

Metro Plant Solids Management Facility Plan

Jeannine Clancy, Assistant General Manager, Technical Services

Peter Sandberg, Metro Solids Business Unit Manager, Operations

Rene Heflin, Manager Plant Engineering, Technical Services

Committee of the Whole: April 18, 2018

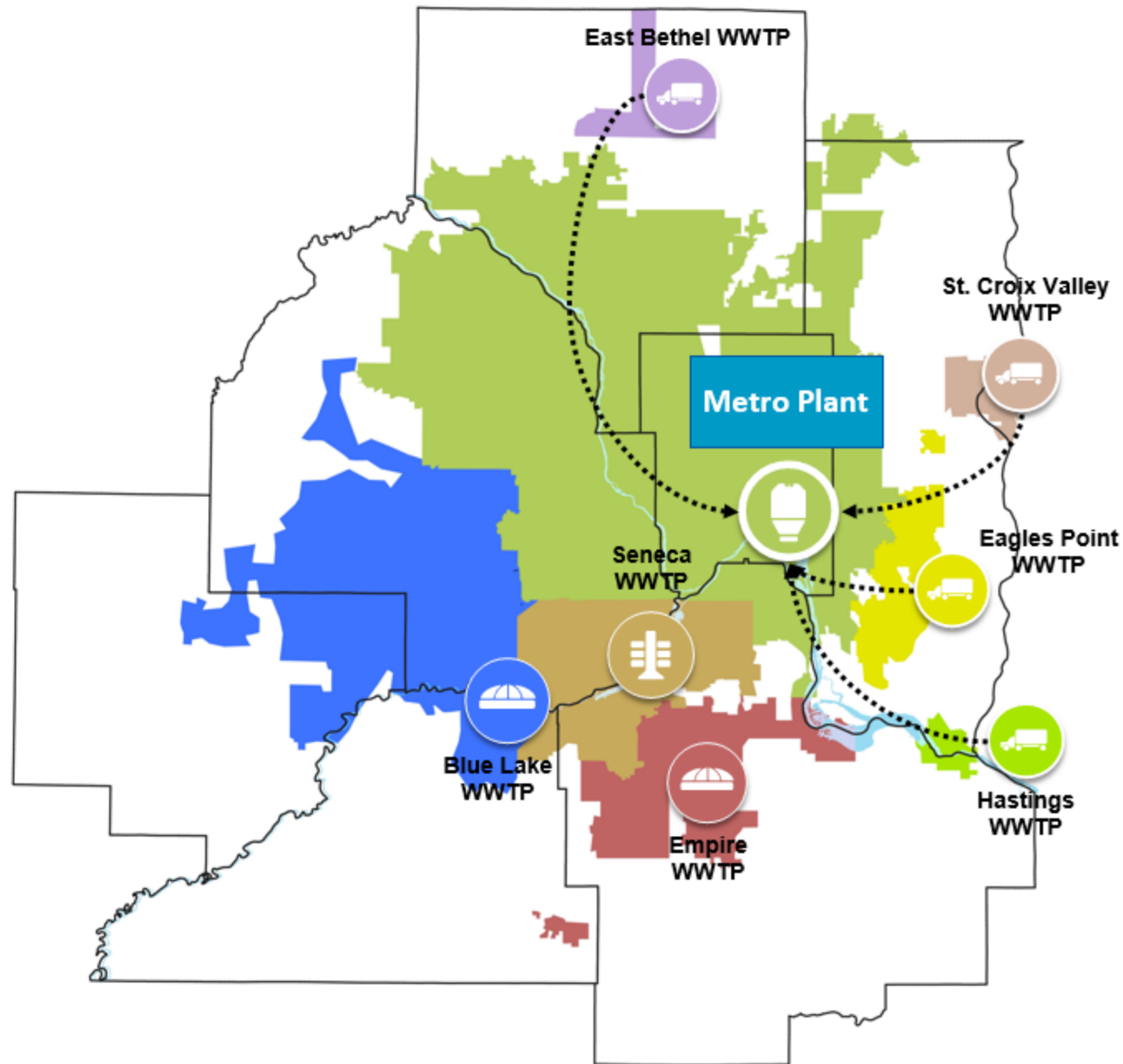


Meeting Objective

- To share information about the Metro Plant Solids Management Facility Plan



Project Location



Metro Plant

- Treats 180 million gallons of wastewater every day for 66 communities
- Processes 850 wet tons of solids every day for 73 communities.

The Metro Plant Processes $\frac{3}{4}$ of Regions Solids.

