,327	422,180,911

Rate calculations are based on the data tables from the Oct 2022 Cost of Service Study. The table number with the source data are noted here.

Comment

Note - final allocation GS TOU sales is in GS class

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Account Description	FY2018	FY2019	FY2020
RES 440 LIGHTING	$ 14,571	$ 14,545	$ 14,572
RES 440 DECORATIVE LIGHTING	$ -	$ -	$ -
RES CUSTOMER CHARGE	$ 2,035,870	$ 2,232,225	$ 2,462,962
RES 440 FUEL COST RECOV.	$ 5,932,911	$ 5,665,389	$ 4,089,051
RES 440 ENERGY CHARGE	$ 13,572,495	$ 14,302,733	$ 14,497,609
COMM 442 LIGHTING	$ 79,166	$ 76,868	$ 73,204
COMM 442 DEMAND PRIMARY	$ 6,163	$ 5,464	$ 5,478
COMM 442 DEMAND SECOND	$ 7,808,276	$ 8,141,934	$ 8,023,911
COMM 442 N-DEMAND PRIMARY	$ -	$ -	$ -
COMM 442 N-DEMAND SECOND	$ 1,005,659	$ 1,063,984	$ 1,029,555
COMM 442 N-DEMAND 100% LD	$ 23,350	$ 24,949	$ 25,892
COMM 442 FUEL COST RECOV.	$ 6,814,681	$ 6,345,040	$ 4,445,036
COMM 442 DEMAND PRI TOU	$ 829,446	$ 777,907	$ 705,967
COMM 442 DEMAND 2ND TOU	$ 2,079,029	$ 2,049,405	$ 1,984,358
P.A. 445 LIGHTING	$ 289,324	$ 289,320	$ 289,344
P.A. 445 DEMAND PRIMARY	$ -	$ -	$ -
P.A. 445 DEMAND SECOND	$ 834,798	$ 832,591	$ 820,200
P.A. 445 N-DEMAND PRIMARY	$ -	$ -	$ -
P.A. 445 N-DEMAND SECOND	$ 127,840	$ 132,565	$ 132,302
P.A. 445 N-DEMAND 100% LD	$ 8,014	$ 8,452	$ 8,757
P.A. 445 FUEL COST RECOV	$ 777,528	$ 718,948	$ 570,770
P.A. 445 DEMAND PRI TOU	$ 352,377	$ 392,208	$ 475,521
PA 445 DEMAND 2ND TOU	$ 25,604	$ 26,646	$ 26,220
ELECTRIC FRANCHISE FEE	$ 2,557,026		$ 2,380,842
GROSS RECEIPTS TAX	$ 1,158,310	$ 1,171,467	$ 1,078,500
ELECTRIC UTILITY TAX	$ 3,369,149	$ 3,504,605	$ 3,464,135
TOTAL REVENUES ($)	$ 49,701,585	$ 47,777,244	$ 46,604,184
Total $/kwh	$ 0.1199	$ 0.1121	$ 0.1099
Residential (kWh)	182,963,737	190,270,749	192,515,490
Commercial (kWh)	207,474,073	210,901,809	205,322,219
Public Authority (kWh)	22,132,769	22,732,320	24,286,841
Street Lighting (kWh)	2,123,948	2,113,590	2,087,998
Total kWh sold:	414,694,527	426,018,468	424,212,548
% of total for each class			
Residential	44.12%	44.66%	45.38%
Commercial	50.03%	49.51%	48.40%
Public Authority	5.34%	5.34%	5.73%
Street Lighting	0.51%	0.50%	0.49%

	FY2021		FY 2022
$	14,634	$	13,646
$	-		
$	2,462,541	$	2,462,261
$	4,694,603	$	10,289,112
$	14,274,694	$	14,255,183
$	73,260	$	71,387
$	4,663	$	492,055
$	8,060,248	$	9,654,548
$	-	$	-
$	1,061,448	$	1,184,788
$	25,957	$	25,726
$	5,318,156	$	13,512,685
$	807,484	$	865,254
$	1,950,393	$	1,926,877
$	290,076	$	289,992
$	-		
$	823,337	$	1,099,195
$	-		
$	130,908	$	133,511
$	8,719	$	8,697
$	606,070	$	1,545,957
$	378,096	$	403,888
$	25,567	$	17,351
$	2,460,651	$	3,495,225
$	1,114,653	$	1,583,306
$	3,489,686	$	3,877,478
$	48,075,844	$	67,208,121
$	0.1139	$	0.1440
	190,210,277		189,514,646
	207,521,490		246,421,403
	22,358,817		28,599,957
	2,090,327		2,075,476
	422,180,911		466,611,482

Five year historical revenue and energy sales data is used to calcula contribution of each class to the total revenue. The average percer contribution is used to break the total Quanta Technology pIRP ene results into each class. The data and calculations were performed workbook "Electric Revenues by Class - FY 2024 Forecast Model v f v2.xlsx", sheet 'Summary by GL Account'.

		Average %
45.05%	40.62%	43.97%
49.15%	52.81%	49.98%
5.30%	6.13%	5.56%
0.50%	0.44%	0.49%

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Account Description	2023	2024	2025	2026	2027	2028
Annualized Cost ($/MWh)	$ 71.65	$ 71.80	$ 72.16	$ 73.63	$ 75.03	$ 76.83
Bulk Power Cost ($M)	$22.61	$22.73	$23.11	$24.18	$25.21	$26.46
Total Consumption (MWh)	424,115	424,921	425,232	425,703	425,714	425,931

Output of Quanta Technology pIRP tool. Which provides revenue requirement and consumption data. Which is the foundation for our revenue and bulk power calculations.

2029	2030	2031	2032	2033	2034	2035	2036	2037
$ 77.62	$ 77.36	$ 76.16	$ 80.40	$ 83.72	$ 89.40	$ 90.86	$ 106.57	$ 111.55
$27.26	$27.65	$27.61	$29.89	$31.82	$34.75	$35.93	$42.60	$44.68
425,732	425,797	424,993	424,267	423,758	422,864	422,286	421,420	420,325

2038	2039	2040	2041	2042	2043	2044	2045	2046
$ 118.92	$ 126.10	$ 132.97	$ 133.01	$ 132.83	$ 132.22	$ 131.33	$ 127.07	$ 130.90
$47.76	$50.90	$54.07	$54.57	$55.09	$55.64	$56.22	$55.53	$57.32
419,068	419,025	420,278	422,922	426,417	431,547	437,809	446,031	445,257

2047	2048	2049	2050	Comments
$ 135.84	$ 139.99	$ 138.50	$ 255.15	IRP output from 2023 IRP Scenario 3D
$59.67	$61.67	$61.14	$113.20	
444,555	444,061	443,573	444,391	

City of Winter Park Sustainability Action Plan

January 24th, 2024 Draft Revision

Presented by:
Gloria Eby, Natural Resources and Sustainability Director
Sara Miller, Sustainability Manager
Mia Brady, Sustainability Specialist
Keep Winter Park Beautiful & Sustainable Advisory Board

Contents

Background

Vision and Purpose

The 2022 Sustainability Action Plan (SAP) updates and expands upon the City of Winter Park's 2015 SAP. The purpose of the SAP remains the same, to create a roadmap depicting where the city is today and where it would like to be in the future, in regard to sustainability.

The city defines sustainability as responsible and proactive decision-making that minimizes negative impact and maintains balance between social, environmental, and economic growth to ensure a desirable environment for all species now and into the future.

By integrating elements of this plan, Winter Park will:

- Increase quality of life while improving individual and community health
- Become more independent from energy derived from fossil fuels
- Protect and enhance air quality, water quality, and natural systems
- Save money
- Increase economic value

It is the intention of this document to provide high level objectives that are conceptually approved by the City Commission and leadership. The actions listed under each category are put forth as possible avenues for achievement of the approved goals, and do not represent required or prescriptive measures. The plan is a living document intended to evolve over time as the city experiences both progress and challenges.

A progress report will be presented to the City Commission on an annual basis. This annual report will include:

- Summary of progress made toward the previous year's indicators and actions
- Proposed project/action list
- Estimated project costs
- City staff and budget allocations
- Outside funding opportunities

History

On January 14, 2008, the Winter Park City Commission passed a resolution stating the City would pursue measures to become a certified Green Local Government through the *Florida Green Building Coalition* (FGBC). In 2009, Public Works Director Troy Attaway hired Tim Maslow to coordinate the city's sustainability efforts and to develop a plan for achieving the certification. In 2011, after working with each department on a multitude of new projects, policies and programs, the city was officially certified as a Green Local Government at the Gold level, also earning the highest score for a local government that year. The SAP was originally drafted based upon the structure provided by the Green Local Government certification.

In 2012, the city's Environmental Review and Keep Winter Park Beautiful (Keep America Beautiful affiliate since 1993) boards merged with a shared focus of improving community sustainability and achieving the Green Local Government Platinum certification. The new Keep Winter Park Beautiful and Sustainable (KWPB&S) Advisory Board held monthly workshops in addition to their regularly scheduled monthly board meetings in an effort to develop and refine the SAP with community involvement. The 2015 SAP, presented by Kris Stenger, Assistant Director of Building, Permitting and Sustainability and Abby Gulden, Sustainability and Permitting Coordinator, was accepted by unanimous vote of the City Commission on February 9, 2015.

2012-2013 KWPB&S Board Members		**2014-2015 KWPB&S Board Members**	
Mary Dipboye, Chair	James (Bob) Robinson	Michael Poole, Chair	Mark Roush
Stephen Pategas, V. Chair	Pat Schoknecht	Stephen Pategas, V. Chair	Bruce Thomas
Michele Hipp	Julia Tensfeldt	Michele Hipp	Steven DiClemente
Michael Poole	Kent Tse	Raymond Randall	Mary Dipboye
Raymond Randall	Laura Walda	Pat Schoknecht	John Tapp
John Rife	Carol Kostick	Julia Tensfeldt	Fred Kosiewski
Lucy Roberts	Mark Roush	Laura Walda	Cathy Blanton
Joseph Robillard		Carol Shenck (Kostick)	

About the 2022 SAP Update

Overview

The year 2020 was the first target year for many of the 2015 SAP metrics. Due to the COVID19 pandemic, data from 2020 is not comparable to previous years. For this reason, trend data for the 2021 document were only expressed through the year 2019 (pre-COVID-19 pandemic). The city's progress toward the 2015 SAP Objectives, Indicators, and Actions through 2020 is provided in the 2020 Annual Report available at cityofwinterpark.org/sap.

The 2021 SAP revises baselines, where necessary, for more complete and accurate data collection and analysis. It also includes a new category, Climate Resiliency, to help the City better understand and withstand weather and climate-related risks and vulnerabilities. The update also includes actions to apply a *racial equity lens* to ensure a future where race can no longer be used to predict life outcomes and where outcomes for all groups are improved.

During 2021, many programs and goals were suspended due to prior sustainability staff no longer employed at the city. In 2022, the Sustainability Program was moved to the newly created Natural Resources and Sustainability Department. The 2022 SAP revision contains edits made to the 2021 SAP being implemented by the Sustainability Division consisting of the Sustainability Specialist, Sustainability Manager, and Natural Resources and Sustainability Director.

In addition, as a result of the above-mentioned delays, the Department of Natural Resources and Sustainability conducted a comprehensive inventory of all SAP metric indicators to benchmark city status in effort to give the new Department a starting point

on data trend and analysis moving forward. This information is presented in subsequent tables labeled as "**2021 Status"**.

2021 SAP Update Community Engagement Process

The 2021 SAP integrates discussion and feedback from joint virtual KWPB&S Advisory Board work sessions, which allowed for public comments, with the following city advisory boards and respective staff liaisons: Economic Development, Lakes and Waterways, Parks and Recreation, Tree Preservation, Planning and Zoning, and Transportation and Utilities. Additional community input on SAP priorities were gathered using an online survey that had over 200 respondents (over two-thirds were identified as residents). Community input was also gathered from community organizations via an online survey from Hannibal Square Heritage Center, Ideas for Us Orlando, League of Women Voters Orange County, The Nature Conservancy, Winter Park Garden Club, Winter Park History Museum, and Winter Park Public Library.

Keep Winter Park Beautiful & Sustainable Advisory Board

The mission of Keep Winter Park Beautiful and Sustainable (KWPB&S) Advisory Board is to make recommendations to the city commission concerning matters to improve the quality, health, sustainability and aesthetics of our environment in order to create a healthier, more beautiful place to live, work, and play.

2022 KWPB&S Board Members	Appointed By	End of Term
Ben Ellis, Vice Chair	Mayor Anderson	2024
Carey Bond	Commissioner DeCiccio	2023
Mark J Yonker	Commissioner Cruzada	2025
Kay Hudson, Chair	Mayor Anderson	2024
Stephen Pategas	Commissioner Weaver	2025
Rishona S Teres	Commissioner Sullivan	2023
Laura Gustafson-Hullinger	Mayor Anderson	2024

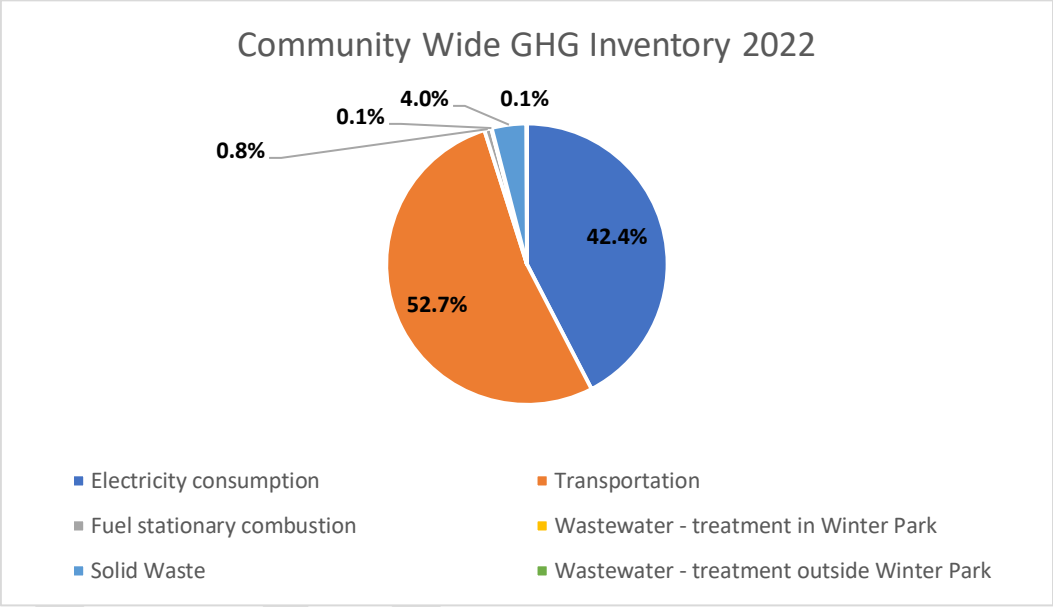
Highlights and Accomplishments

- East Central Florida Regional Resilience Collaborative Partner and Regional Greenhouse Gas Reduction Advisory Committee Member
- Solar United Neighbors Partner
- America In Bloom's 2020 Outstanding Achievement Award for Environmental Efforts
- SolSmart Gold Designee
- EV Charging Infrastructure Readiness Ordinances (3203-21, 3204-21)
- Backyard Chicken Permit Pilot Program Ordinance (3182-20)
- Single-use Products Policy for City Facilities Pilot Program Resolution (2238-20)
- Electrified the Building & Permitting Department's entire fleet
- Purchased 20MWof utility-scale solar, expanding the city's renewable portfolio
- Launched Green Business Recognition Program

- Collaborations with UCF and Rollins College students on energy benchmarking and Green Business recruitment
- Rollins College Bonner Leaders Program Partner
- Awarded over $100,000 in Florida Department of Transportation Keep America Beautiful Florida Affiliates Grants
- Single-stream Residential Recycling Program including Schedule Reminding and Waste Lookup Tool Digital Service
- Electric Vehicle Charging Stations available to the public throughout the city at no cost
- Residential audit and rebate programs encouraging energy and water conservation
- Gas-powered Leaf blower Ban Ordinance (3230-22)
- Sustainability Program moved to the Natural Resources and Sustainability Department where the Program now is addressed as a Division to work collaboratively with Lakes and other Departments
- Sustainability Specialist position was increased from part-time to full-time in order to help the Sustainability Manager and Natural Resources and Sustainability Director fulfill the goals of the SAP
- Awarded $100,000 from the Department of Environmental Protection to go towards the City's Climate Risk Vulnerability Assessment
- Completed Energy Efficiency Study on 20 city-owned buildings in 2023
- Sustainability Action Plan adopted January 2023 by Resolution (2267-23)- carbon emission target goals listed as TBD

Climate Resiliency

The *Climate Resiliency* category outlines long-term objectives and short-term actions focused on improving the city's capacity to cope with *climate change* impacts and to respond in ways that allow the city to maintain its essential functions while also maintaining the capacity for adaptation, learning, and transformation. In 2021, the Intergovernmental Panel on Climate Change (IPCC) Sixth *Assessment Report* asserts that human activities are estimated to have caused approximately 1˚C of global warming to date and further warming of 1.5˚C and 2.0˚C will be exceeded during the 21st century unless deep reductions in CO_2 and other *greenhouse gas* emissions occur in the coming decades. Warming at this level is projected to increase the mean temperature of most land and ocean regions, increase hot extremes in most inhabited regions, and increase climaterelated risks to health, livelihoods, food security, water supply, human security, and economic growth.



