

Energy Facilities Master Plan


January 16, 2024



**Dublin San Ramon
Services District**

Water, wastewater, recycled water


Agenda

- 
- Overview
 - Projects and Timing
 - Energy and GHG Reductions
 - Next Steps

Strategic Plan

Improve energy efficiency and reliability for the District

- Develop a District **energy policy** and District **energy master plan** that evaluates sustainable energy sources and opportunities for cost-effective energy consumption and efficiency
- Initiate cost-effective **energy projects** consistent with the District's energy policy, business needs and future regulations



The graphic features a purple header with the Dublin San Ramon Services District logo and tagline. Below is a large orange title for the strategic plan goals. The content is organized into several columns of bullet points under various sub-headings. A yellow box highlights the goal to improve energy efficiency and reliability.

Dublin San Ramon Services District
Water, wastewater, recycled water

STRATEGIC PLAN GOALS AND ACTION ITEMS— FYE 2024 - 2028

- Maintain our financial stability and sustainability**
 - Manage the District's finances to meet funding needs and maintain fair and reasonable water and wastewater rates, while striving to limit increases to general inflation trends
 - Ensure financial sustainability through long-term financial planning, including 10-year modeling
 - Review and update the District's reserve policies
- Meet or exceed regulatory requirements while preparing for the future regulatory landscape**
 - Sustain a robust safety culture by continuously updating the District's environmental health and safety programs
 - Develop and maintain a centralized regulatory tracking system
 - Collaborate with partner agencies to monitor evolving regulatory requirements and explore potential compliance and mitigation strategies
 - Implement improvements to comply with standards adopted by the Environmental Laboratory Accreditation Program beginning January 1, 2024
- Enhance our ability to respond to emergencies and maintain business continuity**
 - Update and maintain documentation of emergency response and business continuity plans, including support documents for regional coordination and mutual assistance
 - Manage inventory of emergency assets, equipment, and materials in stock
 - Integrate and strengthen employee knowledge and competency of emergency response through ongoing training and Incident Command System (ICS) and Emergency Operation Center (EOC) exercises
 - Explore coordination of emergency planning with partner agencies and the cities we serve
- Maintain a high level of customer service and community relations through public outreach, education and partnership efforts**
 - Educate and engage the community on the Tri-Valley's water supply challenges and opportunities through implementation of the Tri-Valley Water Reliability Public Information Program
 - Build public awareness of the District's priorities, initiatives, systems, and services
 - Leverage Tri-Valley and regional partnerships to maximize public outreach efforts
- Improve the resiliency of the District's water supplies against future uncertainties**
 - Work collaboratively with our Tri-Valley and regional partners in the development of a more diversified and resilient water supply
 - Prepare and implement water conservation strategies to reduce water demand, improve system reliability, and comply with state regulations
- Foster long-term partnerships to provide efficient and cost-effective services**
 - Build relationships and actively participate in local partnerships, regional groups, coalitions, and associations to advance common goals
 - Review and update our Joint Powers Authority and other interagency agreements and contracts to address changing conditions and align with the District's Mission and Strategic Plan goals
- Optimize the Asset Management Program to guide District business decisions**
 - Standardize and implement District-wide procedures and plans for the Asset Management Program
 - Expand and maintain asset records including equipment data, criticality, maintenance history, asset condition, and performance
 - Use asset management data to maximize the life of assets and budget for long-term capital replacement needs
- Improve energy efficiency and reliability for the District**
 - Develop a District energy policy and District energy master plan that evaluates sustainable energy sources and opportunities for cost-effective energy conservation and efficiency
 - Initiate cost-effective energy projects consistent with the District's energy policy, business needs, and future regulations
- Maintain a culture that attracts, retains, and engages a high performing workforce in support of the District's Mission and Values**
 - Diversify and strengthen the skills of District employees to meet evolving workforce demands through participation in professional organizations and development programs
 - Implement a structured management and leadership program for employee career and professional growth
 - Promote a strong District workforce culture which encourages learning, teamwork, and recognition of employee contributions, and enhances employee engagement
 - Develop a succession plan for key positions where feasible
- Optimize District-wide operations by improving our business practices, procedures, and information systems to meet evolving needs**
 - Invest in business process improvements to enhance communications and access to information
 - Integrate our business enterprise systems to more effectively share data across the District
 - Review and update our Information Technology and SCADA Master Plans

Updated April 2023

Overview

- All-Encompassing Review of All District Facilities
- Energy Master Plan
- Energy Policy
- Capital Improvement Program