History of Incineration at Metro

1938-2005

Multiple Hearth Incinerators

2005-Present

Fluidized Bed Incinerators

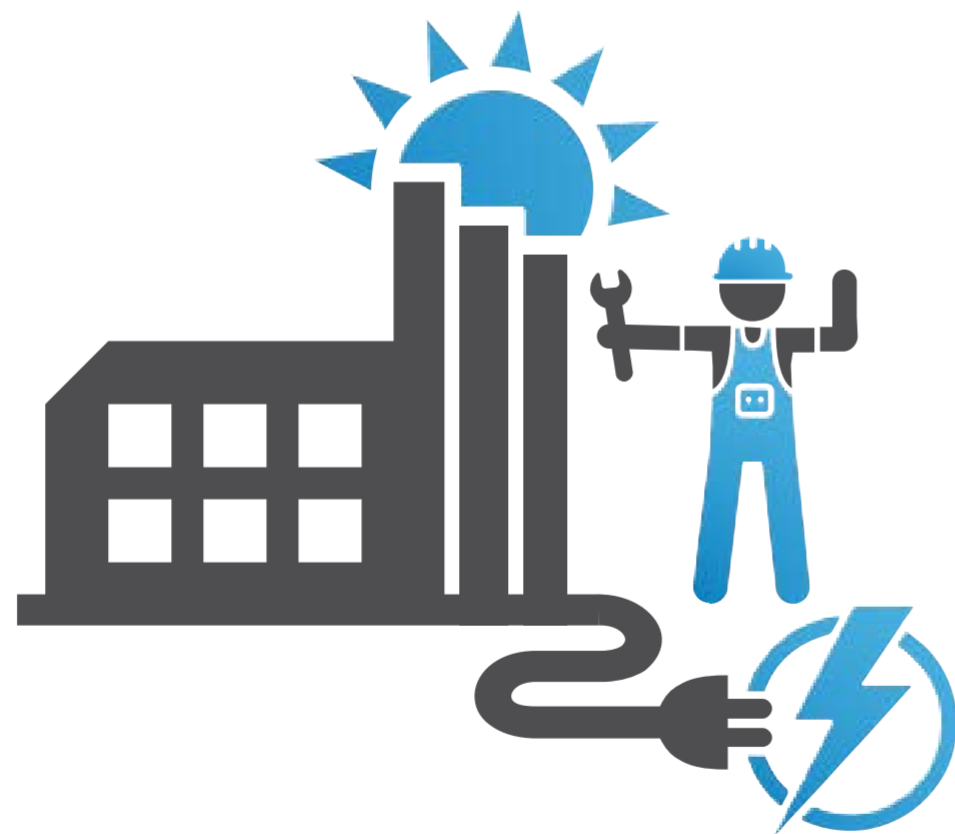


*SMB is a model for “sustainable incineration”
within the wastewater treatment industry.*

Project Drivers

The Metro Plant needs additional solids processing capacity to:

Preserve Existing Wastewater Treatment Plant Infrastructure

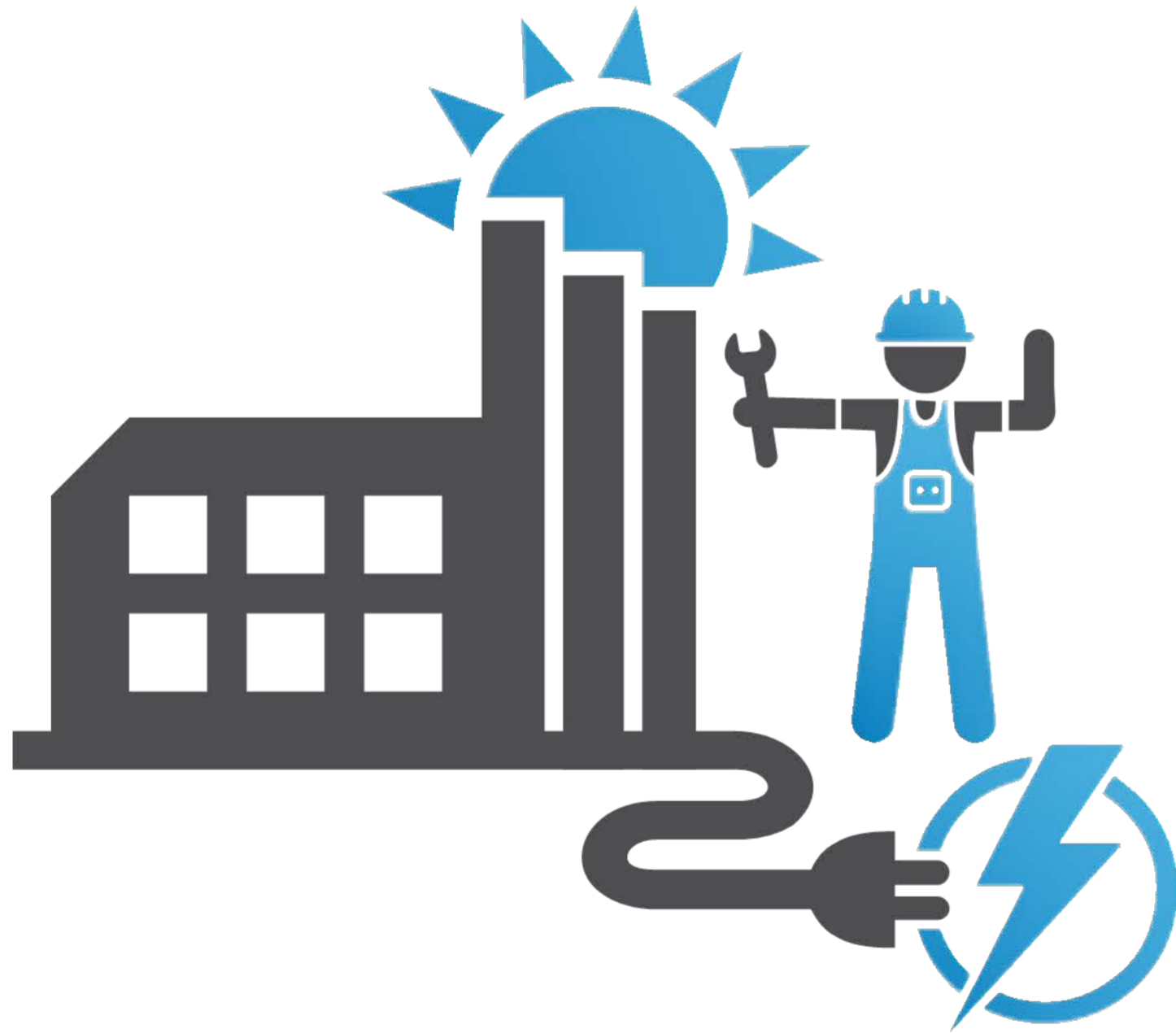


Serve Regional Population Growth



Preserving Existing Infrastructure

Capacity Needed for Renewals



The existing incinerators will be 20 years old in 2025.

Serving Regional Growth

25%

Population Growth in the
Metro Service Area
(2020 – 2050)



