



**LOS ANGELES COUNTY
SANITATION DISTRICTS**

Converting Waste Into Resources

Infrastructure for Organics Co-Digestion

Alternative Technology Advisory Subcommittee (ATAS)

July 18, 2024

Tom C. Fang, PE, BCEE
LACSD Energy Recovery



OUR SERVICE AREA

Wastewater Service Area

Kern County

Lancaster

Palmdale

Valencia

Saugus

Los Angeles
County

La Cañada

Whittier
Narrows

San Jose
Creek

Pomona

Los
Coyotes

JWPCP

Long
Beach

Orange County

Riverside County

Ventura County

Pacific Ocean

Ocean Outfall

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

24 Districts

78 Cities & Unincorp. areas

5.5 Million People

11 Treatment Plants

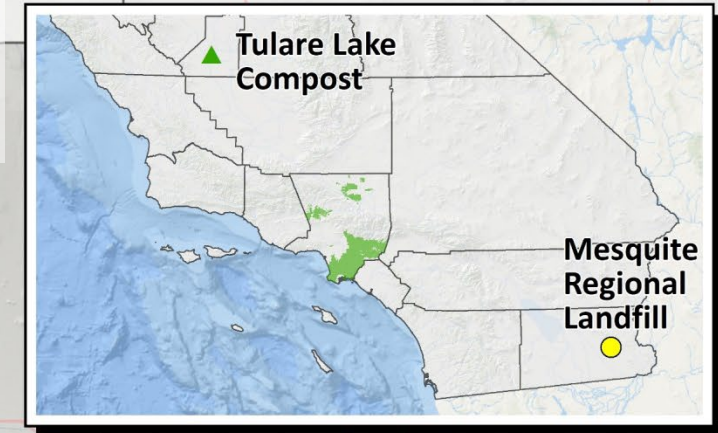
~50% of LA Co. Sewage

1 Combined-Cycle Power Pl.



Solid Waste Facilities

2 Active Landfills
3 MRF/Transfer Stations
~20% of LA Co. Disposal
2 LF Gas-to-Energy
2 Biosolids Composting



Los Angeles County

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

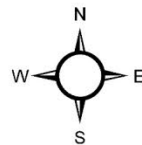
SERRF

Inland Empire Regional Composting Facility

Legend

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

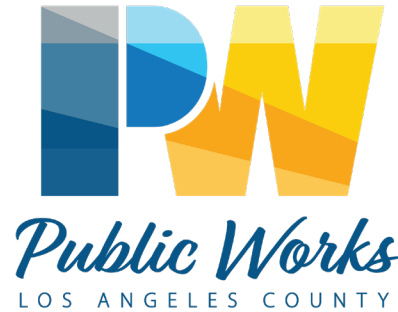
0 5 10 20 Miles



Date: 10/2/2020



Partnering for Sustainability



- Develop regulations to implement State law & policies

- Countywide organic/food waste disposal and processing capacity reporting to CalRecycle