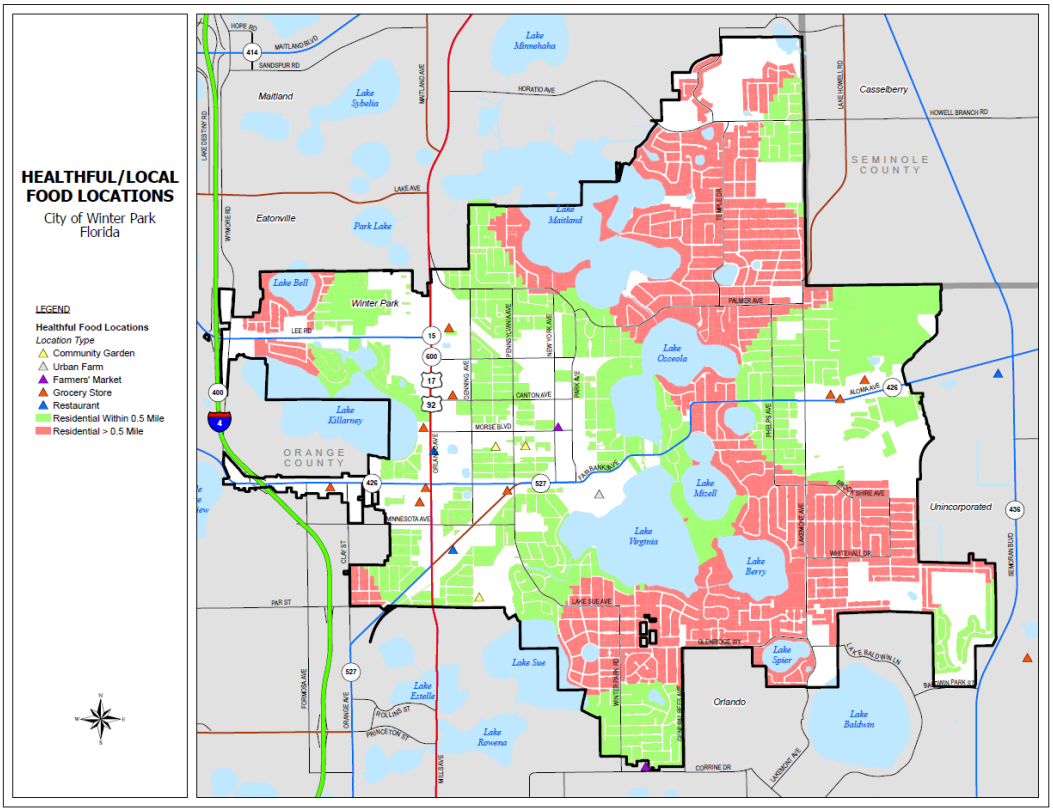
The city's Community-wide Greenhouse Gas (GHG) Emissions Inventory consists of all major direct and indirect GHG emissions generated and occurring within the City of Winter Park's organizational boundary. Transportation-related (50%) and electricity consumption-related (46%) activities contribute the largest proportion of greenhouse gases emissions in the city. As a municipally owned-utility, the Electric Utility is uniquely situated to increase the percentage of its energy portfolio coming from renewable and clean alternative sources. Transitioning to 80% *renewable energy*, for all electricity and transportation may be more feasible and accessible for the City of Winter Park than many of its neighbors given that it has purchasing power over its electricity and is implementing policies that will *ready* future developments for a transition to electric vehicles.

In May of 2022, the City of Winter Park was awarded $100,000 in grant funding from the Florida Department of Environmental Protection to conduct a *Climate Risk Vulnerability Assessment* which will identify ways in which the city is susceptible to harm from climate

threats and vulnerabilities. This uses science-driven data about climate threats and works with private/public organizations, the City's Emergency Management Team, and FEMA. The scientific data is combined with information about the City of Winter Park's residents, assets, and businesses to better understand current and future challenges with long-term operability and recovery.

Language Spoken (ACS)	Age 5-17	18-64	Age 65+	Total
English Only	3,425	14,740	5,551	23,716
Spanish	271	1,661	527	2,459
Spanish & English Well	271	1,503	468	2,242
Spanish & English Not Well	0	103	29	132
Spanish & No English	0	55	30	85
Indo-European	162	919	379	1,460
Indo-European & English Well	162	912	343	1,417
Indo-European & English Not Well	0	7	5	12
Indo-European & No English	0	0	31	31
Asian-Pacific Island	80	471	201	752
Asian-Pacific Isl & English Well	61	456	52	569
Asian-Pacific Isl & English Not Well	19	15	0	34
Asian-Pacific Isl & No English	0	0	149	149
Other Language	0	76	30	106
Other Language & English Well	0	76	30	106
Other Language & English Not Well	0	0	0	0
Other Language & No English	0	0	0	0

Food Insecurity, according to the United States Department of Agriculture (USDA), is described as a household-level economic and social condition of limited or uncertain access to adequate food. The identified at-risk groups in the City of Winter Park includes seniors, disabled individuals, low-income residents, and students. In collaboration with the Community Redevelopment Agency, Planning and Zoning Department, and local community partners, access to healthy and affordable food options within a half-mile of impacted residence has been identified. Despite the city's favorable walkability and public transportation infrastructure, these vulnerable groups are still disproportionately affected by a lack of nearby affordable and healthy food options referred to as food deserts. Recognizing the need for targeted interventions, the city aims to close these gaps through community partnerships and on-the-ground education initiatives. This approach aligns with a holistic strategy that involves both community engagement and practical solutions to improve food access and promote nutrition education for the betterment of the identified vulnerable groups. Below is a map illustrating healthy food locations within the city.



Creating a Food Security Strategy Plan, one that strengthens vulnerable populations, is key to providing affordable, healthy food options. Community gardens and farmers markets in conjunction with community partners (such as Center for Health and Well Being and Winter Park Library's Seed Program) and local businesses can aid in the reduction of food deserts identified in Winter Park. Below is a list of programs that is improving food insecurities with the city.

• Winter Park Natural Resources & Sustainability Department
○ Coordinates with Community Partners to address citizens living with food insecurities
○ Provides donations to senior communities
○ Provides educational workshops on growing edible foods at home
• Winter Park Police Department & Fire Department
○ For the past 8 years the Winter Park Police Department along with community partners (St. John Lutheran Church, the First Baptist Church of Winter Park and from residents) has been supplying food to 2 senior communities (emergency pantries at Tranquil Terrace Apartments and Plymouth Apartments) on a monthly basis living with food insecurities
○ https://www.orangeobserver.com/news/2017/aug/17/winter-park-pd-looks-to-help-feed-local-seniors/
○ Partners with Lakemont Elementary School in the collection of can goods for senior communities living with food insecurities
• Winter Parks & Recreation Department
○ SNAP accepted at the weekly Winter Park Farmer's Market

○ Parks and Recreation summer camp program incorporates Orange County Public Schools (OCPS) Summer Food Program
○ Summer Feeding - Orange County Public Schools (ocps.net)
• Winter Park Library
○ Master gardening basics: 5 classes, partnership with UF/IFAS Extension orange County
○ Seed library: 3 grow seasons; 9,000 seeds distributed per year
• Rollins College
○ Food pantry for students – Students can either come to the pantry and take what they need or place an order online, which will be processed at the C-Store and stored in a pre-packed bag
○ Sam Justice is staff contact - sjustice@rollins.edu
○ Urban farm collaboration - providing fresh produce to the food pantry on a regular basis
• Winter Park High School
○ Willies Mart – "Willie's Mart provides students with goods and snacks as well as fresh fruit and produce every month"
○ https://winterparkhs.ocps.net/school_information/willie_s_mart
○ Susan Leeds is staff contact - susan.leeds@ocps.net
• Winter Park Rotary Club
○ Killarney Elementary School (ES) has the greatest population of homeless or unhoused elementary level students in Orange County and is in Winter Park. Rotary volunteers go over every Wednesday to pack weekend bags to send home for students to have food for their family over the weekend. The Club also donates approximately $10,000 annually to Second Harvest specifically for food delivered to Killarney ES. Killarney ES is the only school where ALL the students are on the daily nutrition program (breakfast, lunch, and afternoon snack every day)
○ https://www.winterparkrotary.com/our-charities/

OBJECTIVES

1. Increase the city's resiliency to the impacts of climate change, ensuring a healthy, livable and sustainable community for present and future generations
2. Ensure a robust and resilient technology infrastructure with high-speed communications available for all
3. Increase proportion of renewable energy in Winter Park Electric Utility's Energy portfolio
4. Reduce community wide greenhouse gas emissions
5. Encourage on-site renewable energy generation for residential and commercial buildings
6. Ensure access to affordable, healthy food options for food security (community gardens, grocery stores or farmers markets)
7. Increase residential and commercial customers knowledge of city's renewable energy portfolio and opportunities for reducing their *carbon footprint*
8. Benchmark all indicators to current state of the city given pandemic and operational delays

The Department of Natural Resources and Sustainability conducted a comprehensive inventory of all SAP metric indicators to benchmark city status in effort to give the new Department a starting point on data trend and analysis moving forward. This information is presented in all subsequent tables labeled as "**2021 Status"**.

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target	2042 Target	2050 Target
CR-1	Proportion of renewable energy in Winter Park Electric Utility's Energy portfolio[1] – Baseline Year: 2021 includes Covanta	4%	13%	21.72	23%	80%	89%	100%
CR-2	Community wide greenhouse gas emissions [Tons of carbon dioxide equivalent]– Baseline Year: 2018	398,919	405,394	406,999	355,000	235,000	151,000	58,000
CR-3	WP Electric Utility customers with Solar – Baseline Year: 2012	7	139	154	300	700	950	1300
CR-4	Proportion of Residents within 1/2 mile of affordable, healthy food options – Baseline Year: 2012	-	46%	40%	50%	75%	80%	TBD
CR-5	Undergrounding of Winter Park's electrical Utility[2]	-	-	73.1%	85%	100%		

[1] *Approximations with plans for refinement as reaching 100% target in 2050 is contingent on cost reduction in dispatchable energy from renewable sources as noted in the Key Assumptions Appendix A of the100% Renewable Initiative Final Report 6.0, 2023.*

[2] *Target completion date is no later than 2030.*

ACTION

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Conduct Renewable Energy Feasibility Study	Yes	Completed	Sustainability, Quanta, & WP Electric Utility, Public Works
2023	Establish community grants for food security and sustainability initiatives	No	None	Sustainability
2022	Implement an Artificial Turf Ordinance which will help mitigate the number of houses that have artificial turf by addressing stormwater and sustainability concerns	Yes	Yes	Sustainability, Public Works
2022	Adopt Backyard Chicken Program (exp. September 2022) to evaluate program outcomes and possibility of expanding and extending the program	Yes	Yes	Sustainability, Planning
2023	Upon feasibility study results, pass resolution committing the City to at least 80% of all electricity consumed in the City to come from renewable energy resources by feasible target date	No	Initiated	Sustainability, WP Electric Utility
2023	Conduct a Climate Risk and Vulnerability Assessment via FDEP Resilient Florida Program $100K grant. Upon completion, create Climate Mitigation and Adaptation Plan (CMAP) to include creating *resilience hubs* within the city reducing impacts of climate change on human health, esp. for most vulnerable communities	No	Initiated	Natural Resources & Sustainability, Emergency Management Team, Pubic Works, IT

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Build a community based sustainable food system which includes education and outreach that promotes seed access, growing edible gardens at home, encourages community supported agriculture, and local food consumption	No	Initiated	Sustainability, Communications
2023	Implement a food security policy. Must have community garden/ farm near most vulnerable areas and educate on reducing consumption of *carbon-intensive foods*	No	None	Sustainability, GIS
2024	Research and design policies to increase green building standard requirements in residential & commercial developments	No	None	Sustainability, Planning, Building & Permitting, Economic Development
2024	Update Land Development Code, to allow food processing and handling in accordance with F.S. 500.80 (Cottage Food Operations) as a home occupation to encourage local food production	No	None	Planning, Economic Development, Sustainability
Continue Annually	Develop a policy to replace gas-powered leaf blowers with electric alternatives	Yes	Completed	Sustainability, Economic Development
Continue Annually	Evaluate potential for increasing Winter Park Electric Utility's Energy Portfolio coming from renewable resources	Yes	Ongoing	Sustainability, WP Electric Utility
Continue Annually	Conduct Community-wide Greenhouse Gas Emissions Inventory and track proportion of renewables in the WP Electric Utility's portfolio. Continue to report to CWP	Yes	Ongoing	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
Continue Annually	Participate in Regional Sustainability and Resilience Professional Networks (Urban/Southeast/Florida Sustainability Directors Networks, East Central Florida Regional Resilience Collaborative, Good Food Central Florida Regional Policy Council, etc.)	Yes	Ongoing	Department of Natural Resources & Sustainability Dept.
Continue Annually	Provide green building best practices (e.g., energy/water efficiency, tree conservation, waste management) education to building professionals and residents	Yes	Ongoing	Building & Permitting, Sustainability, Urban Forestry
Continue Annually	Energy Conservation Rebate Program	Yes	Ongoing	Sustainability
Continue Annually	Develop recommendations to City Commission that would allow for broadband availability, expanding public WiFi, and enhanced public safety and security	Yes	Ongoing	IT, Sustainability, Planning, Police Dep., Public Works
Continue Annually	Explore opportunities for smart street lights able to gather local environmental data, optimize light energy consumption, and improve public safety	Yes	Ongoing	IT, WP Electric Utility, Planning, Police Dept., Sustainability
Continue Annually	Work with Planning Department to ensure Comprehensive Plan Update incorporates sustainability and resilience related goals, objectives and policies	Yes	Ongoing	Planning, Sustainability

Renewable Electric Utility Supply and Grid Analysis

In prior updates to the SAP, the city adopted a number of Objectives, Indicators, and Actions to drive improved energy efficiency of residential and commercial buildings and to incentivize the use of distributed solar energy in residential and commercial sectors. The city has in recent years purchased a portion of its energy supply from large solar photovoltaic projects, however the majority of its current energy supply is produced by fossil-fueled generators that contribute to greenhouse gas (GHG) and other emissions. With this 2023 update to the SAP, the city adopts a major new initiative to transition the city's electric energy supply to: 80% renewable energy by 2035; 89% renewable energy by 2042 to include an update on technologies available; and 100% renewable energy by 2050.

Prior to adopting these new goals, to transition to a renewable energy supply, the city completed an Integrated Resource Plan (IRP)- a feasibility analysis of the cost and options to transition the power supply to 100% renewable sources. A leading electric industry consulting firm, Quanta Technology, conducted the IRP that includes key assumptions of which are referenced in Appendix A. The IRP developed conservative assumptions and forecasts to assess costs and electric supply technology options from 2024 to 2050 across 18 different future scenarios. Each of the future scenarios included: variations to the forecasted generation costs, fuel costs, energy supply options, growth of customer-owned rooftop solar photovoltaic and electric vehicles (EVs); as well as variations on how rapidly the city would transition to renewable electric supply technologies.

