Dublin San Ramon Services District
Water, wastewater, recycled water

Board of Directors

AGENDA

NOTICE OF SPECIAL MEETING
TIME: 6 p.m.
PLACE: Regular Meeting Place
7051 Dublin Boulevard, Dublin, CA

DATE: Tuesday, September 27, 2022

The Boardroom is open to the public during open session. Due to the COVID-19 pandemic, meeting attendees are required to conduct a self-screening before entering District facilities. Face coverings are optional.

Our mission is to protect public health and the environment by providing reliable and sustainable water, recycled water, and wastewater services in a safe, efficient, and fiscally responsible manner.

1. CALL TO ORDER

2. PLEDGE TO THE FLAG

3. ROLL CALL – Members: Goel, Halket, Johnson, Rubio, Vonheeder-Leopold

4. PUBLIC COMMENT (MEETING OPEN TO THE PUBLIC)
At this time those in the audience are encouraged to address the Board on any item of interest that is within the subject matter jurisdiction of the Board and not already included on tonight's agenda. Comments should not exceed five minutes. Speaker cards are available from the District Secretary and should be completed and returned to the Secretary prior to addressing the Board. The President of the Board will recognize each speaker, at which time the speaker should proceed to the lectern, introduce him/herself, and then proceed with his/her comment. Written comments received by 3 p.m. on the day of the meeting will be provided to the Board.

5. BOARD BUSINESS

5.A. Receive Presentation on the Energy Facilities Master Plan (CIP 22-P009) and Provide Direction
Recommended Action: Receive Presentation and Provide Direction

6. REPORTS

6.A. Boardmember Items

6.A.1. Joint Powers Authority and Committee Reports
DERWA – September 26, 2022
6.A.2. Submittal of Written Reports for Day of Service Events Attended by Directors

7. ADJOURNMENT

All materials made available or distributed in open session at Board or Board Committee meetings are public information and are available for inspection during business hours by calling the District Secretary at (925) 828-0515. A fee may be charged for copies. District facilities and meetings comply with the Americans with Disabilities Act. If special accommodations are needed, please contact the District Secretary as soon as possible, but at least two days prior to the meeting.

Dublin San Ramon Services District
Water, wastewater, recycled water

STAFF REPORT

Meeting Date: September 27, 2022

TITLE: Receive Presentation on the Energy Facilities Master Plan (CIP 22-P009) and Provide Direction

RECOMMENDATION:

Staff recommends the Board of Directors receive a presentation on the Energy Facilities Master Plan (CIP 22-P009) and provide direction.

DISCUSSION:

The District's Regional Wastewater Treatment Plant and Biosolids Master Plan (WWTP Master Plan) was completed in September 2017. The WWTP Master Plan was a comprehensive study that estimated the future treatment plant flows and solids loadings, identified potential future regulations that could affect treatment standards, and identified the proposed facilities to accommodate such future changes. The WWTP Master Plan also provided preliminary guidance on optimizing energy production and use specifically at the WWTP, including improvements to reach net zero energy use.

Following the findings of the WWTP Master Plan, the Board of Directors adopted the Five-Year 2022-2026 Strategic Plan that includes the following specific goal and action items to address energy efficiency and reliability:

Develop a Long-term strategy to ensure greater energy efficiency and reliability to the District

- *Develop a District Energy policy and District energy master plan that evaluates sustainable energy sources and a long-term fleet management program.*
- *Develop phased targets for complying with State long-term greenhouse gas emission mandates*.

In accordance with the District's Strategic Plan goal, the Energy Facilities Master Plan (Project) was consequently included as part of the District's CIP Ten-Year Plan and Two-Year Budget for Fiscal Years 2022 and 2023. The Project will encompass an evaluation for all the District's facilities, processes, and operations, including those of the Regional Wastewater Treatment Facility, wastewater collection systems, water distribution system, recycled water distribution system, administrative and field office buildings, and fleet. The Project will endeavor to develop an adaptable, financially sustainable framework of strategies to reduce energy demand, efficiency, and conservation; maximize energy production through the expansion, improvement, or addition of new renewable energy sources; enhance energy system reliability and resiliency; and reduce greenhouse gas emissions. The Project will also assess current and future federal, state, and local environmental mandates, and develop long-term strategies to meet those requirements.

On January 18, 2022, the District awarded a task order to Carollo Engineers for the Energy Facilities Master Plan. Phase 1 of the Project includes:

- An assessment of the District's current energy demands and energy production, and greenhouse gas emissions;
- A high-level overview of potential opportunities to reduce energy demand, increase energy production, enhance energy system reliability and resiliency, stabilize and/or reduce greenhouse gas emissions; and
- The development of guiding principles that will guide the efforts of Phase 2 of the Project.

Phase 1 was completed in August 2022. The benchmarking study determined that the District's total electrical demand and thermal energy demand are approximately 15 million kilowatt-hours per year and 340,000 therms per year, respectively. The District generates electricity through its cogeneration system using a blend of biogas, recovered from the WWTP's anaerobic digestion process, and natural gas. In 2021, the District generated approximately 9,500,000 kilowatt-hours of electricity, which meets approximately two-thirds of the District's entire electrical demands.

Originating Department: Engineering and Technical Services	**Contact: J. Ching/S. Delight**	**Legal Review: Not Required**
Financial Review: Not Required	**Cost and Funding Source: N/A**	
Attachments: ☐ None ☐ Resolution ☐ Ordinance ☐ Task Order ☐ Proclamation ☒ Other (see list on right)	**Attachment 1 – Presentation Slides**	

Phase 2 will include the development of long-term projections for energy demand and capacity; in-depth assessments to achieve short-term and long-term energy savings and efficiencies; in-depth assessments to improve energy generation and power system reliability and resiliency; an evaluation of financing and/or strategic partnerships opportunities for funding future energy projects; alternatives analysis to identify recommended capital improvement projects over a 25-year planning horizon; and the development of an Energy Facilities Master Plan, which will include estimated project costs and an implementation schedule. Phase 2 will also include the development of the District's energy policies, which will provide guidance on which projects will be included in the capital improvement plan.

This workshop consists of a presentation to summarize the findings of Phase 1, and an informal discussion on the Board's preferences on the guiding principles for Phase 2 of the Project. The presentation will be comprised of three primary elements:

- A summary of District's current electrical and thermal energy demands, fuel consumption, energy generation, and carbon footprint;
- A high-level overview of potential alternatives to reduce energy consumption, increase electrical generation, and reduce greenhouse gas emissions; and
- Guiding principles for Phase 2 of the Energy Facilities Master Plan

Board Meeting #1
Energy and GHG Baseline

September 27, 2022

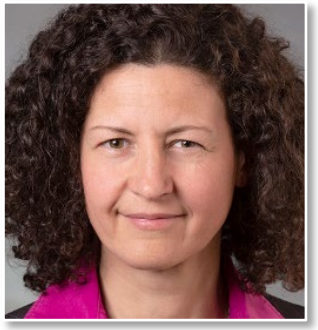
Dublin San Ramon Services District
Water, wastewater, recycled water

// Agenda

- Project overview
- Review Energy and GHG baseline for all DSRSD facilities
- Review preliminary energy opportunities assessment
- Solicit preferences on the Guiding Principles

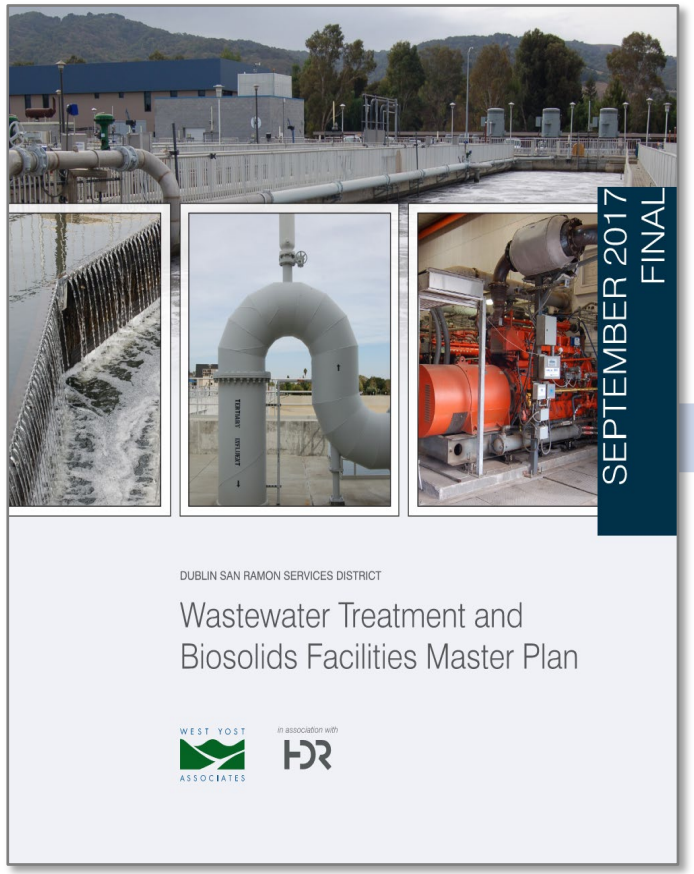
Speaker today:

Jason Ching
Project Manager



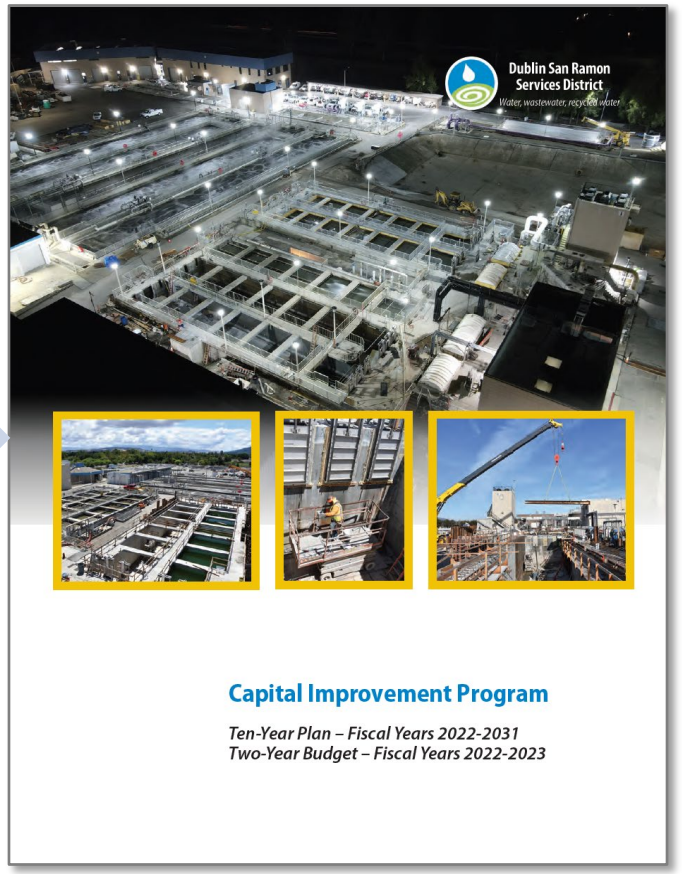
Tanja Rauch-Williams
Project Manager

// Project Background



Wastewater Treatment and Biosolids Facilities Master Plan

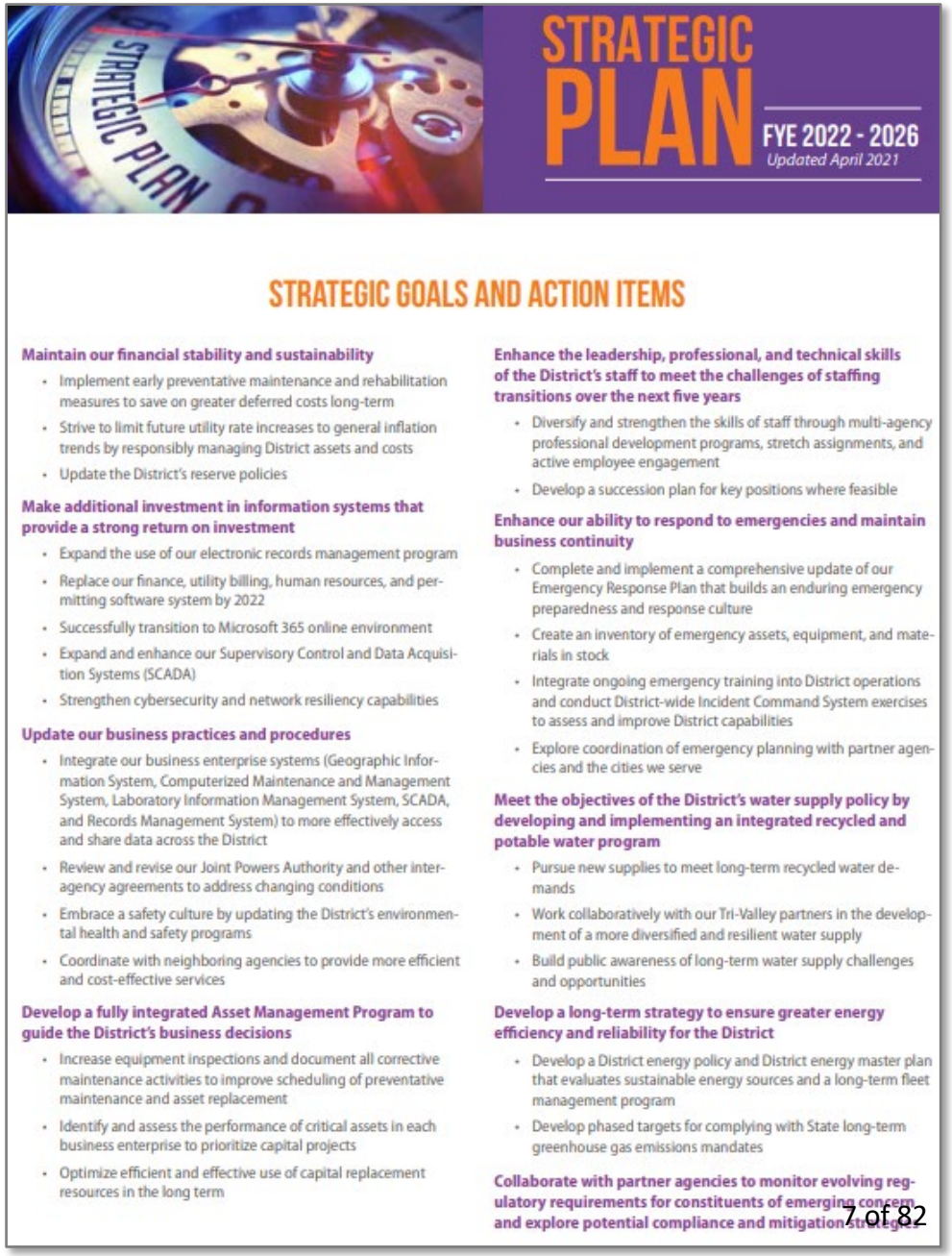
Strategic Plan



Capital Improvement Program

// Strategic Plan Goal No.8

- **Develop a long-term strategy to ensure greater energy efficiency and reliability for the District**
  - Develop and District energy policy and District energy master plan that evaluates sustainable energy sources and a long-term fleet management program
  - Develop phased targets for complying with State long-term greenhouse gas emission mandates



STRATEGIC PLAN

FYE 2022 - 2026

Updated April 2021

STRATEGIC GOALS AND ACTION ITEMS

Maintain our financial stability and sustainability

- Implement early preventative maintenance and rehabilitation measures to save on greater deferred costs long-term
- Strive to limit future utility rate increases to general inflation trends by responsibly managing District assets and costs
- Update the District's reserve policies

Make additional investment in information systems that provide a strong return on investment

- Expand the use of our electronic records management program
- Replace our finance, utility billing, human resources, and permitting software system by 2022
- Successfully transition to Microsoft 365 online environment
- Expand and enhance our Supervisory Control and Data Acquisition Systems (SCADA)
- Strengthen cybersecurity and network resiliency capabilities

Update our business practices and procedures

- Integrate our business enterprise systems (Geographic Information System, Computerized Maintenance and Management System, Laboratory Information Management System, SCADA, and Records Management System) to more effectively access and share data across the District
- Review and revise our Joint Powers Authority and other interagency agreements to address changing conditions
- Embrace a safety culture by updating the District's environmental health and safety programs
- Coordinate with neighboring agencies to provide more efficient and cost-effective services

Develop a fully integrated Asset Management Program to guide the District's business decisions

- Increase equipment inspections and document all corrective maintenance activities to improve scheduling of preventative maintenance and asset replacement
- Identify and assess the performance of critical assets in each business enterprise to prioritize capital projects
- Optimize efficient and effective use of capital replacement resources in the long term

Enhance the leadership, professional, and technical skills of the District's staff to meet the challenges of staffing transitions over the next five years

- Diversify and strengthen the skills of staff through multi-agency professional development programs, stretch assignments, and active employee engagement
- Develop a succession plan for key positions where feasible

Enhance our ability to respond to emergencies and maintain business continuity

- Complete and implement a comprehensive update of our Emergency Response Plan that builds an enduring emergency preparedness and response culture
- Create an inventory of emergency assets, equipment, and materials in stock
- Integrate ongoing emergency training into District operations and conduct District-wide Incident Command System exercises to assess and improve District capabilities
- Explore coordination of emergency planning with partner agencies and the cities we serve

Meet the objectives of the District's water supply policy by developing and implementing an integrated recycled and potable water program

- Pursue new supplies to meet long-term recycled water demands
- Work collaboratively with our Tri-Valley partners in the development of a more diversified and resilient water supply
- Build public awareness of long-term water supply challenges and opportunities

Develop a long-term strategy to ensure greater energy efficiency and reliability for the District

- Develop a District energy policy and District energy master plan that evaluates sustainable energy sources and a long-term fleet management program
- Develop phased targets for complying with State long-term greenhouse gas emissions mandates

Collaborate with partner agencies to monitor evolving regulatory requirements for constituents of emerging concern and explore potential compliance and mitigation strategies

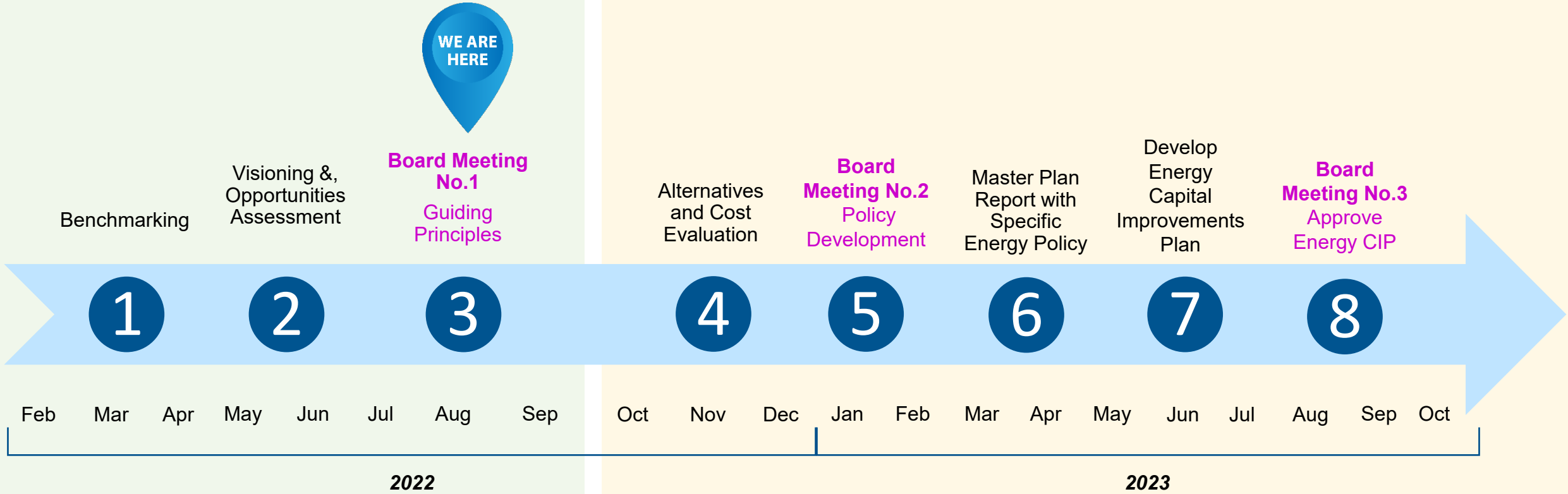
// Project Overview

- All-Encompassing Review of All District Facilities
  - Wastewater Collections System
  - Wastewater Treatment Plant
  - Potable Water Distribution System
  - Recycled Water Distribution System
  - Administration & Field Office Buildings
  - Fleet
- Energy Policy
- Energy Master Plan
- Capital Improvement Program

// Scope of Phase 1 and 2 of this planning project

Phase 1
State of the District Energy Baseline

Phase 2
Alternatives Evaluation and Prioritization



Baseline Energy and GHG Emissions

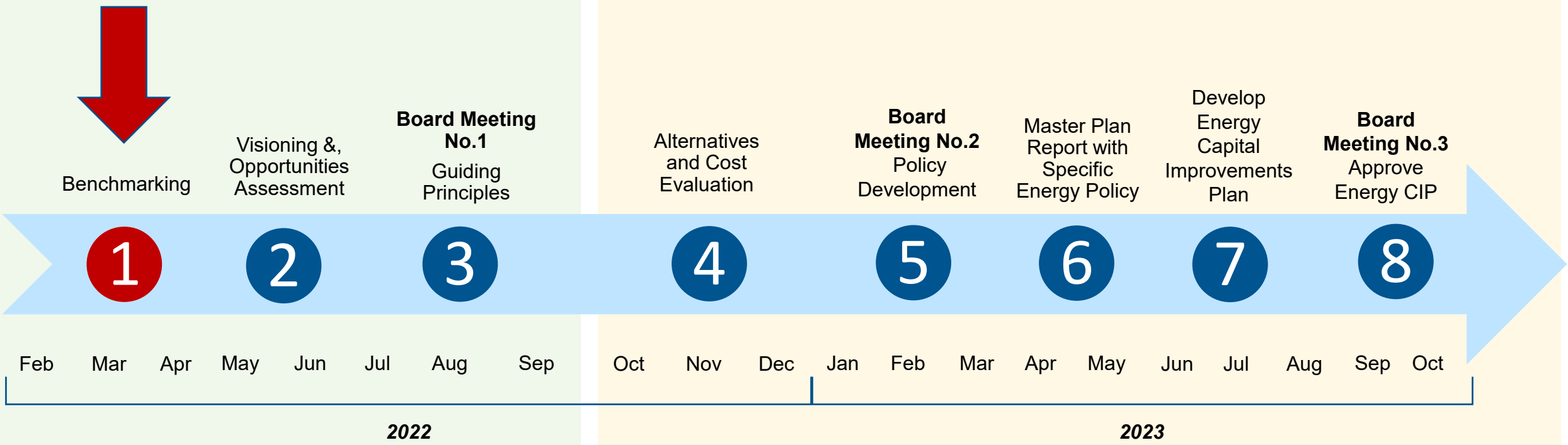
// Scope of Phase 1 and 2 of this planning project

Phase 1

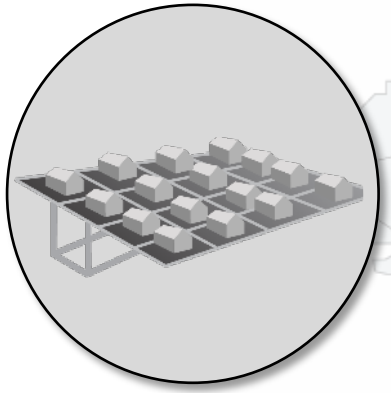
State of the District Energy Baseline

Phase 2

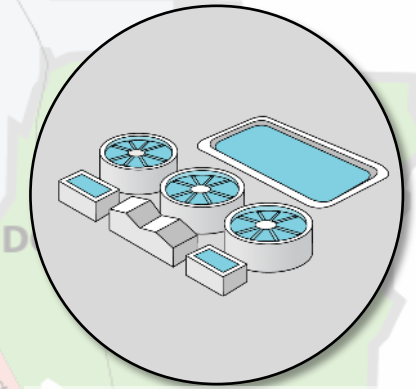
Alternatives Evaluation and Prioritization