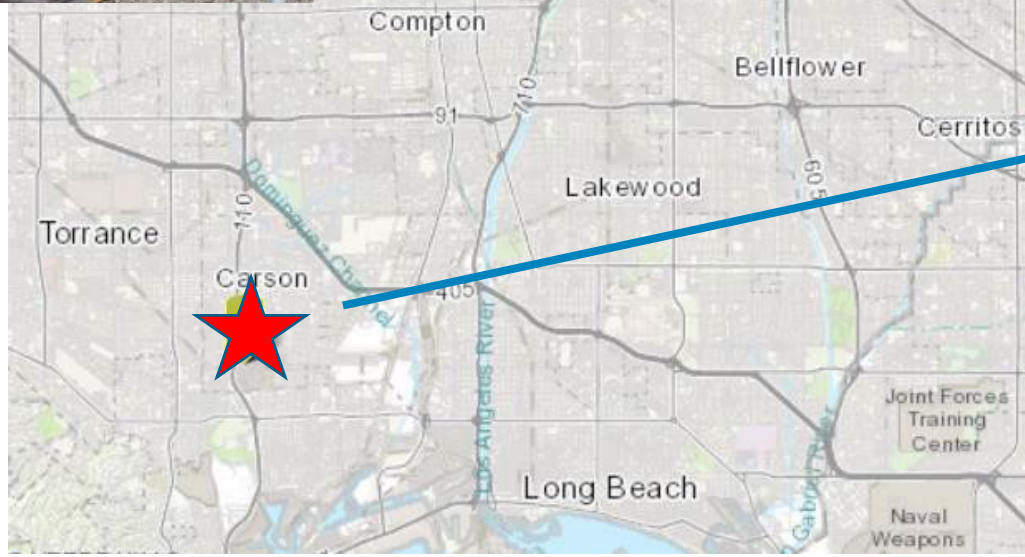
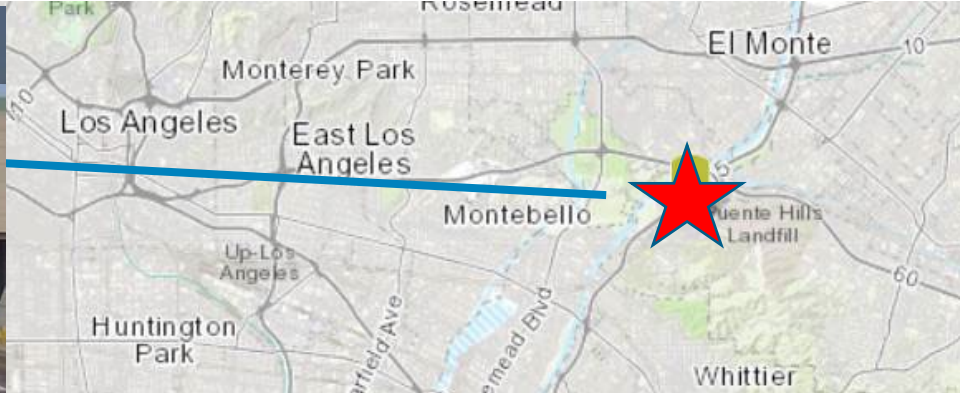
**LOS ANGELES COUNTY
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Converting Waste Into Resources