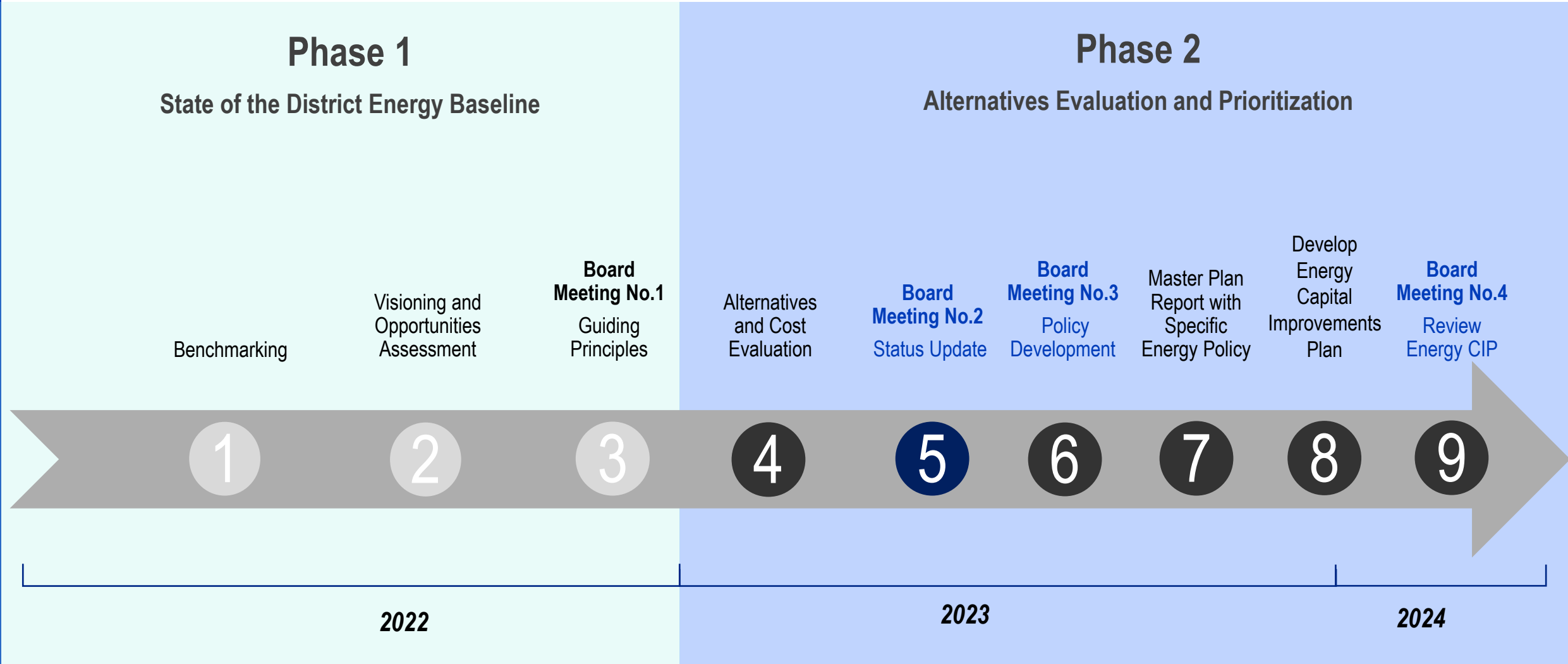
DRAFT EXECUTIVE SUMMARY

DSRSD ENERGY FACILITIES MASTER PLAN

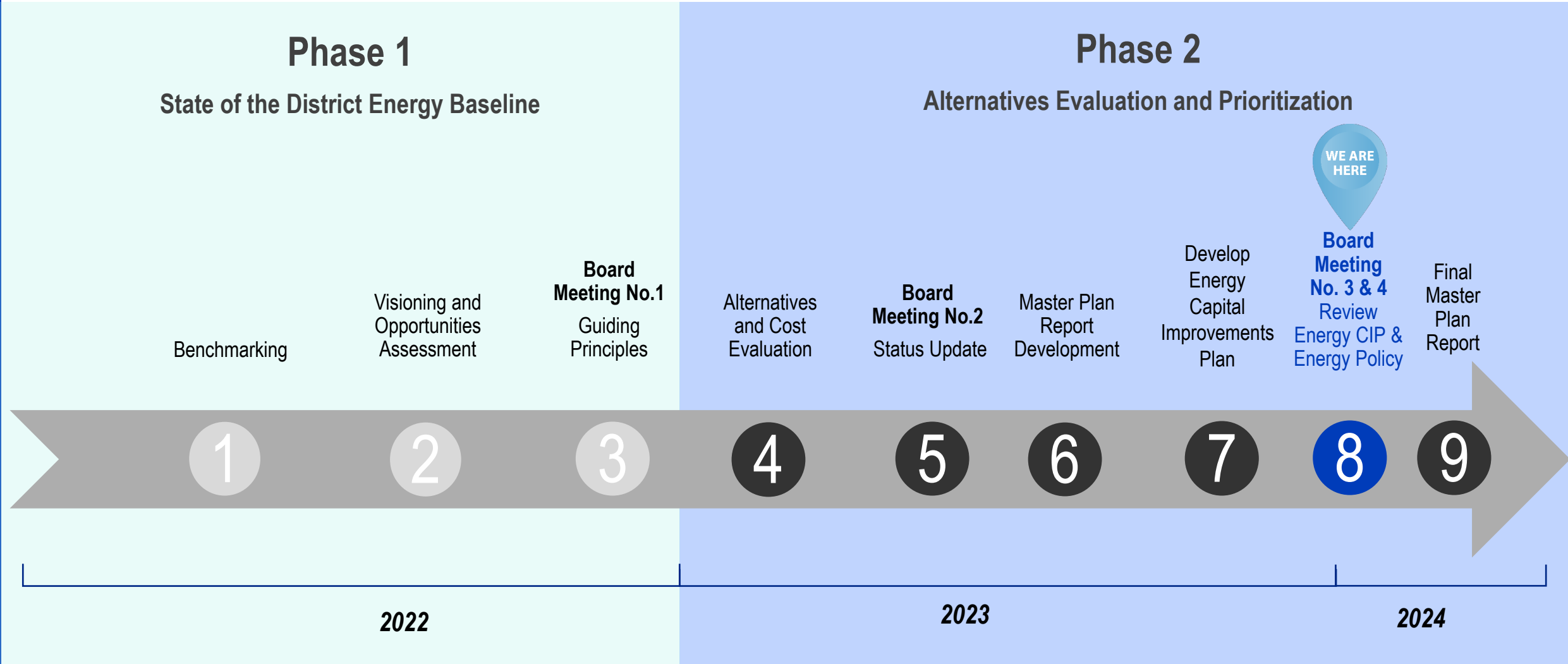
January 2024



Scope of Phase 1 and 2 of this Planning Project

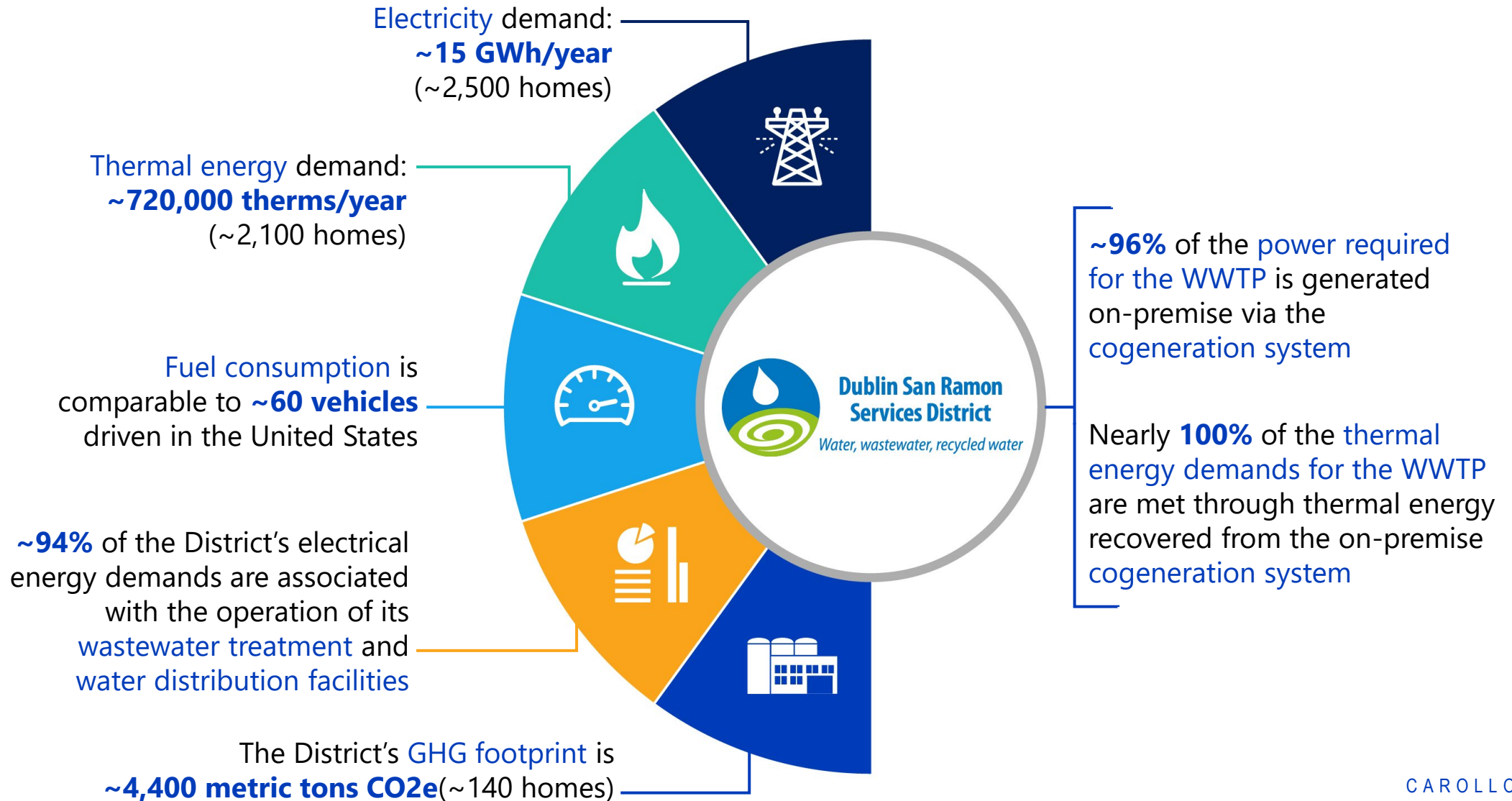


Scope of Phase 1 and 2 of this Planning Project

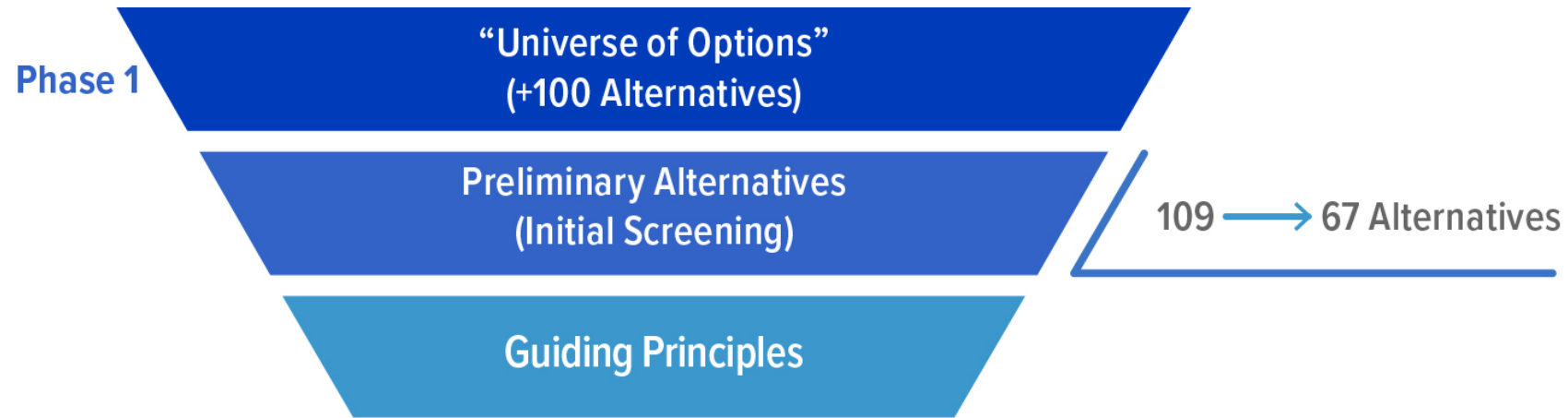


Phase 1 Summary

Summary of the Baseline Findings



Master Planning Process

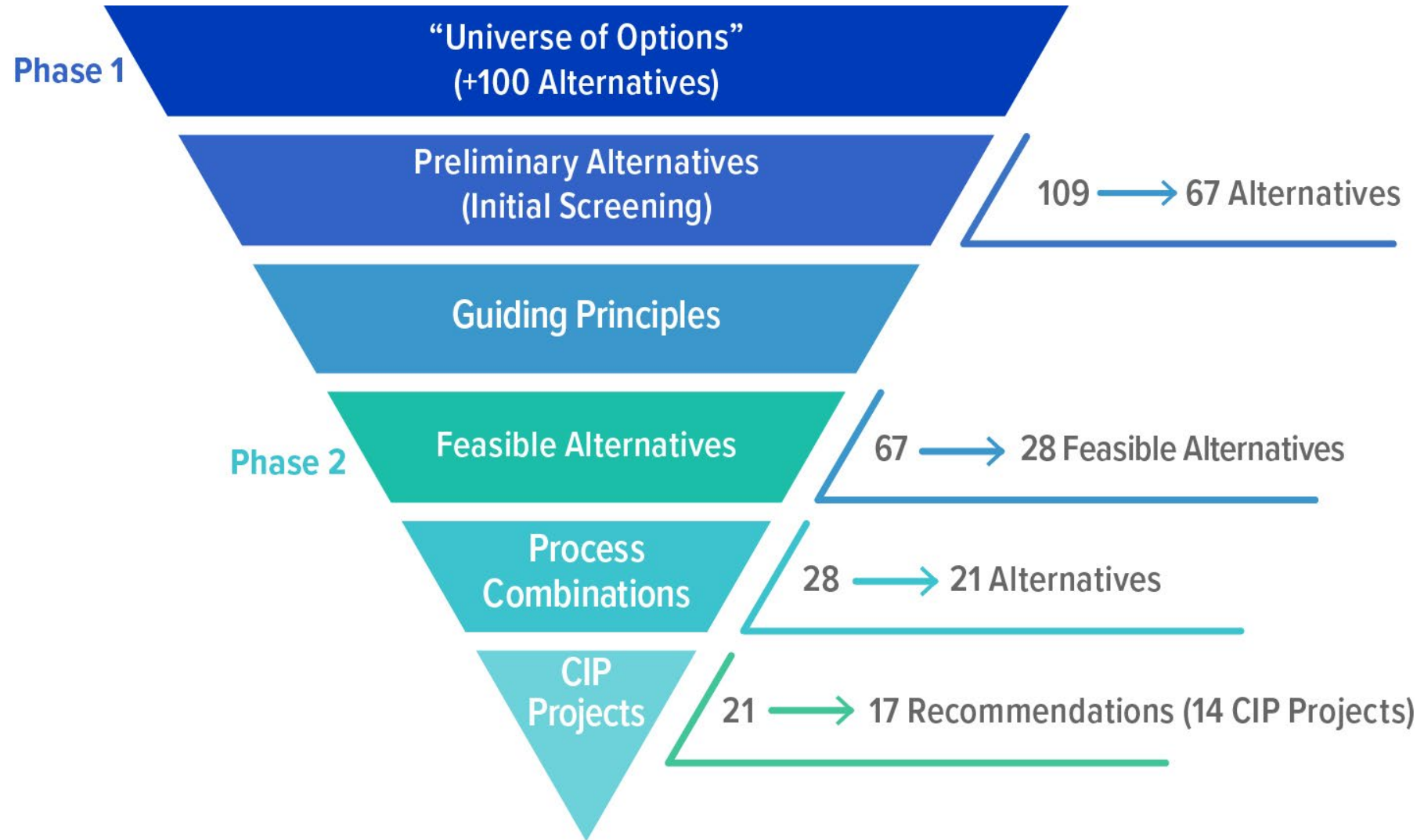


Energy Guiding Principles Review

1. Strive to establish a **diverse, reliable, and resilient energy** supply portfolio for operation of its facilities.
2. **Comply with all regulatory energy and GHG related mandates** and strive to exceed them when related investments are cost-effective with consideration to the anticipated payback period and life cycle cost.
3. **Capital improvements** shall consider the **impact on energy demand, energy efficiency, and GHG impacts** where relevant.
4. Seek opportunities to **offset any additional future energy demands** with **renewable energy** production.

| Phase 2 Summary – | Proposed CIP

Master Planning Process



Projects

CIP Project Summary

Regulatory Compliance

1. Fleet Assets Program

Renewable Energy Generation/Energy Diversification

6. Off-Site Solar Power
7. Battery Storage
8. On-Site Solar Power, Battery Storage and EV Charging Stations
9. Co-Digestion of Food Waste
10. Additional Cogeneration Engine

Asset Replacement (Efficiency)

2. Cogeneration Engine Replacement
3. Aeration System Upgrades
4. DAFT Replacement with Mechanical Thickening
5. WWTP HVAC Replacements

Electrical Resiliency/Reliability

11. Install Load Bank for DP-G
12. Reconfigure Switchgear for Power Outages
13. WWTP Electrical Improvements – Phase 1
14. WWTP Electrical Improvements – Phase 2