The IRP analysis indicates, under scenario 3D, that city can feasibly transition to 80% renewable supply by 2035 for a cost of power comparable to the cost of continuing with the current fossil-fueled, GHG-emitting generation technologies. The cost projections after 2035 are more uncertain but indicate the city should expect increased power costs to attain the last 20% of its renewable supply. Should continuing on a path to reach a 100% renewable supply prove too costly in future years, such that the associated retail electric rates would exceed 105% of local and/or state averages, the city would adjust its energy supply renewable targets accordingly.

In addition to the city transitioning the electric supply to renewable technologies, the city's electric utility customers are in the process of evolving their energy usage and energy expectations through the adoption of various energy efficient (EE) applications such as smart thermostats/smart appliances that can be timer or remotely controlled; installation of rooftop solar (distributed generation) and battery storage; and the purchase of EVs and associated charging systems, among other changes.

The installation of customer owned rooftop solar generally will result in more solar energy being produced during the daylight hours than those rooftop solar customers consume during the daylight hours. If these rooftop solar owners do not have batteries to store the excess solar energy produced, the excess power from rooftop solar installations will flow backwards, into the city's electrical grid. As number of rooftop solar installations continue to grow, the backflow of power, as well as the normal variations in solar production that occur during daylight hours (i.e., from normal ramp up in solar output during the morning and ramp down in the afternoon, in addition to the rapid solar energy production variations that occur on days with scattered cloud cover), can create power quality problems and other issues for neighbors and the remainder of the utility grid.

The city's current Net Energy Metering (NEM) arrangement provides rooftop solar owners a credit for the excess solar energy that flows back onto the electric grid. The current NEM credit offsets the customer's retail purchases, providing a much higher level of compensation than the actual value of the energy. This premium credit to NEM customers for their excess solar energy results in higher electricity costs for all customers, including customers without rooftop solar installations. While the current cumulative value of the premium paid to NEM customers has only minimal impacts on electricity rates, due to the relatively few, current rooftop solar installations, the cumulative value will increase substantially and have a significant impact on energy rates as more customers add solar rooftop installations and is absent tariff reform.

Growth in the proliferation of customer-owned EV chargers may also: impact power quality; create the need to upgrade the electric system to accommodate the additional energy use; and increase the cost of the city's power supply. As customers add more rooftop solar and EV chargers to the city's grid, mitigation options must be proactively analyzed and implemented to avoid problems. Effective mitigation measures include, among other actions: assisting customers through implementation of EE and demand response (DR) programs (for example, using timers on appliances and EV chargers or effective use of customer-owned batteries); and changing existing electric tariff structures to: better match the utility cost of service, reduce energy consumption in the late afternoon and evening to lower system peak usage, and encourage increased consumption during hours when excess solar power is available. These are a few of the many methods that could be employed to change the time when customers consume their energy.

The following lists of Objectives, Indicators, and Actions summarizes the short-term, mid-term and long-term goals and plans for the city in order to transition to renewable energy supply in a manner that is cost comparable to the current fossil-fueled supply plan.

OBJECTIVES

1. Transition the energy supply of the city's Electric Utility to renewable energy to reduce the city's carbon footprint and reduce the city's dependence on energy derived from fossil fuels.
2. Maintain customer electric rates at rates competitive with other publicly owned utilities in Florida.
3. Develop cost effective programs to enable customers of the city's electric utility to increase their electric energy efficiency (EE) and manage their daily and seasonal peak demand (DR) for electricity.
4. Develop revised retail rates that enable continued growth, aligned with grid needs, of customer owned rooftop solar, energy storage and electric vehicle charging.
5. Develop a resource plan for grid modifications and hosting capabilities and perform periodic review, especially as new technologies become available, and incorporate into the Utility's Strategic Plan.

INDICATORS

	Indicator Description	2023 Baseline	2024 Target	2026 Target	2030 Target	2035 Target
ES-1	Annual renewable energy contribution to the total electric energy supply (%)	21.72%	21.72%	21.72%	50%	80%
ES-2	City residential rates as compared to FL public utilities (city rates/average of comparable utilities, measured in %)	<100%	<105%	<105%	<105%	<105%
ES-3	EE and DR program milestones	Not applicable	Complete studies and develop implementation plan for customer EE and DR programs	Implement programs for customer EE and DR		
ES-4	Milestones to implement changes to rate to enable substantial growth in customer owned distributed solar, distributed storage and electric vehicle charging	Not applicable	Complete rate studies and develop rate design options to enable growth in distributed solar, distributed storage, electric vehicle charging and demand response	Implement new rates as recommend ed by studies		
ES-5	Electric Utility strategy and grid analyses milestones		Complete a strategic plan, distributed solar and EV hosting capacity analyses and a roadmap for grid modernization			

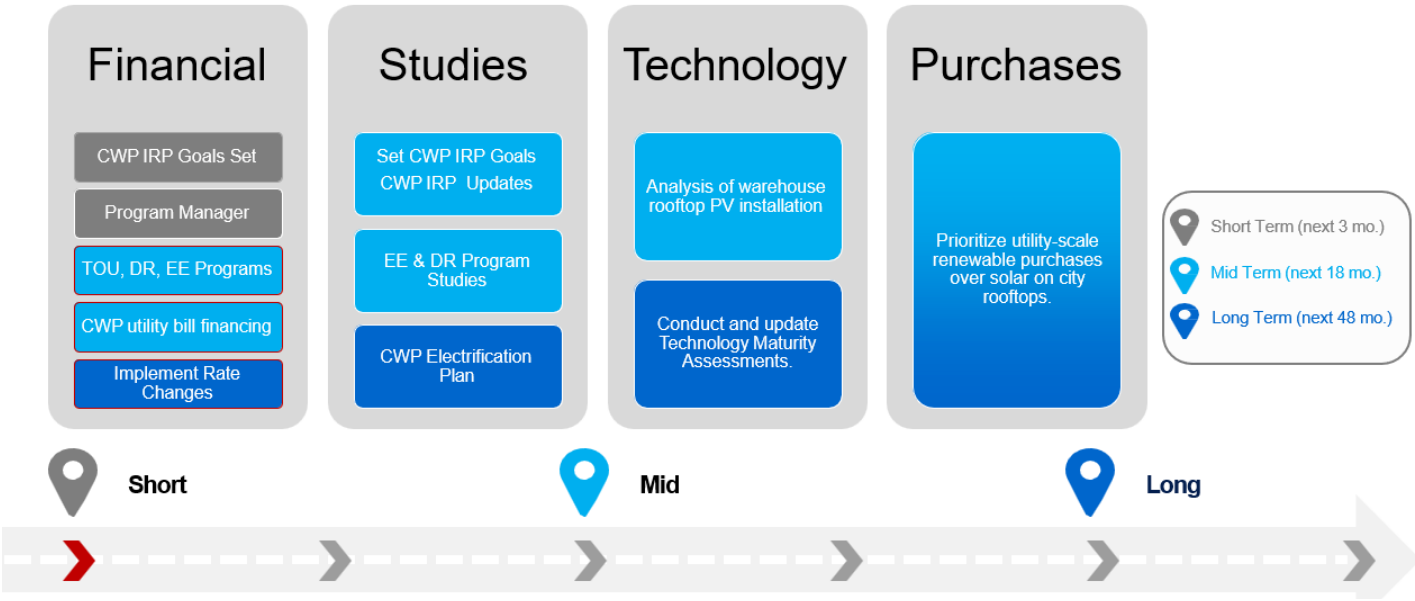
ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Assign a project manager to provide regular updates on the energy supply programs	Yes	Complete	Electric Utility
2024	Complete a baseline and potential study and consider a load research and appliance saturation survey gather better data to assess and design time of use (TOU), EE, and DR programs for residential, and commercial customers.	No	Planned	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Continue to look for opportunities to pool city requirements and partner with FMPA and other Florida utilities for renewable and storage project power purchases and project development	Yes	Ongoing	Electric Utility
2024	Complete study to assess and prioritize which, if any, city owned facilities and/or land should have distributed solar and storage installed	No	Planned	Electric Utility
2024	Complete study to better quantify the expected timing and impacts of customer EV adoption in the city	No	Planned	Electric Utility
2024	Explore options for city to finance, or guarantee customer financing, of rooftop solar and storage additions	No	Planned	Finance
2024	Complete an Electric Utility strategic plan	No	Planned	Electric Utility
2024	Complete distributed solar and EV hosting capacity analyses	No	Planned	Electric Utility
2024	Create a roadmap for grid modernization, such as additions of an distributed energy management system or outage management system	No	Planned	Electric Utility
2025	Complete a study and plan for the electrification of city-owned vehicles	No	Planned	Electric Utility, Water and Waste Water Utilities, Public Works and Transportation, Finance

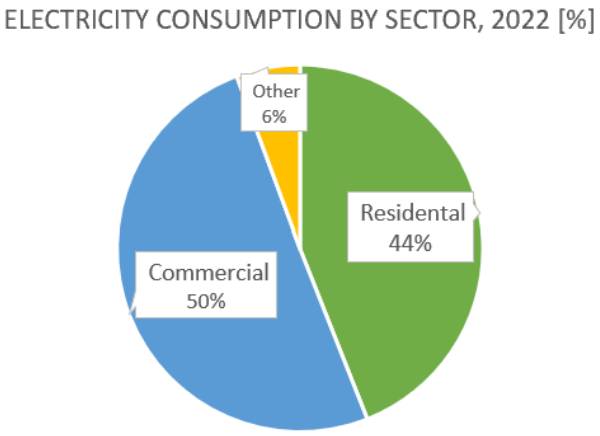
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2026	Perform regular, periodic updates of IRP (every 2 to 4 years)	No	Planned	Electric Utility
2026	Implement rate changes as recommended in rate study	No	Planned	Finance, Electric Utility
2026	Revise NEM rate credited to customers to better align with city energy supply costs	No	Planned	Finance, Electric Utility
2027	Create a roadmap for the implementation of city--owned Battery Storage for improved resiliency	No	Planned	Electric Utility
2028	Update Roadmap Action items (long-term goals) to the Renewable Electric Utility Supply and Grid Analysis Section of the SAP	No	Planned	Electric Utility, Natural Resources and Sustainability

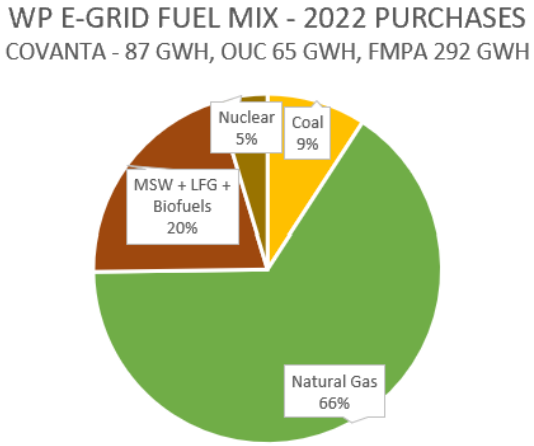
Roadmap Overview:

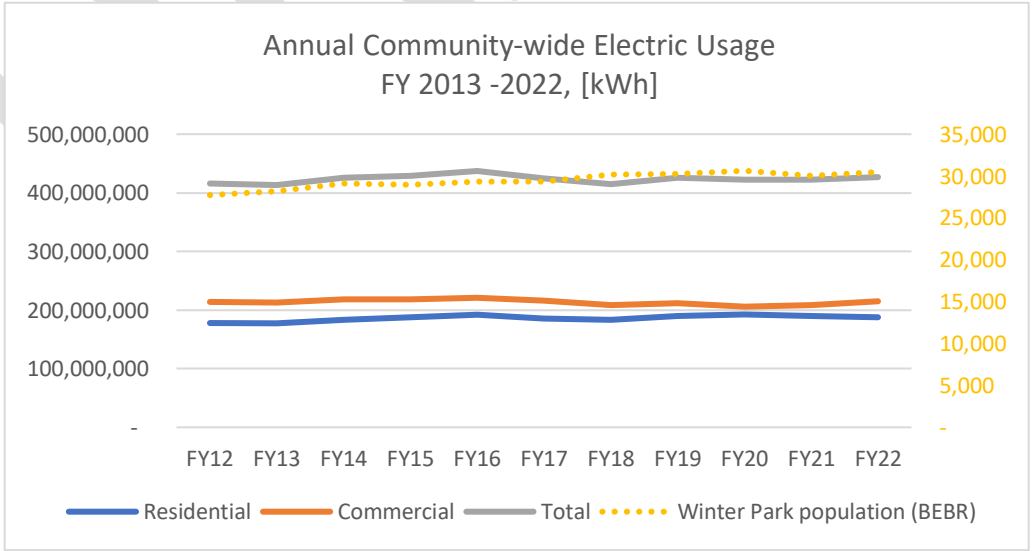


Energy

The Energy category focuses on measures that can reduce the environmental consequences of the construction, reconstruction and operation of buildings and infrastructure with a focus on energy efficiency, energy conservation, and clean energy sources. With buildings' energy usage contributing to nearly half of all of the community-wide greenhouse gas (GHG) emissions in 2021, implementing the prescribed actions is critical to achieving a more sustainable city. Electricity is primarily being used to power buildings for commercial (50%) and residential (44%) activities, while a smaller fraction (%) is being used to power city scale infrastructure such as streetlights and transporting water and *wastewater*. Between 2012 and 2021, electric usage remained generally stable.







All utility data is sourced from the city's Comprehensive Annual Financial Reports, which can be reviewed on the city's website.