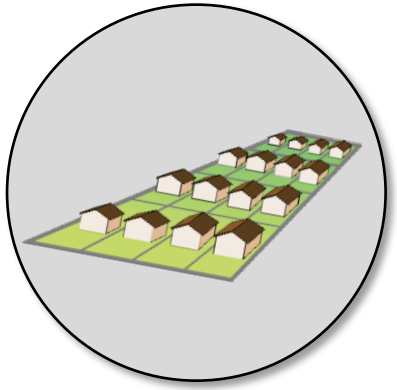
// Facilities included in the planning effort



Wastewater Collection System



Wastewater Treatment Plant



Water Distribution System

Recycled Water Treatment & Distribution (DERWA)

Wastewater Effluent Discharge (LAVWMA)

Recycled Water Distribution

Offices & Buildings

Fleet

// Types of “energy”

Energy Demands

Fuel

Thermal (Natural Gas)

Electricity

Energy Production

Heat Recovery

Renewables

Biogas

Dublin San Ramon Services District

Water, wastewater, recycled water

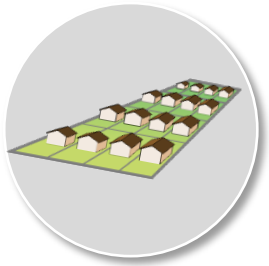
Electrical Energy Demand

// Electrical Energy Demand

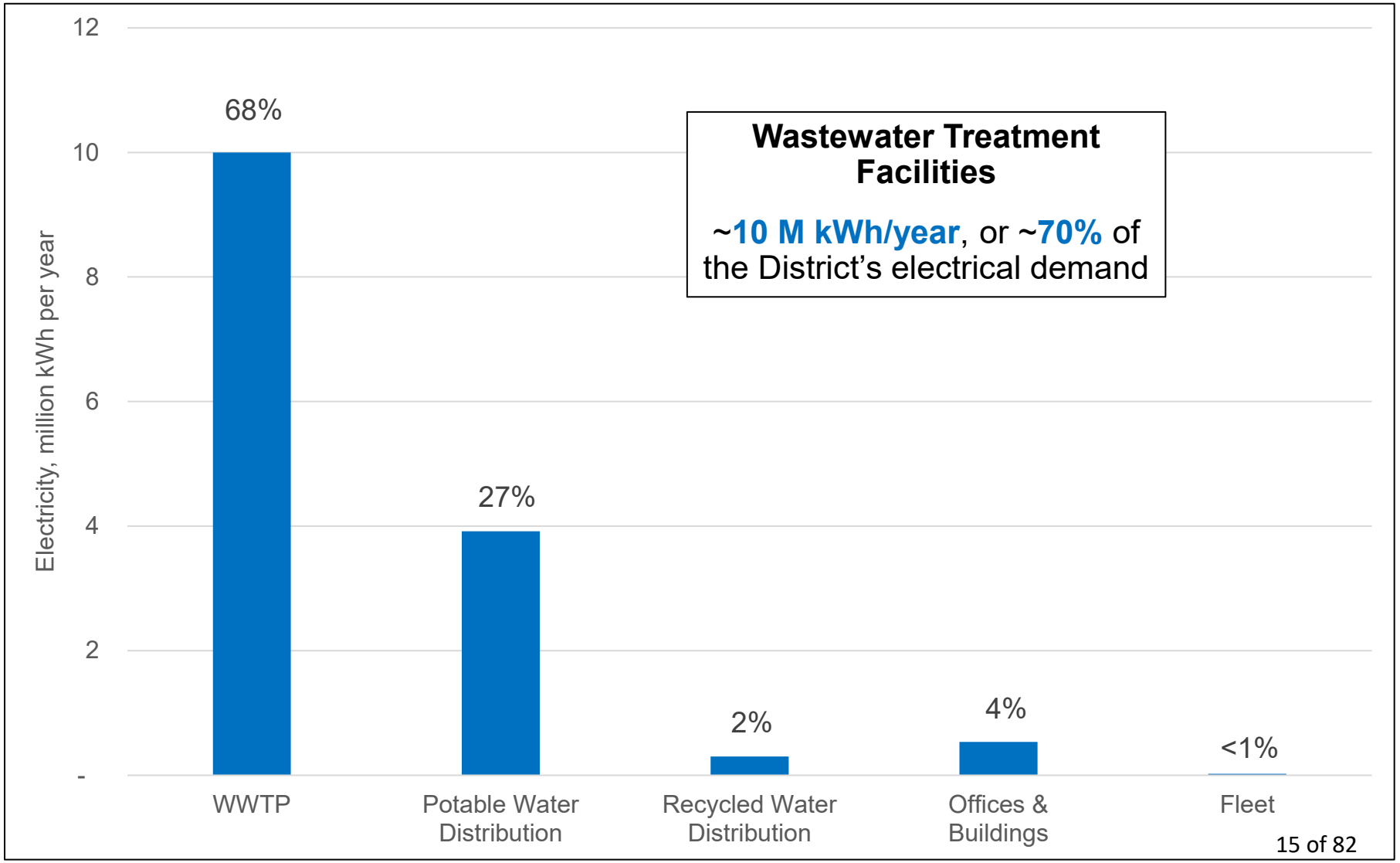
Total Electrical Demand:

~15 M kWh/year

=



~3,000 Homes

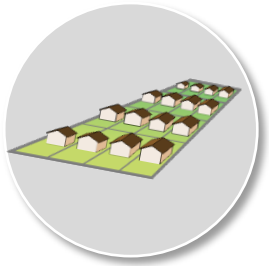


// Electrical Energy Demand (including LAVWMA & DERWA)

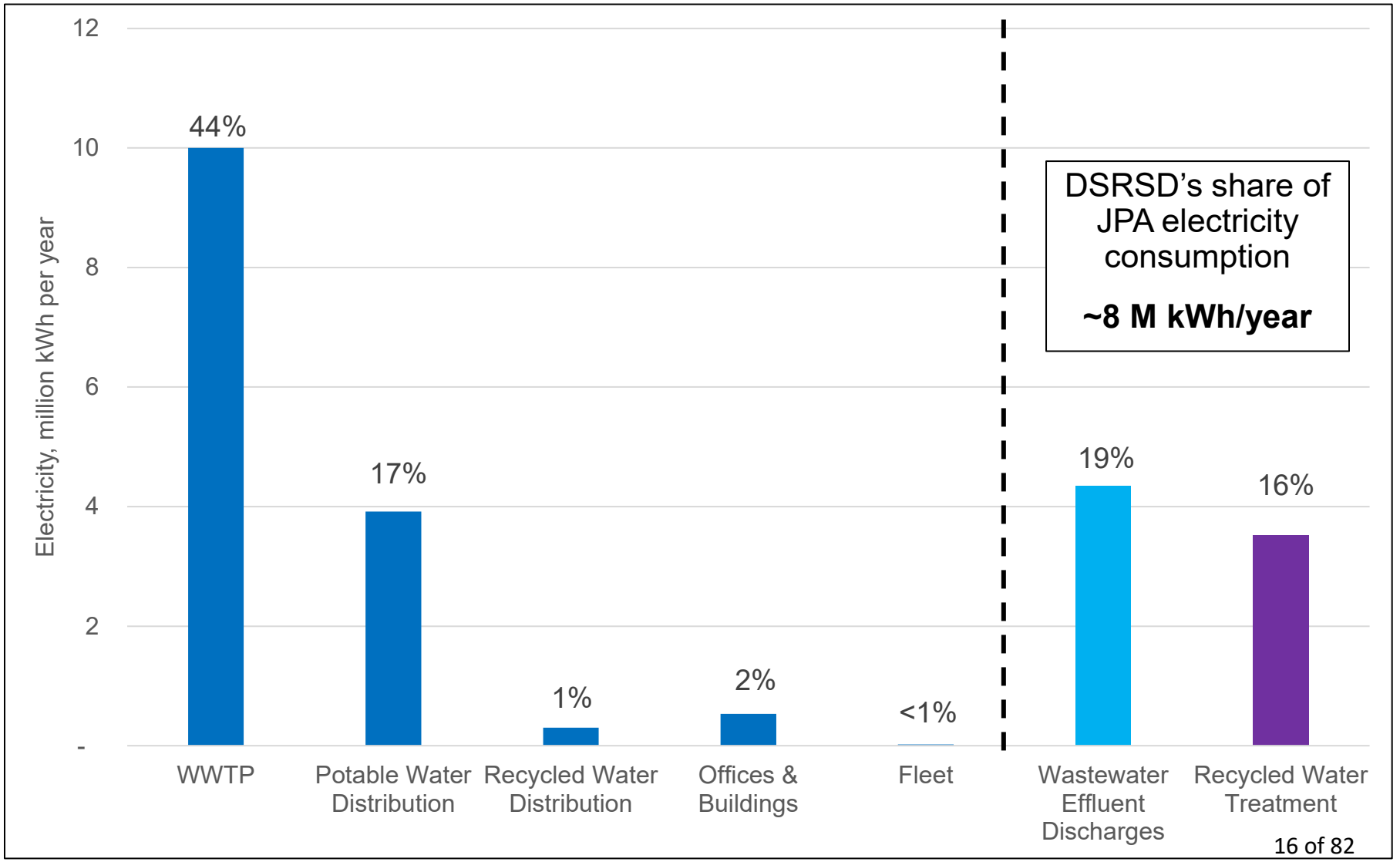
Total Electrical Demand:

~23 M kWh/year

=



~4,500 Homes

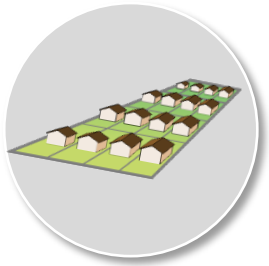


// Electrical Energy Demand (including LAVWMA & DERWA)

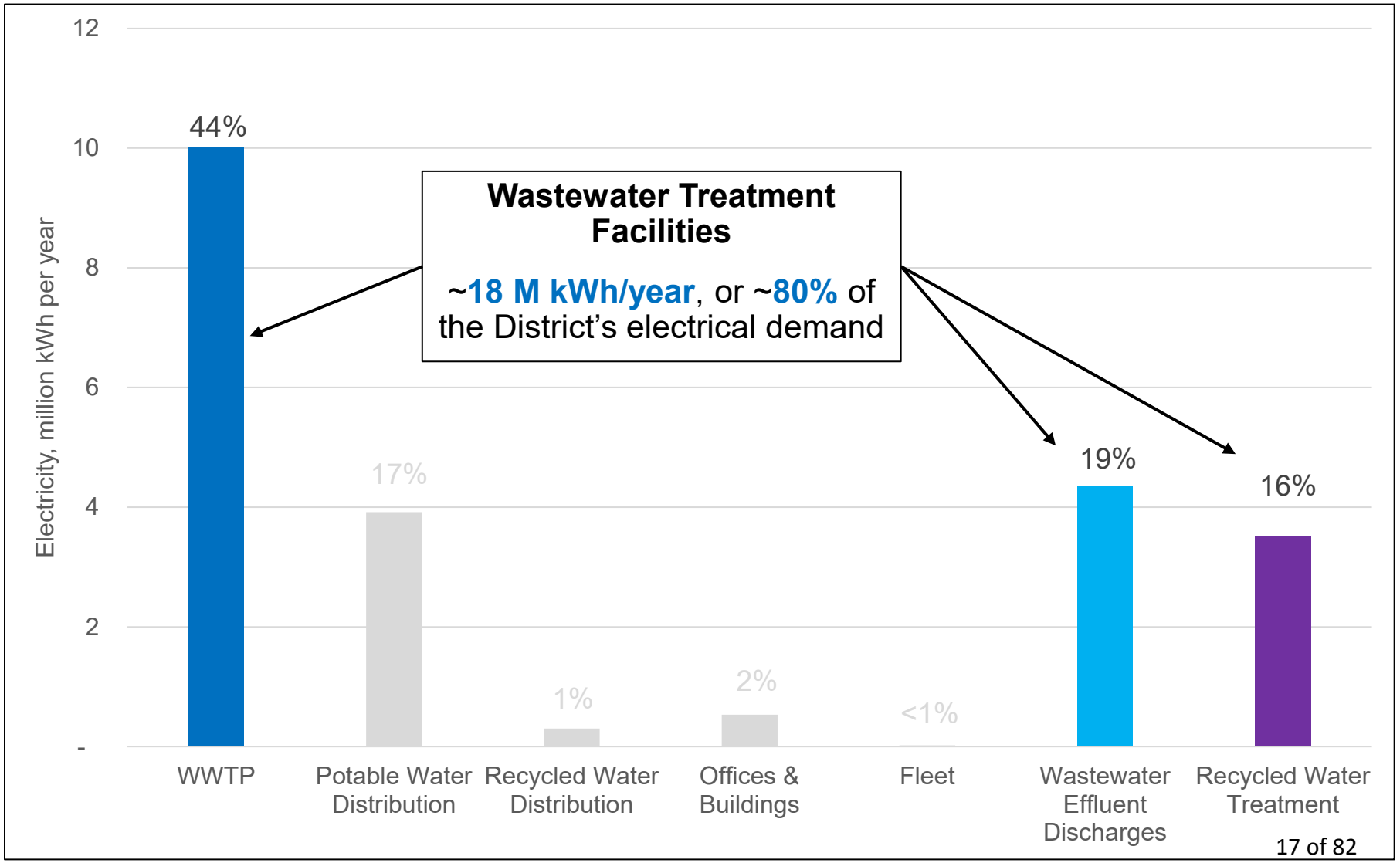
Total Electrical Demand:

~23 M kWh/year

=



~4,500 Homes



Thermal Energy Demand

// Thermal Energy Demand

Total Thermal Demand:

~340,000 therms/year

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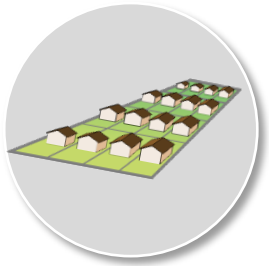
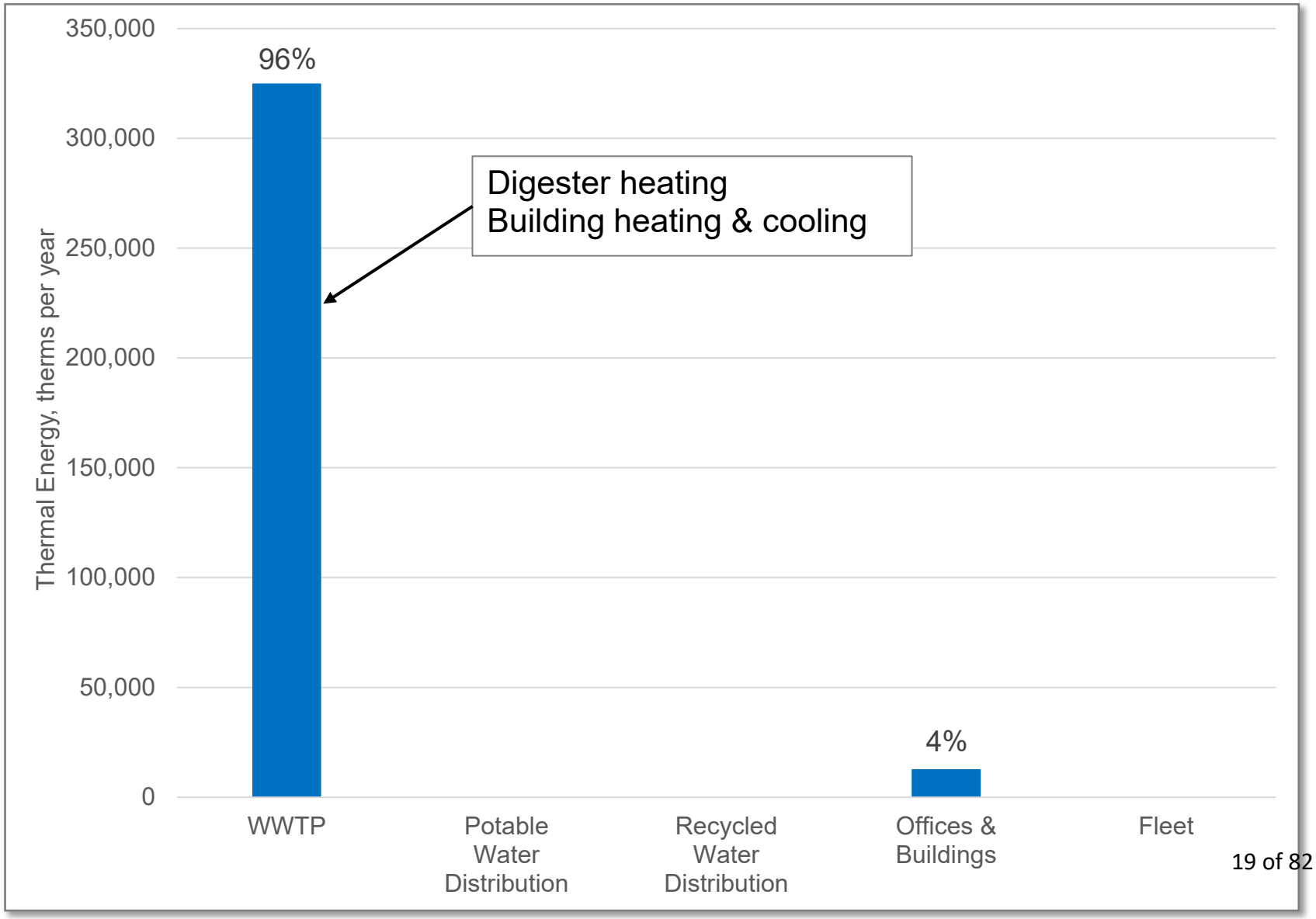


~ 1,000 Homes

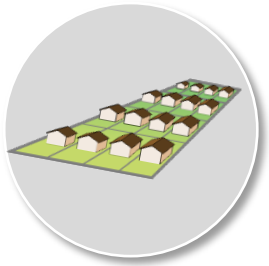


// Thermal Energy Demand (including LAVWMA & DERWA)

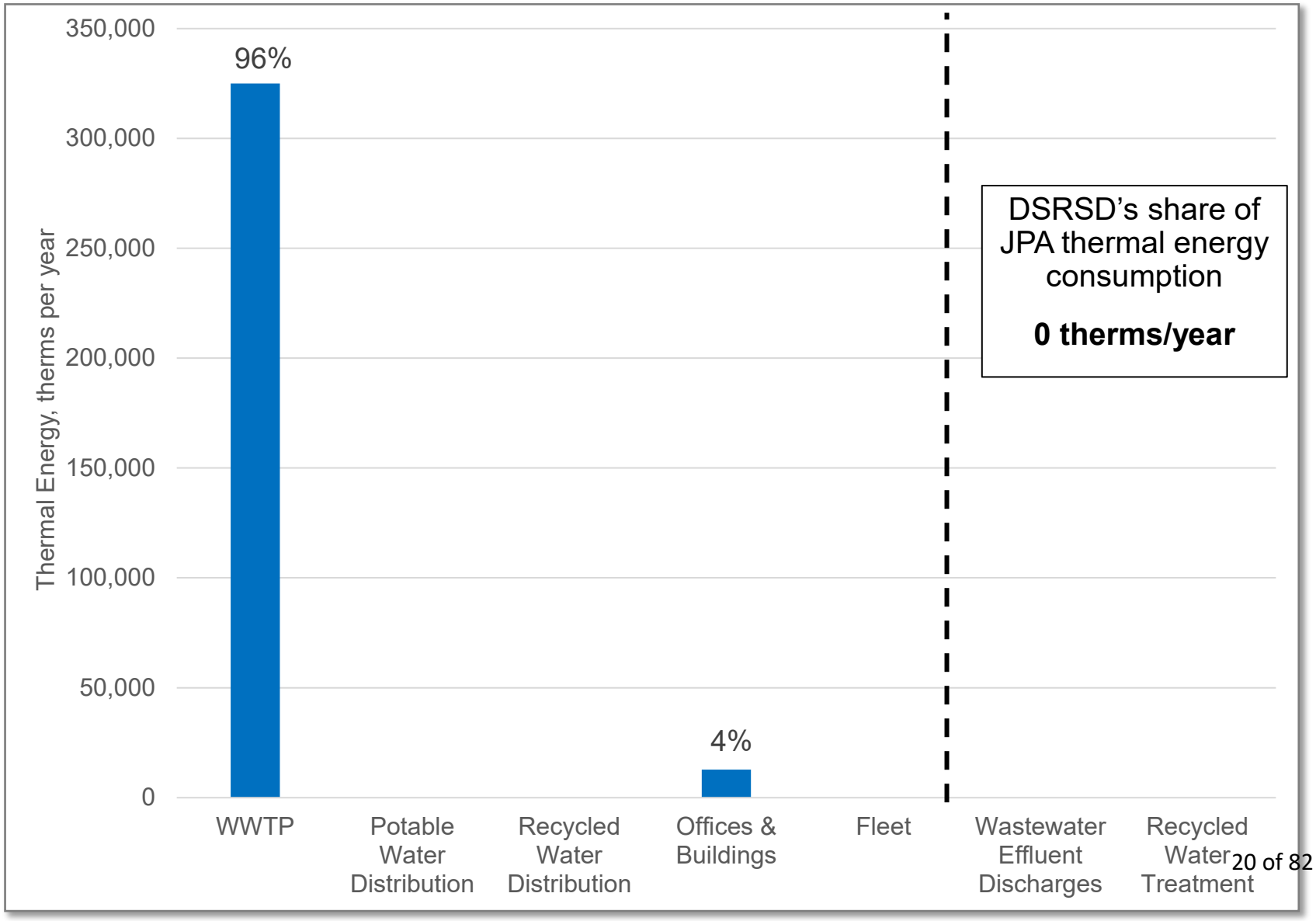
Total Thermal Demand:

~340,000 therms/year

=



~ 1,000 Homes



Fuel Consumption

// Fuel Consumption

District Fleet Summary:

- Vehicles: 59

- Electric-Powered Golf Carts: 22

- Backup Power Equipment: 9

- Cargo Equipment: 8

- Heavy Equipment: 24

Total Fuel Consumption:

~28,000
Gasoline gallon equivalents/year

=

~60
Vehicles

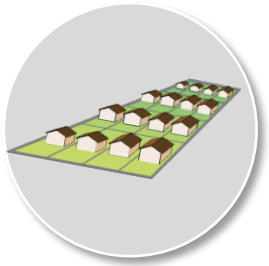
Total Energy (Electrical + Thermal + Fuel) Demand

// Total Energy Demand (Electricity + Thermal + Fuel)