CIP Project Summary

Regulatory Compliance

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Regulatory Compliance

Project 1: Fleet Assets Program

Description

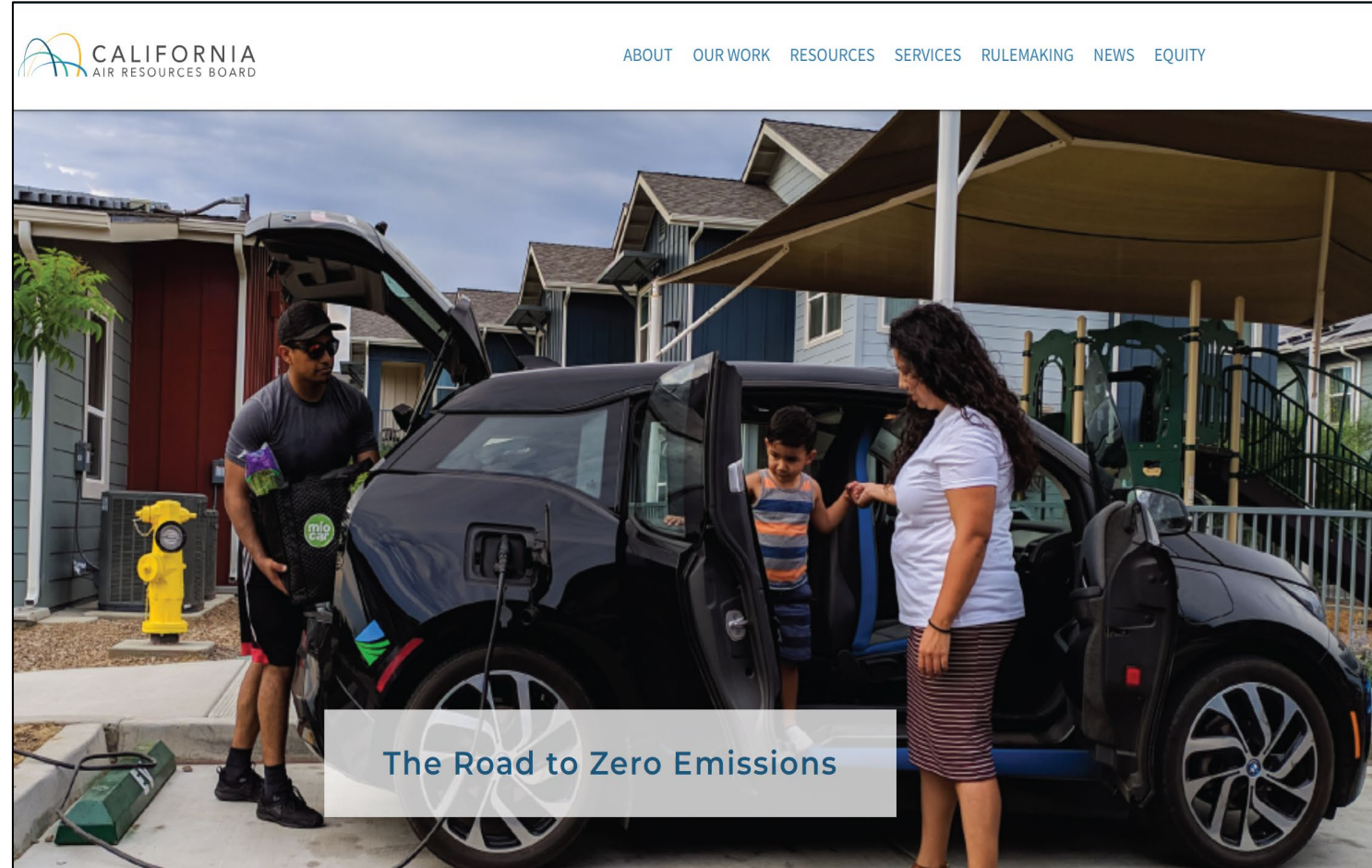
- » Fleet vehicle replacements to comply with new regulations
- » Starting in 2027, replacements must be Zero Emission Vehicles (ZEVs)

Justification

- » Required to comply with regulations

Capital Cost: \$13.0 M over 20 years

Project Implementation: Starting in 2025, and as fleet assets are replaced



Asset Replacement

Project 2: Cogeneration Replacement

Description:

- » Two 700 kW engines in a new building

Justification:

- » Cogeneration equipment nearing end of useful service life (30-40 years old)
- » Newer engines will provide 20% more power to offset future demands

Capital Cost: \$44.4 M

Project Commencement : FYE 2026 to maximize IRA funding incentives

Funding: Up to 30% available through IRA



Renewable Energy Generation & Energy Diversification

Project 6 & 8: On-Site/Off-Site Solar, Battery Storage and EV Charging Stations

Description

- » New solar facilities on DSRSD properties, including battery storage and EV charging

Justification

- » Stabilization of energy costs
- » Offsets future energy demands with renewable energy source
- » Supports next generation of Zero Emission Vehicles (ZEVs)

Capital Cost: \$18.4 M



Renewable Energy Generation & Energy Diversification

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Justification

- » Stabilization of energy costs
- » Offsets future energy demands with renewable energy source
- » Supports next generation of Zero Emission Vehicles (ZEVs)

Capital Cost: ~~\$18.4 M~~, Purchase Power Agreement

Project Commencement: FYE 2025

Funding: PPA



Renewable Energy Generation & Energy Diversification

Project 9: Co-Digestion of Food Waste & Other High-Strength Wastes

Description:

- » Waste receiving facility for feeding digesters

Justification:

- » Regional Partnerships to help jurisdictions meet requirements of SB 1383
- » Offsets future energy demands

Capital Cost: \$3.9 M

Project Commencement : FYE 2026 to maximize IRA funding incentives and customer base

Funding: Up to 30% available through IRA



Energy Resiliency & Reliability

Project 13 & 14: WWTP Electrical Improvements

Description

- » Improvements to address issues with load and short circuit deficiencies
- » Implemented in 2 phases