OBJECTIVES

1. Increase energy efficiency of residential and commercial buildings
2. Increase energy conservation in residential and commercial sectors
3. Increase solar energy in residential and commercial sectors
4. Increase educational awareness for energy efficiency and conservation best practices
5. Maintain utility rates that are competitively low for consumers

INDICATORS

	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target	2042 Target	2050 Target
E-1	Energy usage in residential buildings [kWh/customer/year][1] – Baseline Year: 2012	15,263	14,739	14,791	13,718	12,064	13,560	12,710
E-2	Energy usage in commercial buildings [kWh/customer/year] [1] – Baseline Year: 2012	-	86,704	91,527	81,004	73,312	73,858	70,838
E-3	Residential building audits performed annually – Baseline: Average # of audits/yr and between 2017-2020	63	91	93	125	200	240	300
E-4	Residential Rebates provided annually – Baseline: Average # of audits/ yr and between 2017-2020	-	26	17	75	100	125	150

[1]*Data provided by the IRP study without the assumption of EV charging.*

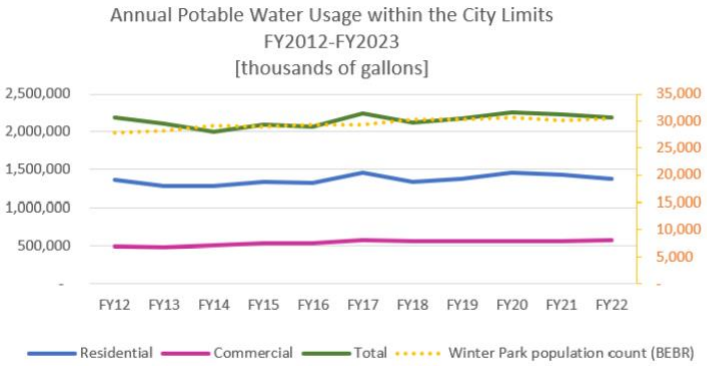
ACTIONS

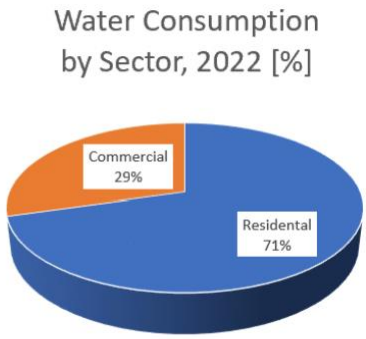
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Conduct Energy Efficiency (EE) Study benchmarking city buildings and identify technologies to improve EE	Yes	Completed	Sustainability Division, WP Electric Utility, WP Water Utility
2024	Internal employee energy conservation training – reduction in energy and water use that provides incentives to motivate conservation	No	None	Sustainability Division; Human Resources
2024	Implement Energy Efficient Technologies based on Energy Efficiency Study i.e motion detection lighting and programmable thermostats	No	Initiated	Sustainability Division, WP Electric Utility, Public Works

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Explore incentive programs for commercial customers that encourage energy conservation	No	None	Sustainability Division, WP Electric Utility, Economic Development
2024	Identify methodology for expressing energy use intensity in kWh per square foot for residential and commercial customers via Smart Works Technology and Energy Star	No	None	GIS, IT, WP Electric Utility, Sustainability
Continue Annually	Maintain competitive rates for WP Utility Customers	Yes	Ongoing	Sustainability Division, WP Electric Utility, WP Water Utility
Continue Annually	Promote Energy Conservation opportunities such as audits and rebates, providing energy conservation kits, and solar feasibility reports for customers that undergo energy audits including local schools	Yes	Ongoing	Sustainability Division, WP Electric Utility, Communications
Continue Annually	Provide technical assistance and education to commercial property owners and tenants on Energy Star Portfolio Manager	Yes	Ongoing	Sustainability
Continue Annually	Continue to pursue clean transportation options. Expanding City Fleet and EV Charging Stations for commuters	Yes	Ongoing	Sustainability Division, WP Fleet Services, WP Utility

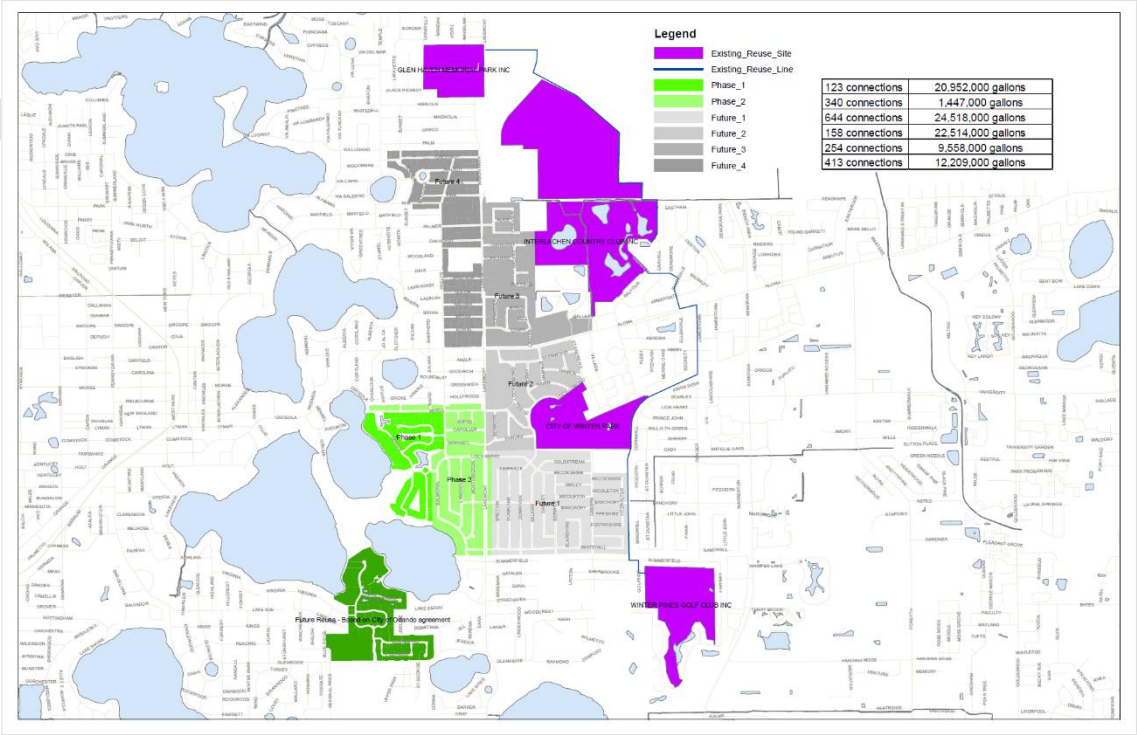
Water

The Water category focuses on measures that can increase water efficiency and water conservation in residential and commercial sectors. In the City of Winter Park, residential and commercial customers use potable water for indoor and outdoor (irrigation) purposes. Over the last decade, potable water has remained generally stable, reflecting the minimal change in population growth over that time. The majority of potable water consumed in the city is used by residential customers (71%), with nearly half of residential water usage being spent on irrigation. Implementation of technological tools, such as Advanced Metering Infrastructure (AMI), will allow for effective monitoring of water usage, efficiency, and recognizing irregularities. The city will continue promoting irrigation rebate incentives in addition to providing water conservation education for residential, commercial, and Winter Park schools.





All utility data is sourced from the city's Comprehensive Annual Financial Reports, which can be reviewed on the city's website.



Reuse expansion map provided by Water/Wastewater Department

OBJECTIVES

1. Increase water efficiency of residential and commercial buildings
2. Increase water conservation in residential and commercial sectors
3. Increase residential and commercial customers knowledge of water efficiency and conservation best practices and benchmarking tools
4. Implementing smart technologies to aid in water conservation efforts

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target
W-1	Water usage in residential buildings [gallons/customer/year] [1]	127,777	130,849	127,606	TBD	TBD
W-2	Water usage in commercial buildings [gallons/customer/year][1]	294,098	303,788	315,099	TBD	TBD
W-3	*Reclaimed water* usage [million gallons/year][2]	144.5	91.61	87.97	10% increase	30% increase
W-4	Residential Rebates provided annually	-	34	19	75	150

[1]Targets will be determined upon renewal of St. Johns River Water Management District Consumptive Use Permit in 2025.

[2]Increase in reclaimed water usage due to reuse infrastructure change.

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Create more robust water conservation education to residential and commercial customers through online, print campaigns, and social media including water wise check list	No	Initiated	WP Water & Wastewater Utility, Sustainability, Communications, Economic Development
2022	Increase public awareness of Florida friendly landscaping and irrigation regulations for city (internal), residential, and commercial customers; i.e. raingardens	No	Initiated	Natural Resources & Sustainability Dept., Communications
2023	Implement Sewer Impact Fee Deferral Program throughout the city to reduce residential and commercial customer upfront costs for connecting to the sewer system	No	None	WP Water & Wastewater Utility

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Explore a code requirement for commercial customers that encourages water conservation	Yes	Completed	Sustainability, WP Water & Wastewater Utility, Economic Development
2023	Amend ordinance for grease trap collection for above ground unit collection & maintenance and maintenance requirements for private lift stations	No	None	Sustainability, WP Water & Wastewater Utility, Stormwater Div, Economic Development
2024	Identify methodology for expressing water use intensity in gallons per capita upon renewal of SJRWMD Consumptive Use Permit	No	None	WP Water & Wastewater Utility, Sustainability
2025	Upon renewal of SJRWMD Consumptive Use Permit, review inverted water utility rate structure to increase water conservation efforts	No	None	WP Water & Wastewater Utility
2025	Upon renewal of SJRWMD Consumptive Use Permit, expand reclaimed water system	No	None	WP Water & Wastewater Utility
Continue Annually	Explore grant opportunities for septic to sewer conversion projects	Yes	Initiated	WP Water & Wastewater Utility; PW; Sustainability
Continue Annually	Using AMI system to identify customers in non-compliance with SJRWMD irrigation policies and provide non-compliant customers with water conservation best practices	Yes	Initiated	WP Water & Wastewater Utility, Sustainability
Continue Annually	Promote existing water conservation educational opportunities such as audits and rebates including Schools	Yes	Initiated	WP Water & Wastewater Utility, Sustainability, Communications
Continue Annually	Replace Advanced Metering Infrastructure (AMIs) to allow for new, more effective monitoring of water usage, efficiency, detection/malfunctions, and recognizing irregularities	Yes	Initiated	WP Water & Wastewater Utility

Community Engagement & Green Economy

The Community Engagement and *Green Economy* category outlines long term objectives and actions focused on encouraging residents, business owners, schools and other organizations in the city of Winter Park to begin incorporating more sustainable solutions in their daily activities. To foster and build upon a culture that values health, environmental stewardship, and financial wellbeing, the city will support public engagement campaigns to educate, inspire and offer some of the most cost effective, healthy and easy solutions. The campaign will seek to engage diverse partners and sectors of the community; create a shared community vision, goals and progress indicators of a low-carbon future; connect individuals and organizations to education, tools and resources; and celebrate positive changes and successes. A fully engaged community is the key to successfully making the city a more sustainable community.

OBJECTIVES

1. Communicate, educate and motivate residents to begin incorporating more sustainable solutions in their daily actions to change their behaviors in ways that support the objectives of the Sustainability Action Plan
2. Engage businesses, offer sustainable solutions and recognition for greening their daily operations that support the objectives of the Sustainability Action Plan
3. Provide opportunities for schools to implement sustainable practices in their daily operations that support the objectives of the Sustainability Action Plan
4. Work collaboratively with community organizations to identify and implement sustainable solutions that support the objectives of the Sustainability Action Plan

INDICATORS

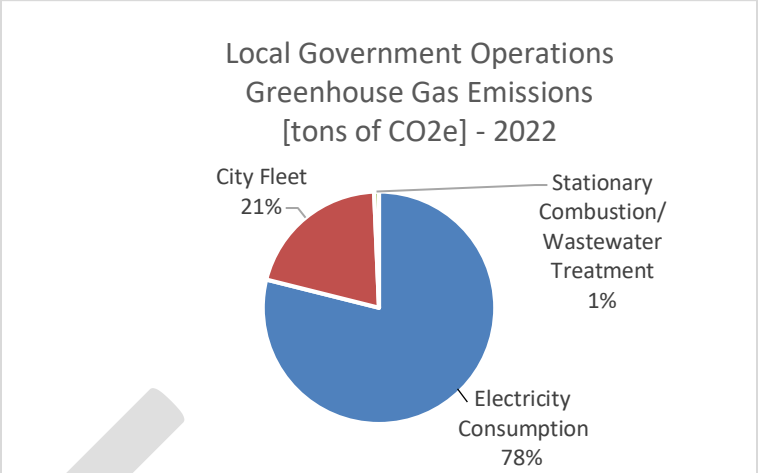
	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target
CEGE-1	Volunteer hours for Community engagement events – Baseline Year: 2012	240	1,304	433	No less than 1,500	No less than 2,000
CEGE-2	New Green Businesses Recognized per year – Baseline Year: 2012	0	26	3	No less than 10	No less than 10
CEGE-3	Green School Grant Funding – Baseline: Average amount of funding between 2017-2020	$3,300	$2,890	$3,500	Equal or more than $3,500/year	Equal or more than $3,500/year
CEGE-4	Number of Community Engagement Events	-	-	29	No less than 20	No less than 20

ACTIONS

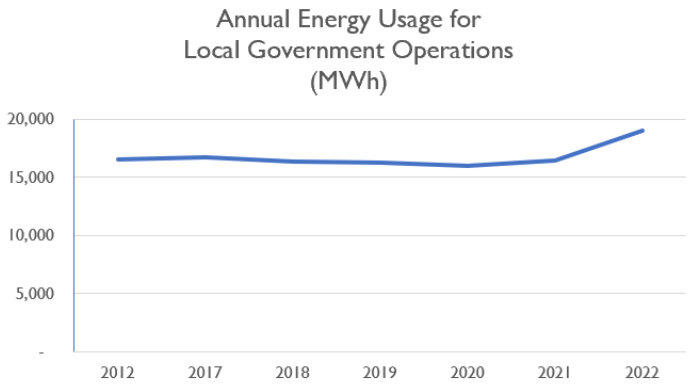
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Create Green Event Guide for city events and Champions Volunteer Program	No	Initiated	Sustainability, Parks & Recreation, Communications
Continue Annually	Promote sustainability program initiatives through various social media platforms and traditional print media, at inperson events, and maintain and update Program's website	Yes	Yes	Sustainability, Communications
Continue Annually	Administer Green Business Recognition Program and promote Green Business initiatives: Facilitate Green Business networking events	Yes	Yes	Sustainability, Communications, Economic Development
Continue Annually	Administer Green School Grant Program and Green Education opportunities for educators	Yes	Yes	Sustainability
Continue Annually	Partner with local universities (e.g., University of Central Florida, Rollins College) to provide educational trainings on sustainability-related subjects	Yes	Yes	Sustainability
Continue Annually	Ensure all requirements are met for remaining a Keep America Beautiful affiliate	Yes	Yes	Sustainability
Continue Annually	Provide volunteer opportunities for litter cleanups of city's lakes and rights-of-way and opportunities for beautification of city parks and greenspaces	Yes	Yes	Sustainability, Lakes Division, Parks and Recreation
Continue Annually	Provide education on Sustainability at Neighboring Community Events	Yes	Yes	Sustainability
Continually Annually	Create and implement environmental education opportunities at parks and city buildings (e.g., Mead Gardens, Howell Branch Creek, Dinky Dock and Fort Maitland)	Yes	Yes	Sustainability, Parks & Recreation, Communications

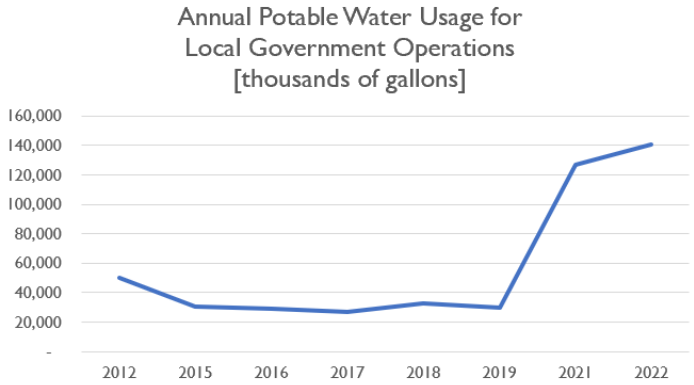
Local Government Operations

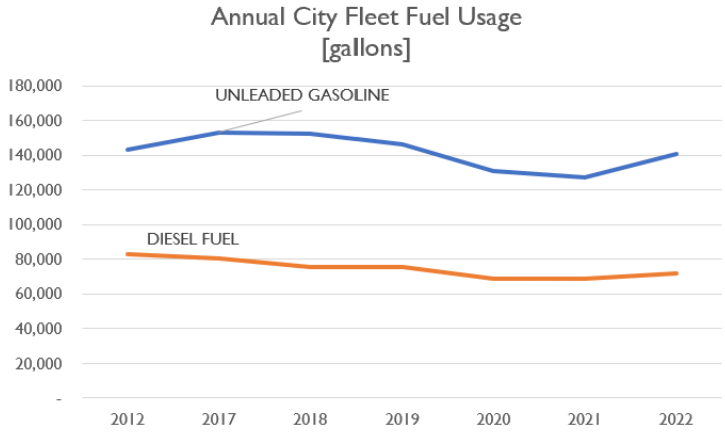
The Local Government Operations category outlines long term objectives and actions focused on reducing GHG emissions of municipal operations, increasing municipal facilities' resiliency to the impacts of climate change, and encouraging resource protection and conservation. Creating healthier and more comfortable environment for employees and building occupants are also anticipated benefits from the city renovating existing buildings and building new city facilities to meet high performance, green building standards.