- Sewage & Solid Waste
- Organic/food waste co-digestion
- Renewable products

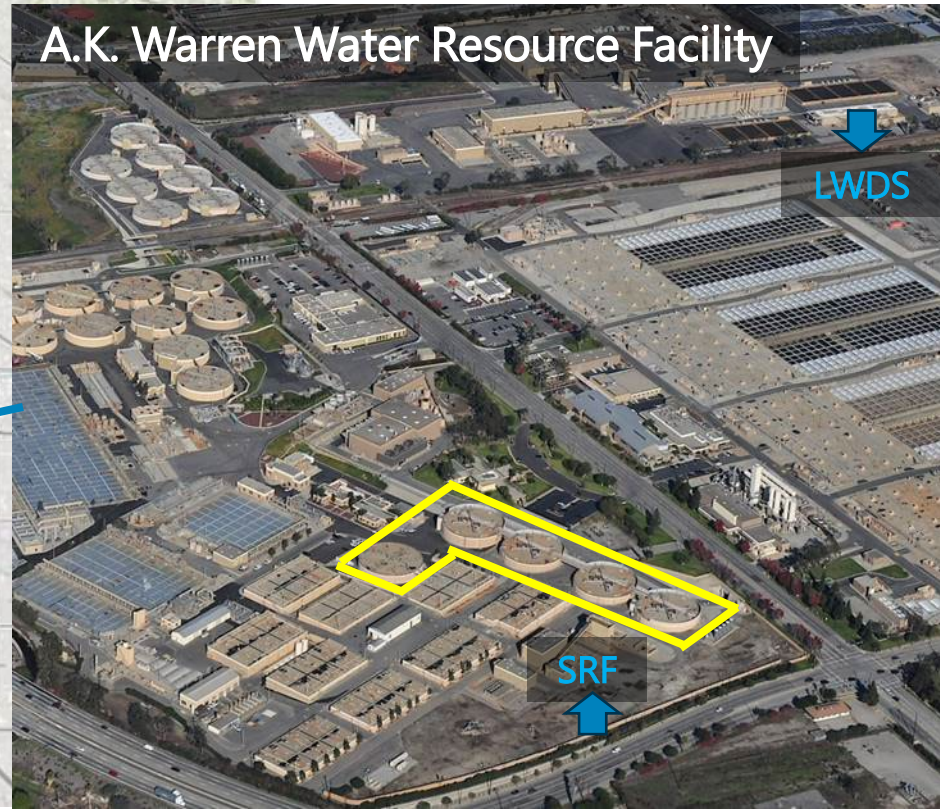


Food Waste Recycling

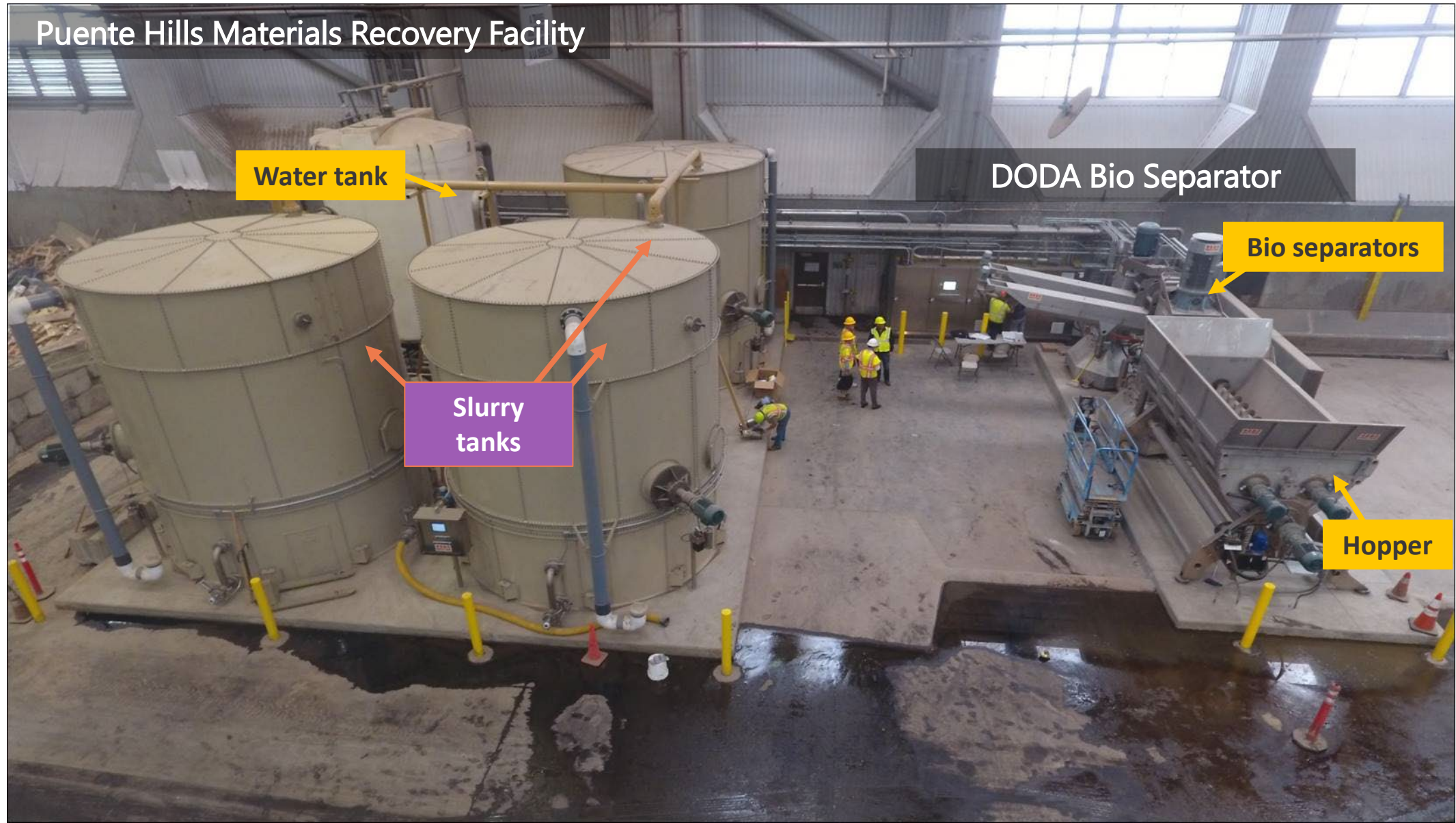
Puente Hills Materials Recovery Facility



