



**LOS ANGELES COUNTY
SANITATION DISTRICTS**

Converting Waste Into Resources

Food Waste Recycling & Renewable Fuels

California Bioresources Alliance Symposium
November 10, 2022

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LACSD Solid Waste Energy Recovery



OUR SERVICE AREA

Food Waste Recycling at LACSD



**LOS ANGELES COUNTY
SANITATION DISTRICTS**
Converting Waste Into Resources

OUR MISSION

To protect public health and the environment through innovative and cost-effective wastewater and solid waste management and, in doing so, convert waste into resources such as recycled water, energy, and recycled materials.

Drivers

Description

Direction

Difficulties

Dollars



WATER RECYCLING



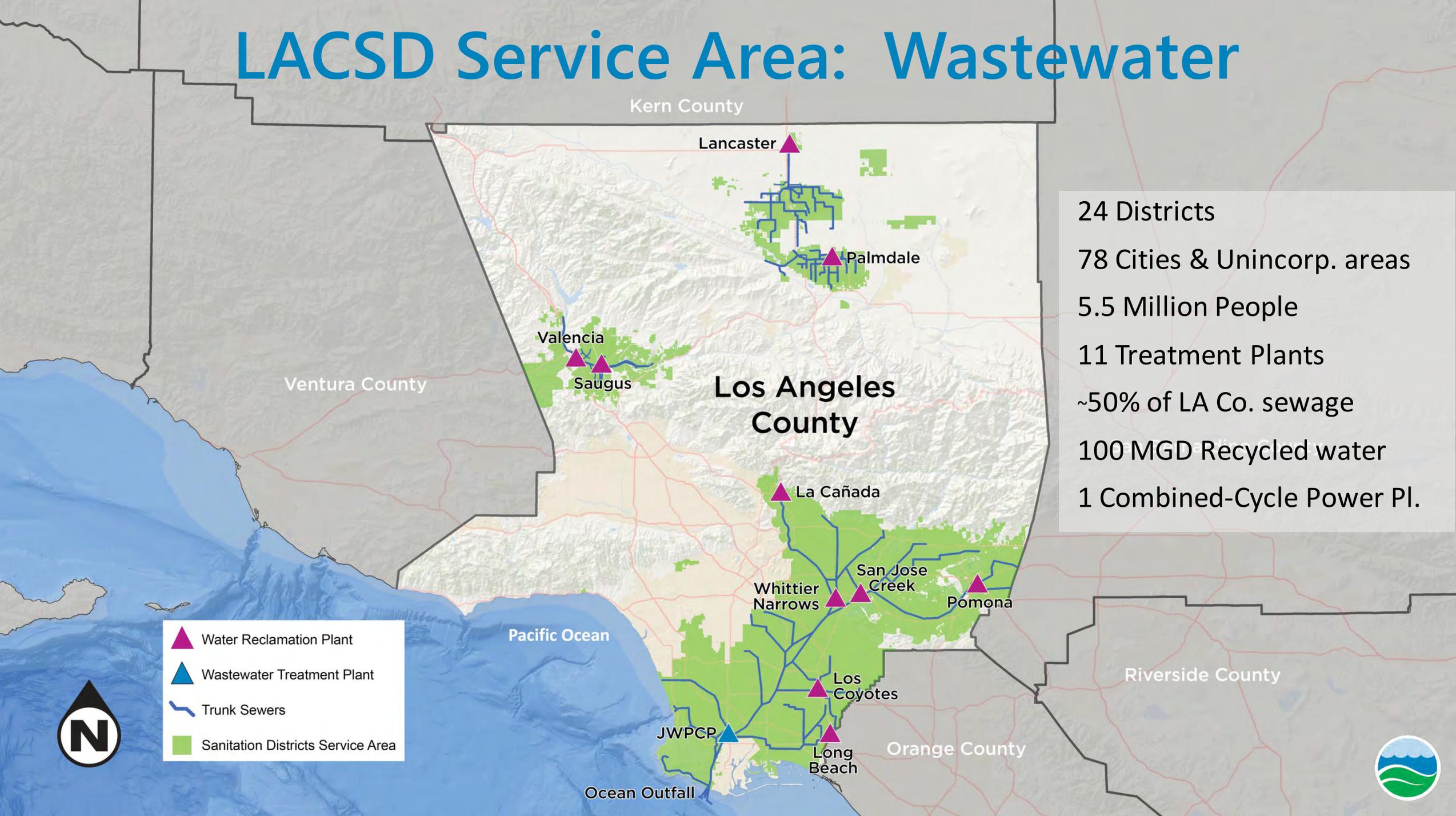
GREEN ENERGY



MATERIALS RECYCLING



LACSD Service Area: Wastewater

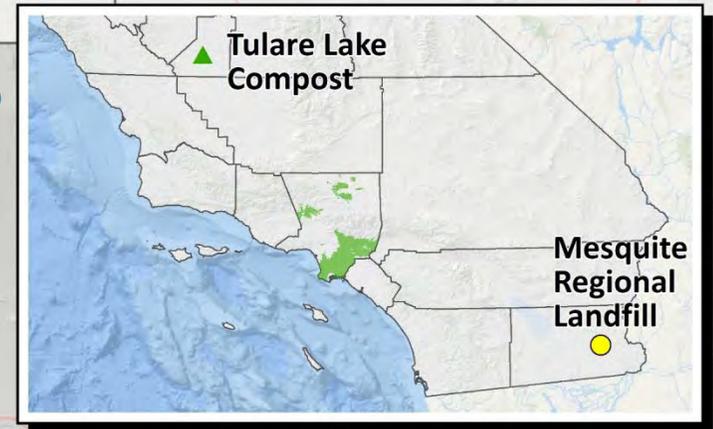


24 Districts
78 Cities & Unincorp. areas
5.5 Million People
11 Treatment Plants
~50% of LA Co. sewage
100 MGD Recycled water
1 Combined-Cycle Power Pl.

- ▲ Water Reclamation Plant
- ▲ Wastewater Treatment Plant
- Trunk Sewers
- Sanitation Districts Service Area



Solid Waste Facilities



Kern County
Ventura County
Los Angeles County
San Bernardino County
Orange County
Riverside County

2 Active Landfills
3 MRF/Transfer Stations
~20% of LA Co. disposal

Inland Empire Regional Composting Facility
2 LF Gas-to-Energy
1 Refuse-to-Energy
2 Biosolids Composting

Legend

- Active Landfill
- Closed Landfill
- ▲ Composting Facility
- ▲ Material Recovery Facility / Transfer Station
- Recycle Center
- Refuse-to-Energy Facility

0 5 10 20 Miles

Date: 10/2/2020

Calabasas Landfill
Mission Canyon Landfill
Scholl Canyon Landfill
Spadra Landfill
Puente Hills Landfill / Recycle Center
Puente Hills MRF
South Gate Transfer Station
DART
Palos Verdes Landfill
SERRF



Regulatory Drivers



AB 1826



- Mandatory commercial organics recycling
- Composting or anaerobic digestion if more than 4 cubic yards per week is generated

SB 1383



- 50% reduction in landfilled organic waste by 2020
 - 75% reduction in landfilled organic waste by 2025
- Compared to 2014 levels*