 **60** more dry tons/day

240 dry tons/day in 2020 → **300** dry tons/day in 2050

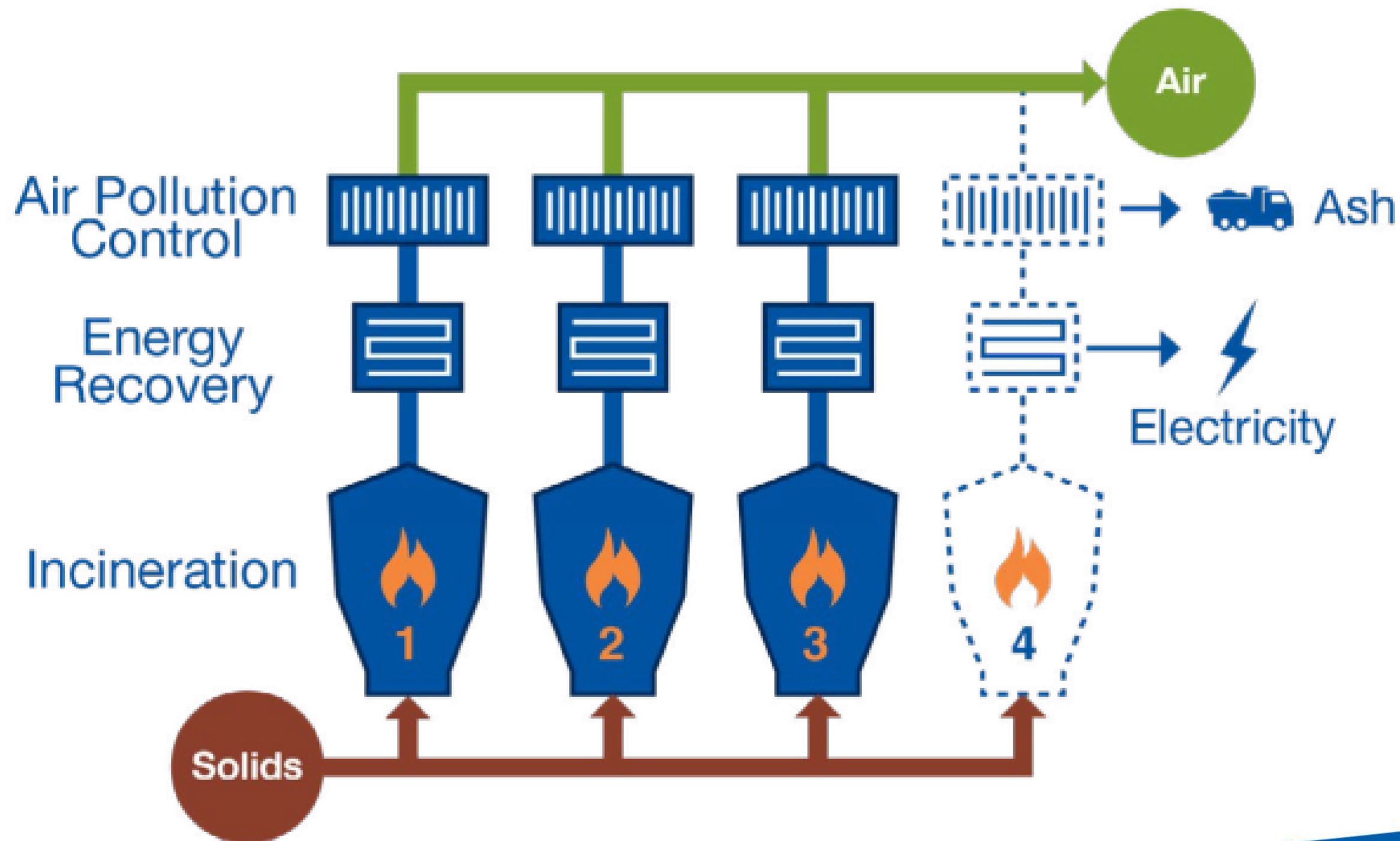
 **500,000** more residents

1.96 million residents in 2020 → **2.46** million residents in 2050

The region is growing and MCES must be able to support economic growth of the region.

Project Overview

MCES proposes to renew existing incinerator facilities following construction of a fourth incinerator.



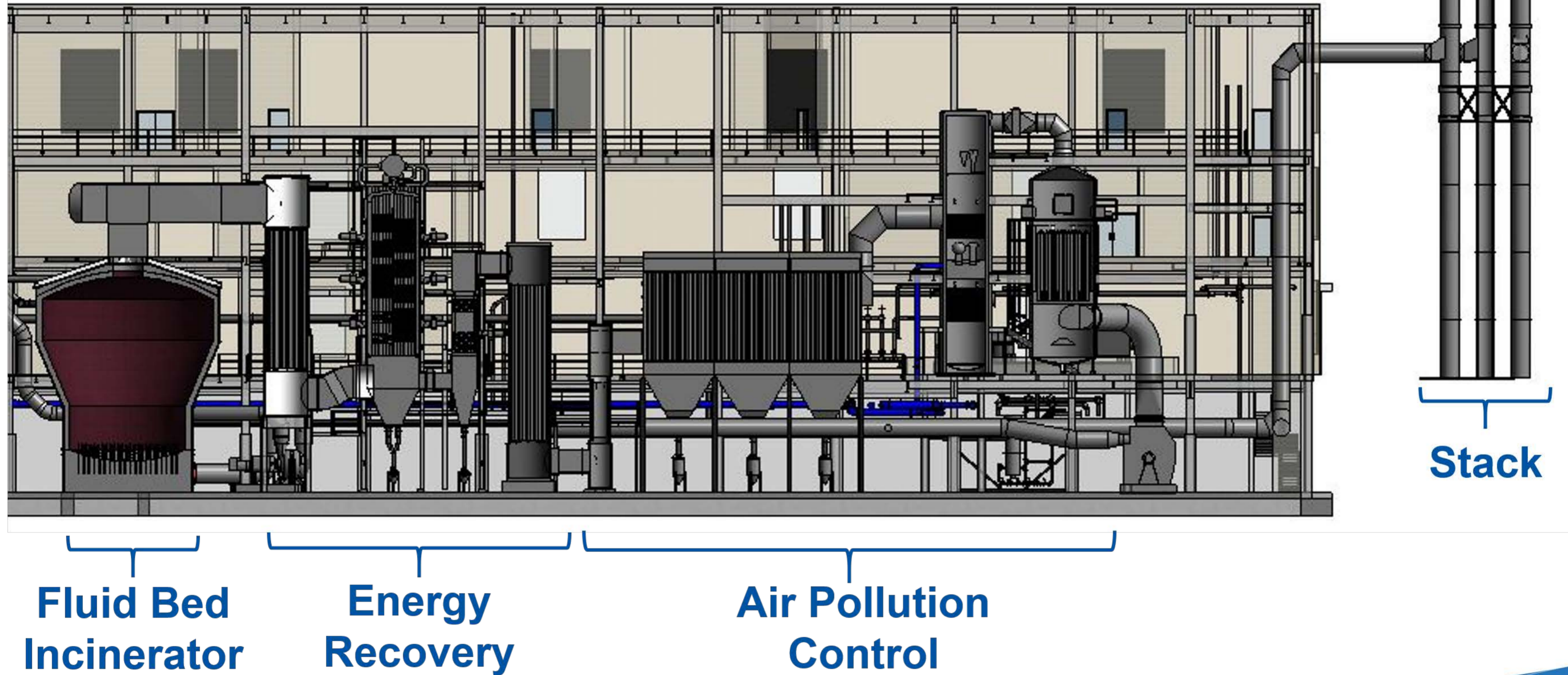
All three existing incinerators must be operated to keep up with existing loadings.