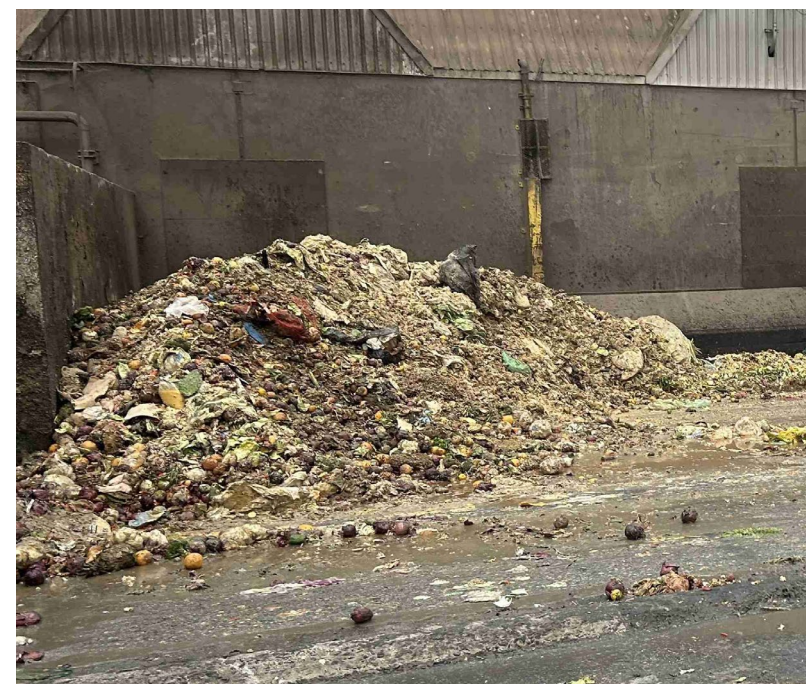
A.K. Warren Water Resource Facility



Food Waste Processing



Food Waste Processing



Food Waste Processing





Food Waste Processing



Food Waste Co-Digestion



Warren Facility



2014-2017, Full-Scale Demonstration

2020, Slurry Receiving Facility 1 and Flares

2022, Slurry Receiving Facility 2

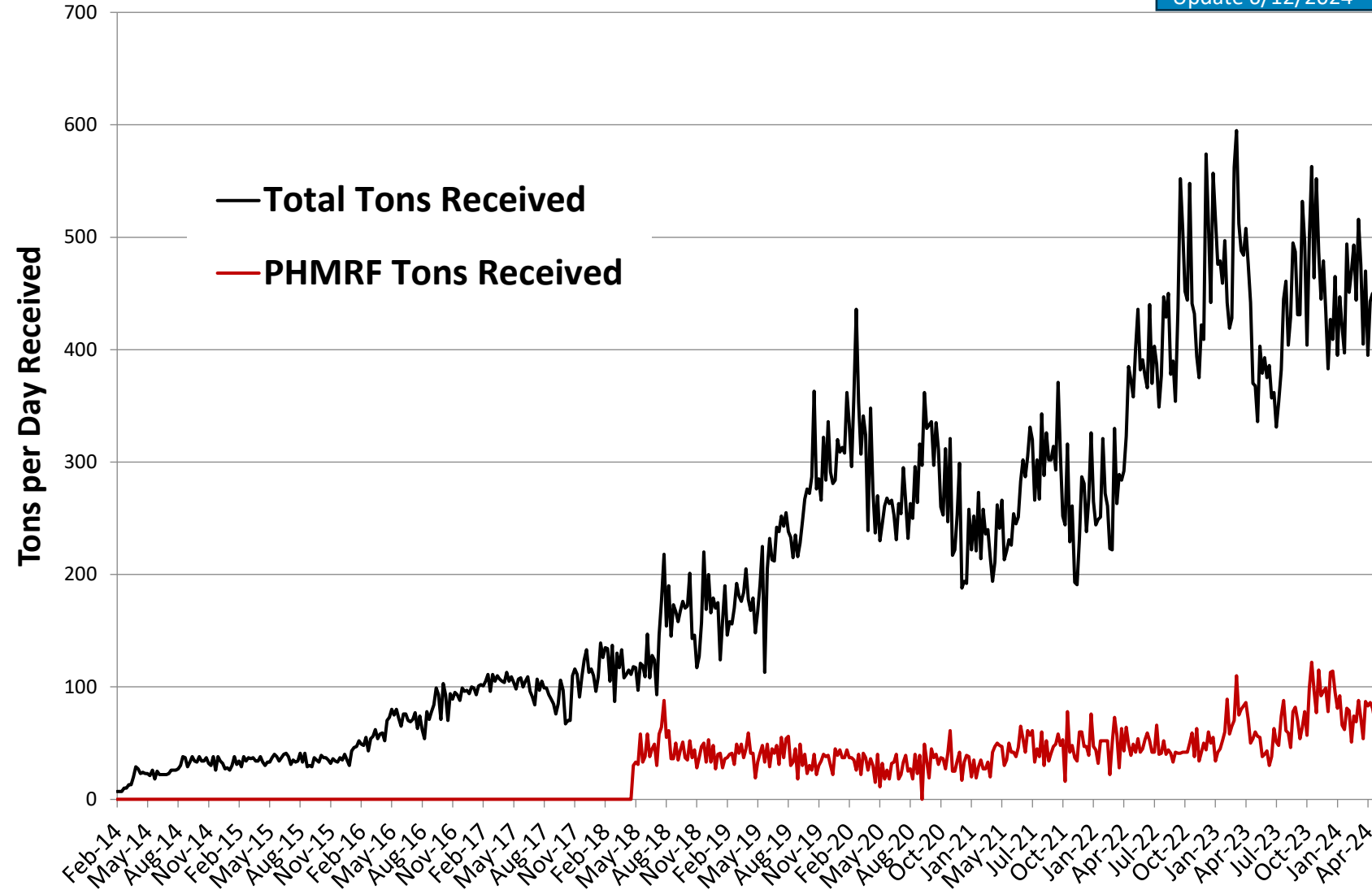
2018, Liquid Waste Disposal Station

2021, Biogas Conditioning System 1



Food Waste Co-Digestion

Update 6/12/2024



600 TPD Est. Capacity

400-450 TPD



Biogas to Electricity & Steam

Warren Facility - Total Energy Facility