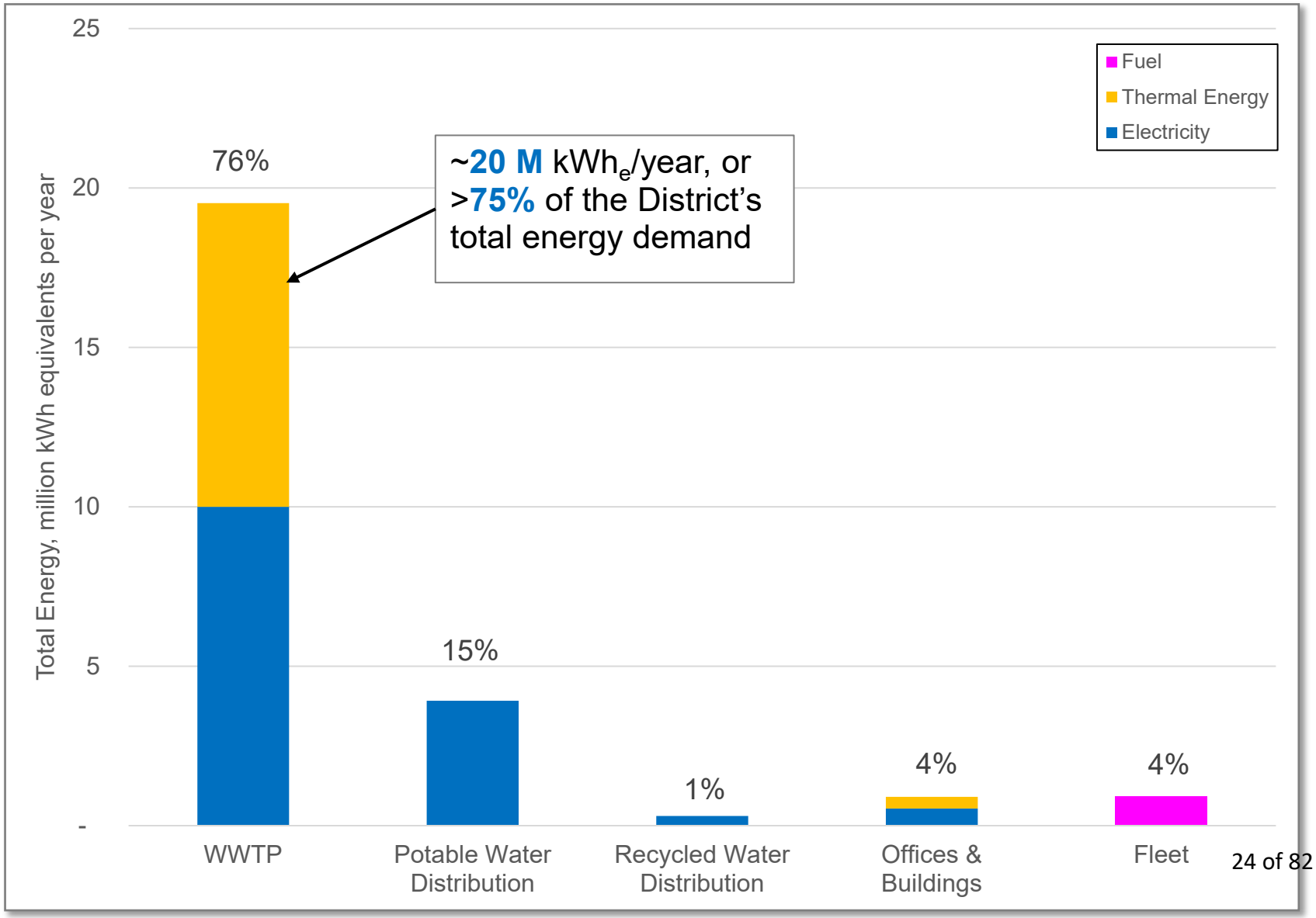
Total Energy Demand:

~25 M kWh$_e$/year

=



~5,000 Homes



// Total Energy Demand (Electricity + Thermal + Fuel) including LAVWMA + DERWA

Total Energy Demand:

~33 M kWh_e/year

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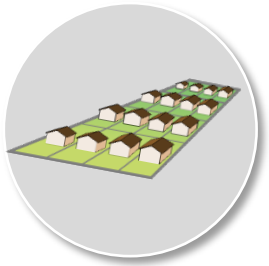
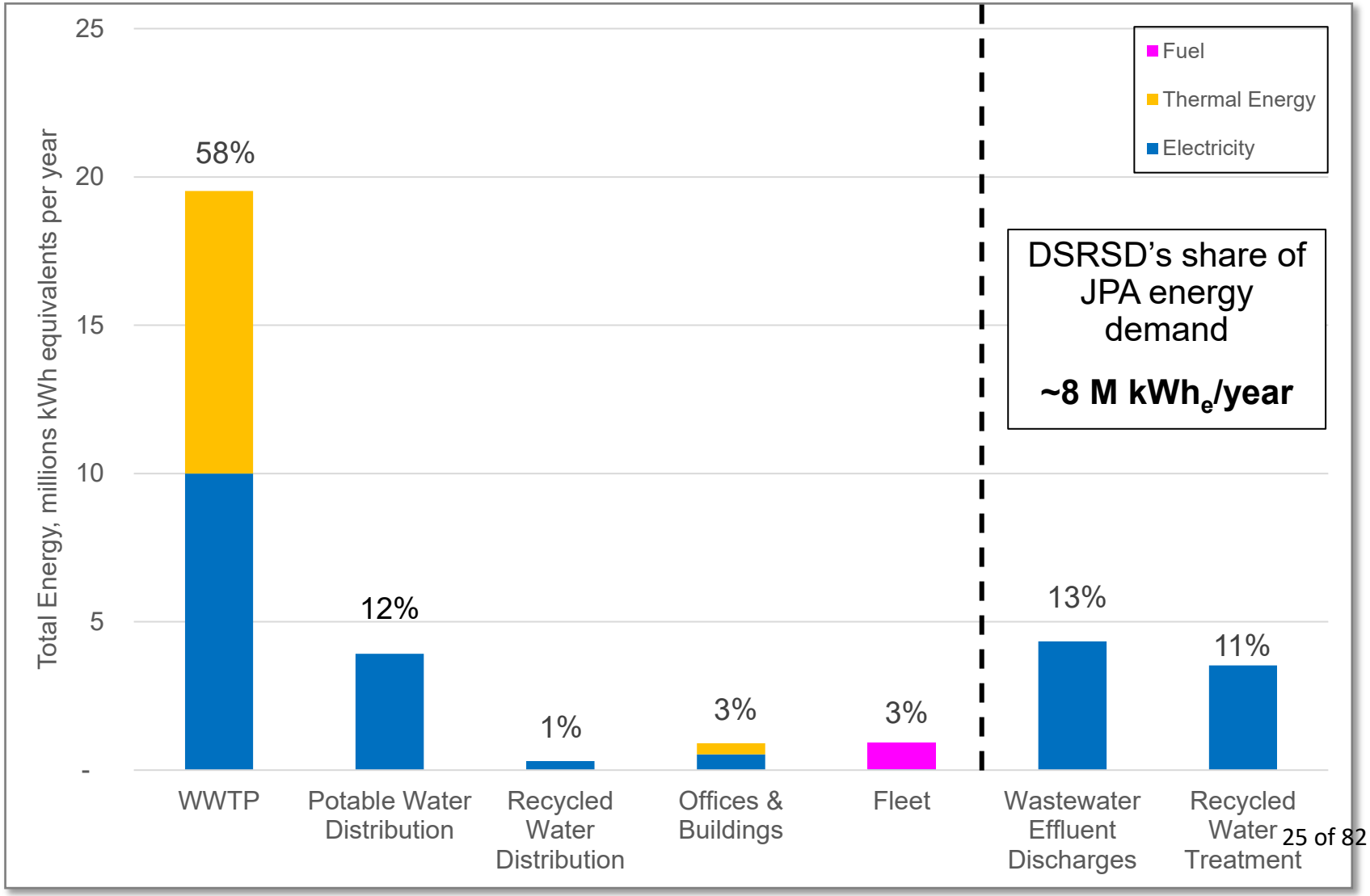


~6,500 Homes



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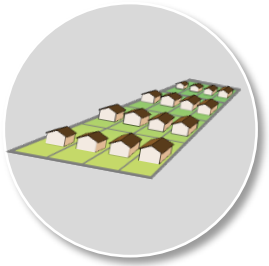
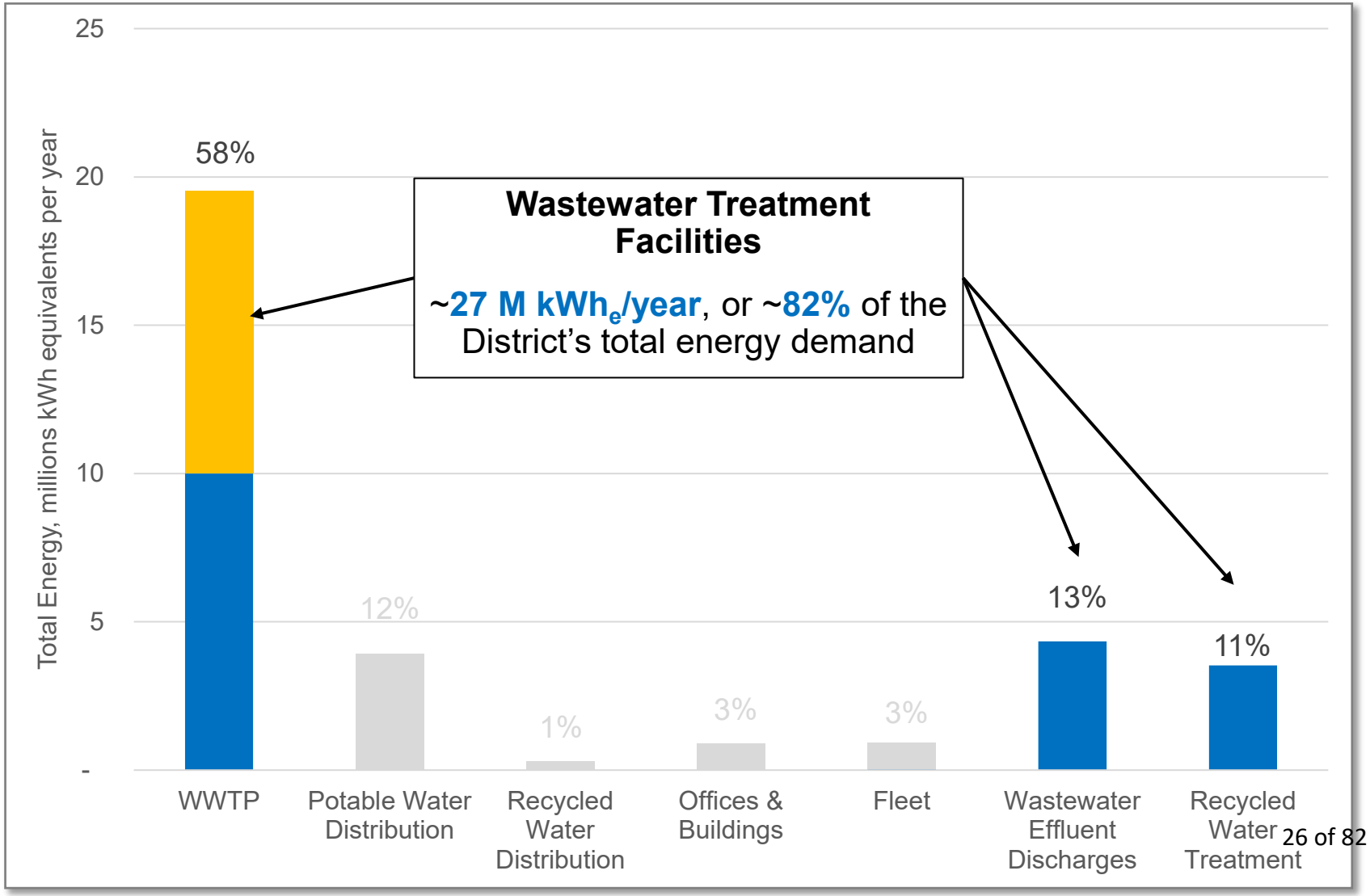


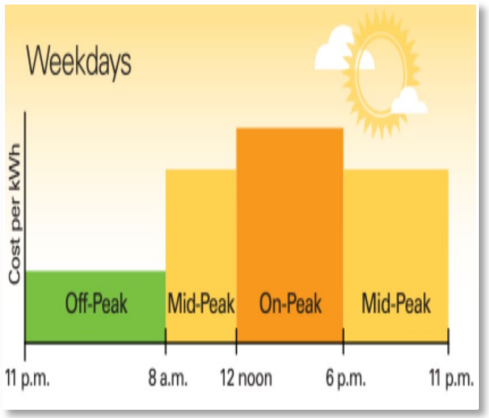
~6,500 Homes



// District's Historical Commitment to Energy Demand Management

Biosolids disposal
at the FSLs and DLDs
is highly energy efficient

Operational improvements and **optimization**

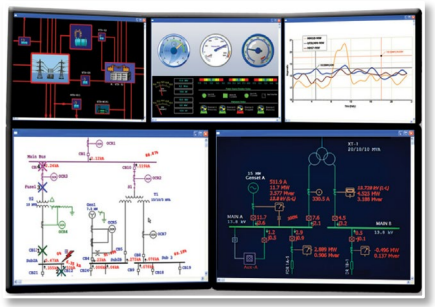


Point-of-Use pumping in the **water distribution system** has reduced electricity costs

Invested into more **energy-efficient buildings**

Alternative energy

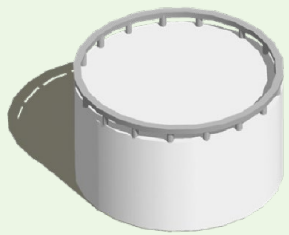
Fleet Management



Technology
Power monitoring

Energy Generation

// Energy Generation and Heat Recovery thru Cogeneration



Anaerobic Digester

Biogas

Natural Gas

PG&E®

Pacific Gas and Electric

Cogeneration

Electricity

~9.5 M kWh/yr

Energy recovery for WWTP Operation

Heat Energy

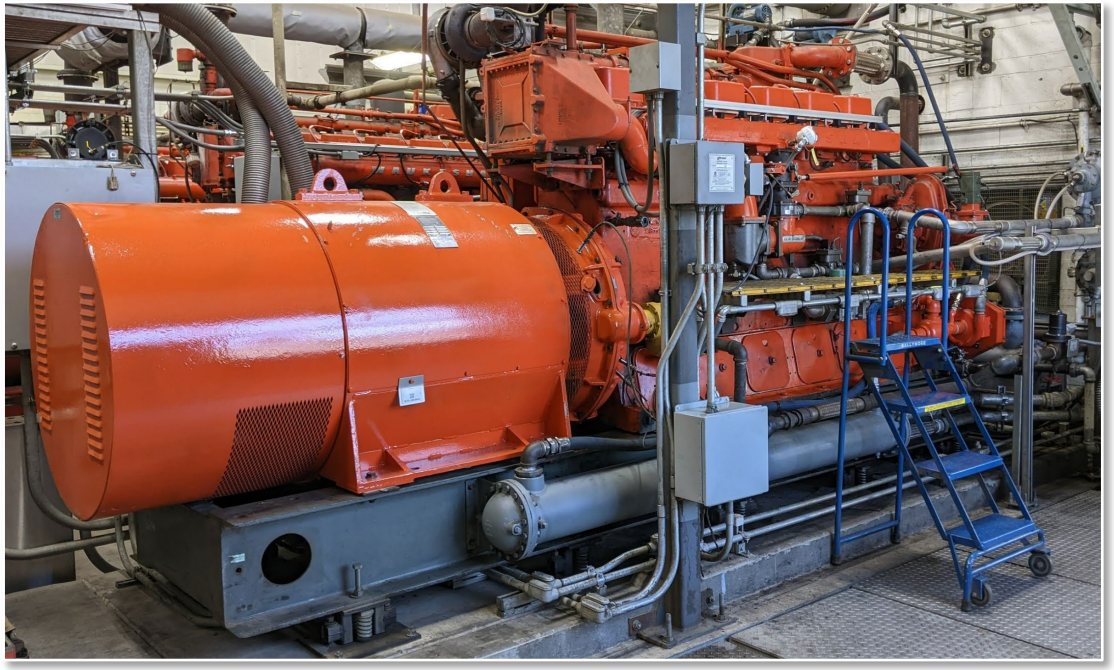
~325,000 therms/yr

Energy Production: **9,500,000** kWh/year

Heat Recovery: Provides nearly all the thermal energy requirements for the WWTP

// Energy Generation and Heat Recovery thru Cogeneration

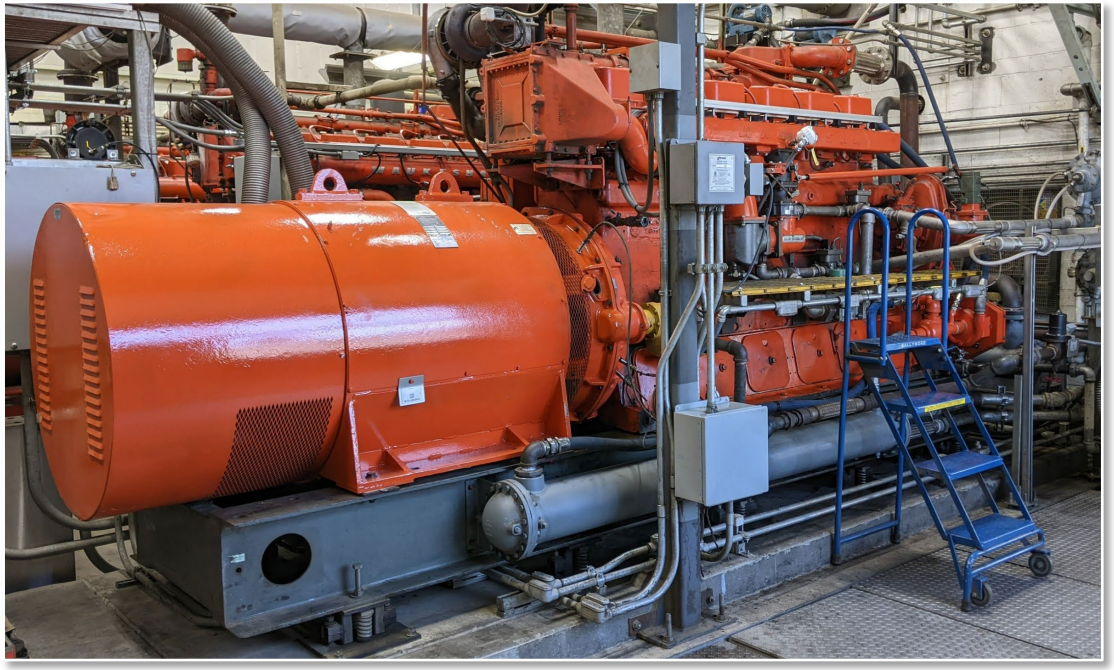
- **Fuels**: Biogas (**65%**) and Natural Gas (**35%**)
- **Energy Production**: ~**9,500,000** kWh/year
- **Heat Recovery**: ~**325,000** therms/year
- **Energy Savings**



Cogen using Biogas	Cogen using PG&E NG	PG&E
$0.04/kwh	$0.10/kWh	$0.22/kWh

// Energy Generation and Heat Recovery thru Cogeneration

- **Fuels**: Biogas (**65%**) and Natural Gas (**35%**)
- **Energy Production**: ~**9,500,000** kWh/year
- **Heat Recovery**: ~**325,000** therms/year
- **Energy Savings**
  - Biogas: **>80% savings** vs. utility-purchased power



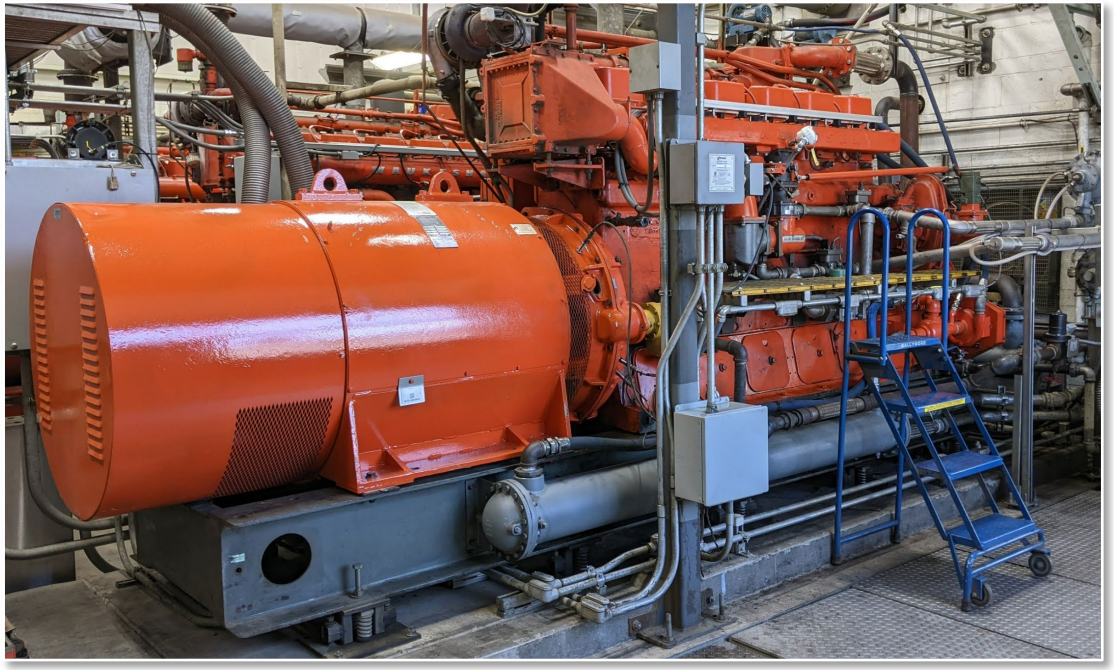
Cogen using Biogas	Cogen using PG&E NG	PG&E
$0.04/kwh	$0.10/kWh	**$0.22/kWh**

Electricity Generated Using Biogas

Estimated Savings of ~$1.1 million per year

// Energy Generation and Heat Recovery thru Cogeneration

- **Fuels**: Biogas (**65%**) and Natural Gas (**35%**)
- **Energy Production**: ~**9,500,000** kWh/year
- **Heat Recovery**: ~**325,000** therms/year
- **Energy Savings**
  - Biogas: **>80% savings** vs. utility-purchased power
  - Natural Gas: **>50% savings** vs. utility-purchased power



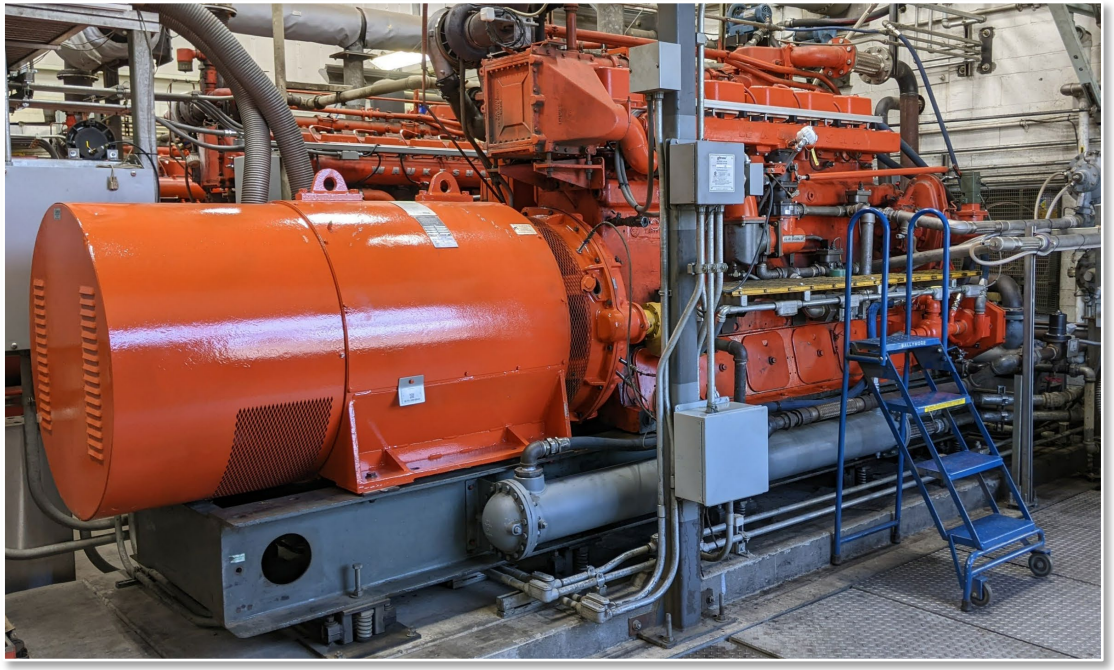
Cogen using Biogas	Cogen using PG&E NG	PG&E
$0.04/kwh	**$0.10/kWh**	**$0.22/kWh**