AB 32: Global Warming Solutions Act

AB 1826: Commercial Recycling

SB 1383: Short Lived Climate Pollutants

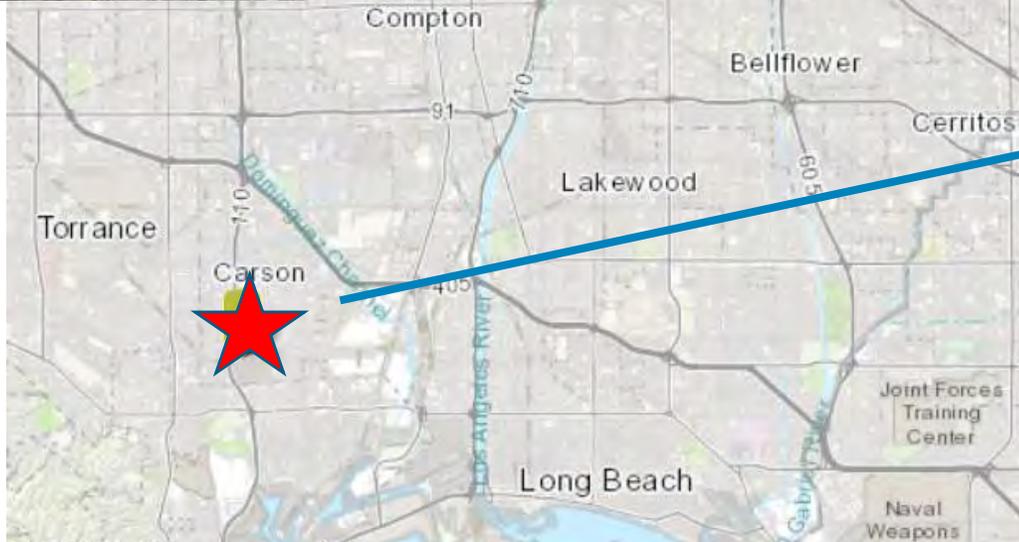
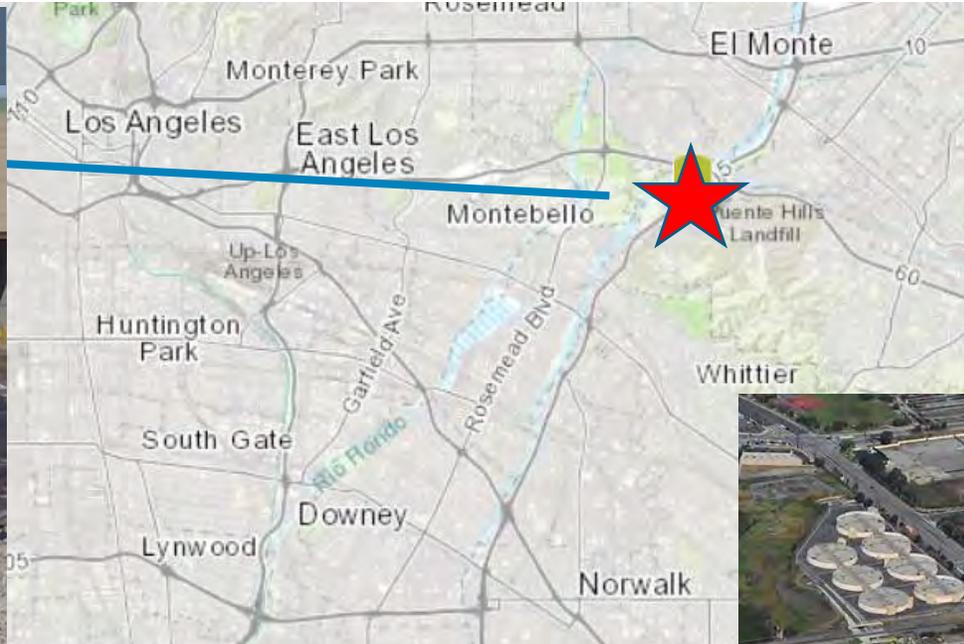
Organics Diversion, Renewable Products

Transportation Credits: LCFS, RFS (RINs)