Project Background

Peter Sandberg

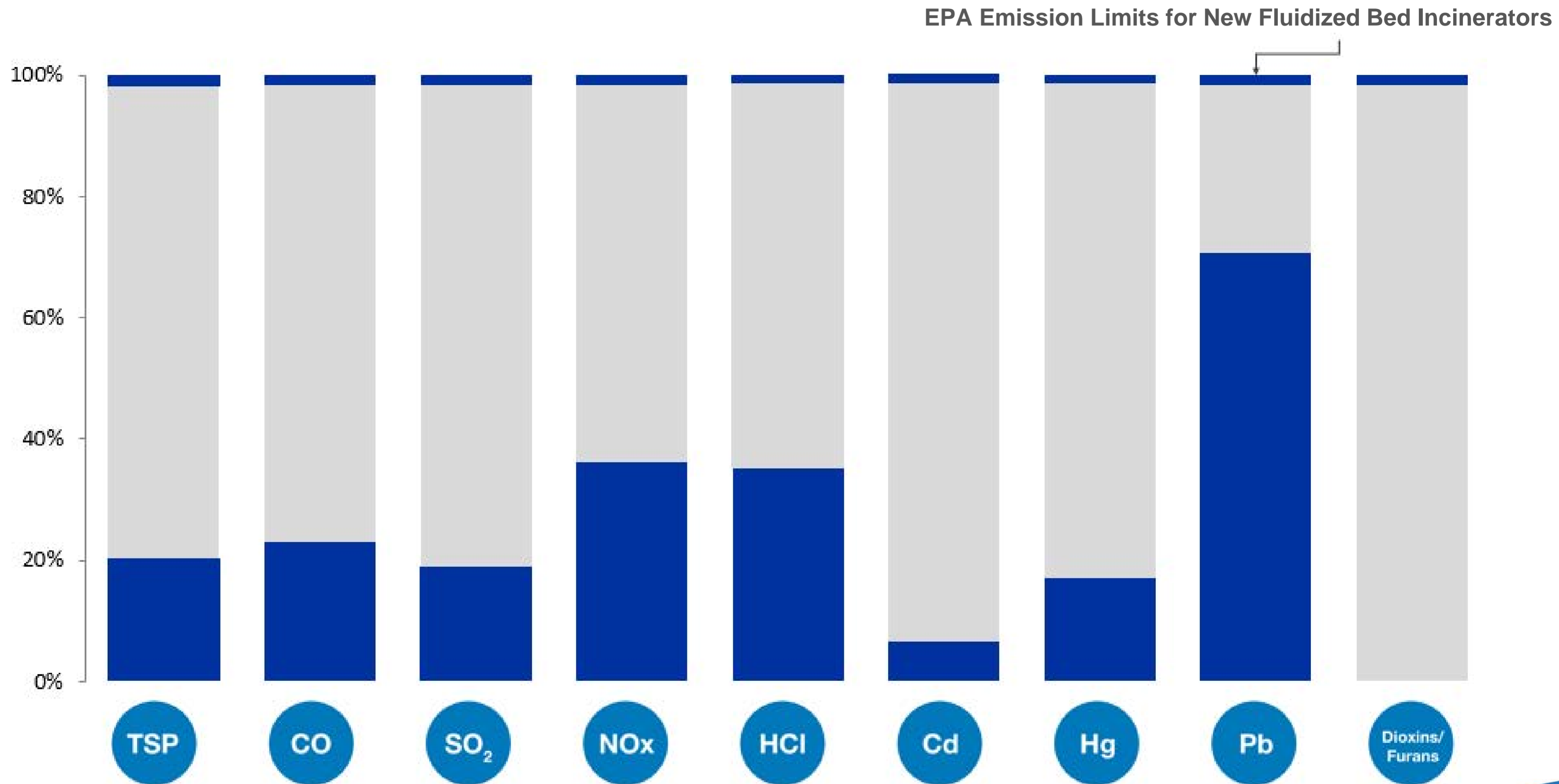
**Metro Solids Business Unit Manager
Operations**