Electricity Generated Using Natural Gas

Estimated Savings of ~$400,000 per year

// Energy Generation and Heat Recovery thru Cogeneration

- **Fuels**: Biogas (**65%**) and Natural Gas (**35%**)
- **Energy Production**: ~**9,500,000** kWh/year
- **Heat Recovery**: ~**325,000** therms/year
- **Energy Savings**
  - Biogas: **>80% savings** vs. utility-purchased power
  - Natural Gas: **>50% savings** vs. utility-purchased power



Cogen using Biogas	Cogen using PG&E NG	PG&E
$0.04/kwh	**$0.10/kWh**	**$0.22/kWh**

Cogeneration System - Total

Estimated Savings of ~$1,500,000 per year

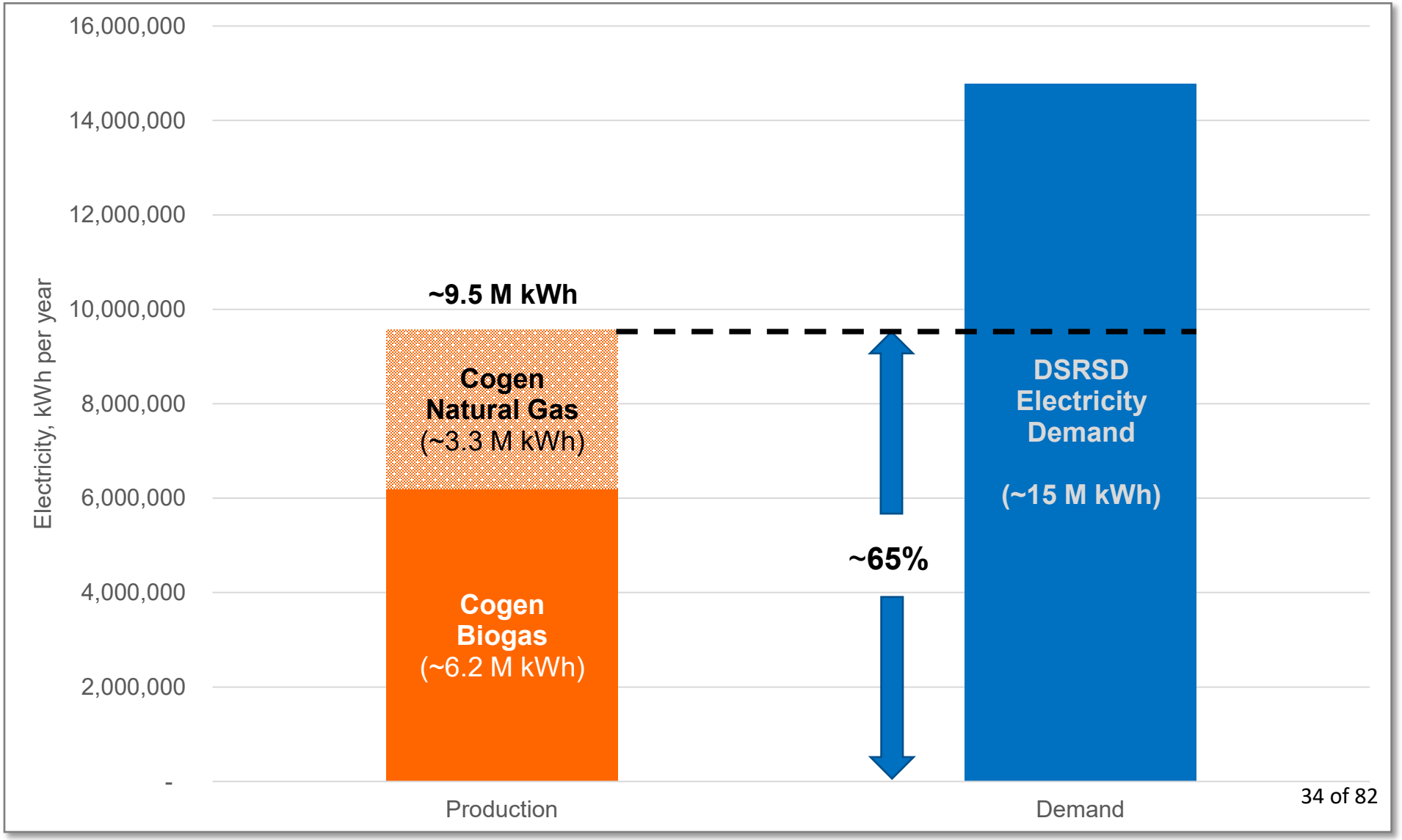
// Electrical Generation vs. Electrical Demand

In 2021, approximately **9.5 M kWh** of electrical energy was generated through the WWTP cogeneration system.

Biogas generates approximately **6.2 M kWh**.

Natural gas generates approximately **3.3 M kWh**.

In total, cogeneration generates approximately **65%** of the District's electrical demands



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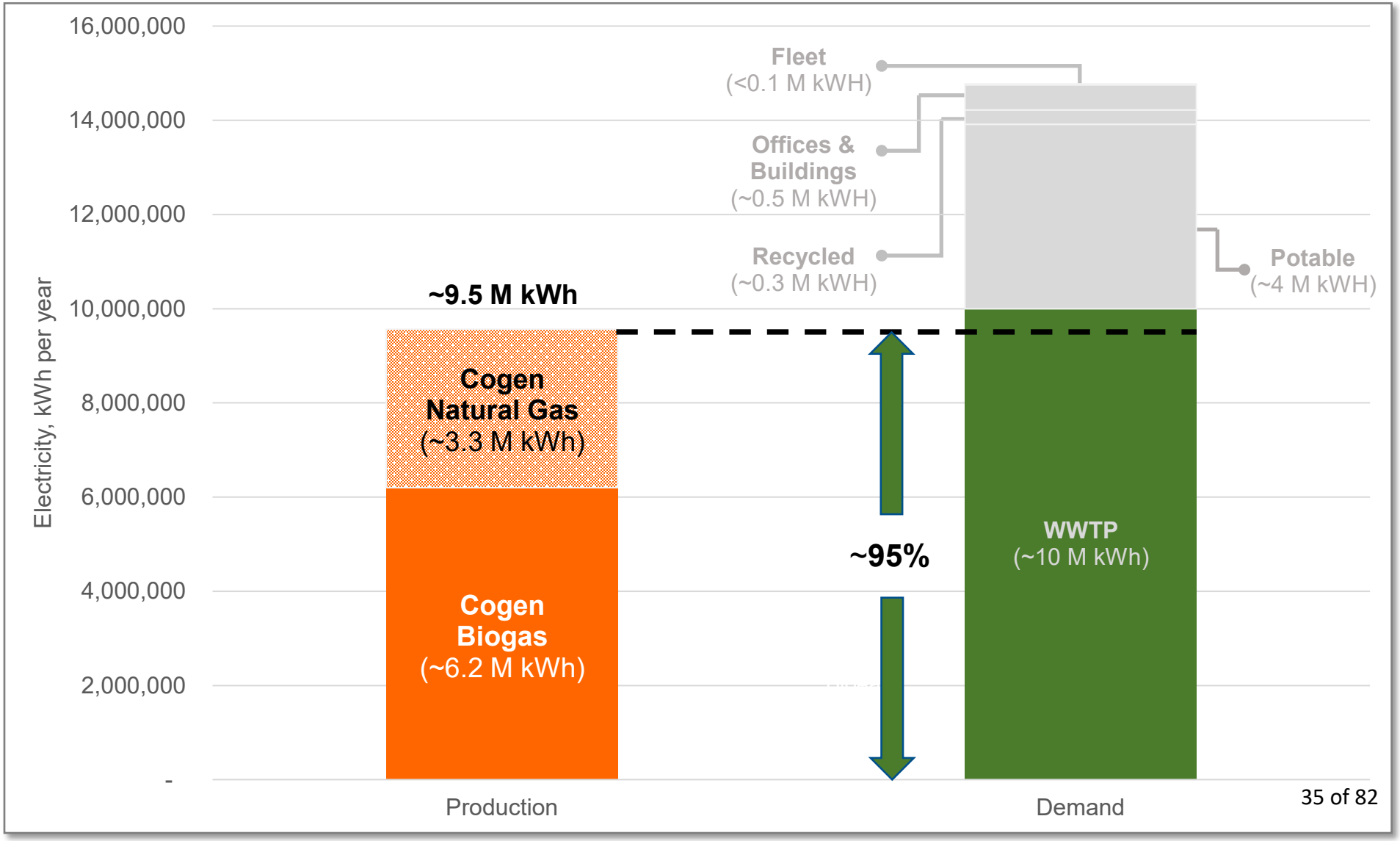
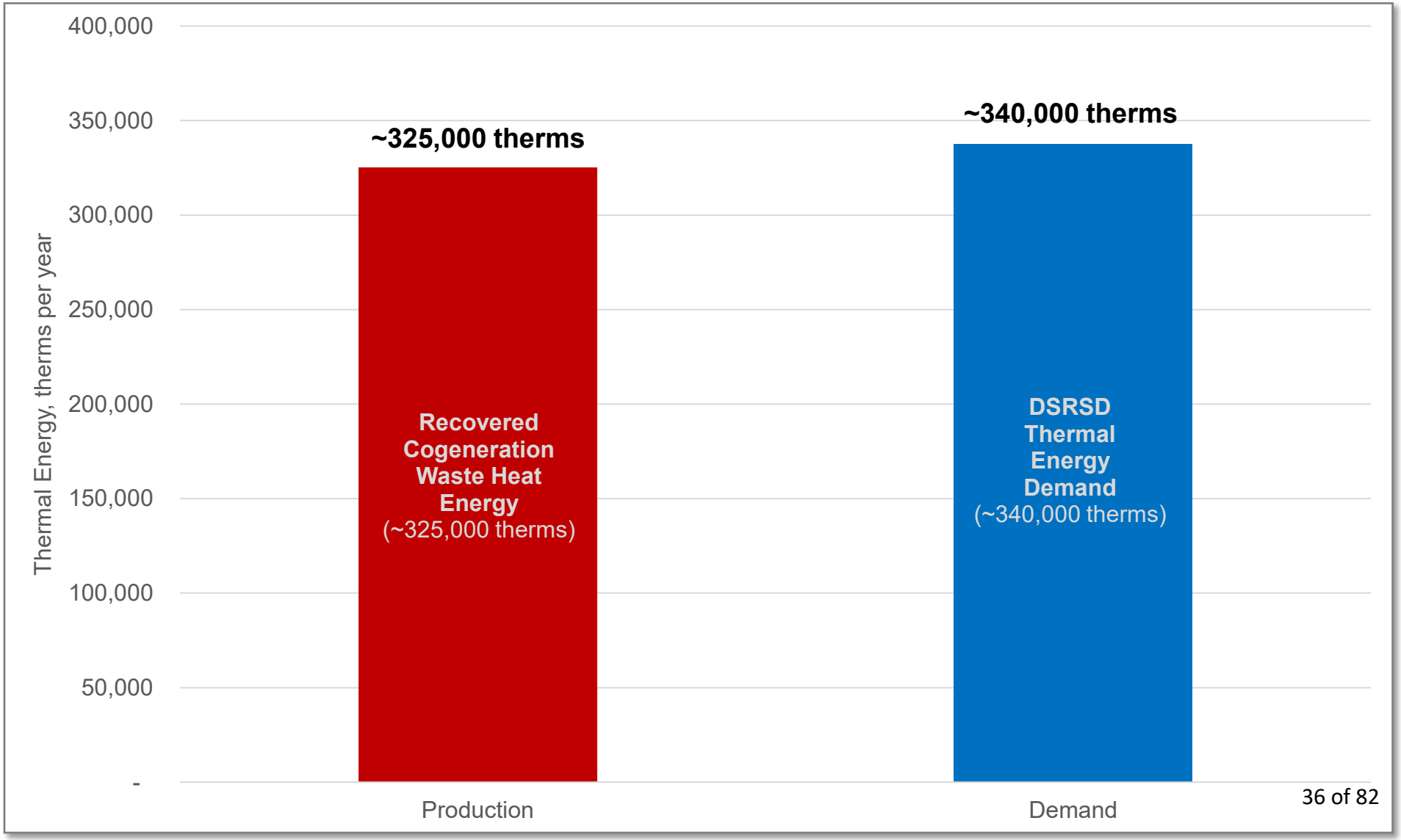
Cogeneration generates approximately **95%** of the electrical demands of the WWTP



// Heat Recovery vs. Thermal Demand

325,000 therms is recovered from the cogeneration system and is used to meet the thermal demands for the **anaerobic digesters** and **heating/cooling for WWTP buildings**

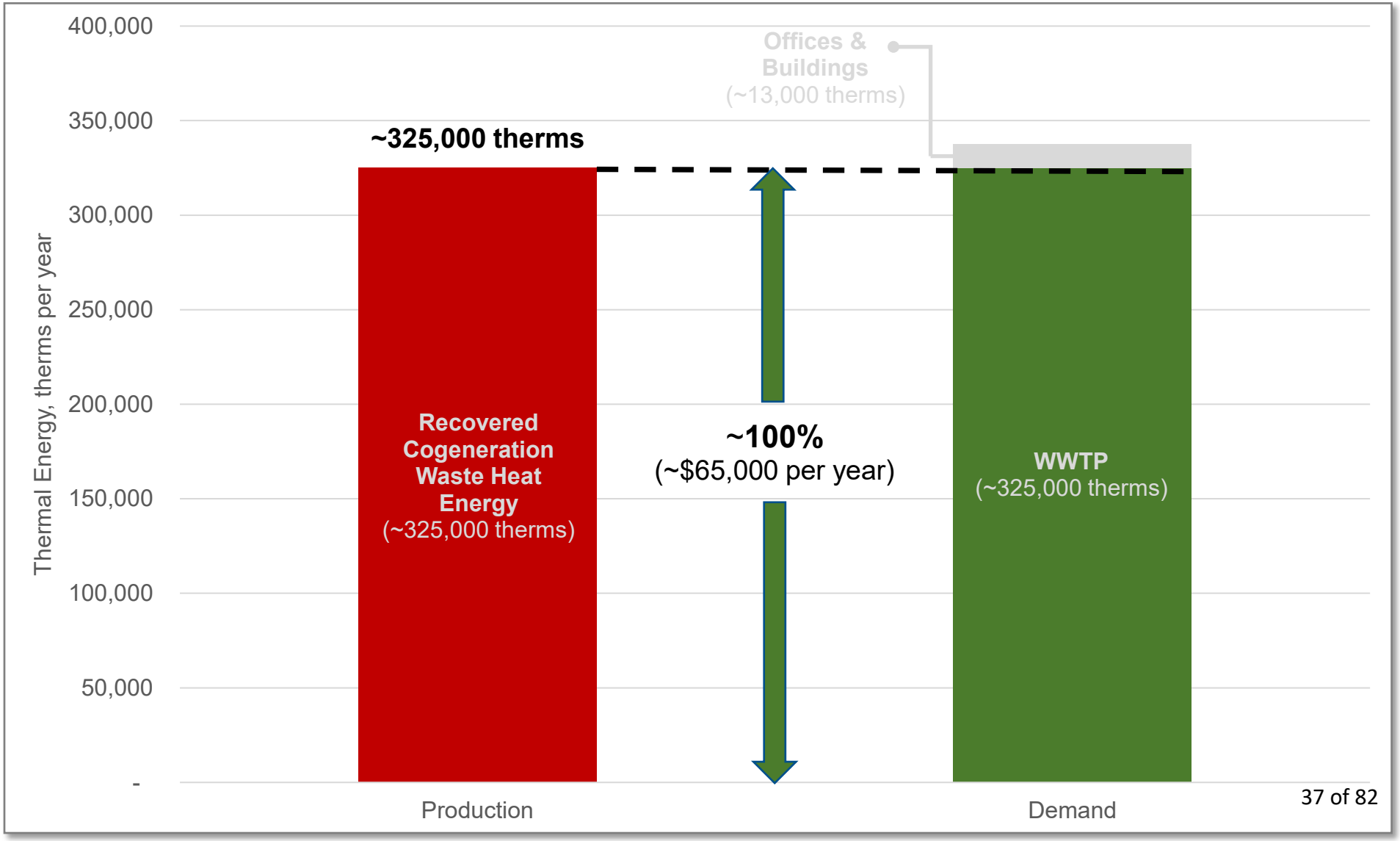


// Heat Recovery vs. Thermal Demand

325,000 therms is recovered from the cogeneration system and is used to meet the thermal demands for the **anaerobic digesters** and **heating/cooling for WWTP buildings**

Cogeneration meets nearly **100%** of the thermal energy demands of the WWTP

Estimated energy savings: **$65,000** per year



// Recent WWTP improvements will increase biogas production

Fourth Digester

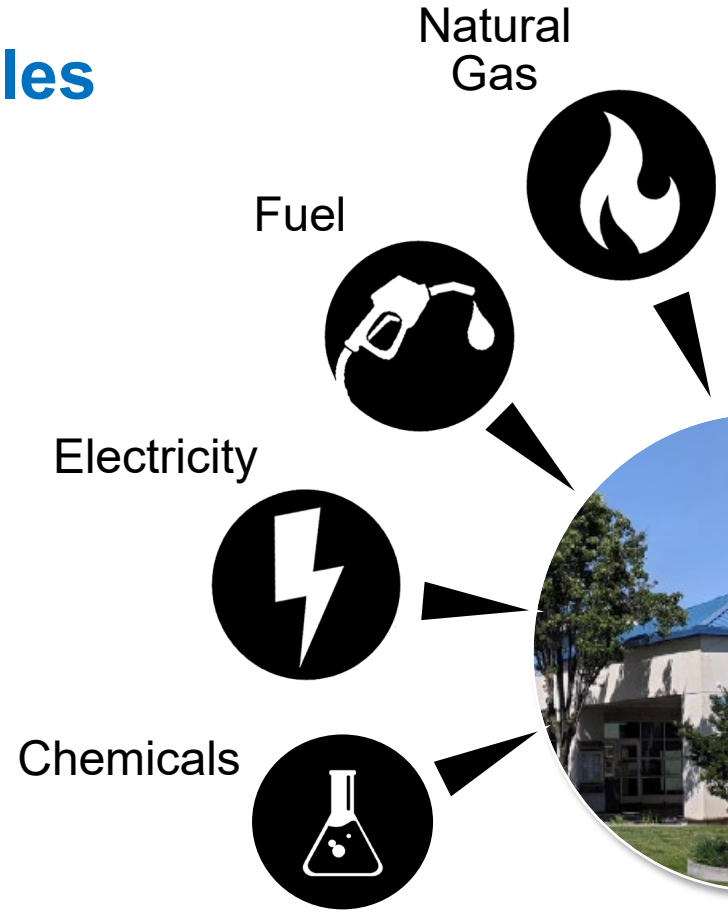
FOG Receiving Station

Primary Clarifier Addition

Greenhouse Gas (GHG) Emissions

// Defining "Greenhouse Gas Emissions"

Consumables



Greenhouse Gas Emissions

Carbon Dioxide (CO_2)

Methane (CH_4) 25

Nitrous Oxide (N_2O) 298

=

Carbon Dioxide Equivalent (CO_2e)

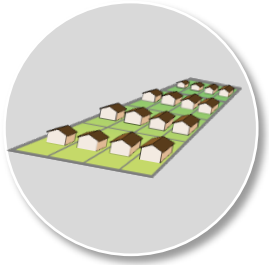
Dublin San Ramon Services District
Water, wastewater, recycled water

// GHG Emissions

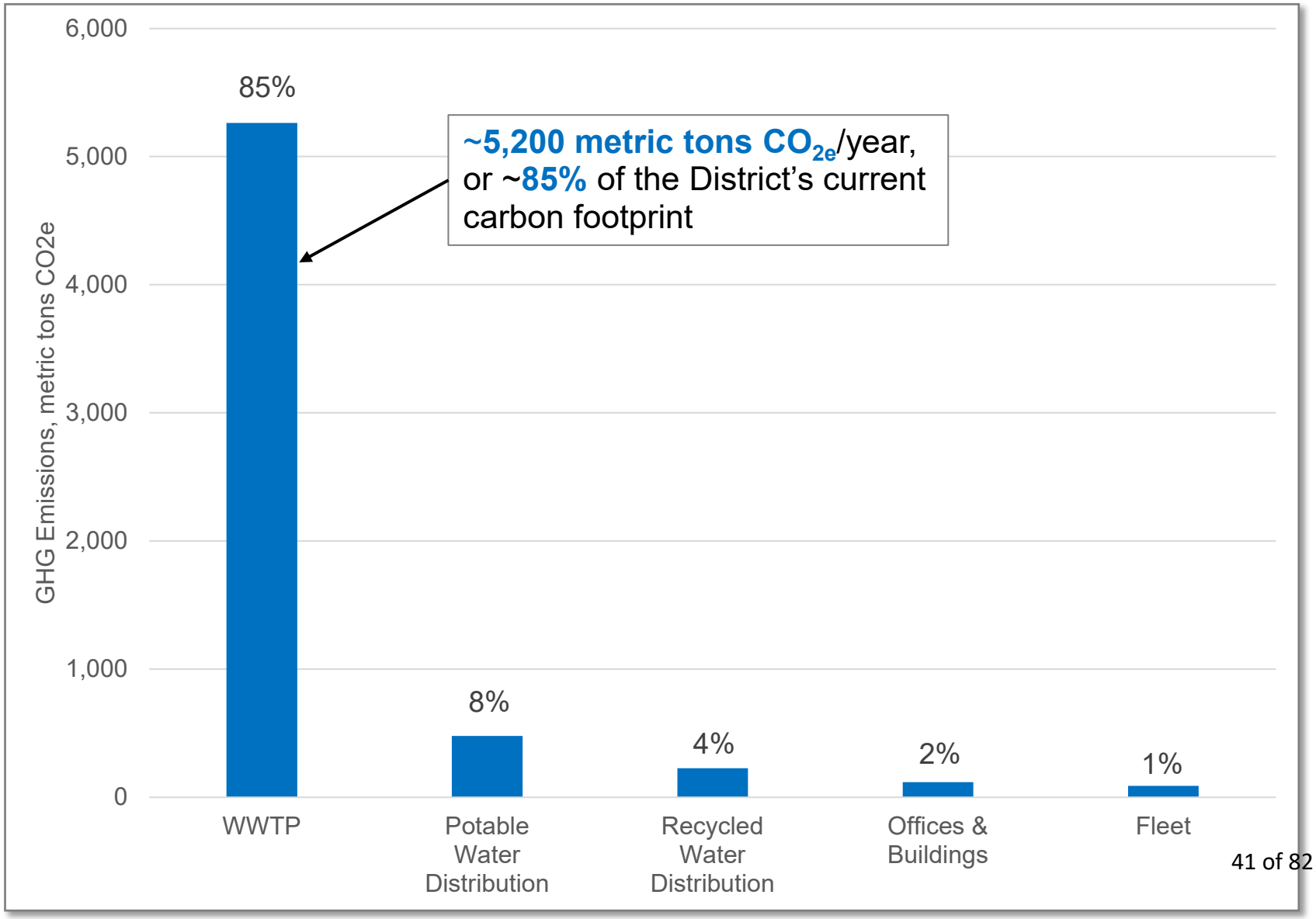
Total GHG Emissions:

~6,000 metric tons CO_{2e}/year

=



200 homes

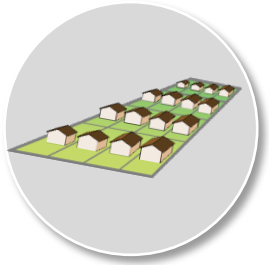


// GHG Emissions (including LAVWMA & DERWA)