Justification

- » Provides for resiliency of equipment by preventing failures due to overloads

Capital Cost: \$6.2 M

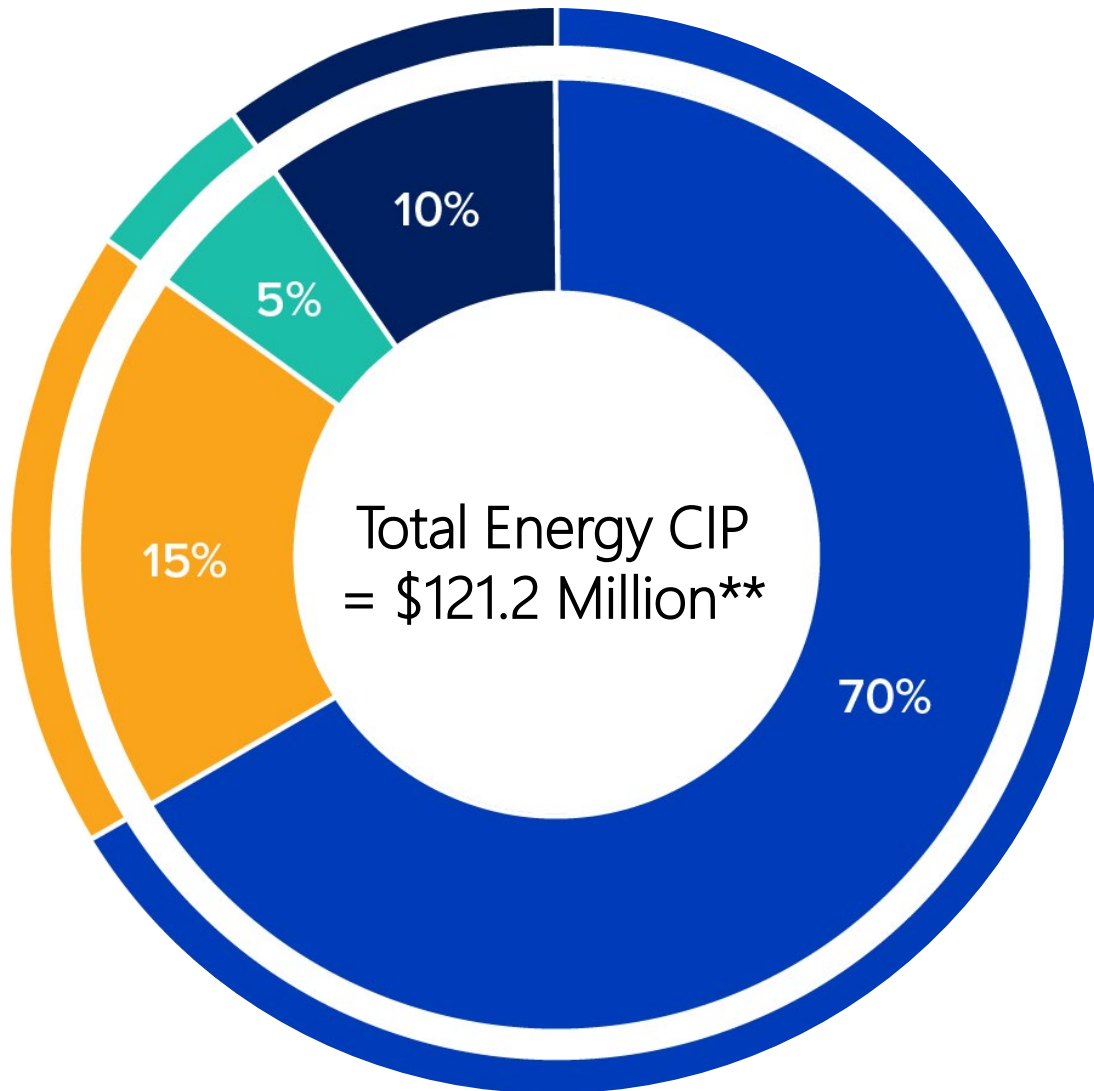
Project Commencement : FYE 2025 to address immediate needs and provide continued reliability of electrical distribution infrastructure



Non-CIP Project/Initiative Summary

Project	Opportunities Included	Justification
Project 15: Fats, Oils, and Grease (FOG) Facility Activation	Co-digest FOG	Reduction of 1,230 metric tons in carbon dioxide equivalents for a slight increase in operating costs (\$300k).
Project 16: Potable Water Distribution System Improvements	Address pump performance issues identified.	Efficiency issues associated with poor pump performance not only impact energy use but reduce the life of equipment and impact system reliability.
Project 17: Energy Management Improvements	Renewable Energy Generation Partnerships <hr/> Alternative Power Monitoring <hr/> Energy Decision Management Tools <hr/> Staff Focus on Energy Management	Allows for better energy management decisions by understanding where power is consumed.

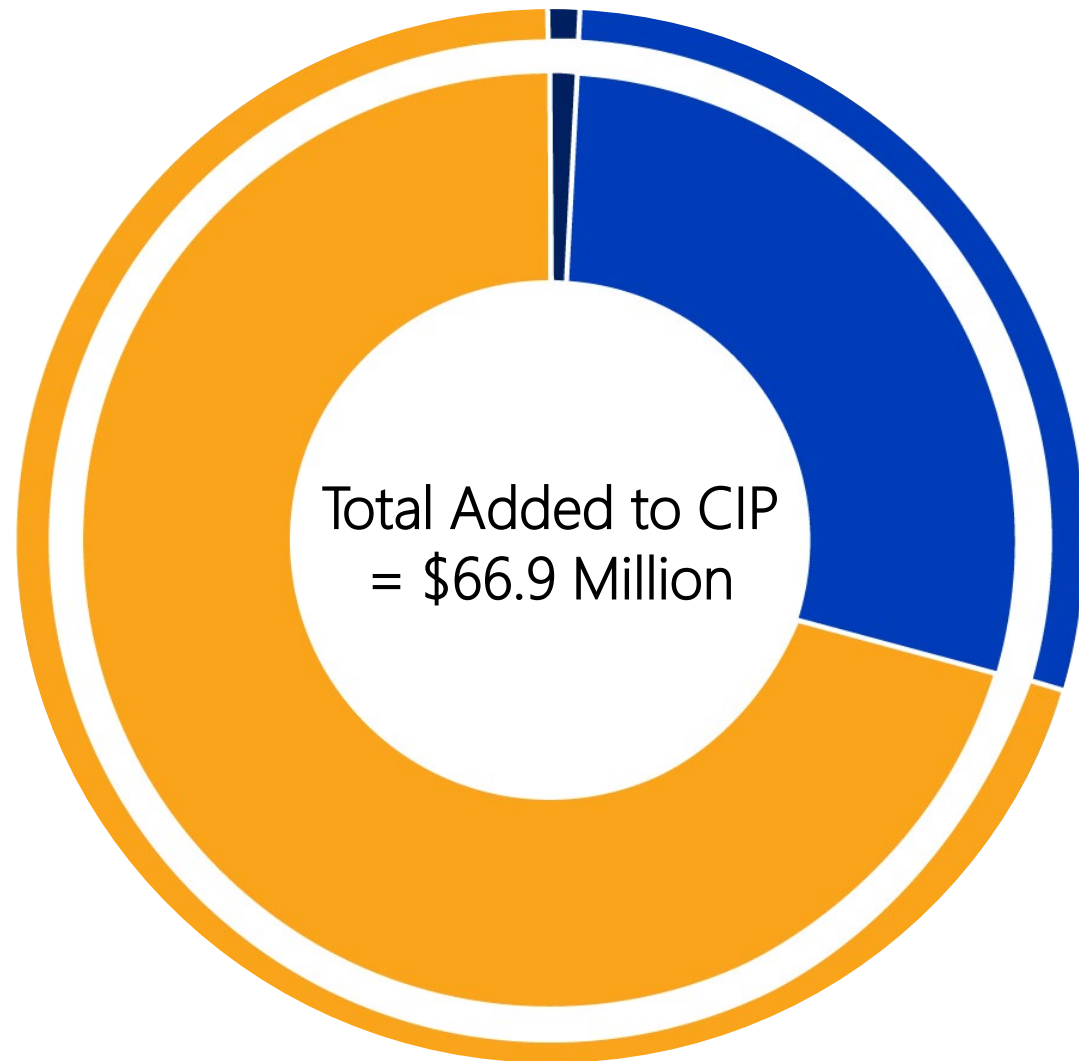
\$121.2 Million Energy Capital Improvement Program



Project Type	Total
Asset Replacement	\$84,500,000
Regulatory Compliance	\$11,700,000
Energy Resiliency	\$6,500,000
Renewable Energy Generation/Diversification	\$18,500,000
Solar Projects funded through PPA	\$121,200,000**