How Incineration at Metro Works



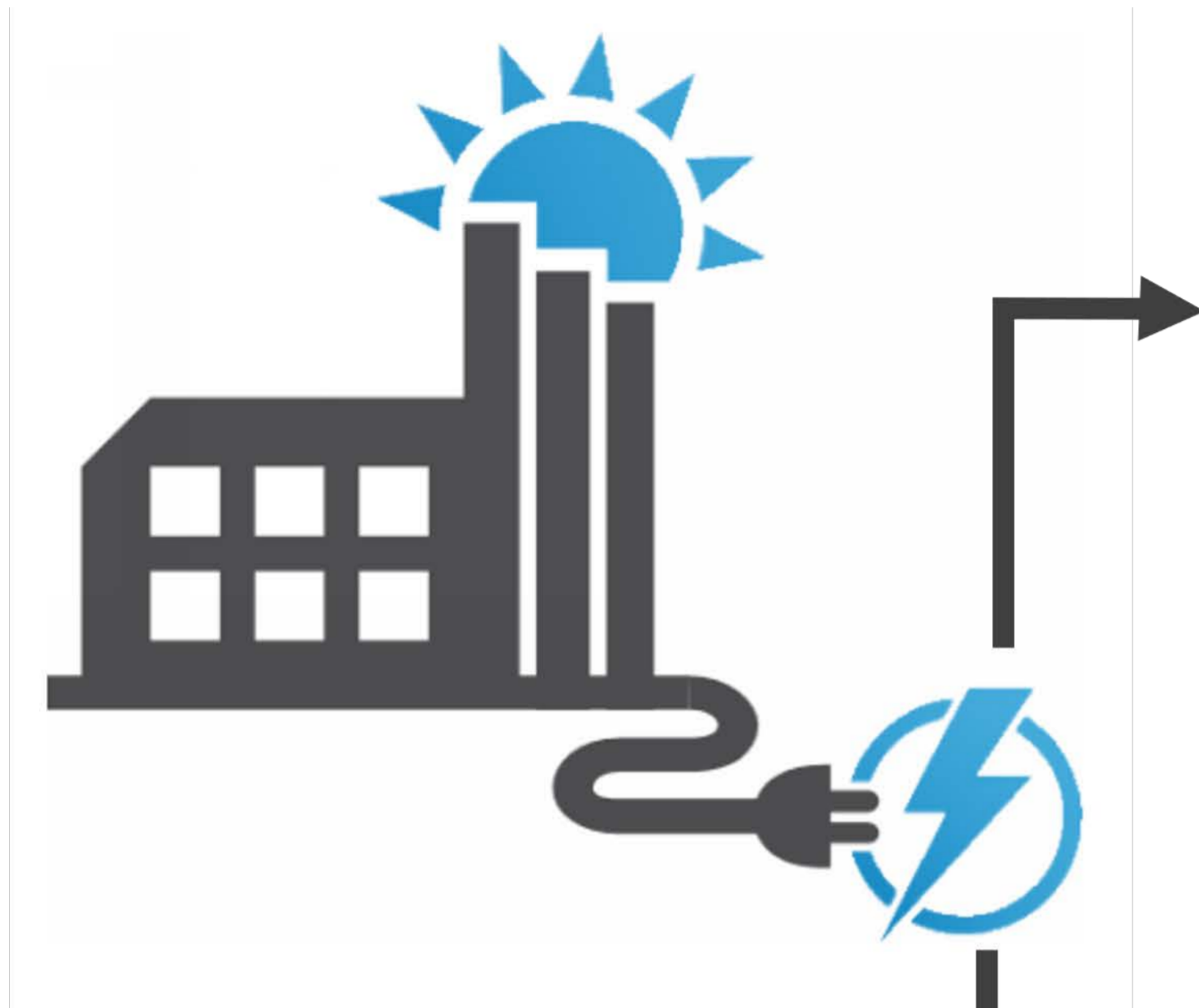
The Metro Plant has the most advanced and highest performing incineration system in the country.

Exceptional Track Record of Environmental Compliance



Existing incinerators meet EPA emission limits for existing and new fluidized bed incinerators.

Energy Recovery



Incineration recovers enough energy to power **2,400 homes.**

The energy recovered is used within the plant and saves customers **\$2.5 million/year.**



The energy recovery system provides 1/4 of the Metro Plant's power demand.

Preventative Maintenance

Six weeks preventative maintenance, each FBR, each year

4 Days	2 weeks	1 week	2 weeks
Cooldown & Heatup	Calibrations & WESP Cleaning	Baghouse Inspection & Bag Replacement	WHB Inspection & Tube Repair

Unplanned Maintenance → **5%**

Preventative Maintenance → **10%**

Service Availability → **85%**



2015 Asset Renewal Scope



WHB Economizer Replacement



SS Baghouse Covers



Larger ID Fan Motor



WHB Tube Forensics



SS Crossover Ducts



Primary Heat Exchanger Replacement

Renewal required each incinerator train to be down for four months.

2015 Asset Renewal Outcomes

DURING CONSTRUCTION

**One
Incinerator**
Operating for 43 days

**Landfilled
12% of Sludge**
over two years

SERVICE AVAILABILITY

75%
(2013)
Before renewal



85%
(2017)
After renewal



Renewals are required to maintain condition and capacity of the existing incinerators.

Project Scope

Why the Fourth Incinerator

Rene Heflin

Manager

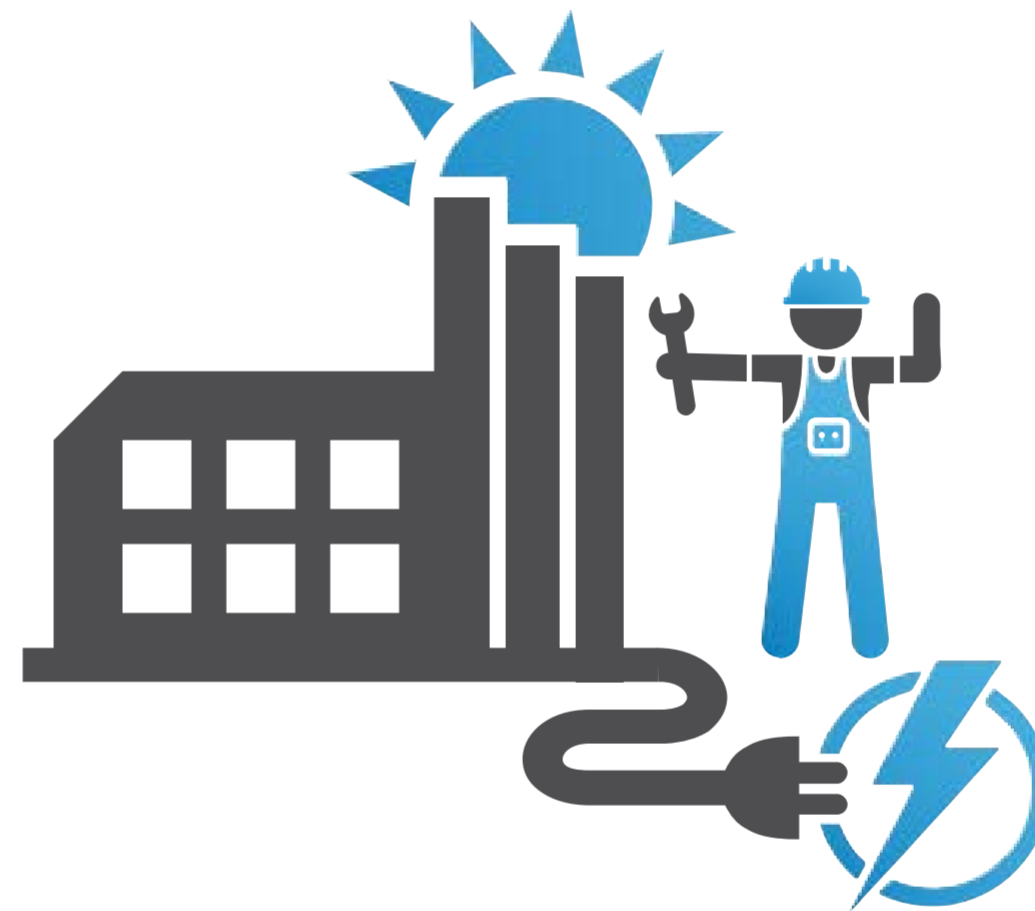
Plant Engineering Technical Services

Facility Plan Overview

Preserve Existing Wastewater Treatment Plant Infrastructure
Serve Regional Growth