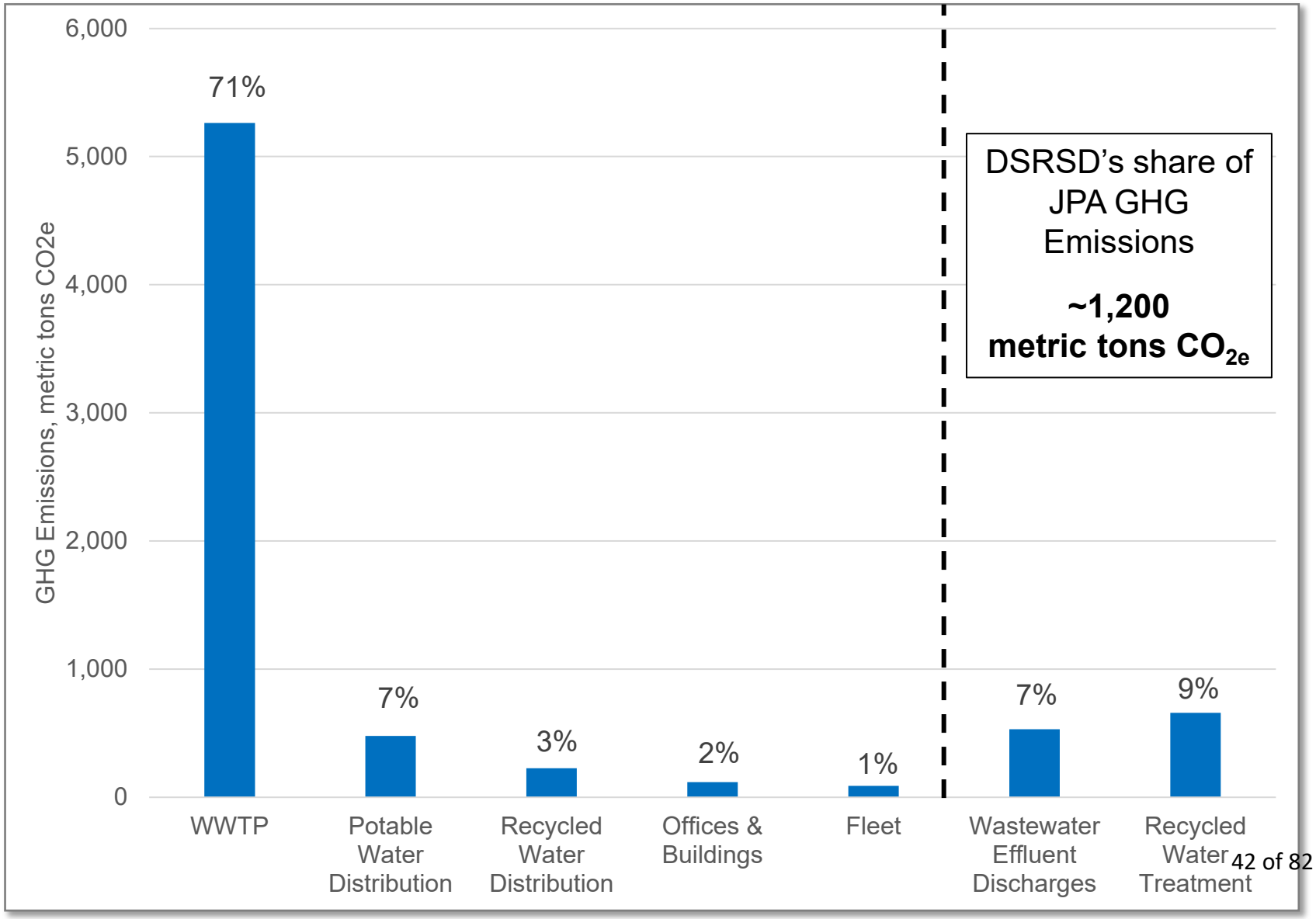
Total GHG Emissions:

~7,500 metric tons CO_{2e}/year

=



250 homes

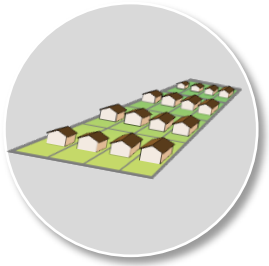


// GHG Emissions (including LAVWMA & DERWA)

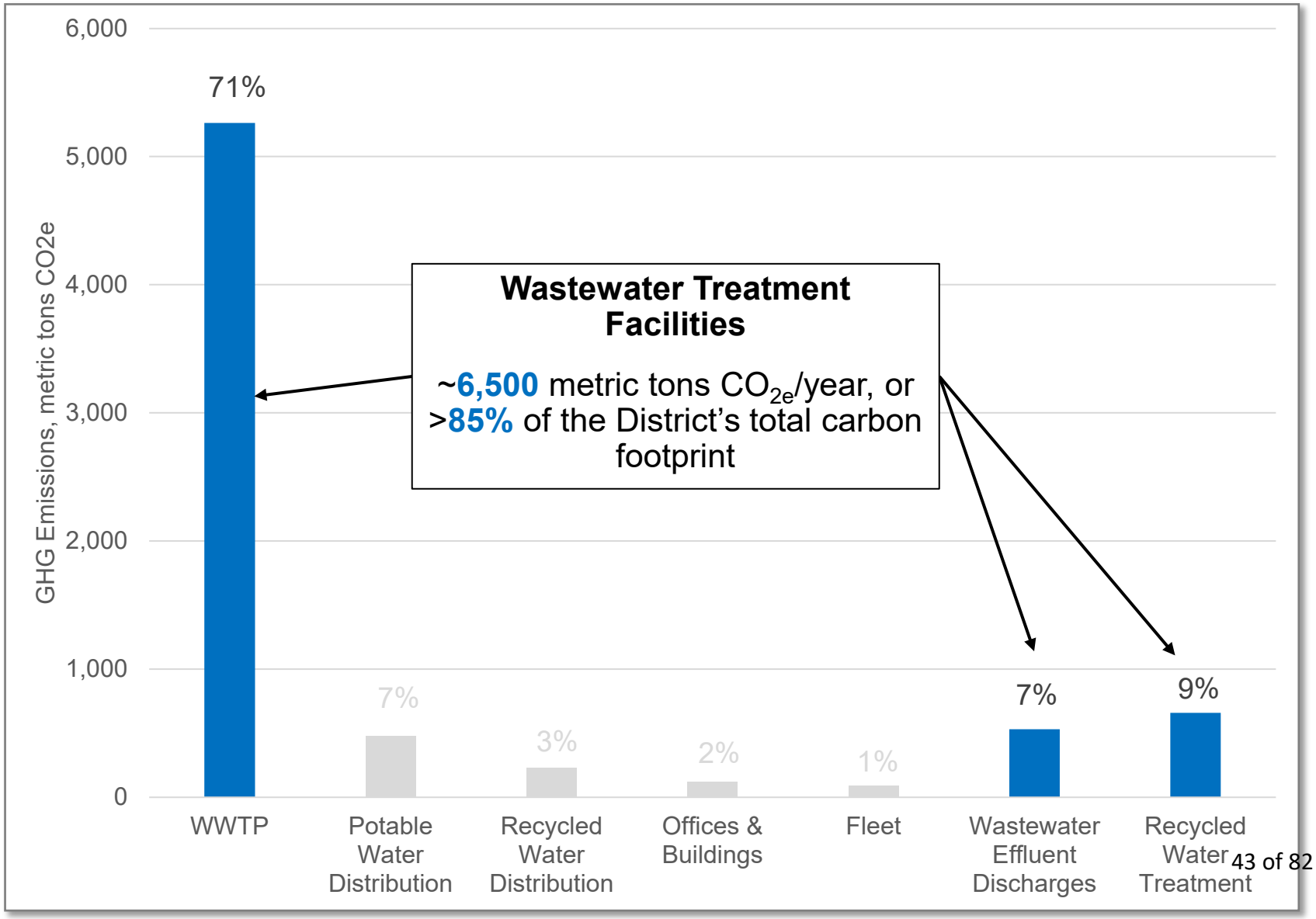
Total GHG Emissions:

~7,500 metric tons CO_{2e}/year

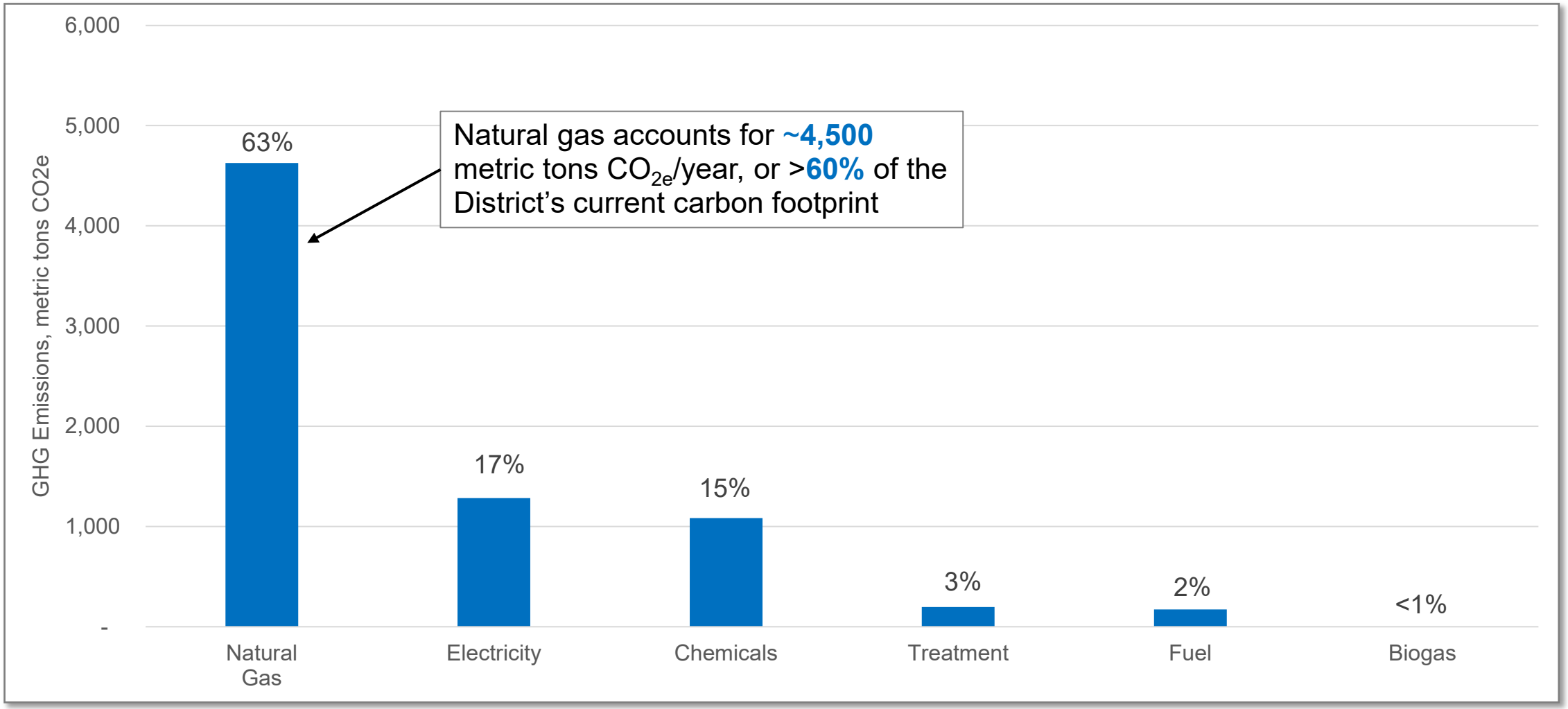
=



250 homes



// GHG Emissions, by consumable



Cogen using Biogas	Cogen using PG&E NG	PG&E
2 g CO_2/kWh	800 g CO_2/kWh	73 g CO_2/kWh

Baseline Energy and GHG Emissions
Summary of Findings

// Summary of Baseline Findings

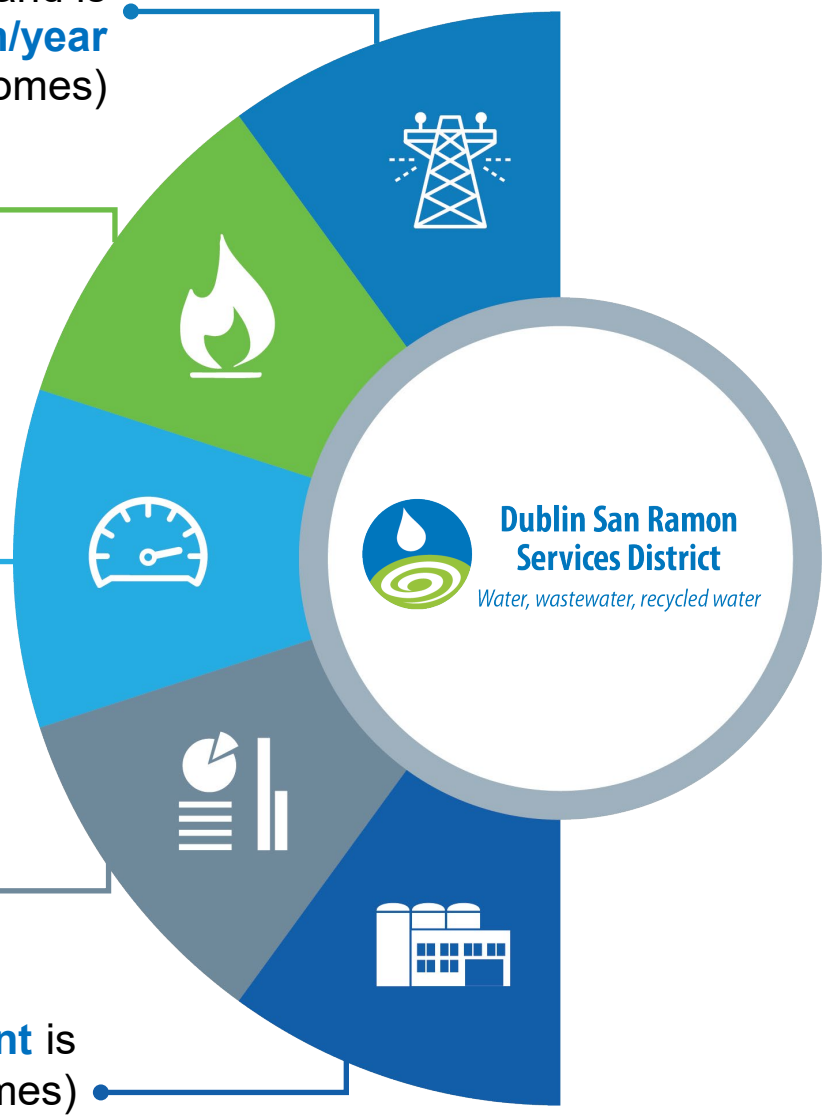
Electricity demand is **~15 M kWh/year** (~2,500 homes)

Thermal energy demand is **~340,000 therms/year** (~1,000 homes)

Fuel consumption is comparable to ~**60 vehicles** driven in the United States

~75% of the District's energy demands are associated with the operation of its **wastewater treatment facilities**

The District's GHG footprint is **~7,000** metric tons CO_{2e} (~200 homes)



Generates **95%** of the power required for the WWTP is generated on-premise via the cogeneration system

Nearly **100%** of the thermal energy demands for the WWTP are met through thermal energy recovered from the on-premise cogeneration system

Questions and Break

Opportunities Assessment

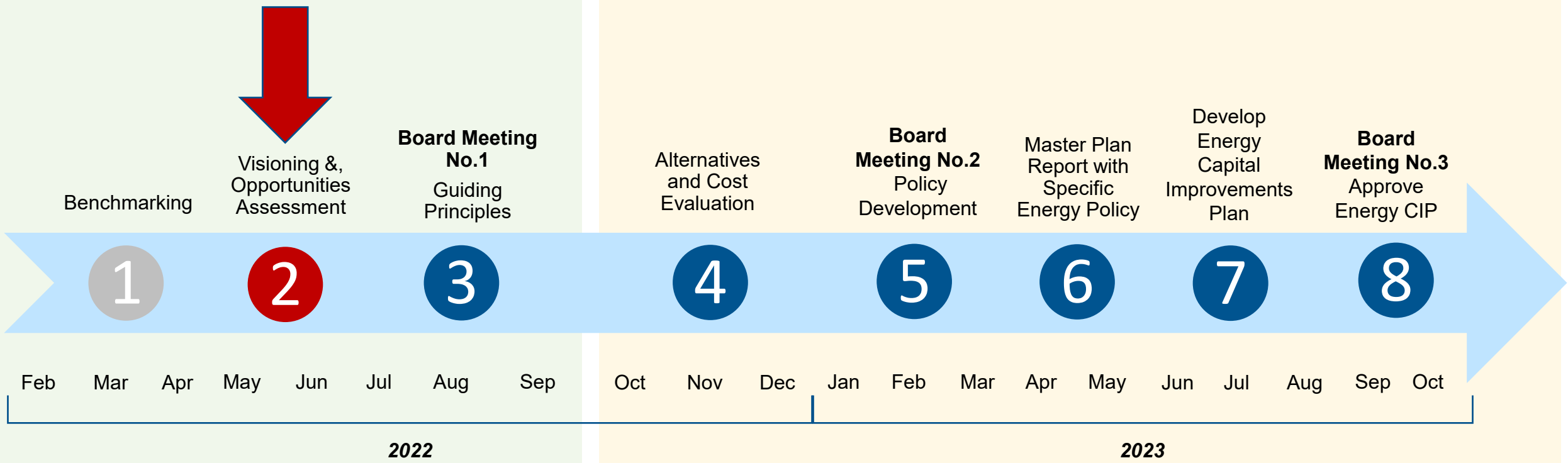
// Scope of Phase 1 and 2 of this planning project

Phase 1

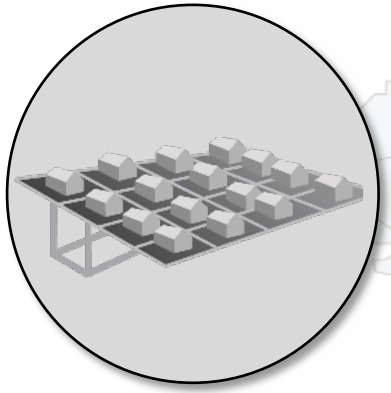
State of the District Energy Baseline

Phase 2

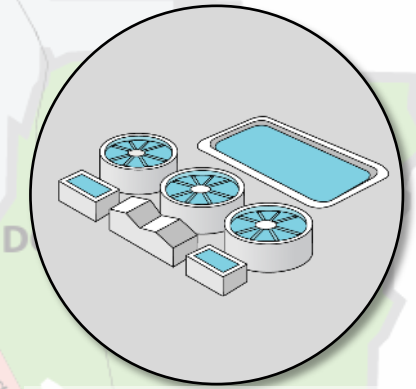
Alternatives Evaluation and Prioritization



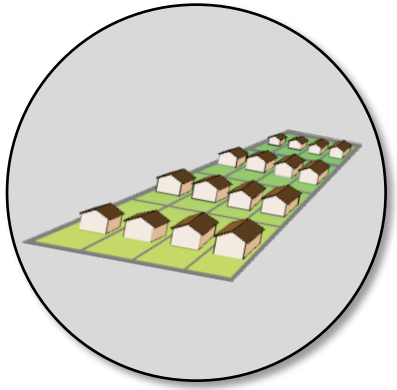
// Facilities included in the planning effort



Wastewater Collection System



Wastewater Treatment Plant



Water Distribution System

Recycled Water Treatment & Distribution (DERWA)

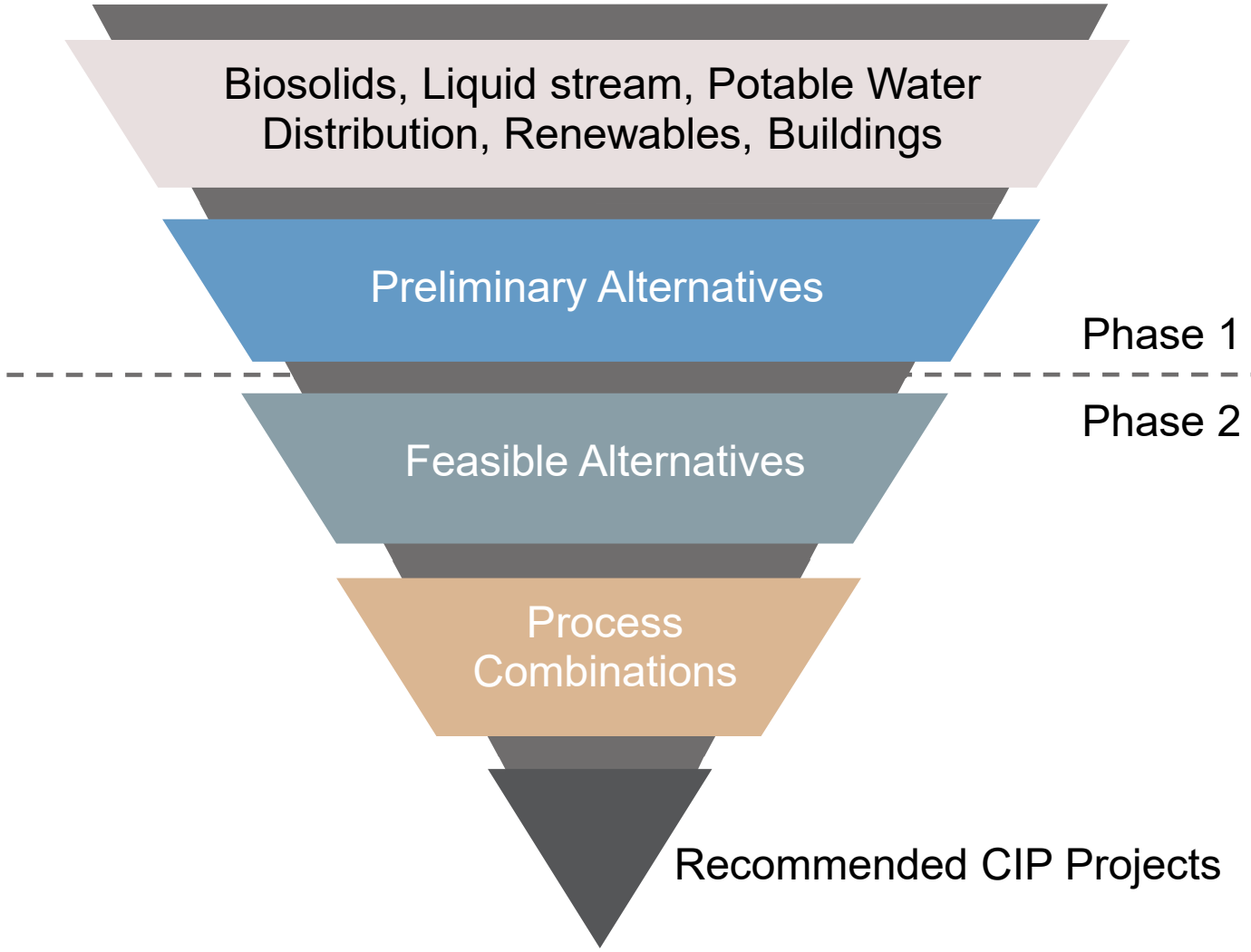
Wastewater Effluent Discharge (LAVWMA)