Program Description

Puente Hills Materials Recovery Facility



Food Waste Recycling Program



UNPROCESSED
FOOD WASTE



PROCESSED
FOOD WASTE

PRE-
PROCESSING

ANAEROBIC
DIGESTION

POST
TREATMENT

BIOGAS

ELECTRICITY

HEAT/STEAM

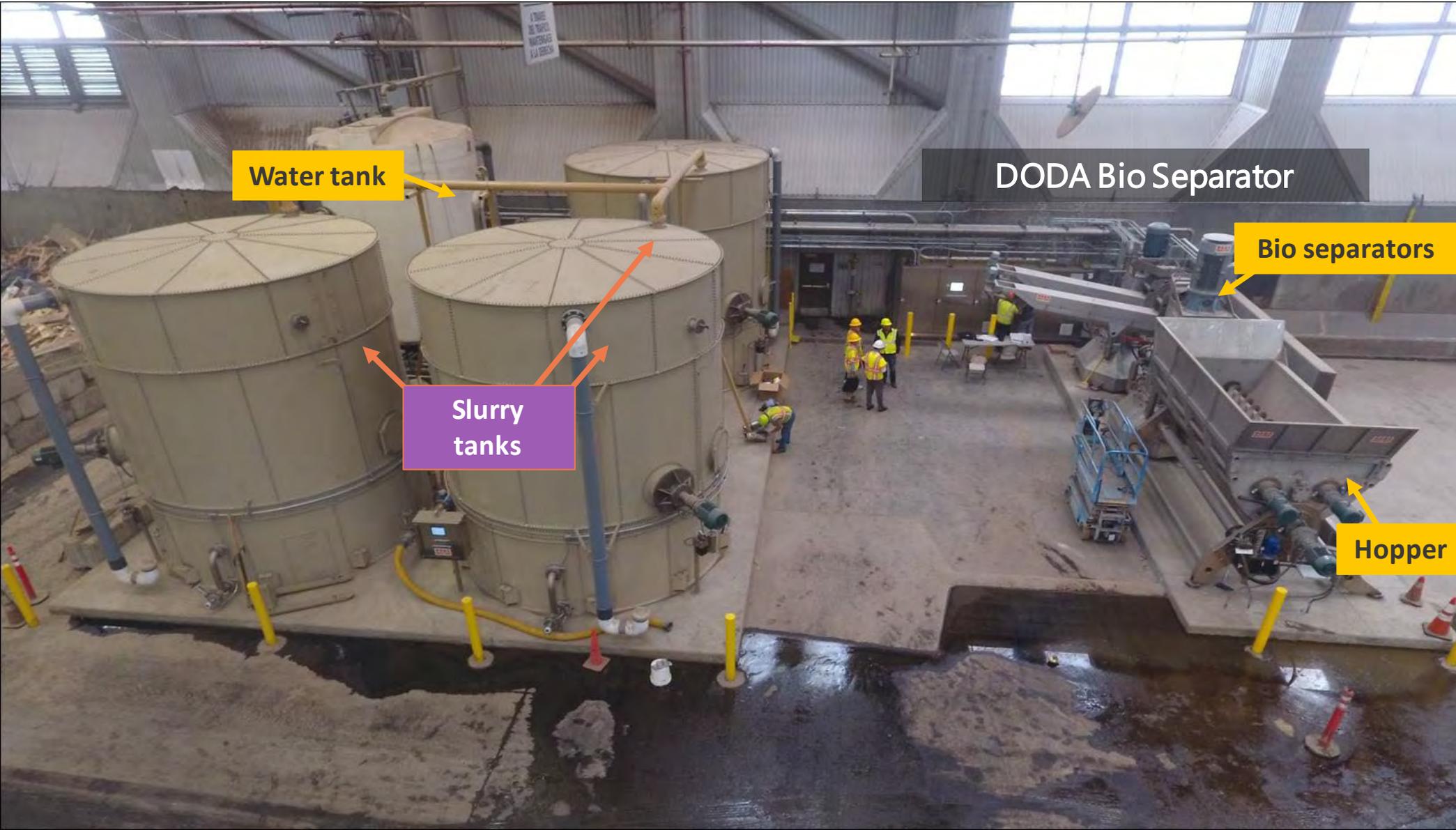
VEHICLE FUEL