Renewable Energy

Combined Cycle Power Plant
~20 MW



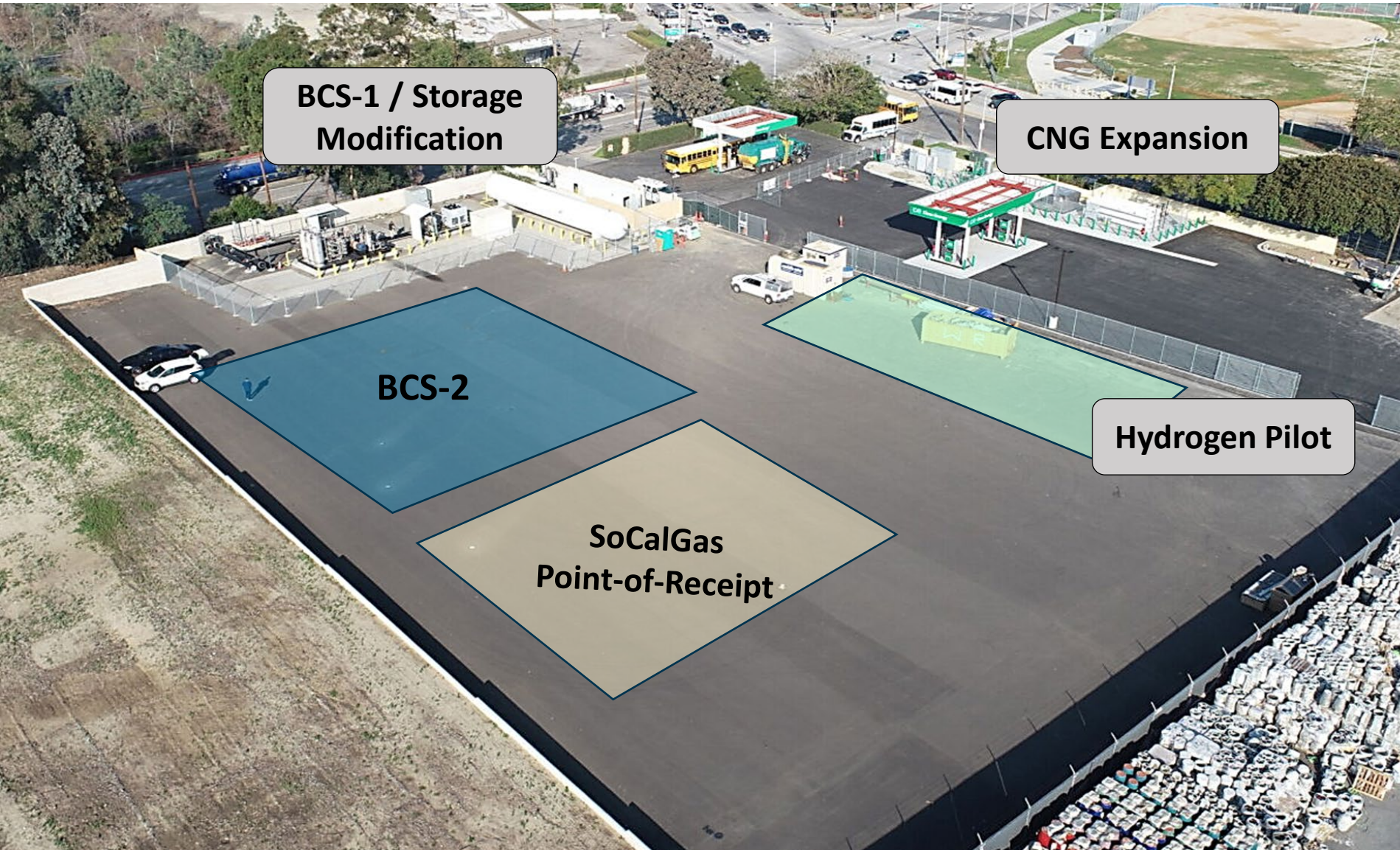
EV Charging



Biogas to Vehicle Fuel



Biogas to Biomethane



Renewable Energy

Biomethane
9,500 GGE/day



Biosolids to Soil Amendment



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 Stations (SRF-1 & 2)	\$3.7
Flares Expansion	\$6.5
Digester Demolition	\$3.6
CNG Station Expansion Budget	\$3.9
BCS-1 Storage Modifications Budget	\$1.3
BCS-2 and Pipeline Injection Budget	\$23.3
Grant Funding	\$20
Net Total	\$29



\$20 million in grants was awarded to Food Waste.



BCS-1 and
Biogas
Conveyance
Pipeline
\$2.5 Million



FW Slurry Receiving
Facilities
\$4 Million

BCS Storage and CNG
Station Expansion
\$3.8 Million

BCS-2
\$10 Million



**\$1.1 Million in
Savings from
Sales Tax
Exemption**



Food Waste Co-Digestion

Advantages:

- Digester are existing and well-sealed
- Energy recovery likely existing
- Stable operation and products
- Additional biogas and revenue
- Capacity for up to 75% of CA's food waste

Challenges:

- Infrastructure for organics receiving & RNG
- Volumes & contract admin.
- Feedstock contamination
- Operational burden v. core mission