Recycled Water Distribution

Offices & Buildings

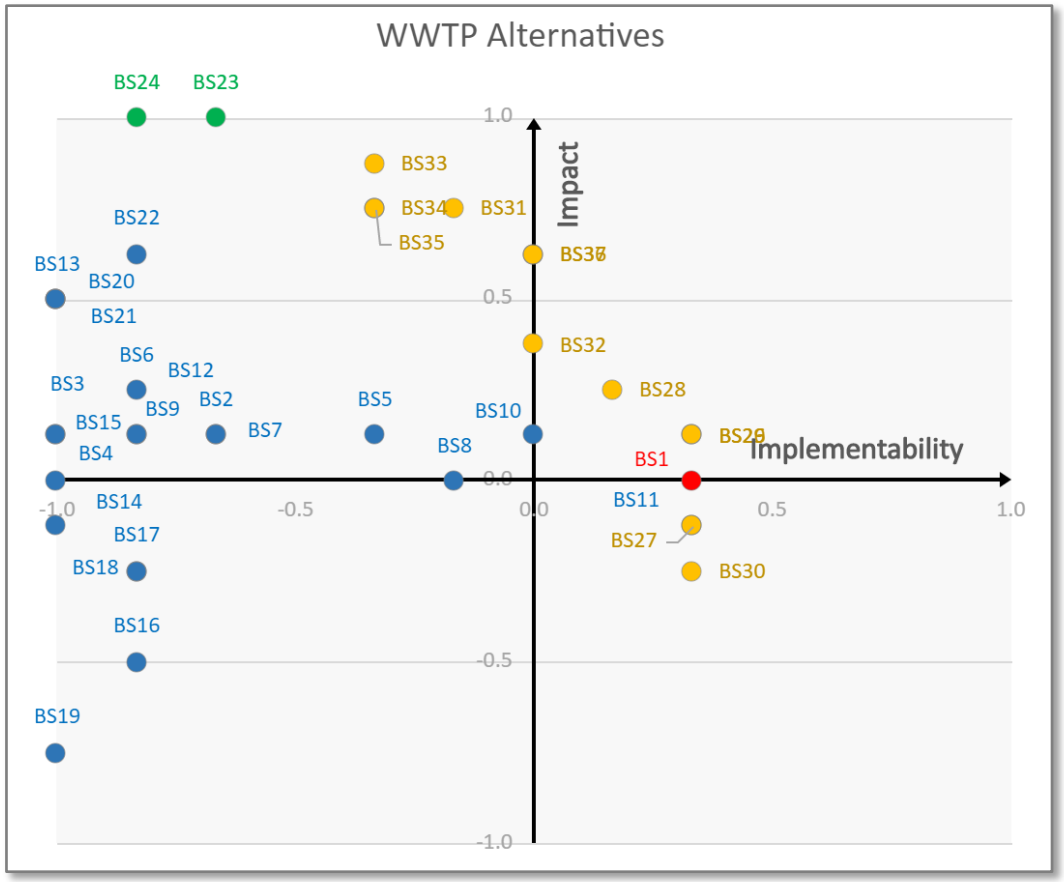
Fleet

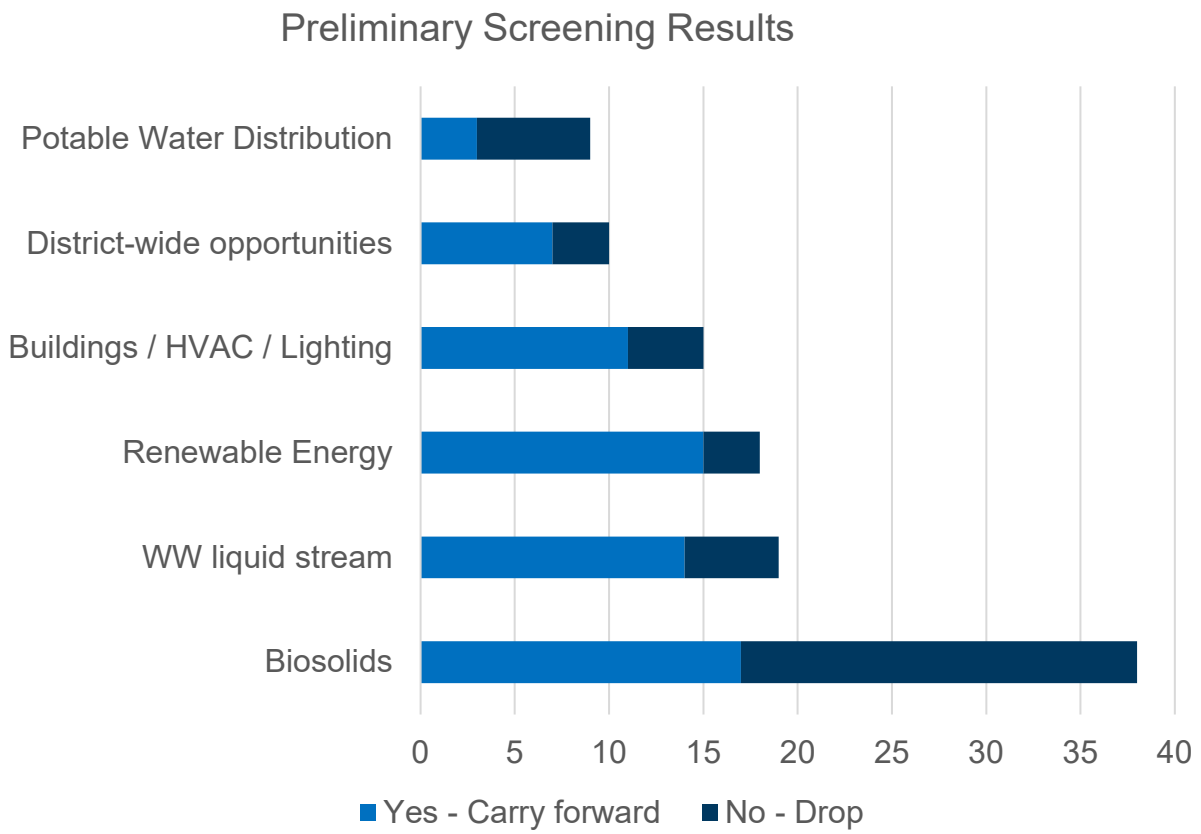
// Preliminary evaluation of options



// High level opportunities initial screening process

109 Alternatives Evaluated → **67** Alternatives Met Minimum Requirements

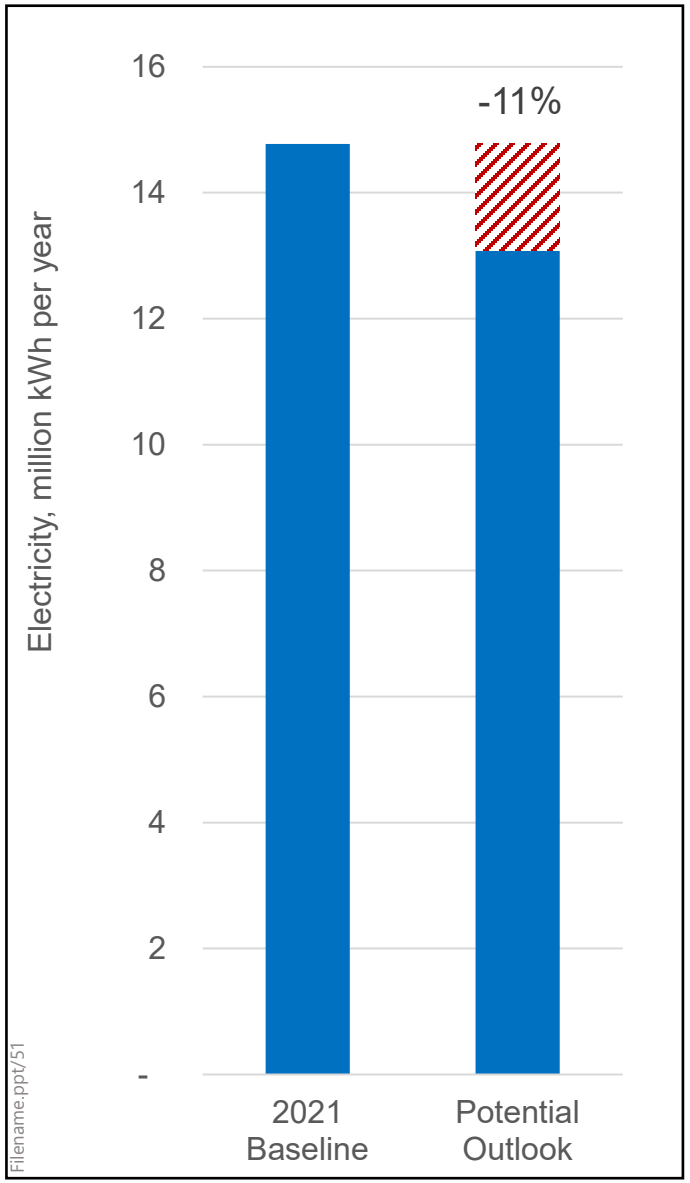




Opportunities Assessment

What is possible?
Energy Savings

// Opportunities Outlook – Potential Energy Savings

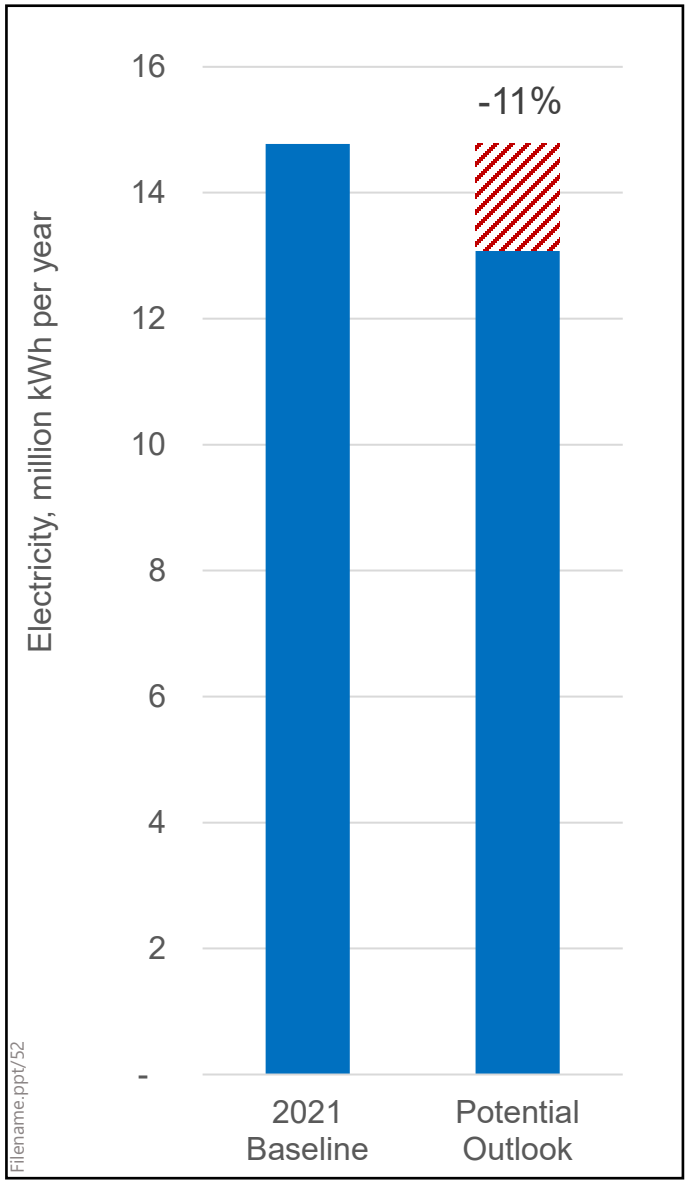


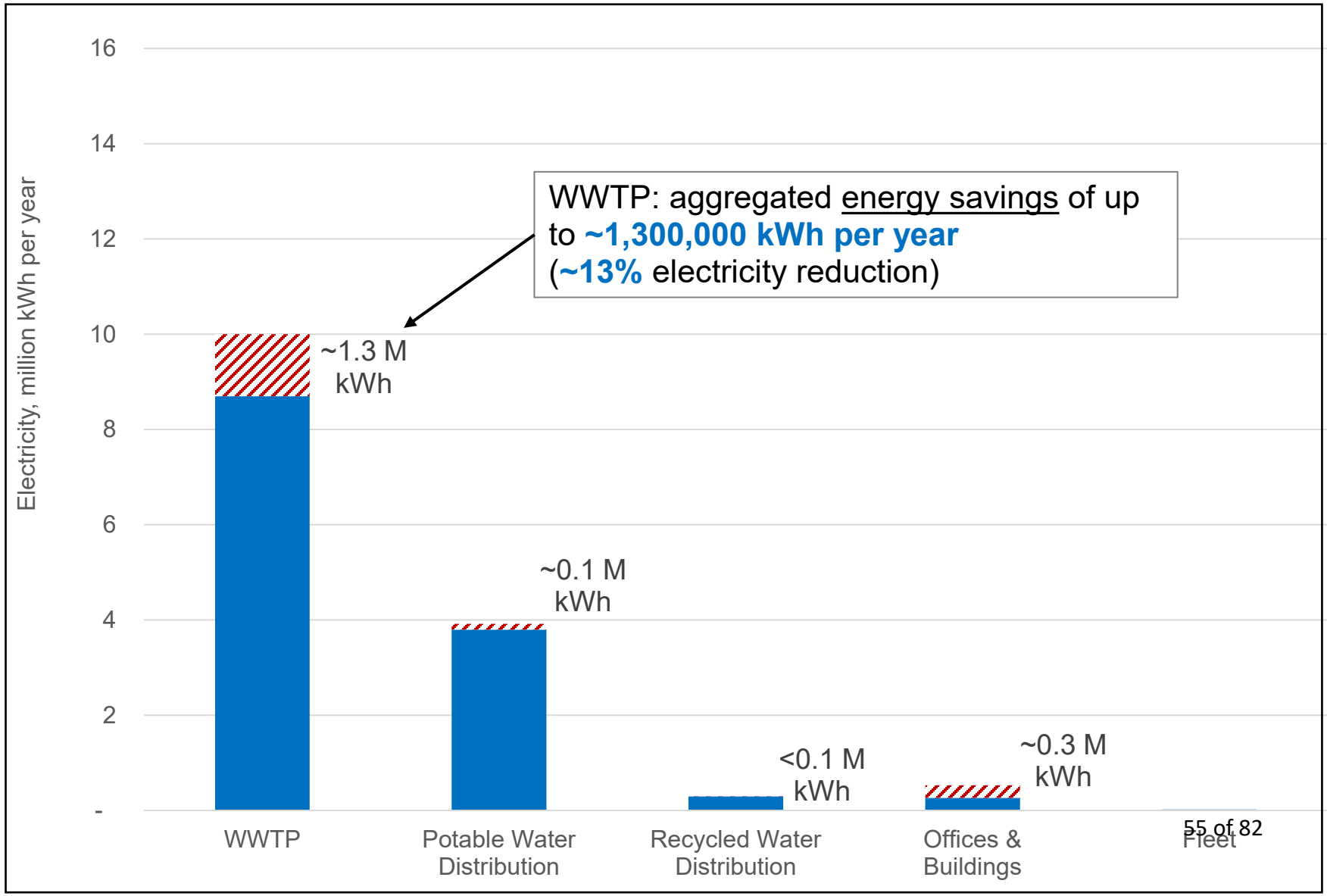
Current Electrical Demand:
~15 M kWh / yr

~13 M kWh / yr

Potential Reduction of **~1.7 M kilowatt-hours**, or approximately **11%** of District's current electricity demand

// Opportunities Outlook – Potential Energy Savings



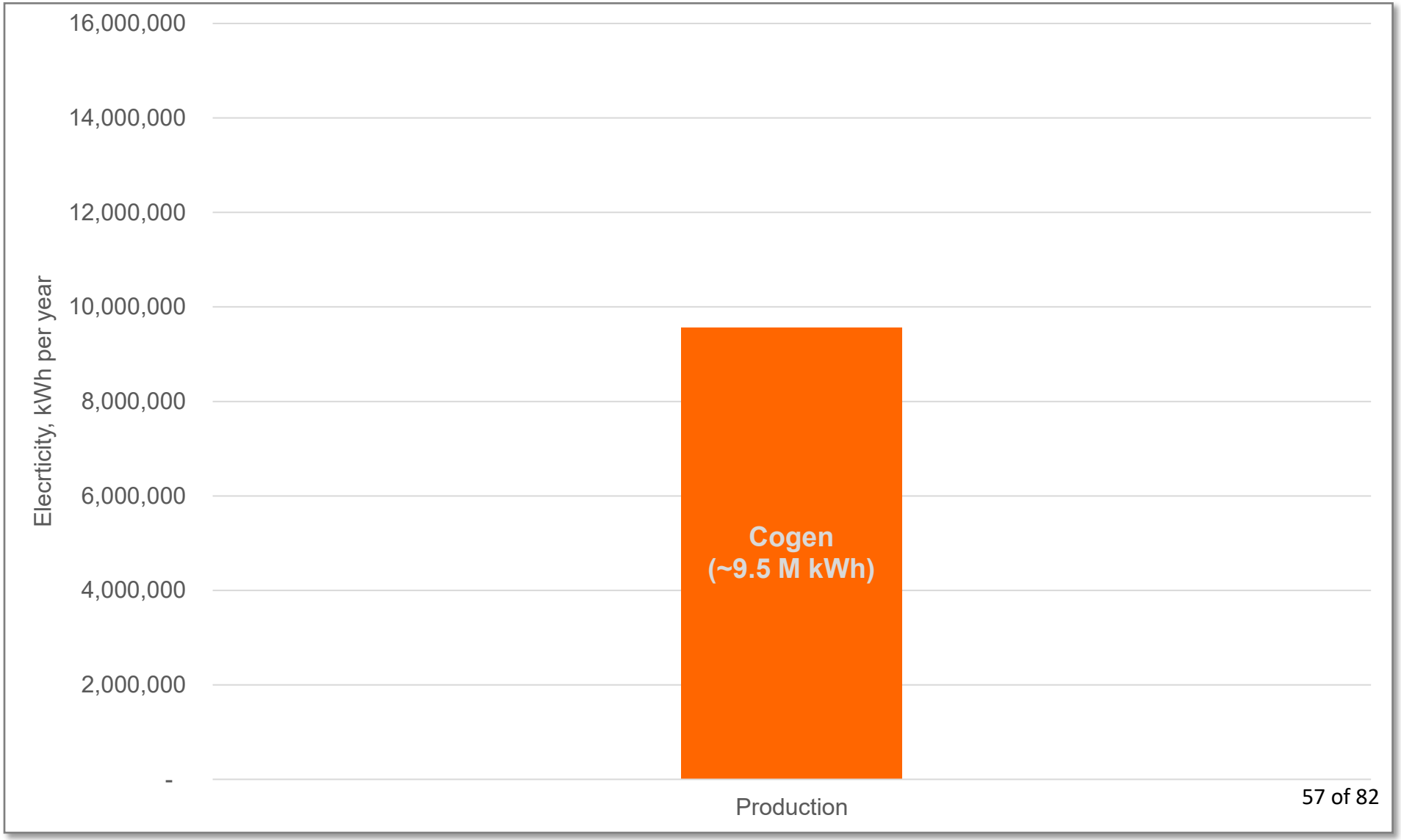


Opportunities Assessment

What is possible?
Energy Generation

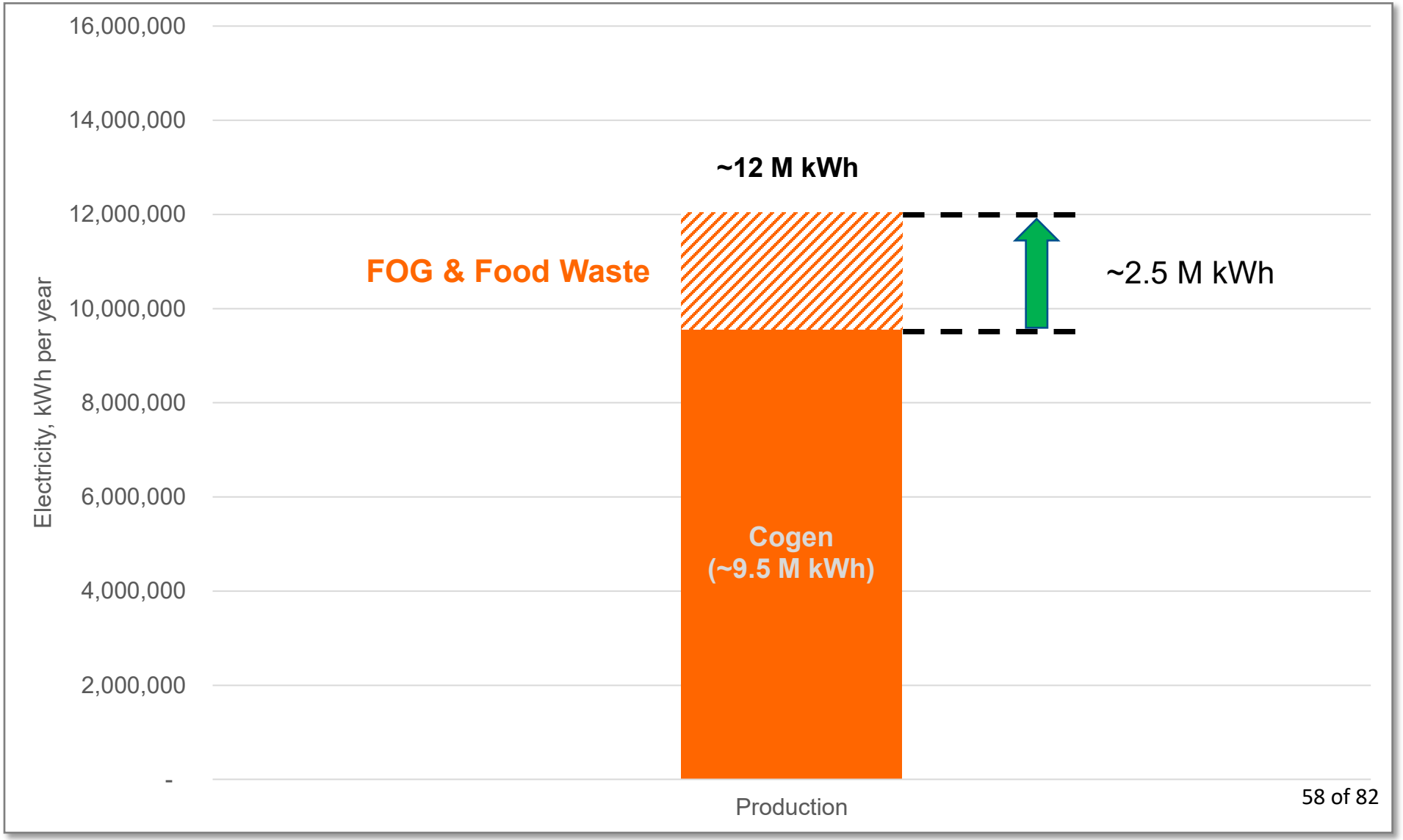
// Opportunities Outlook – Potential Energy Generation

The WWTP **Cogeneration System** currently produces **~9.5 M kWh**



// Opportunities Outlook – Potential Energy Generation

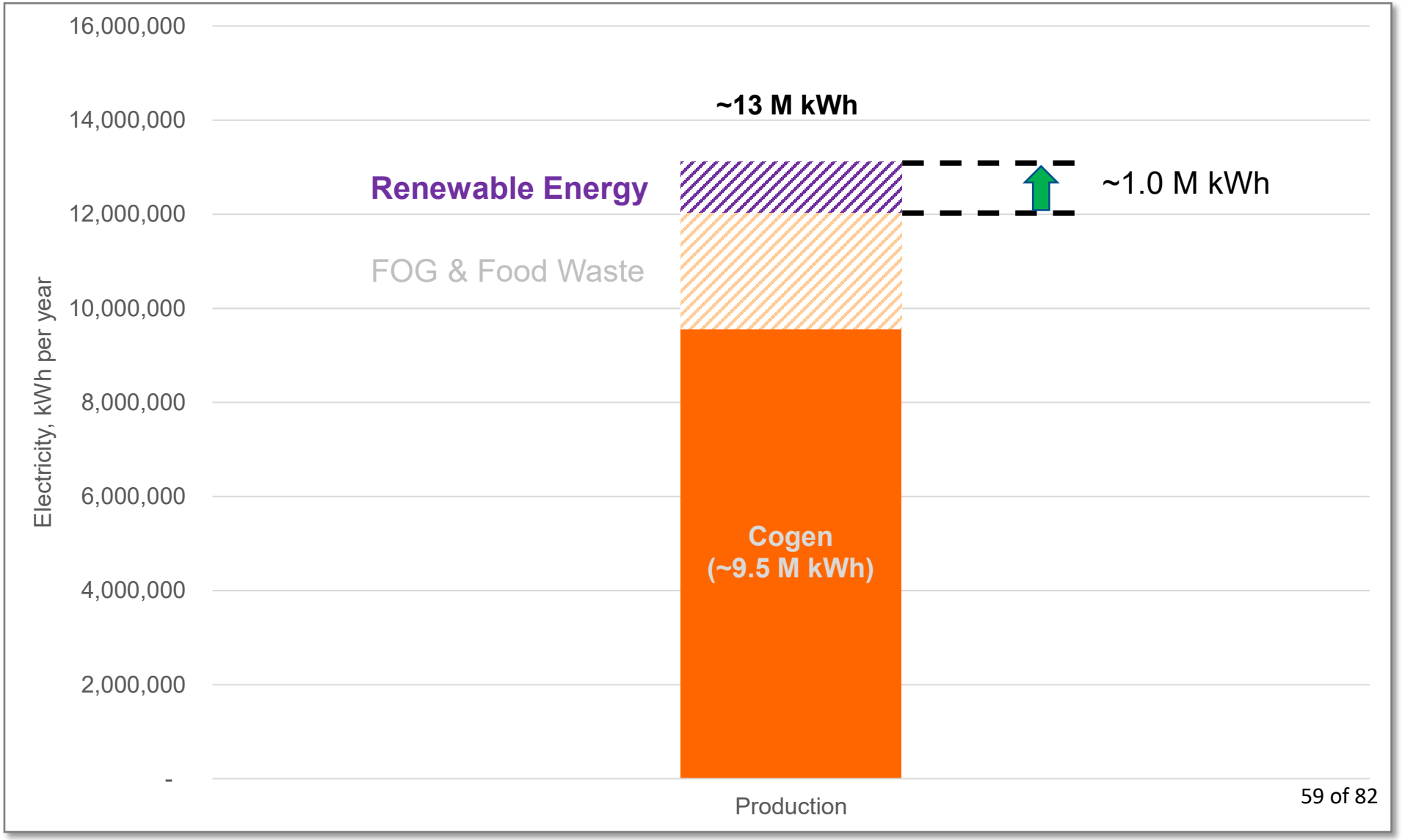
Additional Biogas through **Fats, Oils and Grease (FOG)** and **Food Waste programs**