**Construct a
Fourth Incinerator**



**Renew Existing
Incinerators**

Fourth Incinerator

PROJECT SCOPE

**Cake
Receiving**

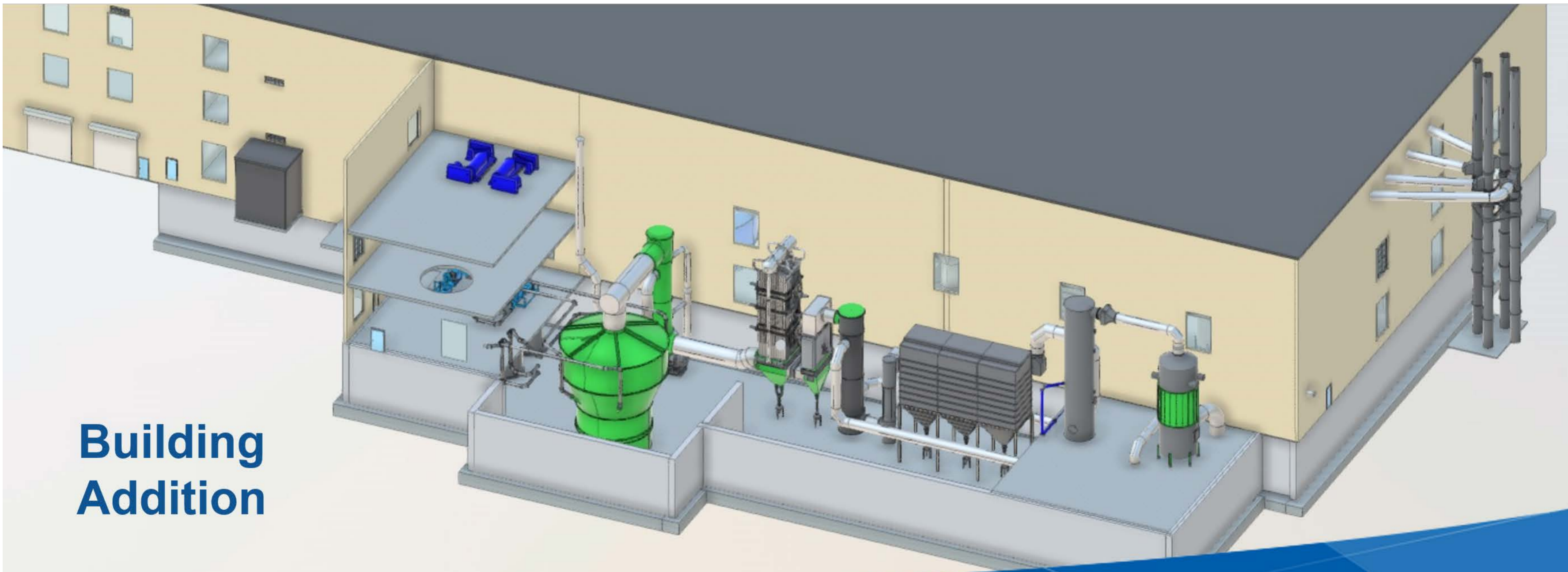
Dewatering

**Fourth
Incinerator**

**Energy
Recovery**

**Air Pollution
Control**

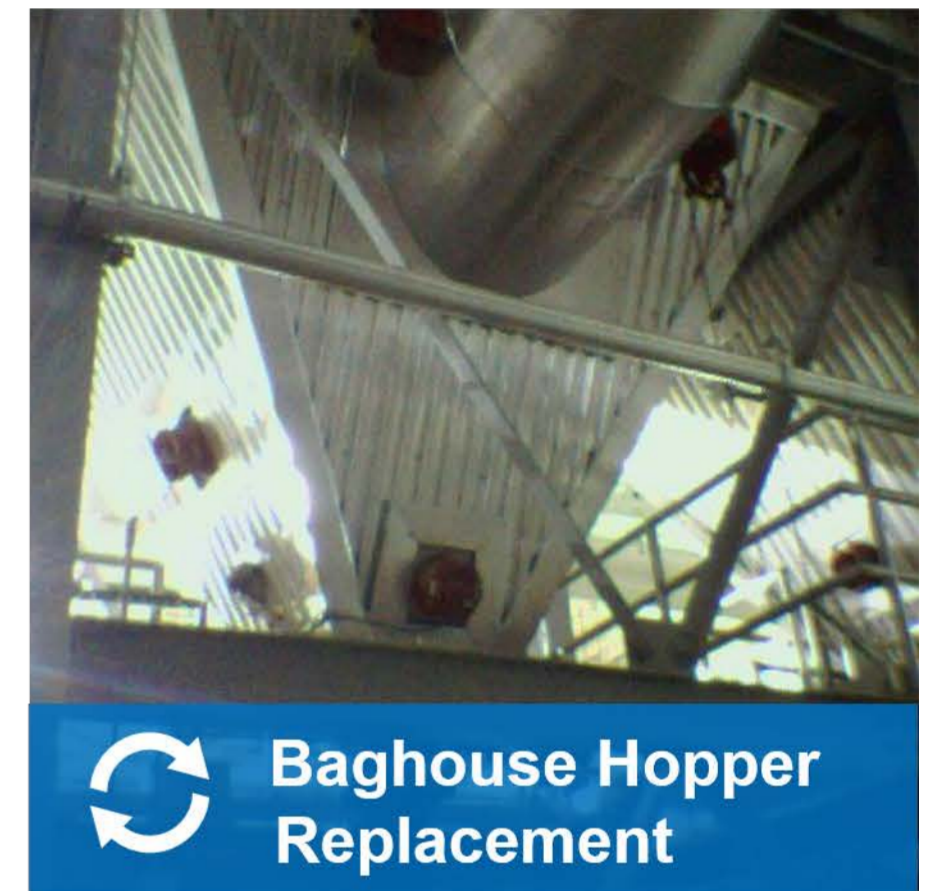
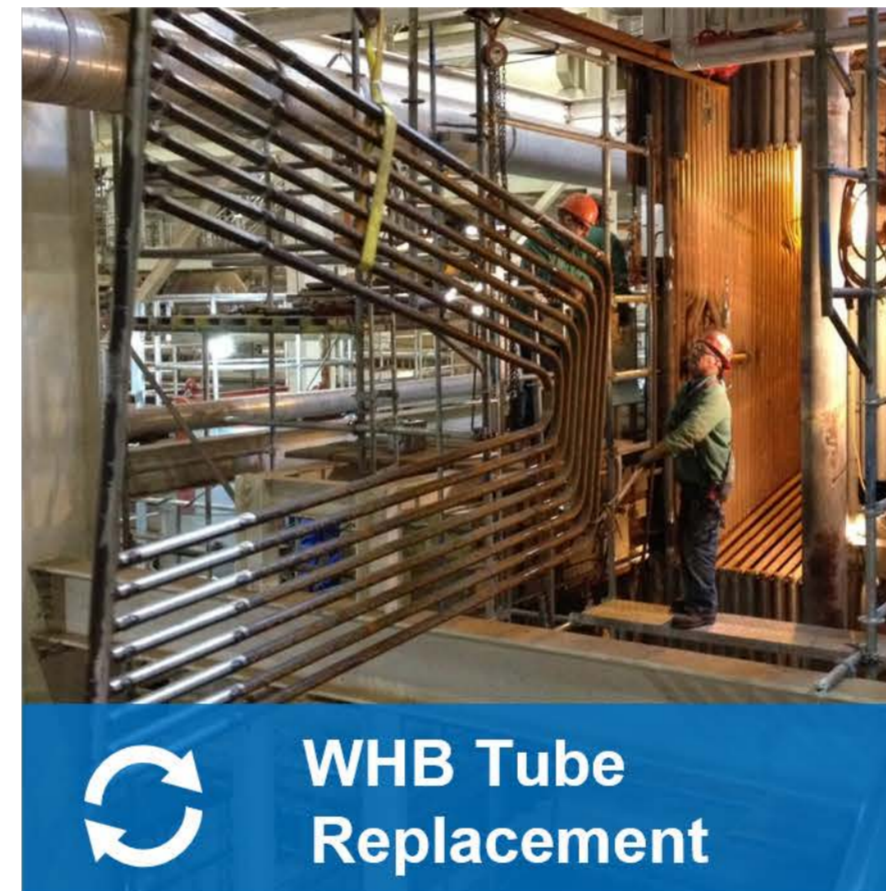
**Building
Addition**