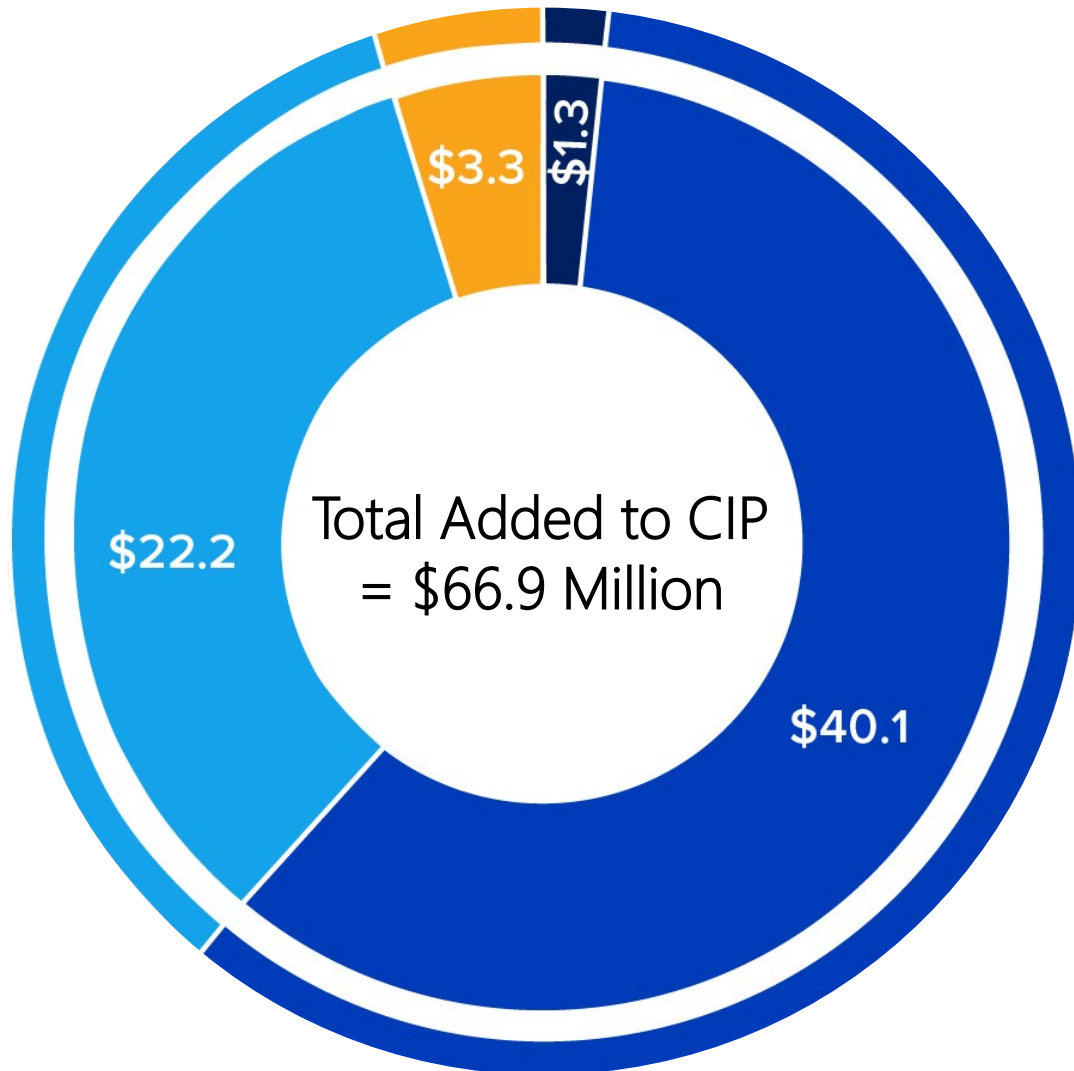
**Total Energy CIP without Solar Projects Funded through PPA is approximately \$139.4 million

\$66.9 Million Added to Capital Improvement Program



- **\$500,000** increase to **2-Year CIP Budget** (<1% increase)
- **\$19.7 Million** increase to **10-Year CIP Plan** (6% increase)
- **\$47.2 Million** increase to **11-25 Year CIP**

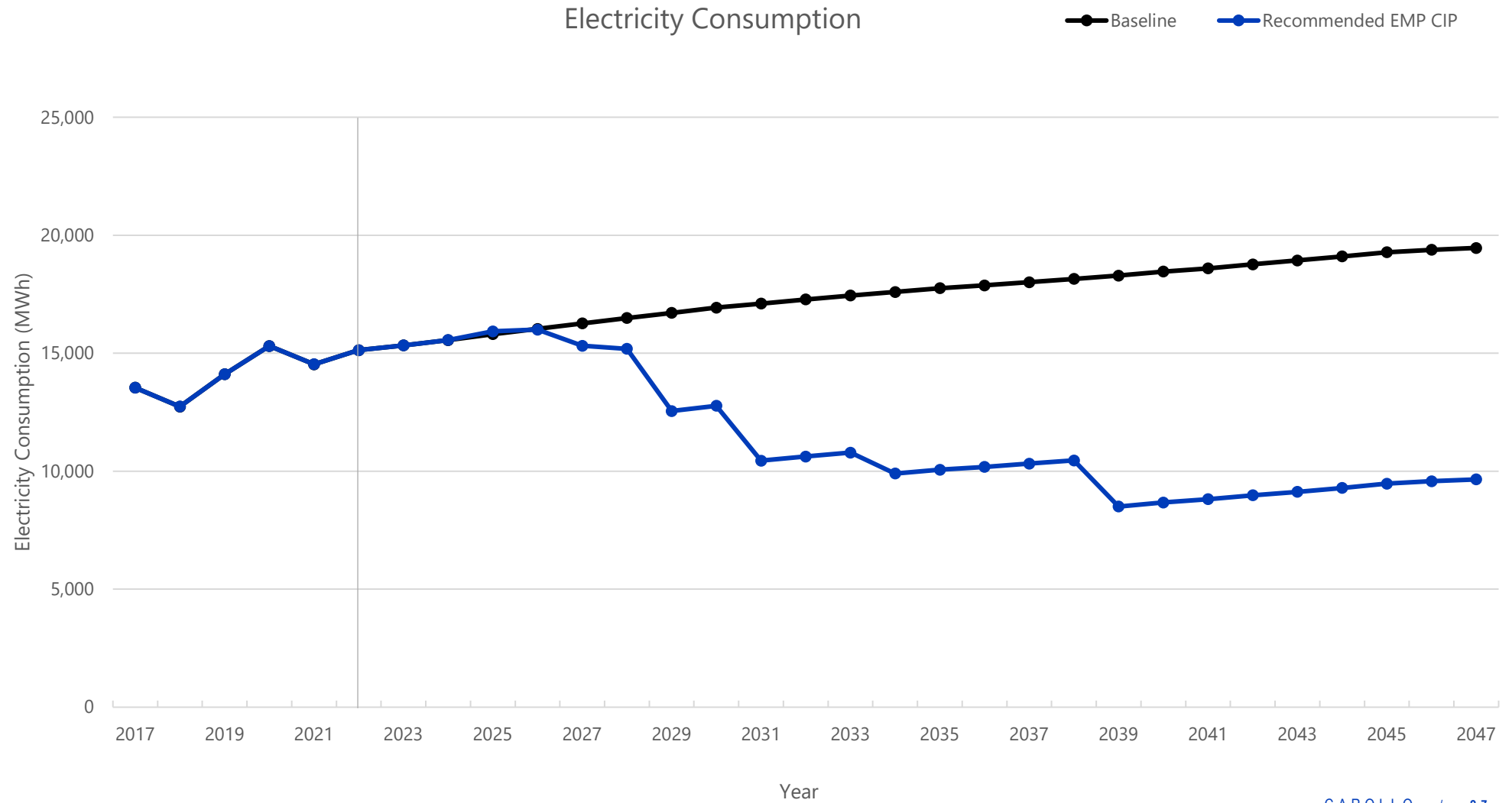
\$66.9 Million Added to Capital Improvement Program