// Opportunities Outlook – Potential Energy Generation

Additional Biogas through **Fats, Oils and Grease (FOG)** and **Food Waste programs**

Renewable Energy (i.e., Solar Power, Wind Power)



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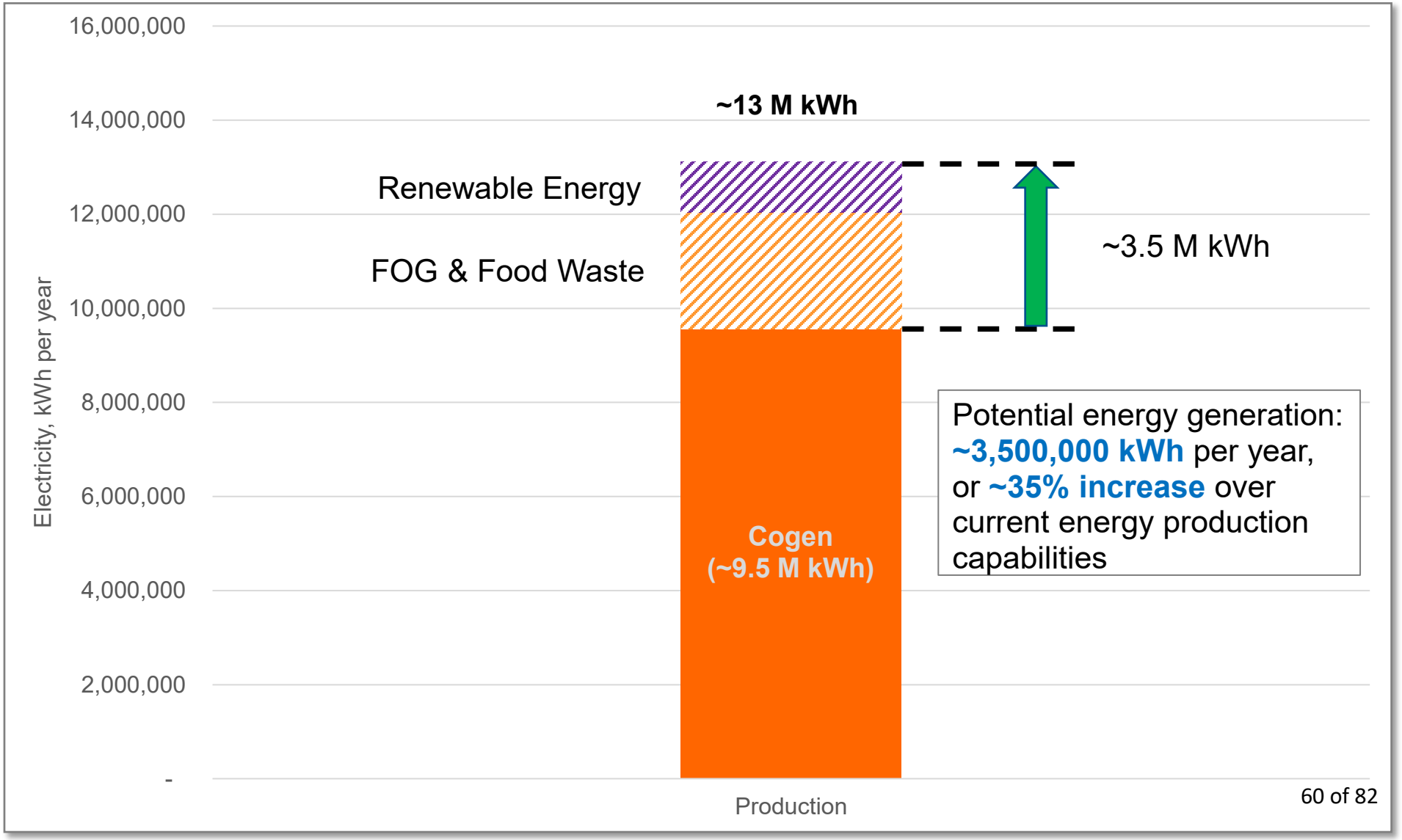
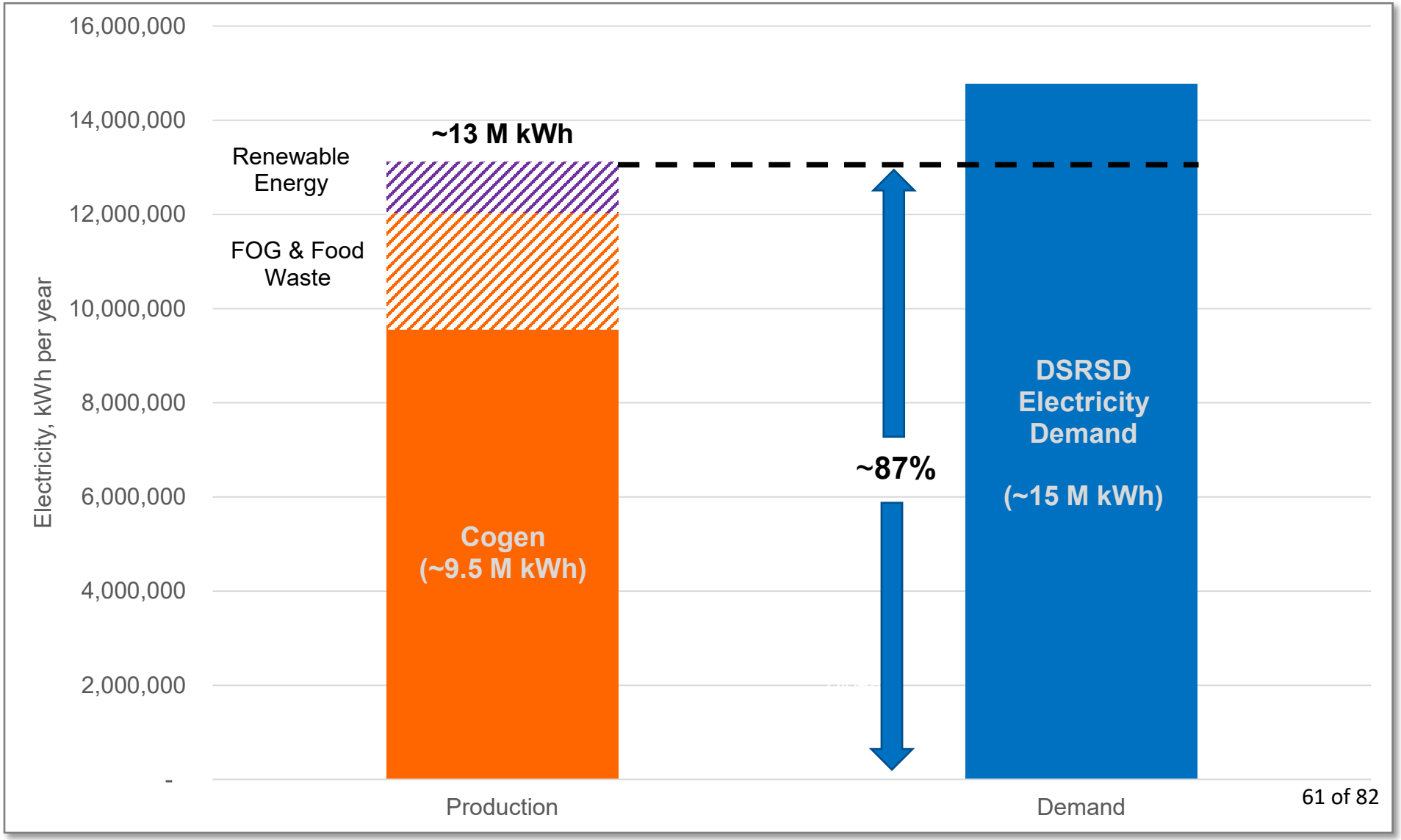


// Opportunities Outlook – Potential Energy Generation

Additional Biogas through **Fats, Oils and Grease (FOG)** and **Food Waste programs**

Renewable Energy (i.e., Solar Power, Wind Power)

Potential to generate up to **~87%** of the District's current electricity demand



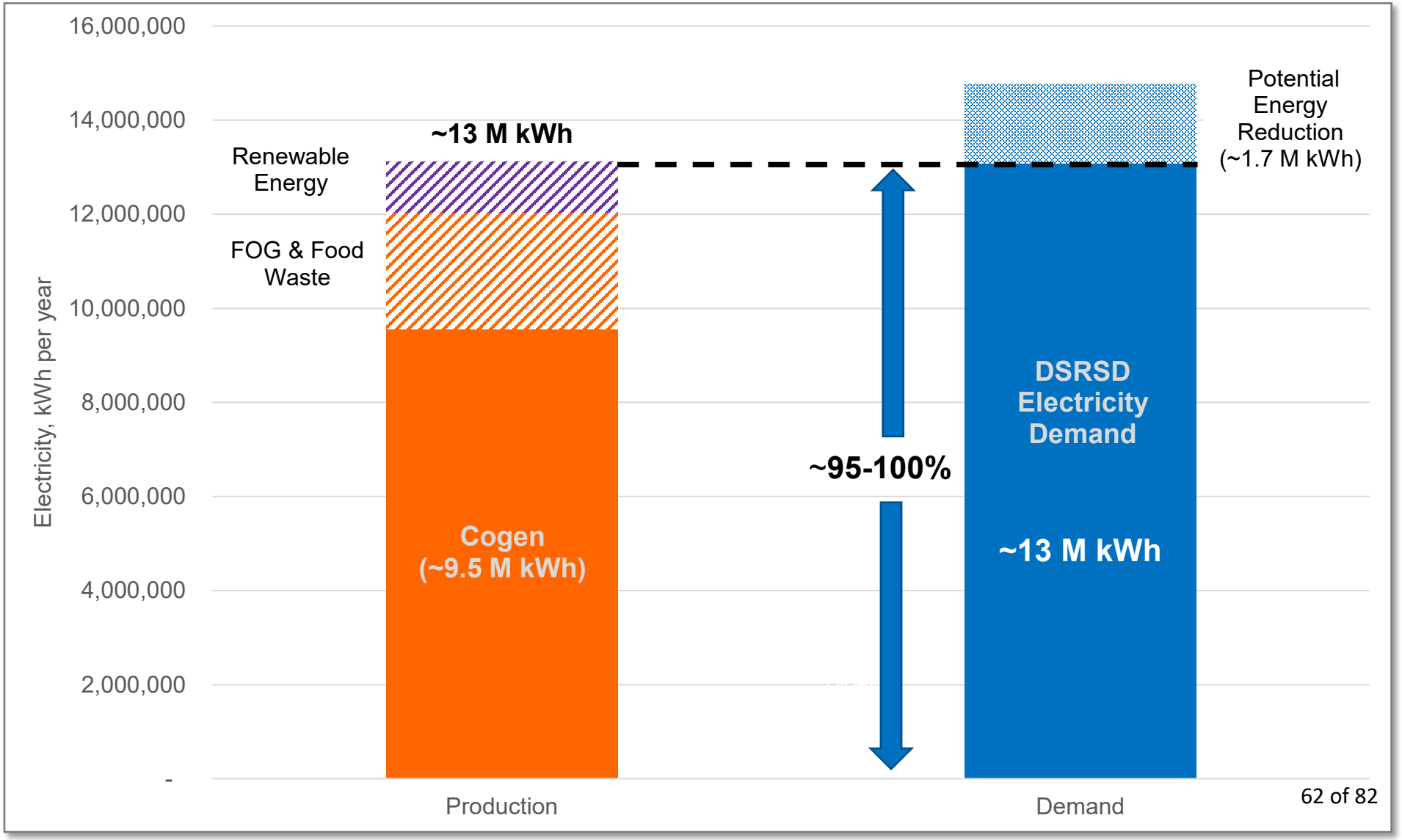
// Opportunities Outlook – Potential Energy Generation

Additional Biogas through **Fats, Oils and Grease (FOG)** and **Food Waste programs**

Renewable Energy (i.e., Solar Power, Wind Power)

Potential to generate up to ~87% of the District's current electricity demand

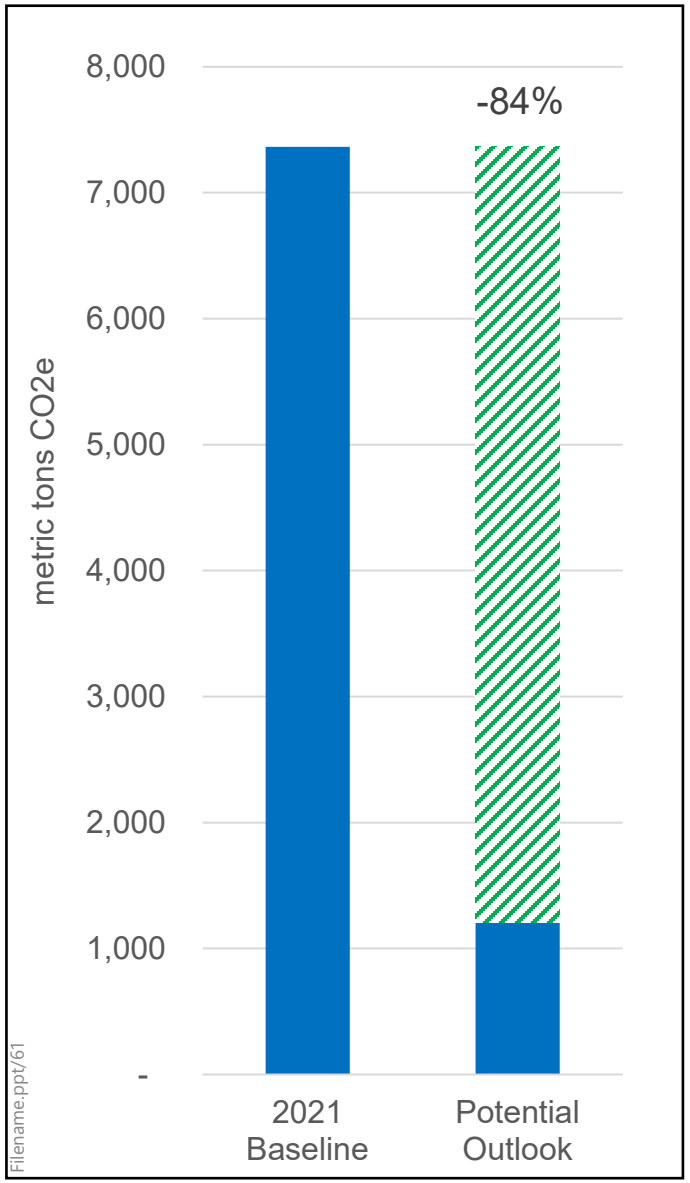
With potential energy reductions, potential to generate **~95% to 100%** of the District's current electricity demand



Opportunities Assessment

What is possible?
GHG Reduction

// Opportunities Outlook – Potential GHG Reduction



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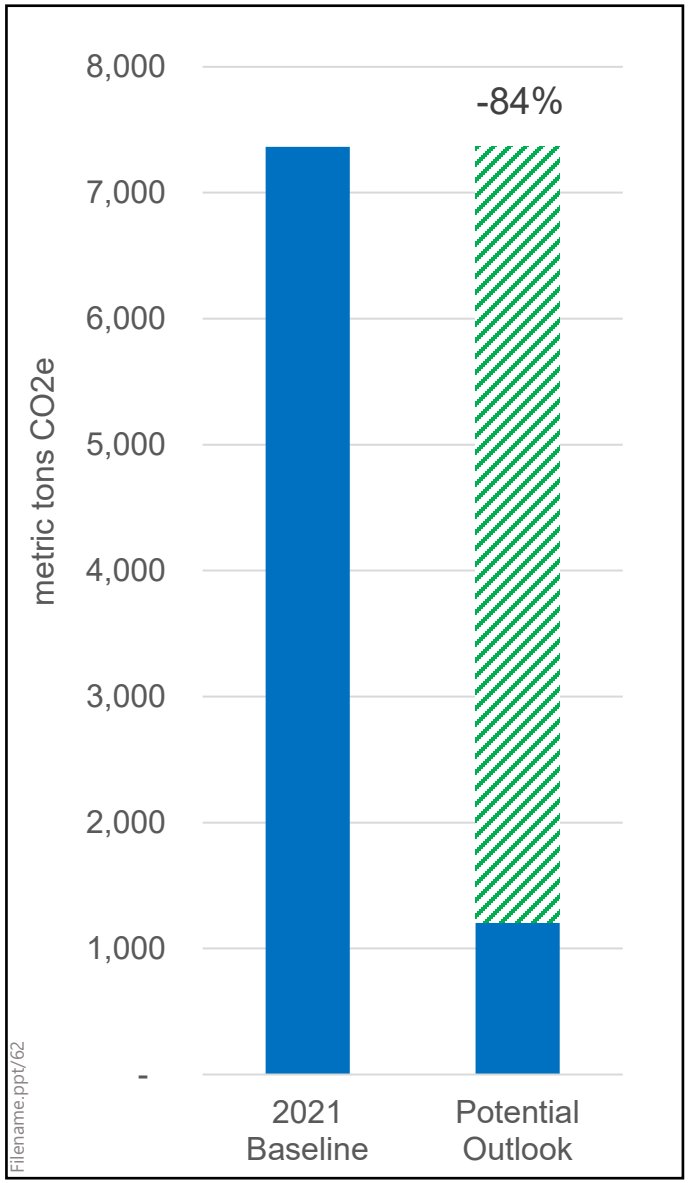
CO_{2e}

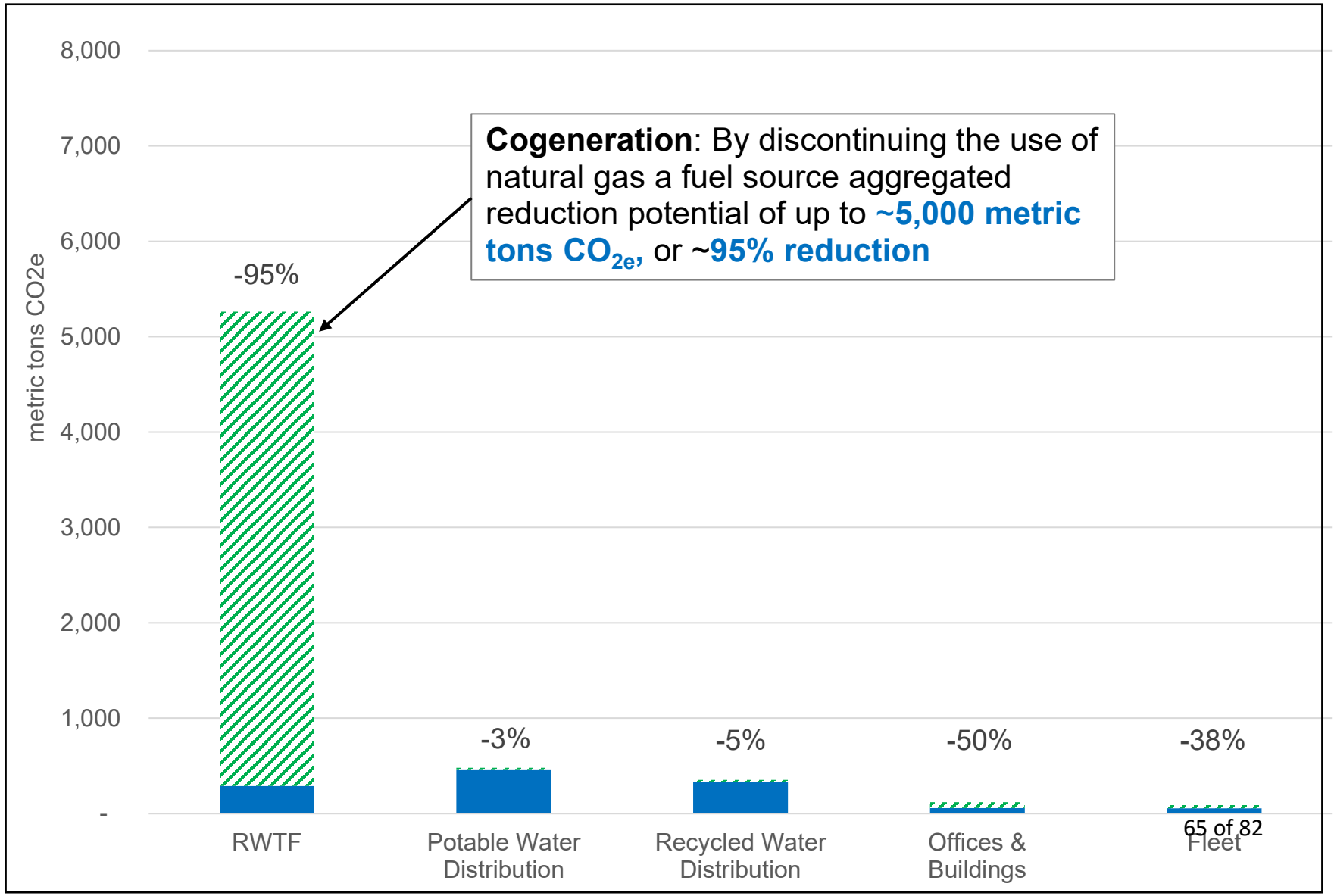
Current GHG Emissions:
~7,500 Total metric tons/year

~1,200 Total metric tons/year

Potential Reduction of **~6,000 metric tons CO_{2e}**, or approximately **85%** of District's current carbon footprint