*Fourth Incinerator Project Costs are estimated at
\$150 Million.*

Renewal of Existing Incinerators

Preliminary Project Scope



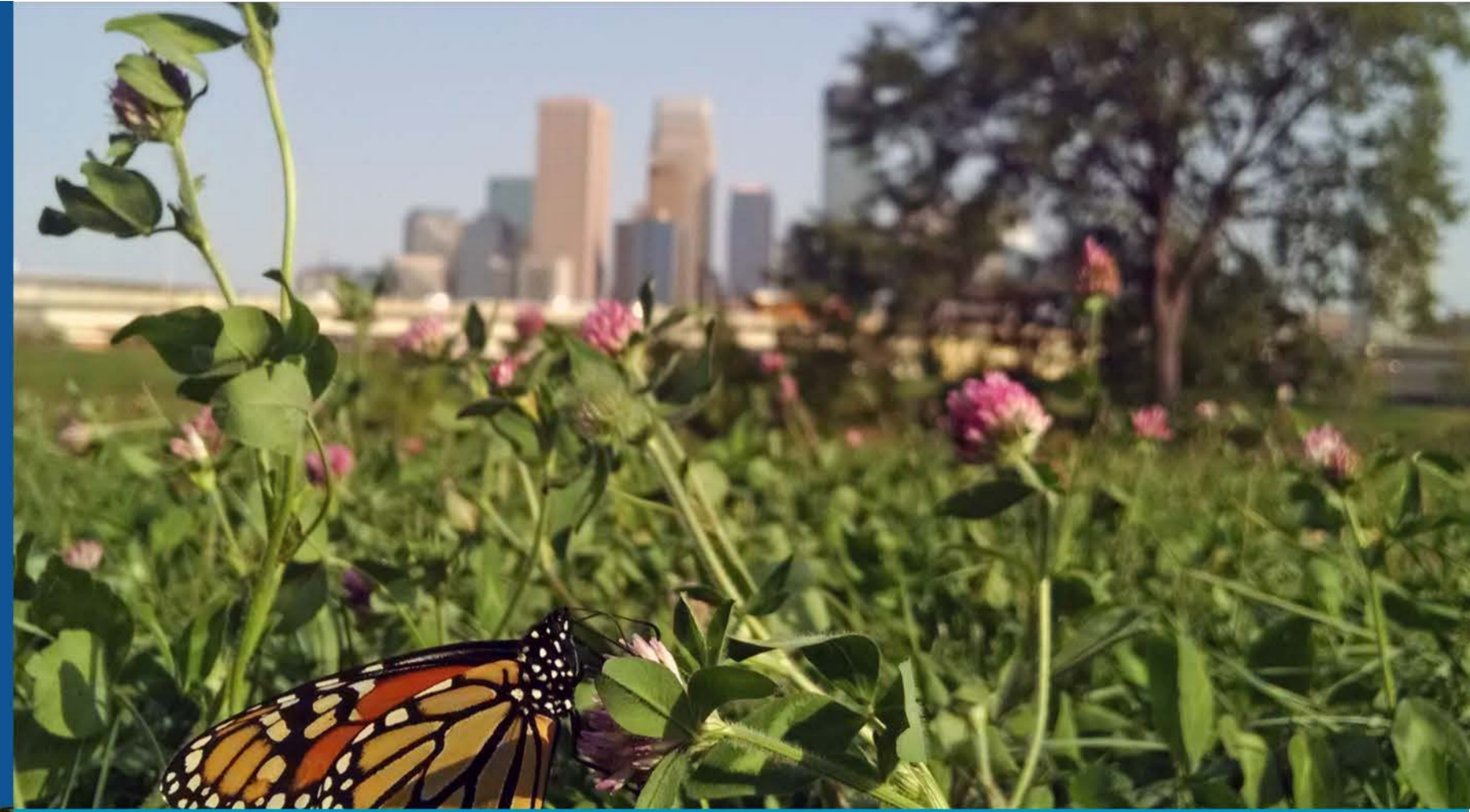
Estimated Downtime Per Incinerator

6-months → **1-year**

The Fourth Incinerator will allow for renewal of existing incinerators and preservation of infrastructure.