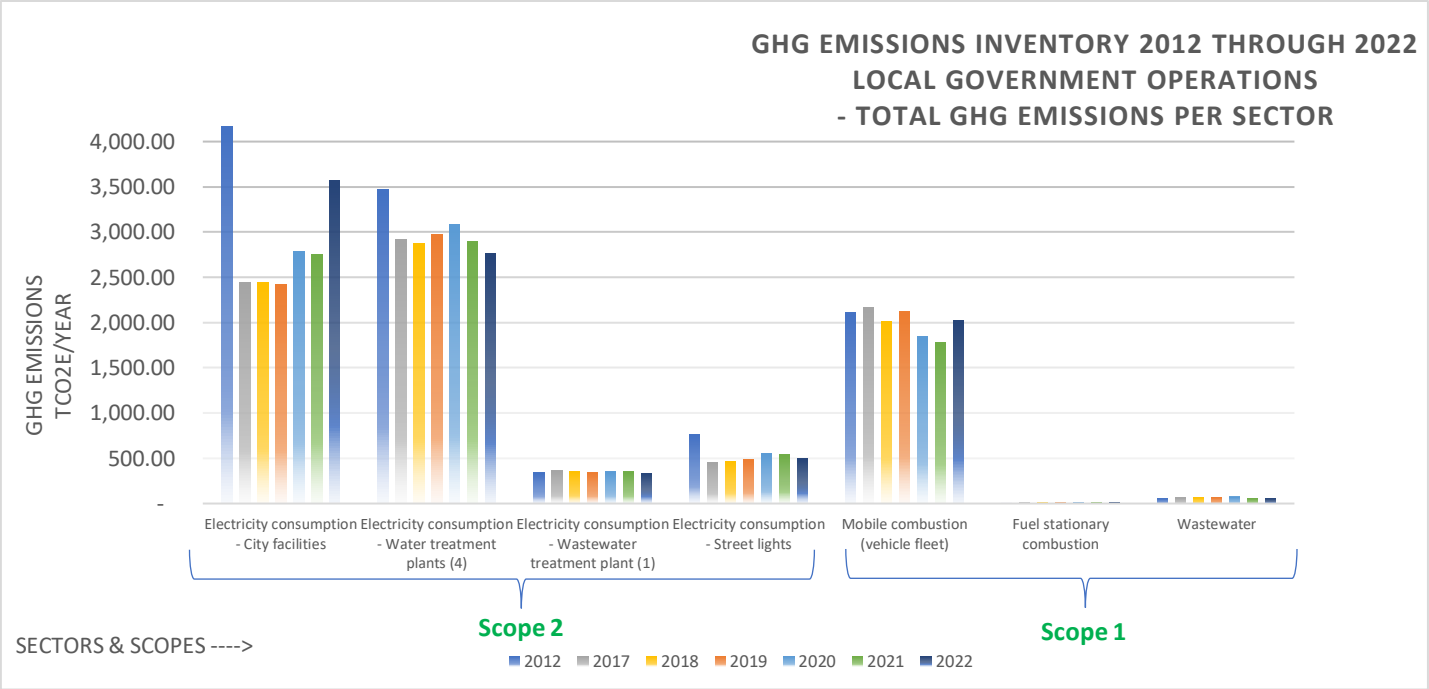


The city's Local Government Operations GHG Emissions Inventory consists of all major direct emissions from the burning of fossil fuels by the City's fleet and indirect GHG emissions associated with the electricity consumption for local government operations. City Fleet-related (20%) and electricity consumption-related (79%) activities contribute the largest proportion of greenhouse gases emissions in government operations. Energy usage has remained generally stable since the baseline year of 2012.









Workforce commute also contributes to GHG emissions. City adoption of a flexible work plan to a four-day work week would decrease carbon emission. This provides both climate and employee well-being benefits.

Energy audits of city facilities would allow for projects to be selected that will provide the greatest energy reduction at the best return on investment. Several city parks use reclaimed water, lake or well water, reducing the amount of high-quality potable water being used by the city to irrigate. Efforts to expand the use of reuse water for park irrigation is planned.

City fleet gasoline and diesel consumption has remained generally stable since the baseline year of 2012. In 2020, there was a decrease in both unleaded gasoline and diesel due to the pandemic. It is expected to jump back to average consumption in 2022 with a goal to steadily decrease over the next decade with the establishment of a fleet electrification policy as identified in the city's Comprehensive Plan. This policy prioritizes zero tail pipe emissions and high fuel efficiency vehicles that would help further fleet electrification and fuel usage reduction when a vehicle replacement/new vehicle is reuired. The city plans to expand EV charging stations that would be used for both city employees and for public use.

Sustainability education and incentivization for city employees also plays a vital role. By providing a green procurement guideline, the guesswork of selecting sustainable and compostable products is taken out while the city implements greener purchasing choices. City sponsored events, and hired vendors such as catering services, should be required to follow green event policies. While green choices are made at the workplace, this could help make greener choices at home as well.

OBJECTIVES

1. Increase the city's municipal facilities resiliency and energy use efficiency to the impacts of climate change
2. Improve city services and broaden public access to information about city performance
3. Reduce Local Government Operations (LGO) greenhouse gas emissions
4. Increase energy and water efficiency of existing and new city-owned and city-operated facilities
5. Encourage on-site renewable energy generation at city-owned and city-operated facilities and reduce fossil fuel consumption by city fleet vehicles
6. Communicate, educate and motivate city employees to incorporate more sustainable solutions in their daily actions to change their behaviors in ways that support the objectives of the Sustainability Action Plan
7. Reduce the amount of waste generated from local government operations
8. Encourage reuse and other means of disposal that divert generated waste away from the landfill
9. Consider reducing carbon emission by implementing four-day work week where applicable

INDICATORS

	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target
LGO-1	Local Government Operations greenhouse gas emissions [tons of carbon dioxide equivalent][1]	11,315	8,735	8,735	40% less than baseline year	80% less than baseline year
LGO-2	Energy use for Local Government Operations [MWh/yr][2]	16,471	16,443	18,912	5% less	15% less
LGO-3	City-owned and city-operated facilities audited	3	3	23	50%	100%
LGO-4	Potable water usage [thousands of gallons]	-	70,172	66,030	50% less	TBD
LGO-5	City Fleet fuel usage [gallons of unleaded gasoline]	143,268	126,747	140,486	Downward trend	TBD
LGO-6	City Fleet fuel usage [gallons of diesel fuel][3]	83,142	64,929	71,697	Downward trend	TBD
LGO-7	Number of city-owned Electric Vehicles[3]	0	8	11	Increase	Increase
LGO-8	Number of Electric Vehicle charging Stations available for city use [ports][3]	1	13	13	Increase	Increase

[1] *By the end of 2020, the city had 266kW of installed solar capacity (City Fleet Building, Aloma Water Treatment Plant)*

[2] *Target based on data received from utility reporting based on all city facilities meters*

[3] *By the end of 2020, the city had 6 electric vehicles (2% of total fleet) and 7 EV Charging Ports for Fleet Use*

ACTIONS

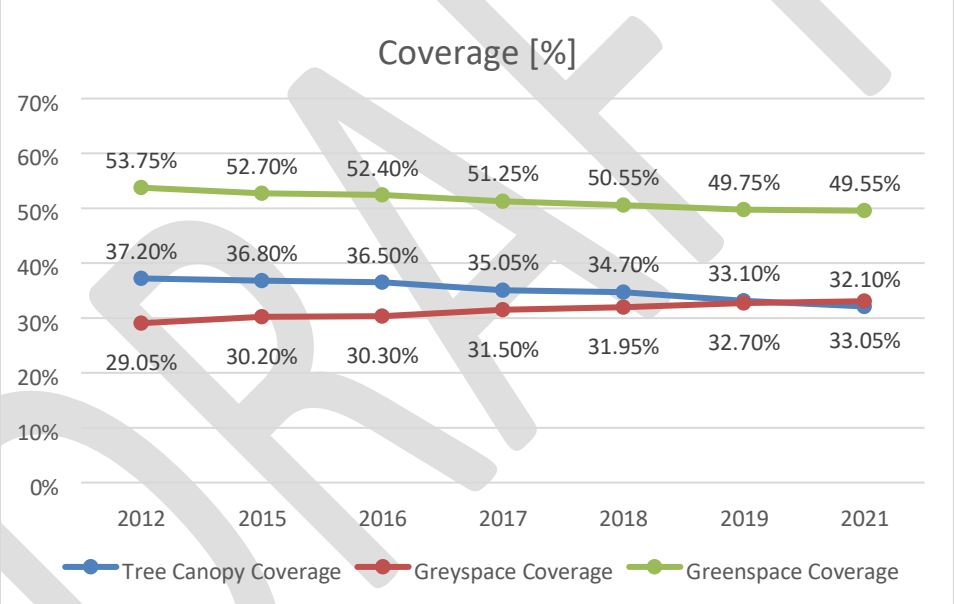
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Solicit proposals for energy conservation audits for all city facilities	Yes	Completed	Public Works, Procurement, Sustainability, WP Electric Utility
2022	Conduct Renewable Energy Feasibility Study – 5.25.22 commission approved to move forward	Yes	Completed	Public Works, Sustainability, Procurement, WP Electric Utility
2023	Pilot food waste collection program at a city facility (City Hall and or Center Street)	No	Initiated-Center St.	Sustainability
2023	Create & establish sustainable fleet policy that creates vehicle replacement EV hybridization	Yes	Yes	Fleet, Sustainability
2024	Develop educational programs for city employees on best practices for workplace energy & water conservation, sustainable transportation modes and waste management; include incentives like Sustainability Olympics/Challenges	No	No	Sustainability, Human Resources
2024	Reestablish Single Use Product Policy	No	No	Sustainability, City Administration, Parks & Recreation
2024	Research energy and water management software capable of identifying low efficiency city facilities and early detection of usage anomalies	No	No	Sustainability, Public Works
2023	Install high efficiency dishwashing machines and water bottle filling stations at city facilities to facilitate the reuse of dishware for city-business meetings and gatherings	No	Initiated	Public Works, Sustainability
2023	City adoption of a flexible work plan to a four-day work week to decrease carbon emission	No	Initiated	City Management, All City Departments
2024	Explore ways to quantify waste generated from city offices	No	No	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2024	Design/implement a sustainability procurement policy that is fiscally responsible and aligns with sustainability goal that will include in the cities current comprehensive procurement policy	No	No	Procurement, Sustainability
2025	Upon renewal of SJRWMD Consumptive Use Permit, assess and identify opportunities for water conservation measures for all city facilities	No	No	WP Water & Wastewater Utility
2025	Ensure that all new, significantly renovated, occupied, city-owned buildings will be designed to incorporate measures that would allow them to be FGBC or minimum of *LEED* "Silver Certification" level	No	No	Public Works, Sustainability
Continue Annually	Use data and analytics to improve city services and broaden public access on information about city performance	Yes	Ongoing	IT, All City Departments
Continue Annually	Utilize racial equity lens to assess city policies, initiatives, programs, and budget issues	Yes	Ongoing	All City Departments
Continue Annually	Work with OMB annually to identify sustainability-related project needs and budget with city departments on Capital Improvement Plan	Yes	Ongoing	Office of Management & Budget, Sustainability Division, All City Departments
Continue Annually	Monitor city buildings' energy and water usage through ENERGY STAR Portfolio Manager	Yes	Ongoing	Sustainability
Continue Annually	Conduct Local Government Operations Greenhouse Gas Emissions Inventory	Yes	Ongoing	Sustainability
Continue Annually	Shift from fossil-fuel to electric powered landscaping equipment upon replacement; exception to leaf blowers with due date of 2024	Yes	Ongoing	Parks & Recreation
Continue Annually	Continue to partner with FDOT's reThink Your Commute program to encourage employees' use of SunRail, Lynx, vanpools, bikes, and walking to work	Yes	Ongoing	Human Resources, Sustainability

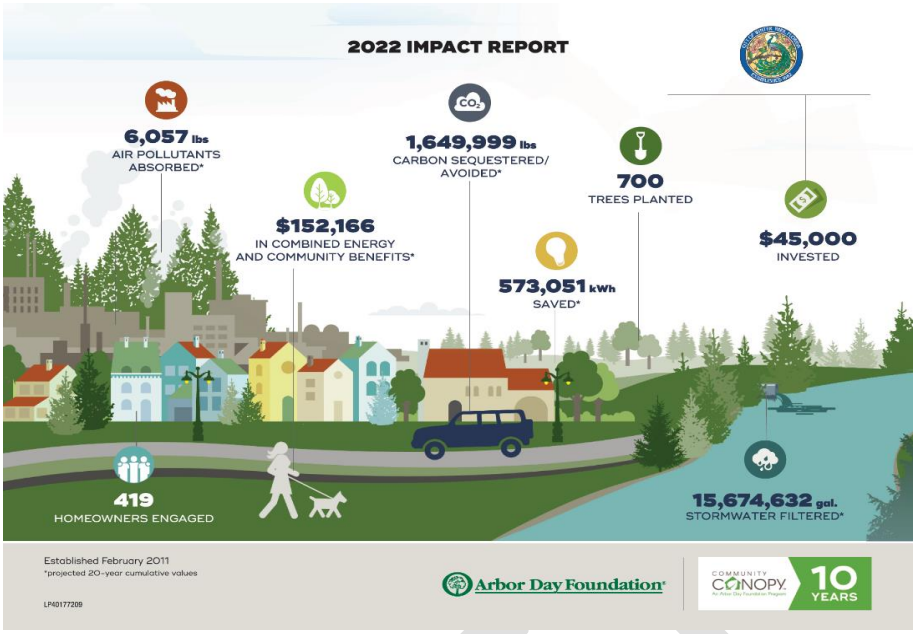
Natural Resources

The Natural Resources category is focused on preserving and enhancing the City of Winter Park's valuable natural features that help make the city such a great place to live. The city is known for its lush tree canopy and pristine lakes. Both of these features provide a multitude of benefits including improved air quality, wildlife habitat, cooler temperatures through reduced *urban heat island* effect, beautification and increased property values. In recognition of a downward trend from 2012 to 2019, the target goals for tree canopy coverage and greenspace coverage reflect a commitment to reversing the trend.

In 2020, the city's Urban Forestry Division began using i-Tree Canopy. The online tool randomly lays points onto Google Earth imagery and then the user manually classifies what cover class (e.g., tree) each point falls upon. While 500-1,000 points are suggested, the Urban Forestry Division classified 2,000 points, increasing the accuracy of the estimates. Since the aerial imagery from
Google Earth is normally about 2 years old, the assessment presented goes only through 2021.

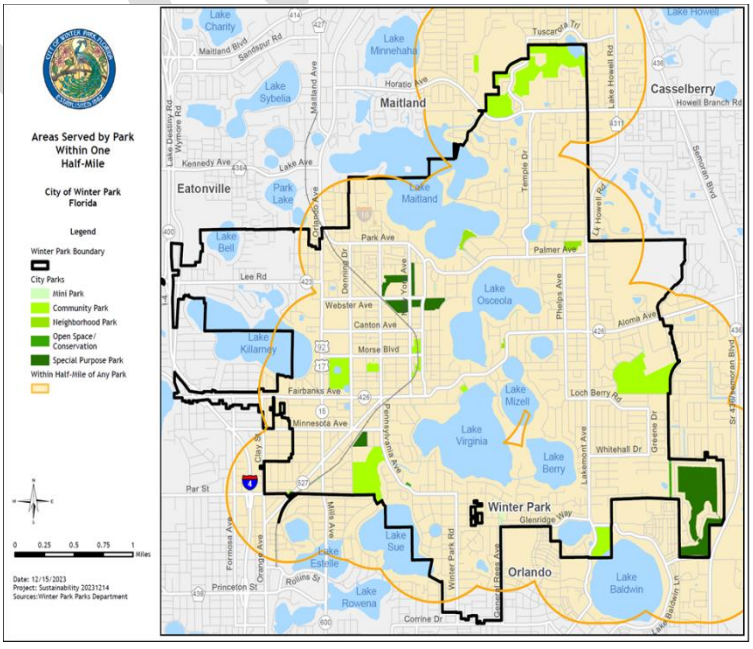


Using i-Tree Canopy, Urban Forestry was able to determine the city's tree canopy coverage (includes trees and shrubs), greenspace coverage (includes trees, shrubs, grass and herbaceous cover) and greyspace coverage (includes impervious surfaces and buildings). A trend of gradual decline in tree canopy and greenspace coverage and gradual incline of greyspace coverage is evident during the reporting years. Tree canopy loss is most likely attributable to changes in land development use. Land development regulations and city programs that protect and expand the existing canopy are critical to ensure tree canopy coverage does not continue to decline.