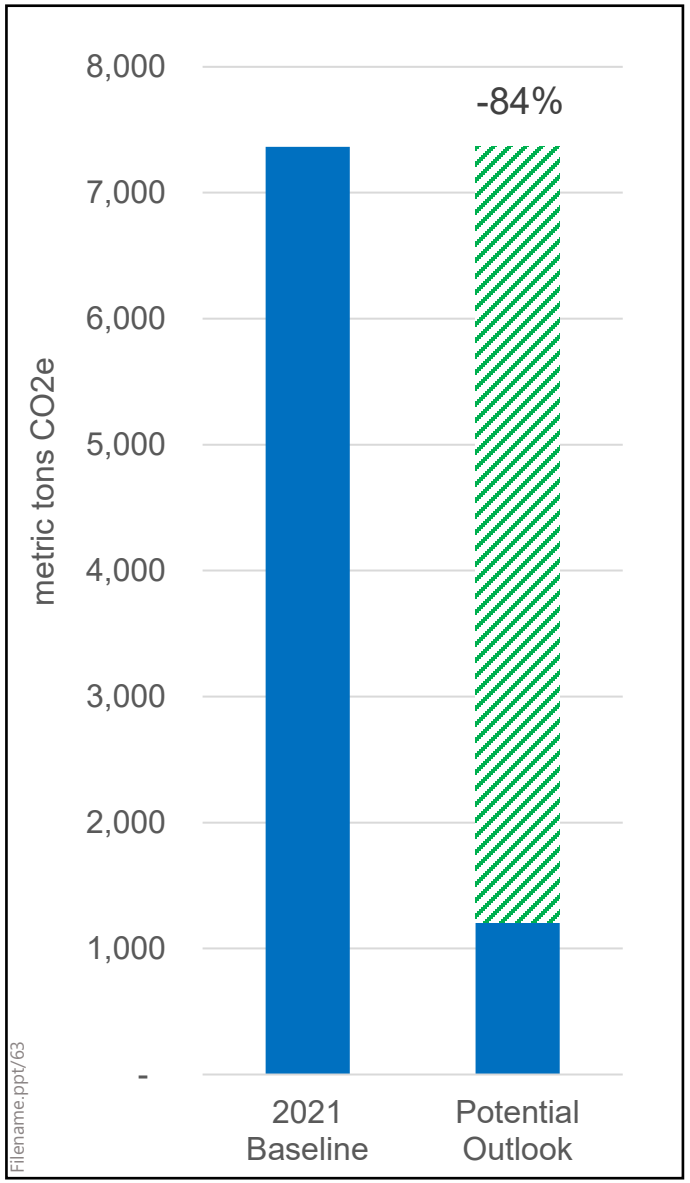
// Opportunities Outlook – Potential GHG Reduction

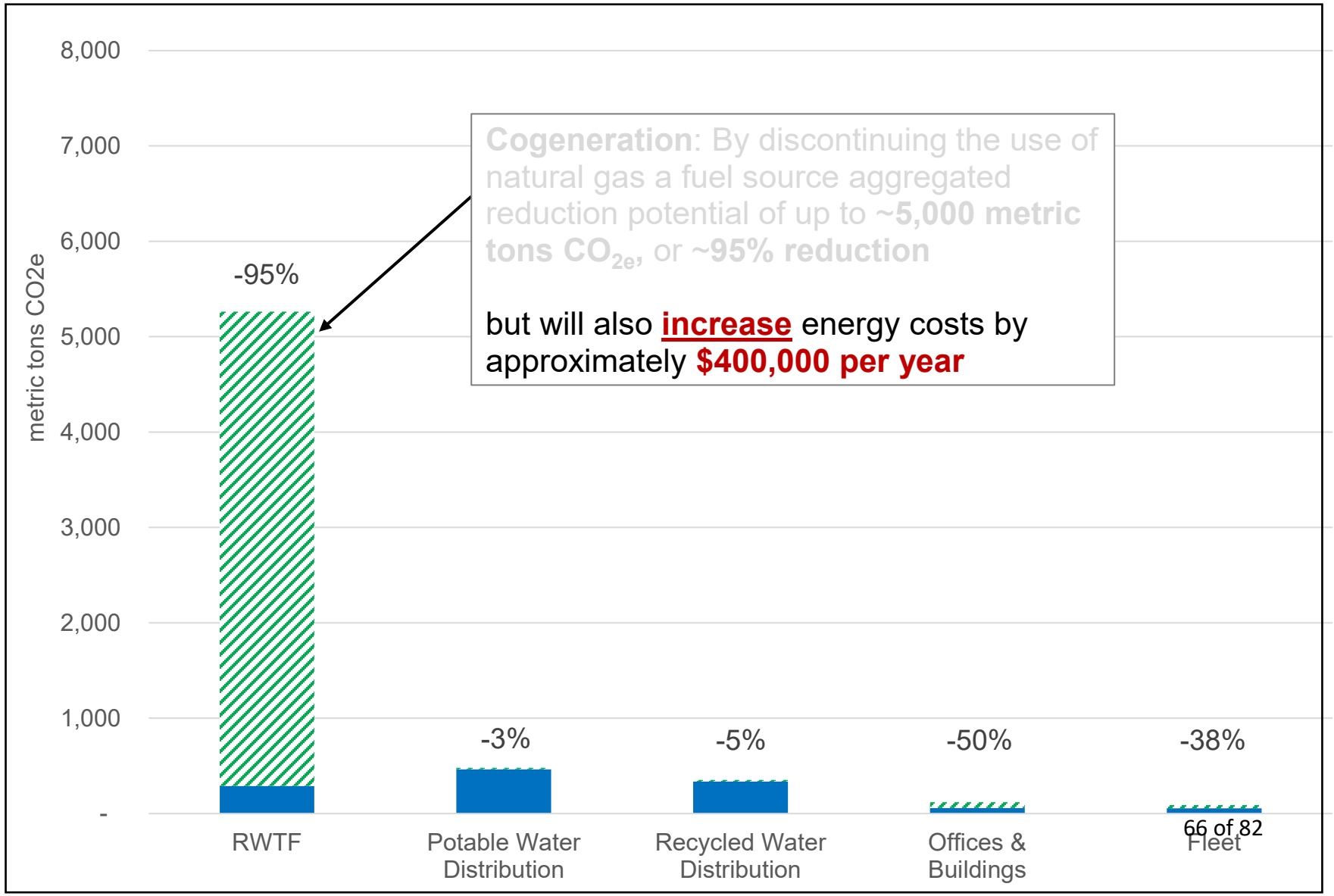




Cogeneration: By discontinuing the use of natural gas a fuel source aggregated reduction potential of up to **~5,000 metric tons CO_{2e},** or **~95% reduction**

// Opportunities Outlook – Potential GHG Reduction





Opportunities Assessment
Summary

// Summary of opportunities estimates

Electricity savings opportunities of up to **11 percent** for DSRSD facilities

Electricity generation opportunities of up to **3.5 M kilowatt-hours**

GHG footprint could be reduced by as much as **80%** if natural gas was discontinued as a fuel source for the cogeneration system

67 preliminary alternatives are carried forward into Phase 2 for further analysis.

Questions

Energy Guiding Principles

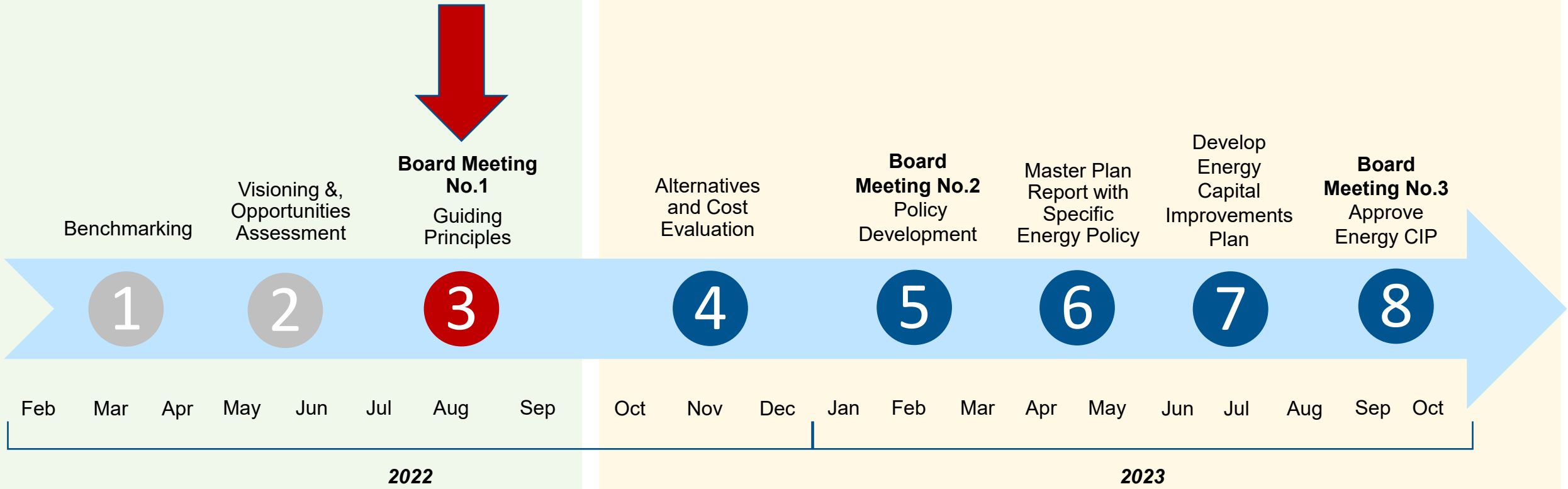
// Scope of Phase 1 and 2 of this planning project

Phase 1

State of the District Energy Baseline

Phase 2

Alternatives Evaluation and Prioritization

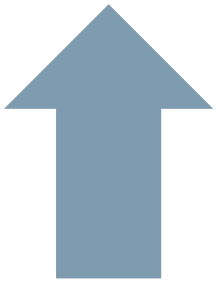


// Examples of competing project objectives

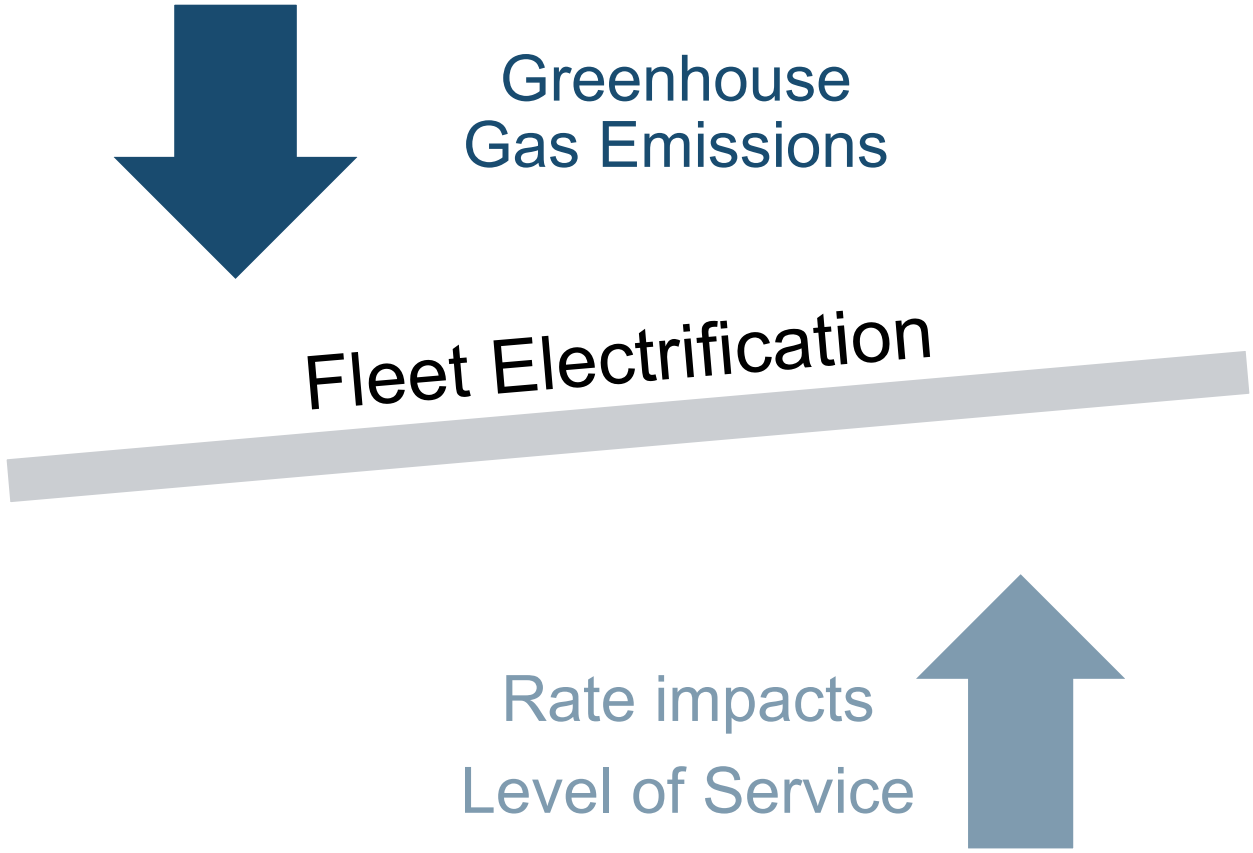
Greenhouse
Gas Emissions

Cogeneration using Natural Gas

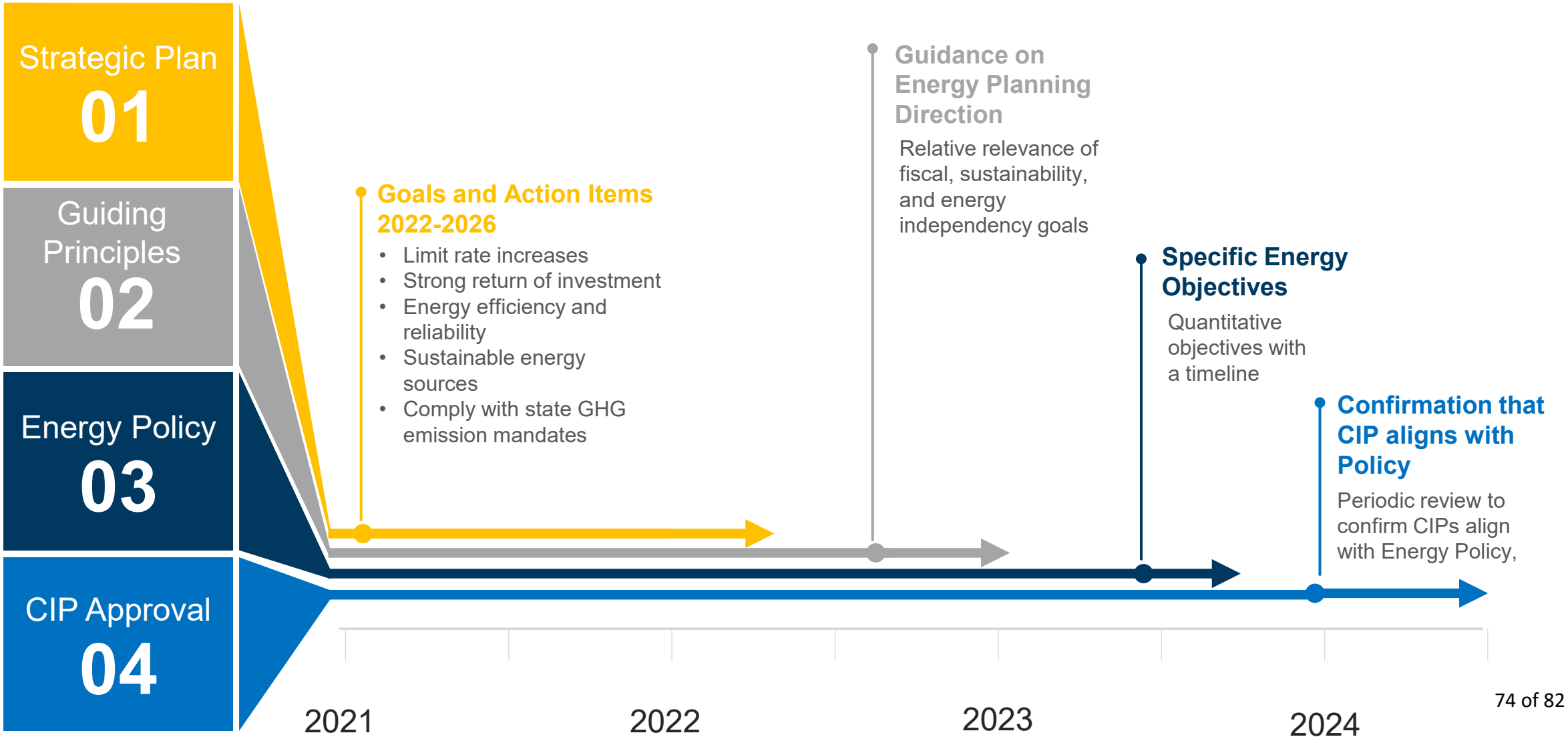
Energy Costs



// Examples of competing project objectives



// How the Board helps guide the energy CIP development

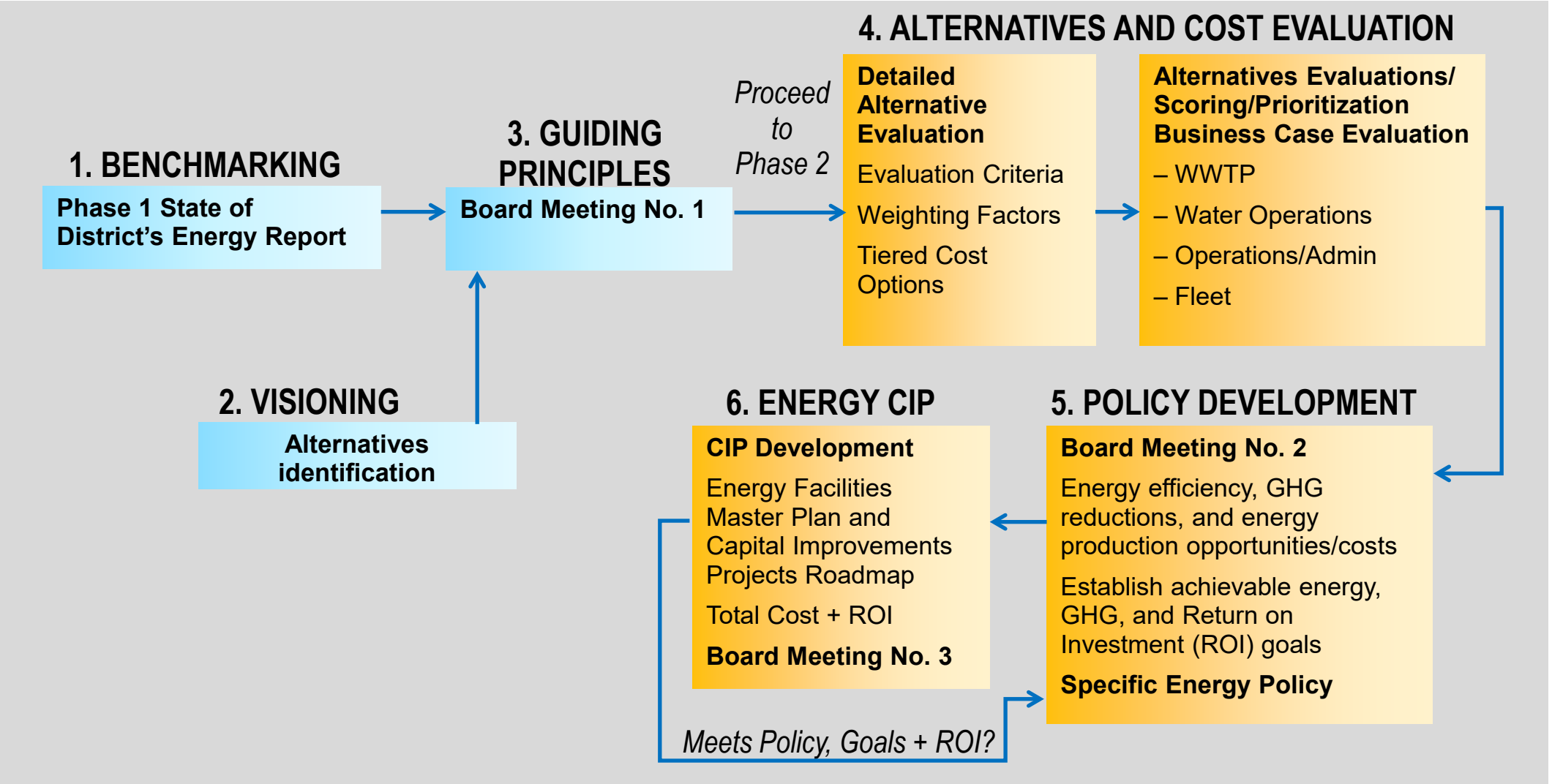


// Complexities of energy and GHG master planning

- Environmental stewardship
- Industry leadership
- GHG reduction goals
- Future regulations
- Sustainable energy sources

- Return of investment
- Sunk costs in existing infrastructure
- Reliability and Resiliency
- Limit rate increases
- Resource limitations

// How the Board's Guiding Principles help develop the Masterplan and CIP



// Energy Guiding Principles & Policy

A general statement of DSRSD's values to help guide decision making process.

A prescribed commitment for an energy objective with quantitative goal and timeline

Example
"DSRSD shall strive to find and proactively implement cost-effective means to reduce GHG emission, increase renewable energy production, and improve energy efficiency."

Example
"DSRSD shall reduce direct GHG emissions by 40 percent compared to 2021 levels by 2040."

// Suggestions for DSRSD Board's consideration in developing Energy Guiding Principles

1. 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.
2. Strive to establish a **diverse, reliable, and resilient** energy supply portfolio for operation of its facilities.
3. Properly plan and **budget for staffing needs and training** to employ, operate, and maintain any additional energy related infrastructure.
4. Capital improvements shall **consider the impact** on energy demand, energy efficiency, and GHG impacts where relevant.
5. Seek opportunities to **offset any additional future energy demands** with renewable energy production.
6. Strive to **lead the industry** in supporting the development of new promising energy technologies in the spirit of the guiding principles and objectives.

Discussion on Guiding Principles

Next Steps

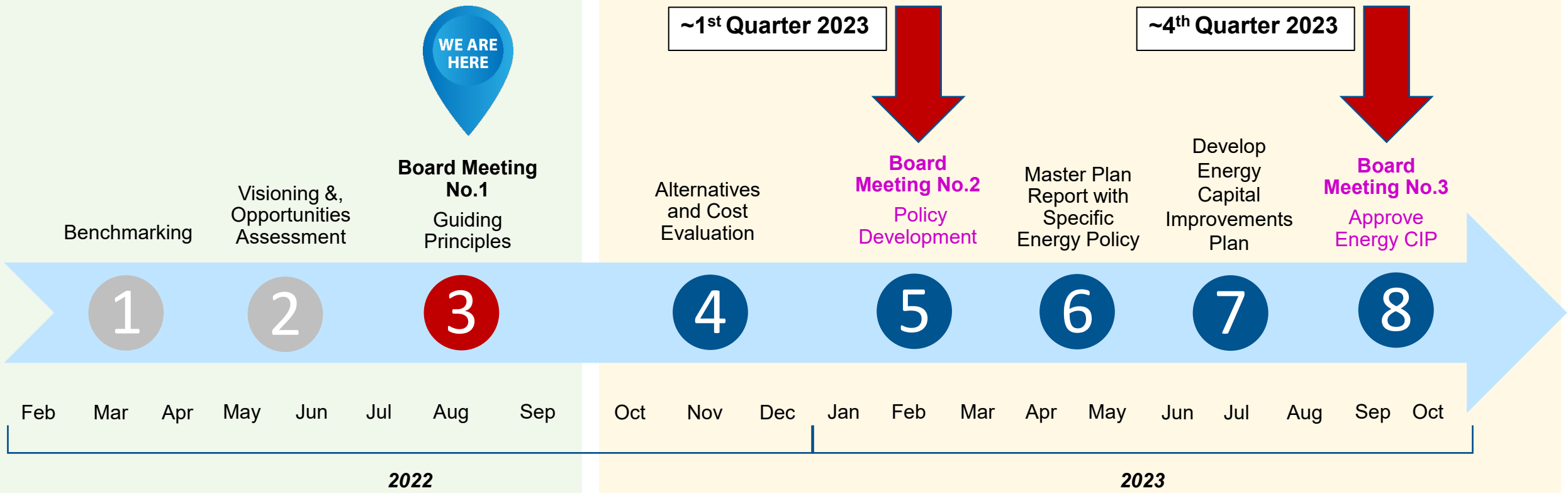
// Scope of Phase 1 and 2 of this planning project

Phase 1

State of the District Energy Baseline

Phase 2

Alternatives Evaluation and Prioritization



Questions