Why the Fourth Incinerator

The fourth incinerator is the most **cost-effective** and **sustainable** alternative to meet the region's wastewater needs.



It will have the **lowest community impact**, and will improve the **reliability** of the wastewater treatment system.



Financial Resources



**Fourth
Incinerator**



**Digest /
Incinerate**



**Digest / Dry /
Sell Product**



**Digest / Land
Apply Cake**

Adding a fourth incinerator costs 50% less to construct, operate, and maintain than any other alternative.

Sustainability



Lowest Air Emissions



Superior Energy Recovery



Similar GHG Emissions



Ash Reuse Potential



The fourth incinerator was found to be the most sustainable alternative.

Community Impacts



No Impact to Air Quality



No Odors



No Offsite Land Impacts

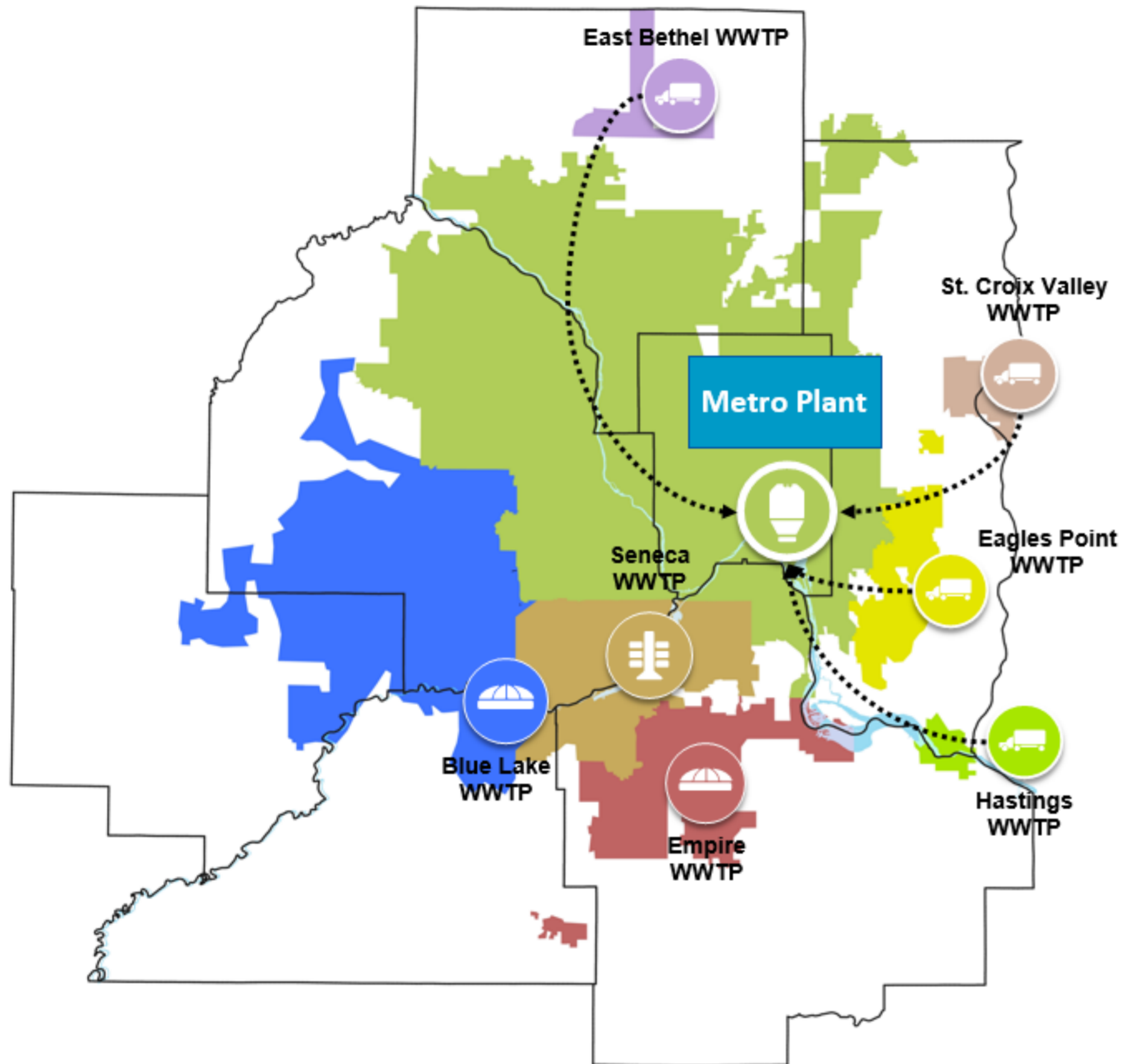


Fewest Trucks



A fourth incinerator provides the lowest impact to the surrounding communities.

System Reliability



- **Fourth incinerator allows Metro to backup other MCES facilities**
- **Increases reliability of whole MCES system**

A fourth incinerator allows Metro to perform renewals and preserve existing infrastructure.

Project Schedule



Fourth incinerator operational in 2024

Existing incinerators will be 20 years old in 2025

The fourth incinerator will allow for preservation of existing infrastructure while serving regional growth.

Capital Program Communications

Jeannine Clancy
Assistant General Manager
Technical Services

Large Capital Project Coordination



The fourth incinerator schedule was carefully coordinated with other capital projects.

Communications Plan



Outreach Groups

- Customer Communities & Industries
- Stakeholders
 - Regulatory Agencies
 - Community Organizations
 - Neighborhood Groups
 - Childs Road Businesses
 - Environmental Advocacy
- General Public



MCES is committed to an engaging, open, and transparent public engagement process.



Facility Plan Schedule

Action	Timeframe
Committee of the Whole Meeting	4/18/18
Public Outreach	4/23/18 – 6/26/18
Environment Committee Authorizes Public Hearing	6/26/18
Council Authorizes Public Hearing	7/11/18
Public Hearing for Facility Plan	8/28/18
Environment Committee Adopts Facility Plan	9/11/18
Council Adopts Facility Plan	9/26/18

Questions?