City parks play a crucial role in residents and visitors mental and physical well-being and stimulate social cohesion. The city's Parks and Recreation Division has consistently exceeded its goal of more than 10 park acres per 1,000 people. Maintaining the percentage of residents living within a half mile from park space will not only ensure that residents are within walking distance of places that are good for their mind and body, but these green areas also help mitigate localized air pollution and provide habitat for numerous animal and plant species.

In addition, by adding designated "no-smoking zones" to city parks and events reinforces clean air initiatives. In 2023, The Parks & Recreation Advisory Board met to review all open spaces and land use to review Winter Park's greenspace distribution and accessibility to residents. Definitions on the Open Space, Green Space, and Park Land were agreed upon as well as if certain spaces met criteria based on these updated definitions. Figure below shows these updated changes moving forward.



In 2021, the city's Lakes Division will begin tracking the city's Main Lakes meeting the "Good" Water Quality Standard [average annual *trophic state index (TSI)* below 60]. The city's Main Lakes include Lakes Baldwin, Berry, Killarney, Maitland, Mizell, Osceola, Sue and Virginia. TSI is a classification system designed to "rate" individual lakes, ponds and reservoirs based on the amount of biological productivity occurring in the water. Using the index, one can gain a quick idea about how productive a lake is.

In 2022, the Natural Resources and Sustainability Department implemented discussions with Mead Botanical Garden in efforts to create a Compressive Plan. The Comprehensive Plan is intended to become a guiding document between Mead Garden, City of Winter Park, and Stakeholder groups (such as Winter Park Land Trust and Native Plant Societies). The plan would address projects, management plans (both removal and revegetation), and Howell Creek water quality and stabilization. This further illustrates the City of Winter Park's partnership with Mead Botanical Garden in allowing for further success of our current and future projects. Mead Botanical Garden not only brings tourism to our city, but provides environmental conservation and educational opportunities for our citizens to experience and enjoy.

The restoration and preservation of Howell Branch Preserve is equally vital to environmental conservation efforts. Continuing with invasive species management and restoring with native species, to include a robust reforestation plan, is key to the long-term protection of this unique park/preserve system.

OBJECTIVES

1. Maintain and expand an equitable urban tree canopy
2. Increase overall greenspace
3. Increase parks and conservation space
4. Increase street trees within the city's rights of way
5. Maintain number of lakes meeting good water quality standard
6. Increase residents' and businesses' knowledge of best practices for urban tree canopy maintenance
7. Increase residential awareness on pollution prevention of natural water resources, including impacts of stormwater runoff and over-fertilizing for Winter Park lakes
8. Designate "no-smoking zones" for city parks and events
9. Creating a Mead Botanical Garden Comprehensive Plan document

INDICATORS

	Indicator Description	Baseline	2021 Status	2022 Status	2025 Target	2035 Target
NR-1	Tree Canopy Coverage – Baseline Year: 2019	33.10%	32.10%	TBD	Maintain	5% more
NR-2	Greenspace Coverage – Baseline Year: 2019	49.75%	49.55%	TBD	Maintain	5% more
NR-3	Greyspace Coverage – Baseline Year: 2019	32.70%	33.05%	TBD	Maintain	5% less
NR-4	# of Trees Removed	-	120	160	Maintain	TBD
NR-5	# of Trees Planted	-	150	150	Increase trend	TBD
NR-6	Percentage of City of Winter Park's Main Lakes[1] meeting Good Water Quality Standard [Average Annual Trophic State Index (TSI) below 60] – Baseline Year: 2012	100%	100%	100%	Maintain	Maintain

[1] *Lakes Baldwin, Berry, Killarney, Maitland, Mizell, Osceola, Sue and Virginia*

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2022	Provide education on pollution prevention of natural water resources (e.g., impacts of stormwater runoff and over-fertilizing) to residents and businesses through on-line, print campaigns, and social media	Yes	Ongoing	Lakes Division, Sustainability Division, Communications
2023	Establishing a Tree Giveaway Program that delivers a diverse variety of canopy and understory trees to residents	Yes	Ongoing	Urban Forestry, Sustainability
2023	Explore opportunities to preserve existing trees on private property such as increase front set backs on septic for property owners and developers	No	Initiated	Building & Permitting, Urban Forestry, Sustainability

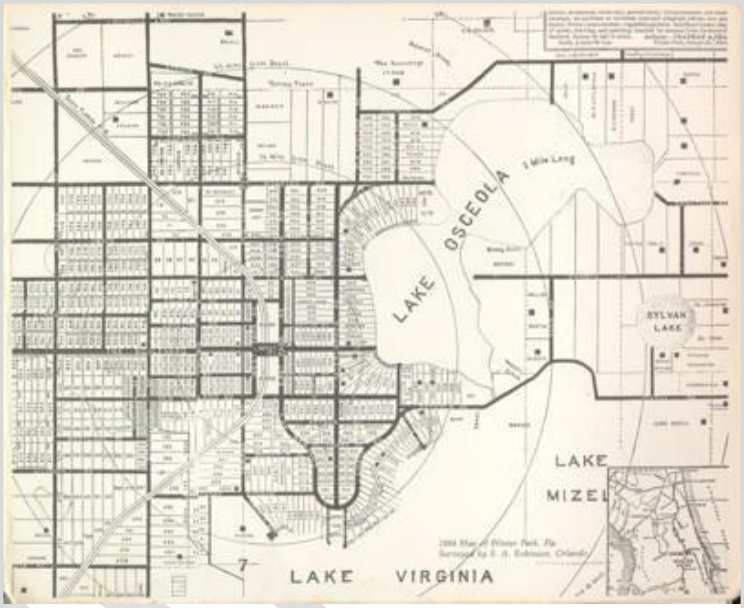
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Conduct *tree equity score* study to determine if tree canopy cover is distributed in a way that all residents can experience the climate, health and other benefits that trees provide	No	No	Urban Forestry
2023	Develop a checklist of trees for residents to reference	No	No	Urban Forestry, Communications
2024	Incorporate opportunities to build a green infrastructure (bio-swales, rain gardens, green roofs, etc.) demonstration project within the city limits	No	Initiated	Sustainability, Stormwater Division
2022	Adopt Artificial Turf Ordinance	Yes	Ongoing	Natural Resources & Sustainability, Planning, Public Works
2023	Periodic Review for Natural Resources Protection. Increase policy to save more trees within building code – land development code	No	Initiated	Urban Forestry, Natural Resources and Sustainability, Building & Permitting
2023	Explore implementation of Tree Equity Score indexing	No	No	Urban Forestry & Sustainability
2023	Water quality data readily accessible for all WP citizens to utilize	No	Initiated	Communications, WP Electric Utility
2023	GIS Modeling to predict tree canopy	No	No	GIS & Urban Forestry
2023	Establish Lakes Newsletter to inform citizens on the importance of lake side living	Yes	Ongoing	Lakes Division, Communications

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Establish a lakeside living checklist for use when hiring lawn care/maintenance to prevent excess fertilizers and grass clippings from entering our waterways	No	No	Lakes Division, Communications
2023	Implement lake vegetation bioassessment to benchmark and track the health of WP's Shorelines	No	Initiated	Lakes Division
2023	Add pollinator gardens to the initial landscape plan throughout the city	Yes	Initiated	Parks & Recreation, Landscaping, Natural Resources & Sustainability
2024	Enhance tree canopy coverage via the urban forest management plan and update every 5 years	No	No	Urban Forestry, Natural Resources & Sustainability
Continue Annually	Increase beneficial native aquatic plant shorelines for all Winter Park Lakes	Yes	Ongoing	Natural Resources & Sustainability
Continue Annually	Explore funding to support green infrastructure and tree canopy development	Yes	Ongoing	Urban Forestry, Natural Resources & Sustainability
Continue Annually	Administer city's Urban Forest Management Plan and Program	Yes	Ongoing	Urban Forestry
Continue Annually	Consider the usefulness and availability of state and federal grant programs for the acquisition of lands for conservation areas or passive recreation	Yes	Ongoing	City Administration, Parks & Recreation, Planning & Transportation

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
Continue Annually	Administer *integrated aquatic plant management program*	Yes	Ongoing	Lakes Division
Continue Annually	Provide Tree Canopy Conservation education (e.g., environmental/health benefits, cost savings, aesthetics) to residents, building professionals, realtors and businesses through on-line, social media, print campaigns and inperson workshops	Yes	Ongoing	Urban Forestry, Sustainability Division, Building & Permitting, Communications
Continue Annually	Increase Watershed Clean Ups, Tree Plantings, and Shore Restoration Events	Yes	Ongoing	Natural Resources & Sustainability Dept., Urban Forestry

Transportation and Urban Form

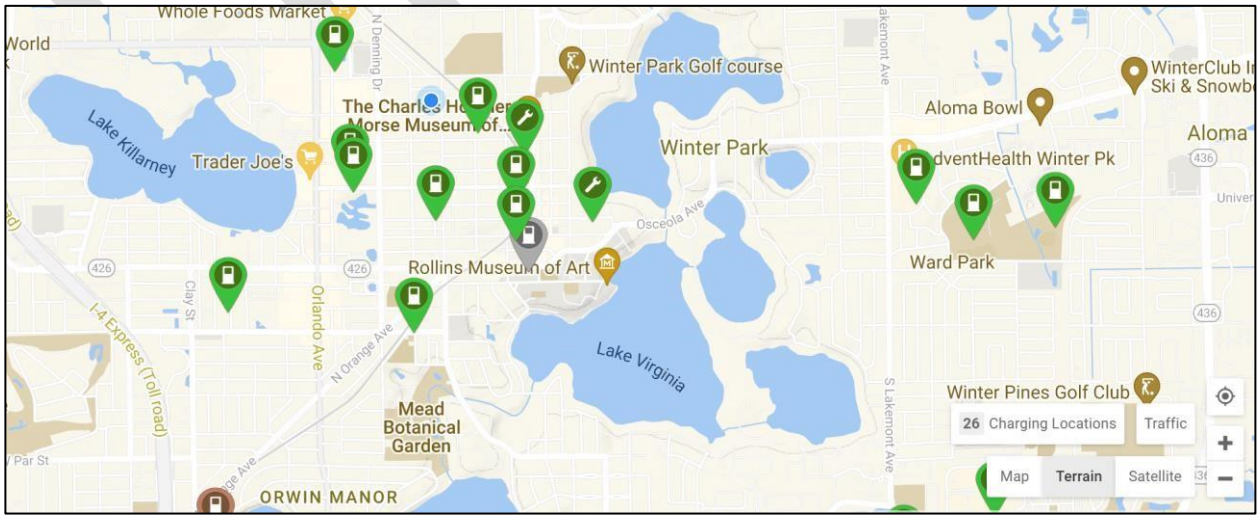
The Transportation and Urban Form category is focused on encouraging healthier, more active forms of transportation such as walking, bicycling and using mass transit such as LYNX bus and SunRail commuter rail and increased *connectivity*. As the first planned community in Florida, the city was founded around the concept of walkability and human scaled urbanism. Since owning a car was a rarity in the 1880s, the city's founders designed the original plan around the Train Station which was the town's first constructed building. Future development was patterned off quarter mile walks around the station.



The original Town Plan for Winter Park, FL placing the train station in the center with development planned around it. The circles represent quarter mile distances.

As discussed in the Climate Resiliency category, transportation is a significant (50%) contributor to the city's community-wide GHG emissions. Climate Resiliency emphasizes the need for people to choose more sustainable transportation options.

Common design elements of *complete streets* includes continuous sidewalks, bike lanes, landscaping, and shade trees. These design characteristics, combined with green infrastructure such as bio-swales and rain gardens, also help reduce stormwater runoff, enhance lakes water quality, and reduce the urban heat island effect.



Map from PlugShare showing City of Winter Park's public charging stations in green.

OBJECTIVES

1. Improve pedestrian and bicyclist environments with sustainable and safe transportation infrastructure such as sidewalks, multimodal paths, and transit shelters
2. Encourage more complete streets in planning and development
3. Create an environment that encourages residents, businesses, and visitors to transition to electric and less carbon-intensive modes of transportation to achieve a level of air quality that is healthy for all residents and the natural environment (e.g., meeting and exceeding regional indoor and outdoor *air quality standards*)
4. Increase residents' and businesses' knowledge of benefits and importance of sustainable transportation choices
5. Execute Transportation Masterplan initiatives

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target
TUF-1	Sidewalk/Street improvements allowing for pedestrian and bicyclist use [Linear feet][1,2] - *Starting year 2022*	-	930 LF	937 LF	1 mile (cumulative)	3.5 miles (cumulative)
TUF-2	Pedestrian infrastructure improvements (enhanced crossings) [improved site/year][2] - *Starting year 2022*	-	5	2	10	25
TUF-3	Bicyclist infrastructure improvements (enhanced crossings, & bike racks) [improved site/year][2] - *Starting year 2022*	-	22	5	15	30
TUF-4	Improved transit stops (benches, transit shelters, waste receptacles, etc.) [improved transit stop/year][2] - *Starting year 2022*	-	0	0	2	4
TUF-5	Public EV Charging Stations[3]	7	11	11	5 additional	15 additional

[1] *e.g., converting a sidewalk to a mixed-use trail or adding a bike lane to an existing road*

[2] *Targets for TUF-1,TUF-2,TUF-3 and TUF-4 will be determined and baseline adjusted upon completion of Transportation Master Plan*

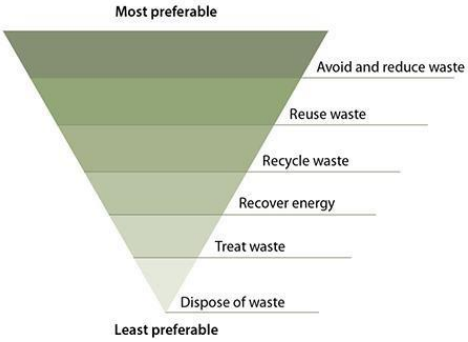
[3] *As of 2022, data represents only city-owned public charging stations and excludes private charging stations*

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Develop Transportation Masterplan, considering safe routes to schools, Complete Streets, and linkages of the City's trails with adjacent counties and municipalities	Yes	Yes	Planning & Zoning, Communications, Public Works, Sustainability

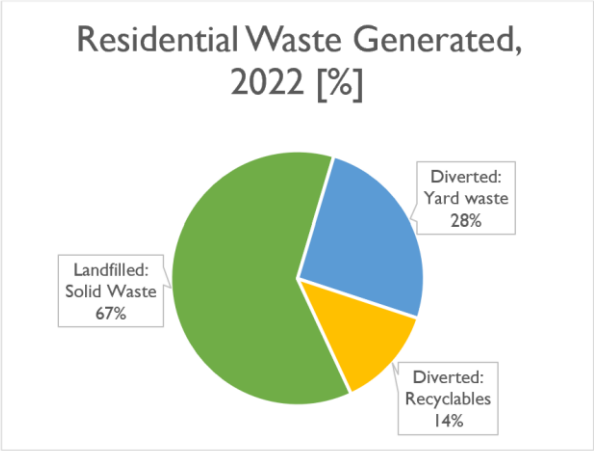
Projected Implementation Year	Action	Accomplished	Status	Responsible Department/ Division
2023	Explore feasibility of an incentive program for EV Charging Station installation in multifamily and commercial properties	No	None	Sustainability, Building & Permitting, WP Electric Utility
2023	Develop EV infrastructure needs assessment and master plan	Yes	Ongoing	Sustainability, WP Electric Utility, Planning & Zoning
2025	Explore opportunities to pilot electric shuttle (Smart Bus)	No	Initiated	City Administration, Economic Development, Planning & Zoning, Sustainability
2025	Implement public and private rideshare partnership opportunities that will promote the use of the cities SunRail System	No	No	Economic Development, Planning & Zoning, SunRail, Uber, & Lyft
Continue Annually	Maintain Electric Vehicle Charging Stations available to the public	Yes	Ongoing	Sustainability
Continue Annually	Encourage private developments to increase safety and ease of walking and cycling through site plan review process	Yes	Ongoing	Planning
Continue Annually	Assess affordable & workforce housing during the Comprehensive Plan's planning process.	No	Ongoing	Economic Development, Planning & Zoning
Continue Annually	Provide education on pedestrian and bicyclist safety, routes, and proximity to amenities to residents and businesses through on-line, social media, interactive map, and print campaigns	Yes	Ongoing	Planning & Zoning, Public Works, Police Department, Communications
Continue Annually	Evaluate bus stop infrastructure with Lynx for accessibility and amenities (such as water)	Yes	Ongoing	Planning, Sustainability, Lynx
Continue Annually	Provide education on benefits and importance of sustainable transportation choices to residents and businesses through on-line, print campaigns, social media, and in-person events	Yes	Ongoing	Planning & Zoning, Public Works, Sustainability, Communications
Continue Annually	Work with Sustainability to ensure Comprehensive Plan Update incorporates sustainability and resilience objectives and policies as it relates to transportation	Yes	Ongoing	Planning & Zoning, Public Works, Sustainability

Waste Management

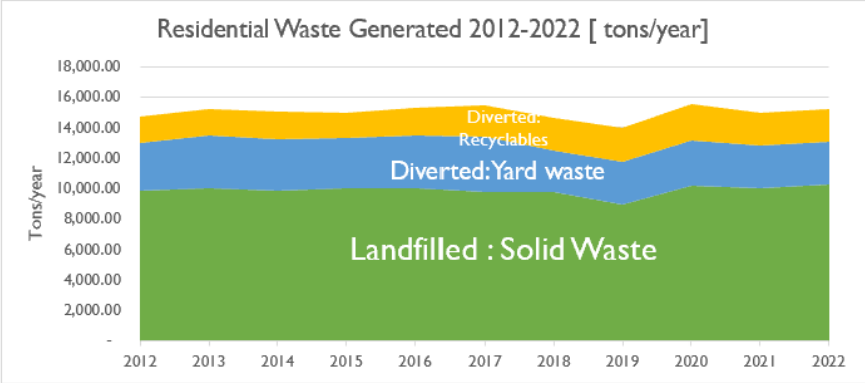


The Waste Management category is focused on reducing the amount of waste generated, encouraging the reuse and repair of products, and diverting waste from the landfill. The EPA developed the non-hazardous materials and *waste management hierarchy* in recognition that no single waste management approach is suitable for managing all materials and waste streams in all circumstances. The hierarchy ranks the various management strategies from most to least environmentally preferred.