BIOMETHANE

FERTILIZERS/COMPOST



Food Waste Processing at PHMRF



Food Waste Receiving at JWPCP

Full-scale Demonstration
2014-2018



Liquid Waste Disposal Station
2017-present



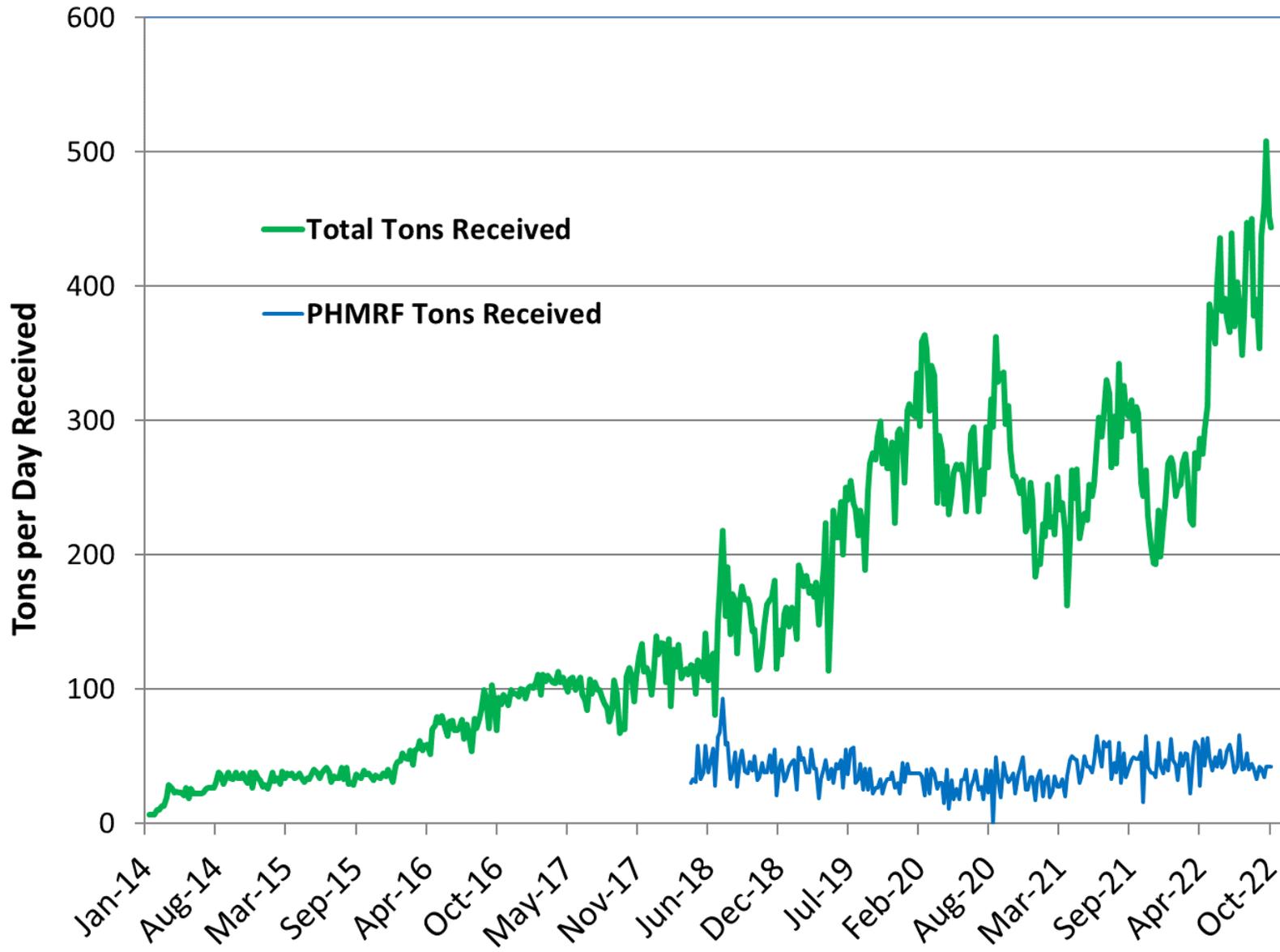
Slurry Receiving Facilities 1&2
2021/2022-present