- Fund 210: **+\$1.3 Million**
Local Wastewater Replacement Fund
- Fund 310: **+\$40.1 Million**
Regional Wastewater Treatment Replacement Fund
- Fund 320: **+\$22.2 Million**
Regional Wastewater Expansion Fund
- Fund 610: **+\$3.3 Million**
Water Replacement Fund

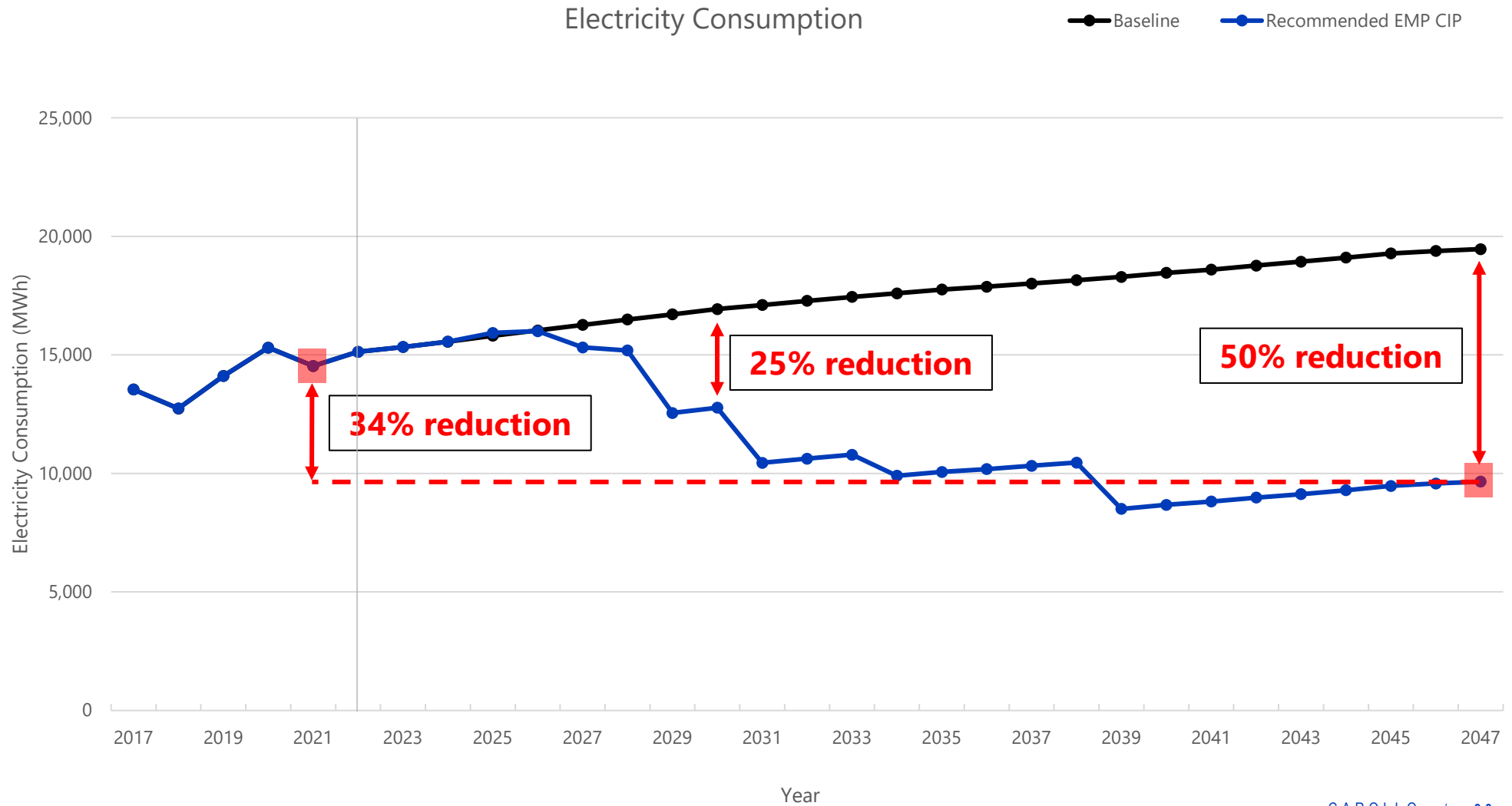
Energy and GHG Reductions

Energy Impacts

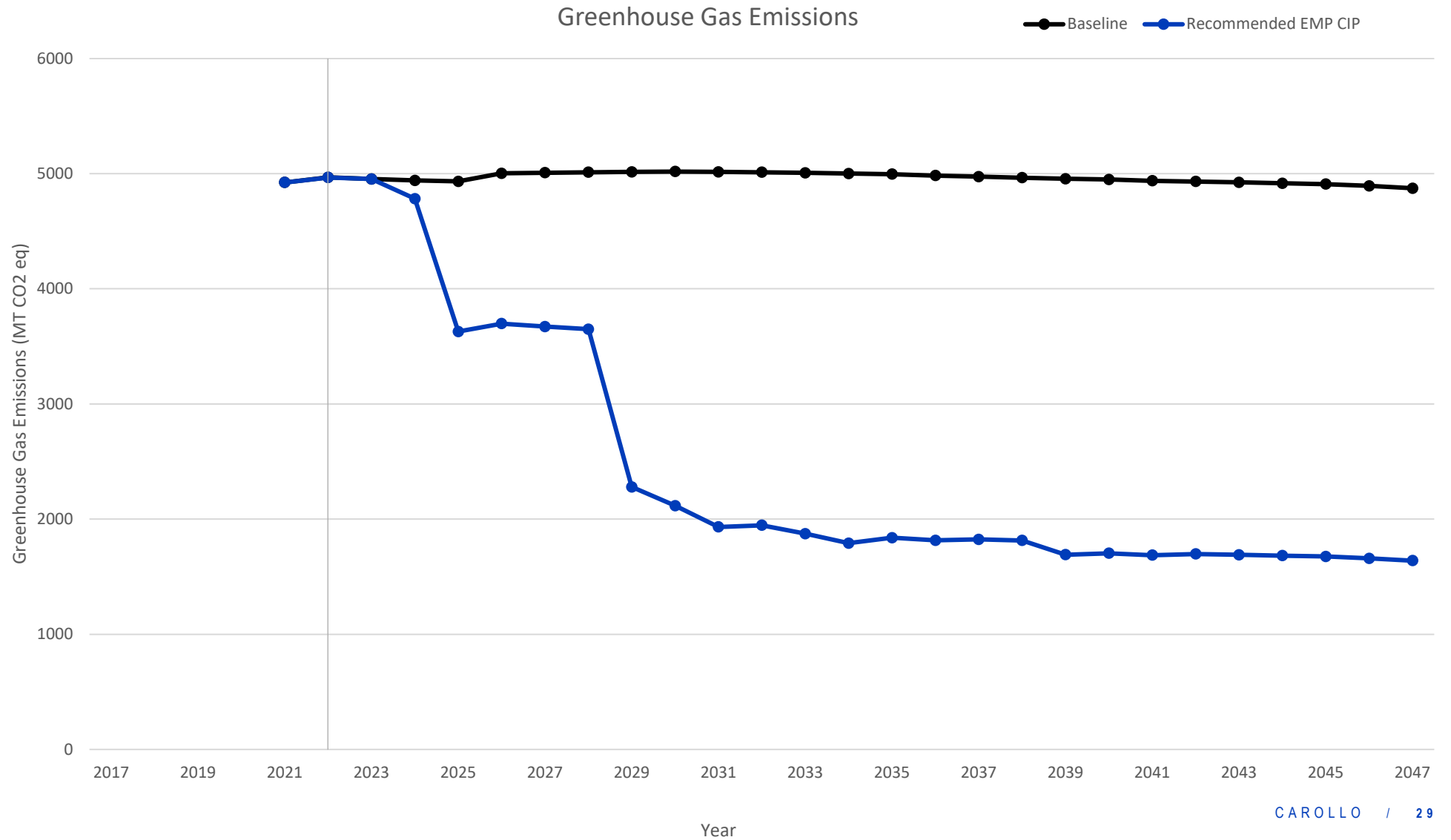


Energy Impacts

- 34% reduction from 2021 baseline
- 25% reduction in electricity consumption by 2030
- 50% reduction by 2047
- \$21 million total savings