The City of Winter Park has a franchise agreement with WastePro for hauling solid waste, yard waste, and recyclables from residential properties. Under this contract, WastePro hauls solid waste to the Seminole County Transfer Station with exceptions during diversion events. Solid waste is landfilled, and yard waste is primarily used as road cover at the landfill, allowing yard waste to be counted as diverted waste. WastePro hauls recyclables to the Orange County Transfer Station. There, the recyclables are graded by Waste Management as being "acceptable" or ""rejectable" based on the level of contamination. Acceptable loads are transported to Waste Management's sorting facility for sorting, bailing, and compaction and then prepared for market. Unacceptable loads are landfilled. Consistency in updating residents to what is acceptable and not acceptable in the recycling bin is key to keeping rejections, or contamination rate, low.



It is important to recognize that at the top of the waste management hierarchy is avoidance and reduction of waste. The city is leading by example with its Single Use Product Policy Pilot program that prohibits plastic bags, plastic straws and styrofoam products at city facilities. The Green Business Recognition Program provides a way for businesses to receive recognition for switching from single-use to reusable and compostable alternatives. It is critical to reinforce the message that most environmentally preferable choice an individual can make in regards to waste is to not create it in the first place.



OBJECTIVES

1. Reduce the amount of waste generated
2. Increase repair, reuse and donation of materials
3. Divert waste generated away from the landfill
4. Increase residents and businesses' knowledge of the benefits and importance of waste prevention and reduction
5. Increase composting awareness

INDICATORS

	Indicator Description	2012 Baseline	2021 Status	2022 Status	2025 Target	2035 Target
WM-1	Residential Waste Generated [tons][1]	14,714	15,018	15,242	5% less	10% less from prior target
WM-2	Residential Solid Waste Landfilled [tons]	9,890	10,004	10,240	10% less	20% less
WM-3	Residential Waste Diverted from Landfill [tons][2]	4,824	5,014	5,003	10% more	20% more

[1]*Includes tonnage collected from residential households (solid waste, yard waste and recycling)*
[2]*Includes tonnage of waste diverted for other purposes (i.e., recyclables recycled and yard waste used for landfill cover)*

ACTIONS

Projected Implementation Year	Action	Accomplished	Status	Responsible Department(s)
2022	Provide composting education and backyard composters to residents	Yes	Initiated	Sustainability
2022	Analyze implementation of a Food Waste Diversion Program for Center Street and Farmer's Market	Yes	Initiated	Sustainability

Projected Implementation Year	Action	Accomplished	Status	Responsible Department(s)
2023	Maintain the list of the city's Registered Haulers	Yes	Ongoing	Sustainability
2023	Assist multi-family and commercial buildings with creating recycling education and outreach plans	No	No	Sustainability Division, Economic Development
2023	Increase recycling opportunities at city-owned public facilities and parks	Yes	Initiated	Parks and Recreation, Sustainability
2023	Consider food scrap collection and *Pay As You Throw* options in Scope of Work description for Solid Waste Services Solicitation	No	No	City Administration, Sustainability
2025	Establishing an ordinance to ban all Styrofoam products city-wide	No	No	City Administration, Sustainability
2026	Consider a mandate for commercial ordinance for recycling and composting	No	No	City Administration, Sustainability
Continue Annually	Host "Fix It, Don't Pitch It" regional community repair event	Yes	Ongoing	Sustainability
Continue Annually	Provide residents with online waste management tool that provides collection schedules, reminders and look-up tool to determine how items should be disposed of	Yes	Ongoing	Sustainability
Continue Annually	Provide in-person, online and print education on waste management hierarchy (reduce, reuse, recycle)	Yes	Ongoing	Sustainability
Continue Annually	Participate in *Florida Food Waste Prevention Week*	Yes	Ongoing	Sustainability
Continue Annually	Hold Annual Household Hazardous Waste (HHW) and Electronics Waste Collection Event	Yes	Ongoing	Sustainability
Continue Annually	Increase availability of water bottle filling stations at city-owned public facilities and parks	Yes	Ongoing	Parks and Recreation, Sustainability

2022 Action Item Tracker List:

Climate Resiliency	Conduct Renewable Energy Feasibility Study
Climate Resiliency	Implement an Artificial Turf Ordinance which will help mitigate the number of houses that have artificial turf by addressing stormwater and sustainability concerns
Climate Resiliency	Adopt Backyard Chicken Program (exp. September 2022) to evaluate program outcomes and possibility of expanding and extending the program
Water	Create water conservation education to residential and commercial customers through on-line, print campaigns, and social media including water wise check list
Water	Increase public awareness of Florida-friendly landscaping and irrigation regulations for city (internal), residential, and commercial customers; i.e. raingardens
Community Engagement and Green Economy	Re-participate in America In Bloom's annual nationwide competition in addition to researching grant opportunities to help aid KWPB&S
Local Government Operations	Solicit proposals for energy conservation audits for all city facilities
Local Government Operations	Conduct Renewable Energy Feasibility Study – 5.25.22 commission approved to move forward
Natural Resources	Provide education on pollution prevention of natural water resources (e.g., impacts of stormwater runoff and over-fertilizing) to residents and businesses through on-line, print campaigns, and social media
Natural Resources	Establish Lakes Newsletter to inform citizens about lake stewardship
Waste Management	Provide composting education and backyard composters to residents
Waste Management	Analyze implementation of a Food Waste Diversion Program for Center Street and Farmer's Market

Glossary

Air quality standards. The Orange County Air Quality Management (AQM) section ensures that the air quality of Orange County meets standards set forth in the Federal Clean Air Act and in the Florida Statutes. The goal of the Florida Department of Health Indoor Air Program is to improve the health of Floridians by reducing exposure to indoor air contaminants.

Best Workplaces for Commuters is an innovative membership program that provides qualified employers with national recognition and an elite designation for offering outstanding commuter benefits such as offering at least $30 per month towards a transit pass to employees, employee shuttle to transit stations, etc.

Carbon Footprint The total amount of greenhouse gases that are emitted into the atmosphere each year by a person, family, building, organization, or company. A person's carbon footprint includes greenhouse gas emissions from fuel that an individual burns directly, such as by heating a home or riding in a car. It also includes greenhouse gases that come from producing the goods or services that the individual uses, including emissions from power plants that make electricity, factories that make products, and landfills where trash gets sent.

Carbon-intensive foods include beef (6.61 lbs. of CO_2e per serving), cheese (2.45 lbs. of CO_2e per serving), and other animal-based products.

Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use.

Climate Resilience The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation.

Complete Streets are streets for everyone. They are designed and operated to prioritize safety, comfort, and access to destinations for all people who use the street, especially people who have experienced systemic underinvestment or whose needs have not been met through a traditional transportation approach, including older adults, people living with disabilities, people who cannot afford or do not have access to a car, and Black, Native, and Hispanic or Latino/a/x communities. Complete Streets make it easy to cross the street, walk to shops, jobs, and schools, bicycle to work, and move actively with assistive devices. They allow buses to run on time and make it safe for people to walk or move actively to and from train stations.

Connectivity reduces the distances traveled to reach destinations, increases the options for routes of travel, and can facilitate walking and bicycling. Well-connected, multimodal

networks are characterized by seamless bicycle and pedestrian infrastructure, direct routing, accessibility, few dead-ends, and few physical barriers. Increased levels of connectivity are associated with higher levels of physical activity from transportation. Connectivity via transportation networks can also improve health by increasing access to health care, goods and services, etc.

Florida Food Waste Prevention Week raises awareness and inspires action to prevent food waste, save money, reduce hunger and protect the environment.

Florida Green Building Coalition has developed green certification programs that apply to construction projects and local government operations. Seeking FGBC certification demonstrates a commitment to providing your customers with products or services that are green and sustainable.

Food Recovery is the practice of collecting wholesome food that would otherwise go to waste and donating it to local food distribution agencies to help feed those in need.

Google EIE uses exclusive data sources and modeling capabilities in a freely available platform to help cities measure emission sources, run analyses, and identify strategies to reduce emissions — creating a foundation for effective action. Starting in 2021, the city's Greenhouse Gas emissions inventory uses Google EIE estimates for transportation emissions (baseline year 2018).

Green Economy is defined as an economy that is low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.

Green Infrastructure includes a range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters.

Greenhouse gases are those gaseous constituents of the *atmosphere*, both natural and *anthropogenic*, that absorb and emit radiation at specific wavelengths within the spectrum of terrestrial radiation emitted by the Earth's surface, the atmosphere itself and by clouds. This property causes the greenhouse effect. Water vapour (H_2O), *carbon dioxide* (CO_2), *nitrous oxide* (N_2O), *methane* (CH_4) and *ozone* (O_3) are the primary GHGs in the Earth's atmosphere.

Integrated Aquatic Plant Management Program, established by the City of Winter Park, attempts to meet the challenges of maintaining beneficial plants while minimizing undesirable ones. The program includes chemical, biological and mechanical control methods.

LEED (Leadership in Energy and Environmental Design) is the most widely used green building rating system in the world. Available for virtually all building types, LEED provides

a framework for healthy, highly efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership.

Open Space is any open piece of land that is undeveloped and is accessible to the public. In your community, there could be many creative opportunities for open space preservation that could help connect the community and revitalize its economy and social connectivity. Some opportunities for community open space can include: playgrounds, public plazas, or vacant lots as well as Green space (land that is partly or completely covered with grass, trees, shrubs, or other vegetation) such as parks, community gardens, and cemeteries.

Pay As You Throw is a system in which residents pay for municipal solid waste (MSW) services per unit of waste discarded rather than solely through a fixed fee or property tax.

Racial Equity occurs when race can no longer be used to predict life outcomes and outcomes for all groups are improved. For more detailed information review the GARE *Advancing Racial Equity and Transforming Government* Resource Guide.

Racial Equity Lens is the set of questions we ask ourselves throughout the decision-making process. The lens interrupts the impact of unintended consequences by taking into consideration the lived experiences and perspectives of the racially diverse communities we intend to serve.

Reclaimed water is wastewater that has been thoroughly treated to remove harmful organisms and substances, such as bacteria, viruses and heavy metals, so it can be reused.

Renewable energy is energy from sources that are naturally replenishing but flow-limited; renewable resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. The major types of renewable energy sources are: Biomass, Hydropower, Geothermal, Wind and Solar.

Resilience Hubs are community-serving facilities augmented to support residents, coordinate communication, distribute resources, and reduce carbon pollution while enhancing quality of life. Hubs provide an opportunity to effectively work at the nexus of community resilience, emergency management, climate change mitigation, and social equity while providing opportunities for communities to become more self-determining, socially connected, and successful before, during, and after disruptions.

Urban Heat Islands occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat. This effect increases energy costs (e.g., for air conditioning), air pollution levels, and heat-related illness and mortality.

Tree Equity Score is an indicator of whether an area has a sufficient amount of tree canopy cover distributed in a way that all residents can experience the climate, health and other benefits that trees provide.

Tree Management Program, established by the City of Winter Park, maintains existing vigorous trees, removes dead/diseased/dying trees, and replants with a diverse species. The Urban Forestry division is also responsible for maintaining trees in parks and around

facilities, trees coexisting with electrical facilities, rights of way trees, and community outreach and education.

Trophic State Index (TSI) is a classification system designed to "rate" individual lakes, ponds and reservoirs based on the amount of biological productivity occurring in the water. Using the index, one can gain a quick idea about how productive a lake is.

Trophic State Index	Trophic State Classification	Water Quality
0-59	Oligotrophic through Mid-Eutrophic	Good
60-69	Mid-Eutrophic through Eutrophic	Fair
70-100	Hypereutrophic	Poor

Climate Risk & Vulnerability Assessment: a structured process that identifies ways in which a community is susceptible to harm from climate threats and identify corrective actions that can reduce or mitigate the risk of serious consequences due to climate change. This assessment will look at the City's critical facilities, water infrastructure, economic factors, our natural resources, people and socioeconomic statistics, property, transportation, and mobility. As a city that is mostly in land but surrounded by wetlands, Winter Park is still no stranger to climate events such as hurricanes, flooding, and extreme heat. As rapid growth in development continues, we continue to find ways to be adaptable to these climate changes. Within this assessment we will have key indicators which will allow us to keep track of this data for continued planning and prevention. These indicators include: GHG Emissions, Heat (Rising Temperatures and Extreme Heat), and Precipitation.

Waste Management Hierarchy: EPA developed the non-hazardous materials and waste management hierarchy in recognition that no single waste management approach is suitable for managing all materials and waste streams in all circumstances. The hierarchy ranks the various management strategies from most to least environmentally preferred. The hierarchy places emphasis on reducing, reusing, and recycling as key to sustainable materials management.

Wastewater is used water. It includes substances such as human waste, food scraps, oils, soaps and chemicals. In homes, this includes water from sinks, showers, bathtubs, toilets, washing machines and dishwashers.

Key Assumptions for Renewable Energy Study

1. In adopting these targets, the commission has assumed that the cost of renewable technologies will drop over time. Historically, emerging technologies have achieved similar reductions in cost as economies of scale and engineering advances work together. For example: the microprocessor computing power for an iPad 2 dropped from $100,000,000 in 1980 to $1,000,000 in 1990 to $100 in 2010, huge reductions over 30 years; and the cost of solar power dropped from $700 per kWh in 2010 to under $200 per kWh in 2018, an 8-year period. See Forbes article "Declining Cost Curves Create Opportunities for Investors" 10-17-2018. There is no assurance however that the costs will decline as assumed.

2. Battery cost/kWh will drop over time
   The table below provides the costs for residential, commercial, and utility scale batteries for key milestone years.