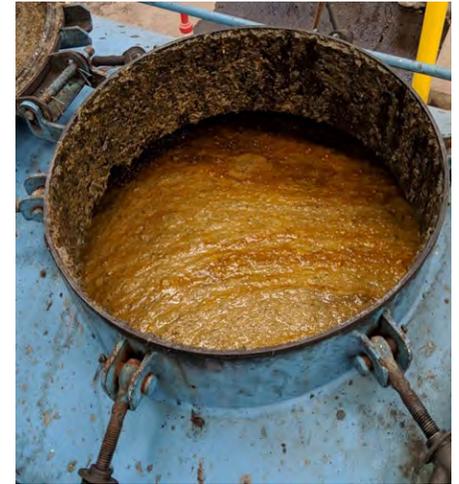
Anaerobic Digesters



Food Waste Receiving at JWPCP



400 TPD



Biogas to Electricity & Steam

JWPCP Total Energy Facility



Renewable Energy

Combined Cycle Power Plant
~20 MW

EV Charging



Biogas to RNG Vehicle Fuel

Biogas Conditioning System



CNG Station



Biosolids to Soil Amendment

Tulare Lake Compost



Inland Empire Regional Composting Facility



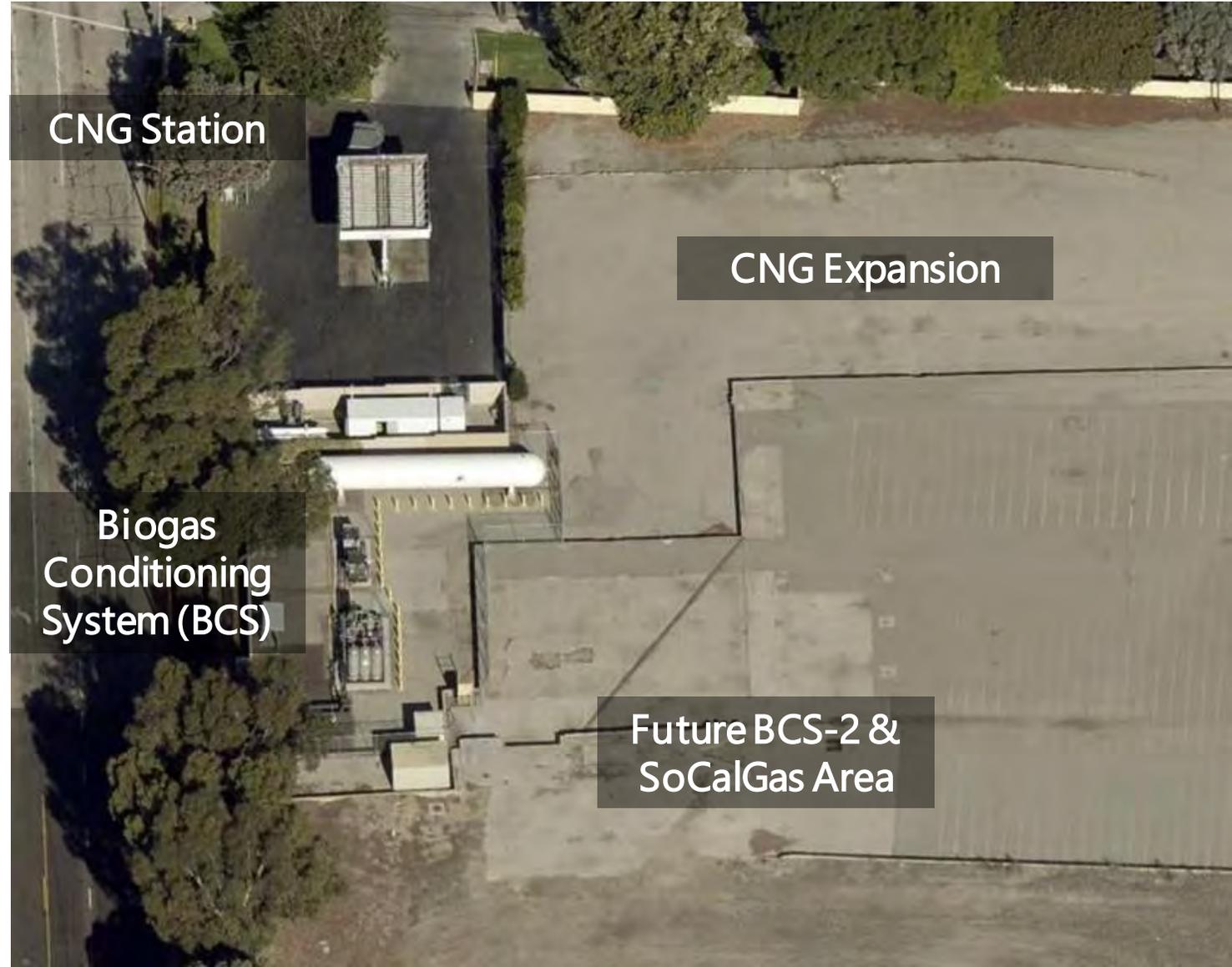
Program Direction

In Development

- CNG Station Expansion
- Biogas to Biomethane
- Pipeline Injection

Future

- Increase organics receiving
- Off-take via pipeline or locally
- Expand program at JWPCP
- Other LACSD facilities



Difficulties & Challenges



Food Waste Slurry Quality

Pandemic, Food Waste Tonnage

RINS and LCFS Credits Setup

Regulatory Issues

Operational Challenges



Dollars: Capital Cost

Project	\$ in Millions
PHMRF Doda Pre-Processing System	\$1.9
JWPCP Biogas Conveyance Pipelines	\$2.0
Biogas Conditioning System (BCS-1)	\$3.1
Slurry Receiving Station (SRF-1 & 2)	\$3.7
Flares Expansion	\$3.3
Digester Demolition	\$4.1
CNG Station Expansion budget	\$3.8
BCS-1 Storage Modifications budget	\$1.3
BCS-2 and Pipeline Injection budget	\$13.3
Grant Funding	\$6.5
Net Total	\$30



Grants & Incentives

Grant Source & Program	\$ in Millions
CEC Clean Transportation Program Grant	\$2.5
CalRecycle Organics Grant	\$4.0
CAEATFA Sales Tax Exclusion Program	\$0.78



Revenue

Food Waste Tip Fees

Power Generation, RA, RECs

RNG - Transportation RINs, LCFS

RNG Commodity, Royalties, Savings, AFTC

Future Off-take Agreements



LCFS

RIN⁺s



Program Benefits

Organics: 100,000 TPY diverted; 150,000 TPY capacity

GHG: Up to 65,000 MTCO₂e/year avoided

RNG: 43K GGE/year, 950K GGE/year at buildout

Biomethane: Up to 430,000 MMBtu/year





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Thank you!

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