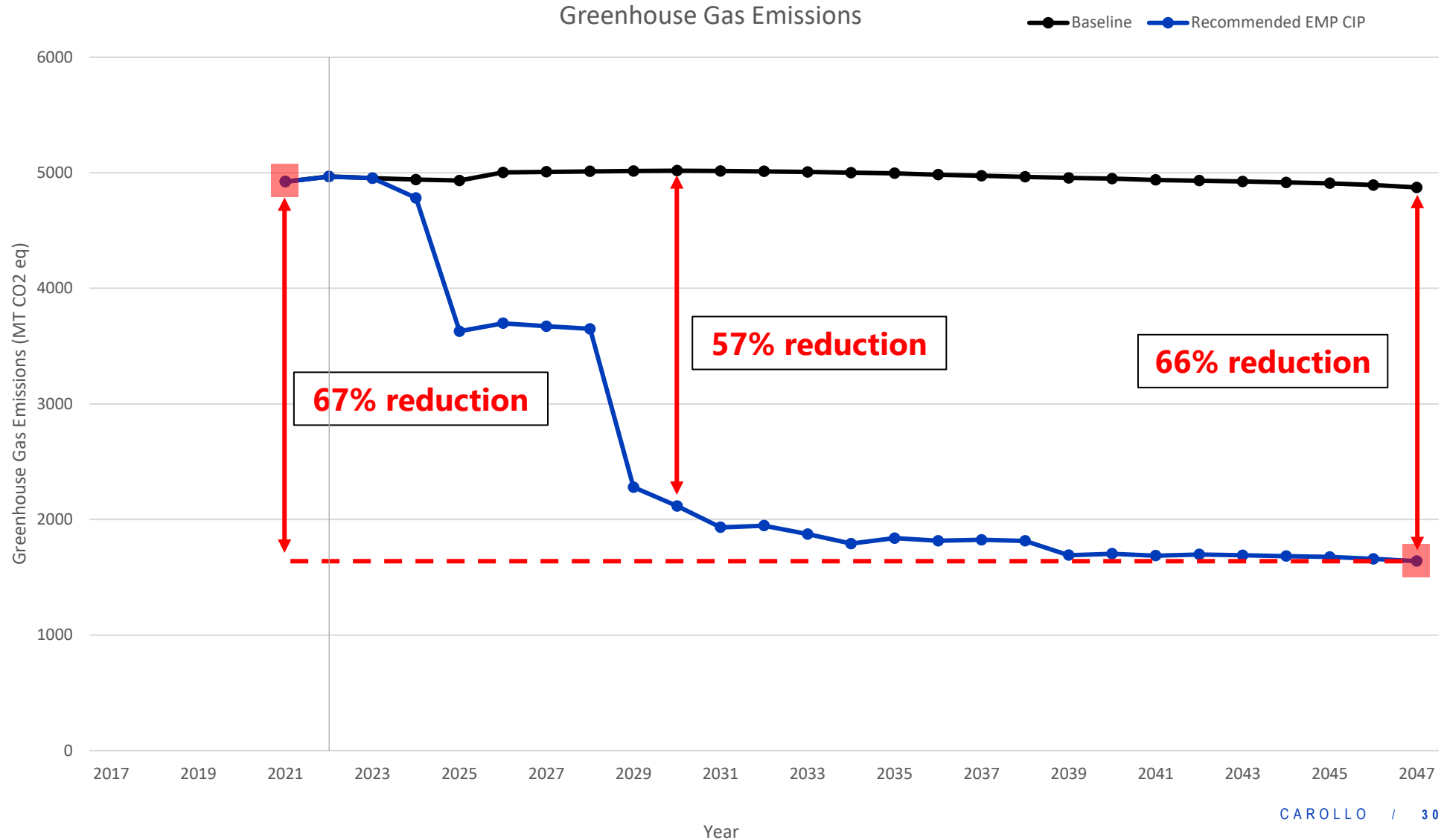


GHG Emissions Impacts



GHG Emissions Impacts

- 67% reduction from 2021 baseline
- 57% reduction by 2030
- 66% reduction by 2047



Summary and Next Steps



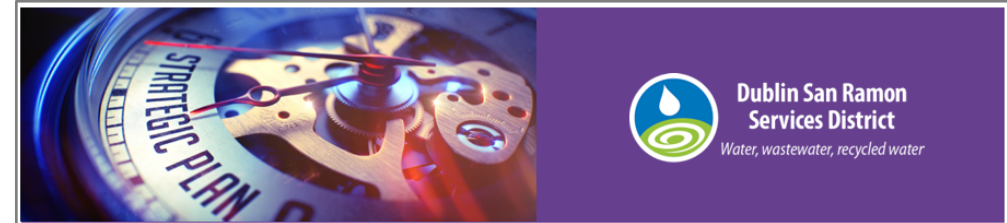
Energy CIP Key Points

- **17 Projects – 14 CIP and 3 Non-CIP**
- **\$121.2 Million (Total Energy Master Plan CIP)**
 - Additional **\$66.9 million** to overall **CIP**
 - Increase of **\$500,000** (<1% increase) to **2-year CIP** budget
 - Increase of **\$19.7 million** (6% increase) to **10-year CIP** plan
- **Energy and GHG Impacts**
 - Reduce **energy** consumption by **50%**
 - Reduce **GHG** Emissions by **66%**
- **Other Major Benefits**
 - Stabilizes and reduces energy costs
 - Diversifies energy supplies with renewable energy
 - Ensures regulatory compliance for the District's fleet
 - Improves energy reliability

Energy Policy

Improve energy efficiency and reliability for the District

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Updated April 2023



Energy Policy

- Energy Diversification, Reliability and Resiliency
- Regulatory Compliance
- Reduce Energy Consumption, Enhance Energy Efficiency, and Reduce Greenhouse Gas Emissions
- Offset Future Energy Demands and GHG Emissions through Renewable Energy
- Fleet Management
- Funding Opportunities

Next Steps

Finalize the Energy Facilities Master Plan

Adopt the Energy Policy

Amend the current CIP to add two new projects, and advance one existing project

- » Onsite Solar, Battery Storage, EV Charging
PPA/\$100,000 in FYE 25
- » Offsite Solar Power
PPA/\$100,000 in FYE 25
- » WWTP Electrical Improvements
\$300,000 in FYE 25

Staff to assess strategies to incorporate **other projects** into CIP; recommendations will be made as part of the development of the **next CIP**




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Capital Improvement Program
TEN YEAR PLAN — Fiscal Years 2024 through 2033
TWO YEAR BUDGET — Fiscal Years 2024 and 2025



Questions