Table 1. Battery Storage Costs for Key Milestone Years (Installed Cost - $/kWh)

Battery Energy Storage Technology	2023	2035	2042	2050
Residential BESS–2.5 hr	$1,443	$1,359	$1,359	$1,359
Commercial BESS–4 hr	$774	$729	$729	$729
Utility Scale BESS–4 hr (ESS-4)	$514	$484	$484	$484

3. Solar cost/kW will drop over time
   a. Solar Cost per kWh

Table 2.Solar PV Costs for Key Milestone Years (Installed Cost - $/kW)

Solar PV Technology	2023	2035	2042	2050
Residential Rooftop Solar	$3,400	$2,892	$2,892	$2,892
Commercial Solar PV, Rooftop (Dsolar-CommRoof)	$2,121	$1,804	$1,804	$1,804
Commercial Solar PV, Ground-mount (Dsolar-CommGround)	$2,236	$1,902	$1,902	$1,902
Utility Scale Solar PV (USolar)	$1,331	$1,253	$1,253	$1,253
Green Hydrogen-Fueled CT (CT-Hydrogen)	$1,561	$1,828	$1,828	$1,828
Biofuel Internal Combustion Reciprocating Engine (Biomass)	$520	$552	$552	$552

Note – While FMPA will be the source of some of the early solar contracts they may not be the provider for future contracts. The source of our future cost estimates is based on DOE (Department of Energy) and National Renewable Energy Laboratory (NREL) data.

   b. Generation Technology cost projects
      The general industry consensus is that the forecasted installed cost for solar and battery storage technologies will continue to decline in cost for the foreseeable future through continued manufacturing and solar PV performance improvements. In addition, legacy technologies such as

combustion turbines are expected to continue to increase in cost based on inflationary pressures. The NREL Annual Technology Baseline (ATB) projects cost declines in renewable technologies and battery storage and cost increases in legacy technologies through 2050. Supply disruptions and changing tariff structures resulted in an increase in solar PV costs in 2021 and 2022. These recent cost increases are expected to be temporary as the solar PV manufacturers adjust in response to the changing world market.

To remain conservative in the cost projections of future technology costs used in this study, Quanta Technology estimated a lower near-term price decline for solar PV and batteries than the NREL ATB estimate. In addition, Quanta Technology estimated the price declines would stabilize after ten years for solar PV and after five years for battery storage. Further price increases for the legacy generation technologies also had a similar end to their forecasted continuing escalation where their costs would stabilize. The combination of these adjustments to the future escalation of technology costs provides a conservatively high cost for solar PV and battery storage and a conservatively low cost for legacy technologies.

The graph shown in Figure 1 below presents the annual costs of the subset of technologies that were ultimately included in the supply portfolios described later in this report.

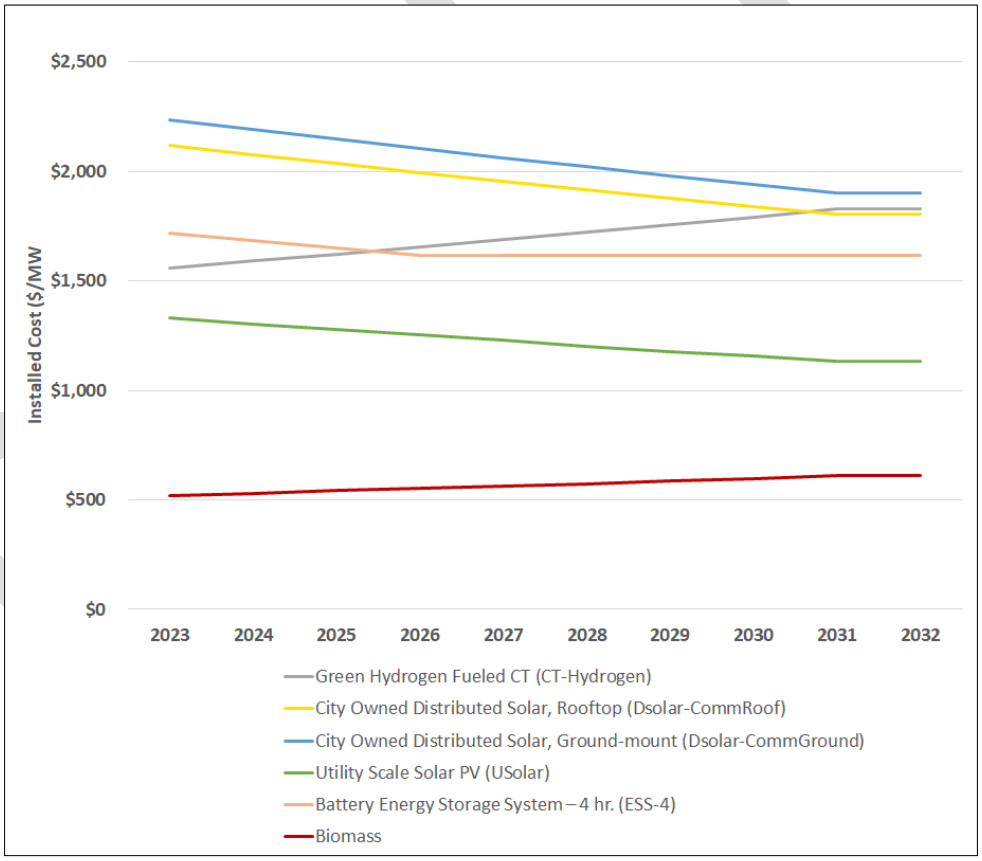


Figure 1. Projections of Generation and Storage Technologies Installed Costs

4. **Assumes that Underground Project will be completed by 2030** and the existing bonds will be paid off in 2036.

5. Burning garbage and trash emits carbon and other harmful emissions, and while it reduces dependence on fossil fuels, it is not considered by most in the industry to be renewable energy. On the other hand,

biomass generation is considered renewable energy even though it also emits carbon and other emissions. Biomass generation is renewable since it is a carbon-neutral fuel that traps carbon from the atmosphere during its growth cycle and then releases the same amount of carbon during the combustion process. Biomass generation is assumed to be a "Dispatchable" (On-Demand) Power source available at any time of day. Even though it also emits carbon and other emissions. Biomass generation is considered renewable since it is a carbon-neutral fuel that traps carbon from the atmosphere during the growth cycle of biofuels and then releases only the same amount of carbon during the combustion process. In addition, unlike solar PV, biomass generation is generally a "dispatchable" (on-demand) power source available at any time of day.

6. Quanta Technology used PPA pricing from existing CWP contracts and other data available for Florida power costs to estimate that future purchases from the Florida grid would. Florida currently relies principally on fossil-fueled resources. However, **as FPL and other utilities evolve their system to cleaner resources the power costs from the Florida grid are estimated to escalate at 2% annually regardless of the CWP decisions for its power supply.** Quanta Technology also assumed that the purchased power market in Florida would continue to provide CWP options to purchase specific types of power from large suppliers, such as FPL, OUC, and the FMPA.

7. In addition to "Variable Costs" of power such as the cost per kWh to buy from suppliers and the pass through of fuel costs, WPPC has "Fixed Costs" of maintaining the distribution system including the grid, power lines, and transformers. **WPPC's Fixed Costs are expected to inflate by approximately 3%.**

8. WPPC expects that demand will increase to accommodate Electric Vehicles and will decrease as homes and businesses become more Energy Efficient.
    1. "Expected" Demand Growth Rate = 0.09%/yrs. "High" Demand Growth = 1.15%
    2. **"Expected" Energy Reduction from Energy Efficiency = 2% reduction/year for 5 years, which means that 10% less energy (compared to 2023) will be used by homes and businesses by 2028.** Efficiency comes from:
        a. LED lighting, Heat Pumps instead of old resistance heating in Winter, better attic and wall Insulation, double pane energy efficient Windows
        b. Distributed Batteries and Solar from residential and commercial which allows the peak energy periods to level out with [Demand Response (DR) or Demand Side Management (DSM)] programming. In other words, homes and businesses use their own batteries during the times when the most energy is needed.

9. **This study DOES NOT assume electric grid upgrades are needed or funded for larger power lines or transformers**. Evaluating the Grid requirements as Residents install more Solar and Battery Walls will be part of the Strategic Planning background study.

10. Hurricane Outage Management: Sizing the Batteries or planning for back-up "Dispatchable"/On-Demand power for a Hurricane Event were not part of the Consultant's original scope. However, in a subsequent addition to the Consultant' scope two new scenarios 4A and 4B were added to estimate the increase in supply costs of a plan that provides resiliency for the potential of four days of disruptions to the CWP solar energy supply due to a hurricane or a severe tropical storm. The costs for repeated severe events occurring in 2023, 2035, 2042, and 2050 were estimated.

    - A new scenario 4A assumes the production output of all utility-scale solar PV contracted by CWP is significantly impacted for four days while all other generation sources remain unchanged. 100% of

the replacement energy during severe weather events is assumed to come from batteries contracted for or owned by CWP.

- A second new scenario 4B assumes the production output of all utility-scale solar PV contracted by CWP is significantly impacted for four days while all other generation sources remain unchanged. **The replacement energy during severe weather events is assumed to come from grid purchases from reserve units, generally older and less efficient fossil units in scenario 4B. Presumably, this premium will be recovered in the fuel cost adjustment.**

All other assumptions for the hurricane scenarios follow those defined in Scenario 3A. The results of the analysis are provided below.

Table 3 of Scenarios 3A, 4A and 4B

Year	Scenario 3A	Scenario 4A	Scenario 4B
20-year PVRR – 2023 to 2042 ($M)	505	637	558
LCOE based on 20-year PVRR ($/MWh)	90	113	99

11. Under Scenario 3A, While the Consultant recommends prioritizing Utility Scale Battery Storage over City owned ground and rooftop solar, the report assumes that the City Invests heavily in Solar Power as follows:

Table 4 and Costs of Solar PV on CWP Owned Buildings and Vacant Land

Year	Cumulative City Rooftop PV (MW)	Cumulative City Ground Mount PV (MW)	Cumulative Total MW)	Cumulative Cost ($M)
2035	0.98	0.98	1.96	$3.8
2042	**0.98**	**2.95**	**3.94**	**$7.5**
2050	0.98	2.95	3.94	$7.5

Currently there is no city land set aside for Ground based Solar.

However, Under Scenario 3E, there is no requirement of the City to own Solar on City Owned property. However, there is an expectation that, depending on the capacity to issue bonds and borrow for the cost of construction, the City may own Solar if the business case and benefit are deemed appropriate.

12. Assumes that the purchased power market continues to allow WPPC to purchase power from large suppliers, such as Florida Power, OUC, Florida Municipal Power Authority and independent power developers.

13. Adoption of Residential Electric Vehicles, Solar Panels, and Energy Storage/Batteries are assumed to be closely aligned and increasingly adopted as roofs and vehicles are replaced. The study expects a reduction in net energy supplied to residents. The study does NOT assume significant buyback of Solar power under net metering and does NOT assume any "Virtual Power Plant" benefits, although both may occur if "Time of Use" rates are implemented as recommended. The study assumes Residents will invest in Electric Vehicles, Roof top Solar and Batteries voluntarily at their personal cost. **By 2042, the study forecasts:**

- **Up to 95% of the registered vehicles in CWP may be electric vehicles.**
- **Approximately 35% of residential rooftops will have solar PV installed**, with the capacity to generate approximately 49,000 MWh of energy per year, which is approximately 11% of the total CWP requirement.
- **Approximately 35% of residences will have battery energy storage systems (BESS) installed**.

Proforma Financial Projection Assumptions- Based on Actual History and Experience. Incorporates Cost of Electricity and estimated demand originating from the Quanta Study.

14. In the forecast of the production costs for years 2043-2050 when Clean Hydrogen Combustion Turbine (CT-Hydrogen) begins to play an important role in the renewable energy strategy, the Commission has assumed a cost for power from a portfolio of substantially carbon free resources will average of $133/MWh for power costs in 2042. These costs reflect the costs prior to the introduction of any costs associated with a CT-Hydrogen resource or another clean technology that could supply a firm dispatchable resource. In this analysis, the addition of the CT-Hydrogen resource is forecast to drive the average power costs to $255/MWh in 2050, largely due to the cost forecast of clean hydrogen costs of $366/MWh in 2050.

    The Commission is unwilling at this time to accept a plan through 2050 that includes the current costs assumptions for CT-Hydrogen. At this time, the Commission can support a conditional plan that establishes an upper limit to the average power costs after 2042 that would not exceed 3% escalation from the costs forecast for 2042. This 3% escalation limit would require a significant reduction in the costs of CT-Hydrogen or an alternate carbon free generation technology that could serve the same role in the City's power portfolio.

    The Commission is willing to accept power costs reflecting a 3% escalation from the 2042 costs of $133/MWh, yielding a maximum acceptable average power costs in 2050 of $168/MWh. More specifically, **the commission adopts values for the Maximum Annualized Power costs shown in the right column of the following table**.

Table 5 Power Costs

Year	Annualized Cost ($/MWh)	Annualized Cost ($/MWh) escalated at 3% after 2042	LCOE ($/MWh) with a 3% escalation	Maximum Acceptable Annualized Power Costs
2023	**$72**		$70	
2024	$72		$73	
2025	$72		$75	
2026	$74		$77	
2027	$75		$79	
2028	$77		$82	
2029	$78		$84	
2030	$77		$87	
2031	$76		$89	
2032	$80		$92	
2033	$84		$95	
2034	$89		$97	
2035	$91		$100	**$91**
2036	$107		$103	
2037	$112		$106	
2038	$119		$110	
2039	$126		$113	
2040	$133		$116	
2041	$133		$120	
2042	$133	$133	$123	**$133**
2043	$132	$137	$127	
2044	$131	$141	$131	
2045	$127	$145	$135	
2046	$131	$150	$139	
2047	$136	$154	$143	
2048	$140	$159	$147	
2049	$138	$164	$152	
2050	$255	$168	$156	**$168**

15. Residential Revenues Average $/kWh are based on rates effective May 1, 2023. **The baseline Proforma assumes a 3% annual cost of power increase** (which corresponds to the 3% "Cost Recovery Growth/Escalation Rate" illustrated by the orange line on Figure 30 of the study report results for Scenario 3D

16. Commercial Revenues Average $/kWh are based on Trailing 12 months history but have been adjusted to reflect the elimination of "Legacy Time of Use Rates" (which are carryovers from the City's acquisition of the Power Company from Duke Power) and the current rates which became effective May 1, 2023. **The baseline Proforma assumes a 3% annual cost of power increase** (which corresponds to the 3% "Cost Recovery Growth/Escalation Rate" illustrated by the orange line on Figure 30 of the study report results for Scenario 3D).

17. No “Time of Use” or “TOU” rates are currently in effect, nor are they included in the cash flow forecast at this time. Future strategic plans will likely add TOU rates to incentivize load management.

18. Revenues include franchise fees. Revenues do NOT include Utility Taxes or Sales Taxes, which are a pass through to the city and state, respectively. Revenues include Fuel Cost Adjustments even though they are a “pass through” and are also shown as part of the Cost of Electricity expenses.

19. **Fixed Operating and Grid Costs are based on the City’s ten-year proforma for the fiscal year beginning October 1, 2023.**

20. Cost of Electricity is itemized based on source of energy. The Fuel Cost Adjustment Expense is itemized based on the source of fuel and equals the Fuel Cost Adjustment Revenue. In other words, the Fuel Cost Adjustment is an “in and out” line item.

21. Operating Transfers Out is the franchise fee and the revenue share transferred to the General Fund for general government purposes.

22. Cumulative Reserves are the working capital (current assets minus current liabilities) requirements established by the City’s Administrative Policy which requires a minimum of 45 days operating expenses excluding amortization. Any excess would be used for capital projects and for the transitional costs to renewable energy.

23. Debt Service is the principal and interest required on bonds.

24. Capital Projects include the undergrounding project and other construction projects. Inventory Purchases are for major equipment and supplies such as transformers. Replacement Reserves are reserves set aside for periodic replacement of capitalized equipment, systems and building components.

25. **Investment in or Debt Service on Renewable Energy generation or storage. This includes construction of City owned solar; construction of City owned Battery storage systems; debt service on “green bonds” issued to construct city owned assets; co-investment in joint ventures that will own renewable energy generation or storage. This does not include long-term purchase power commitments.**

26. **The Baseline Budget and Proforma financial projections both assume the same amortization of the CWP debt incurred to finance the undergrounding of the CWP distribution system. with the existing bonds paid off in 2036.**