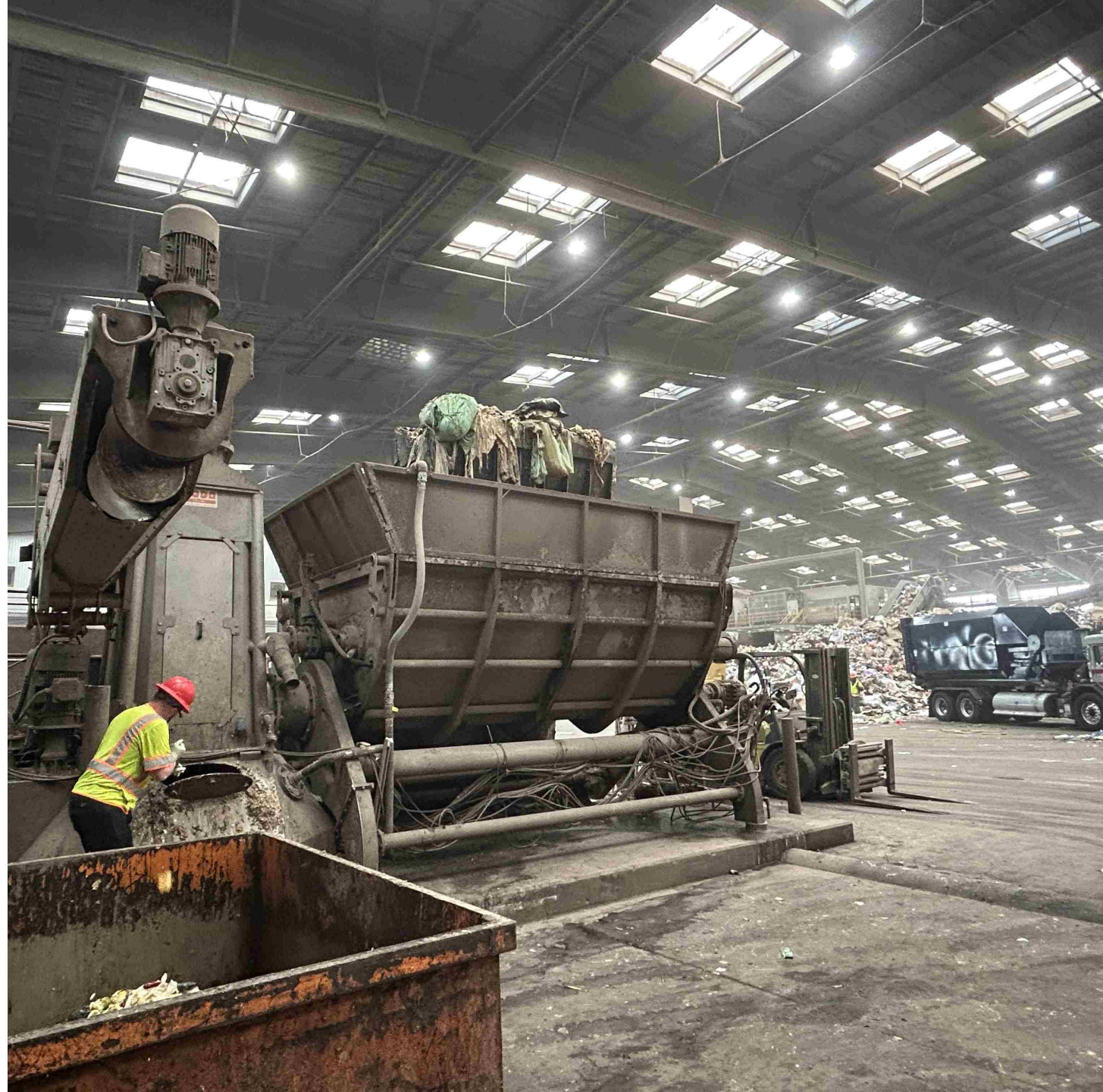


**LOS ANGELES COUNTY
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Converting Waste Into Resources

Thank you!

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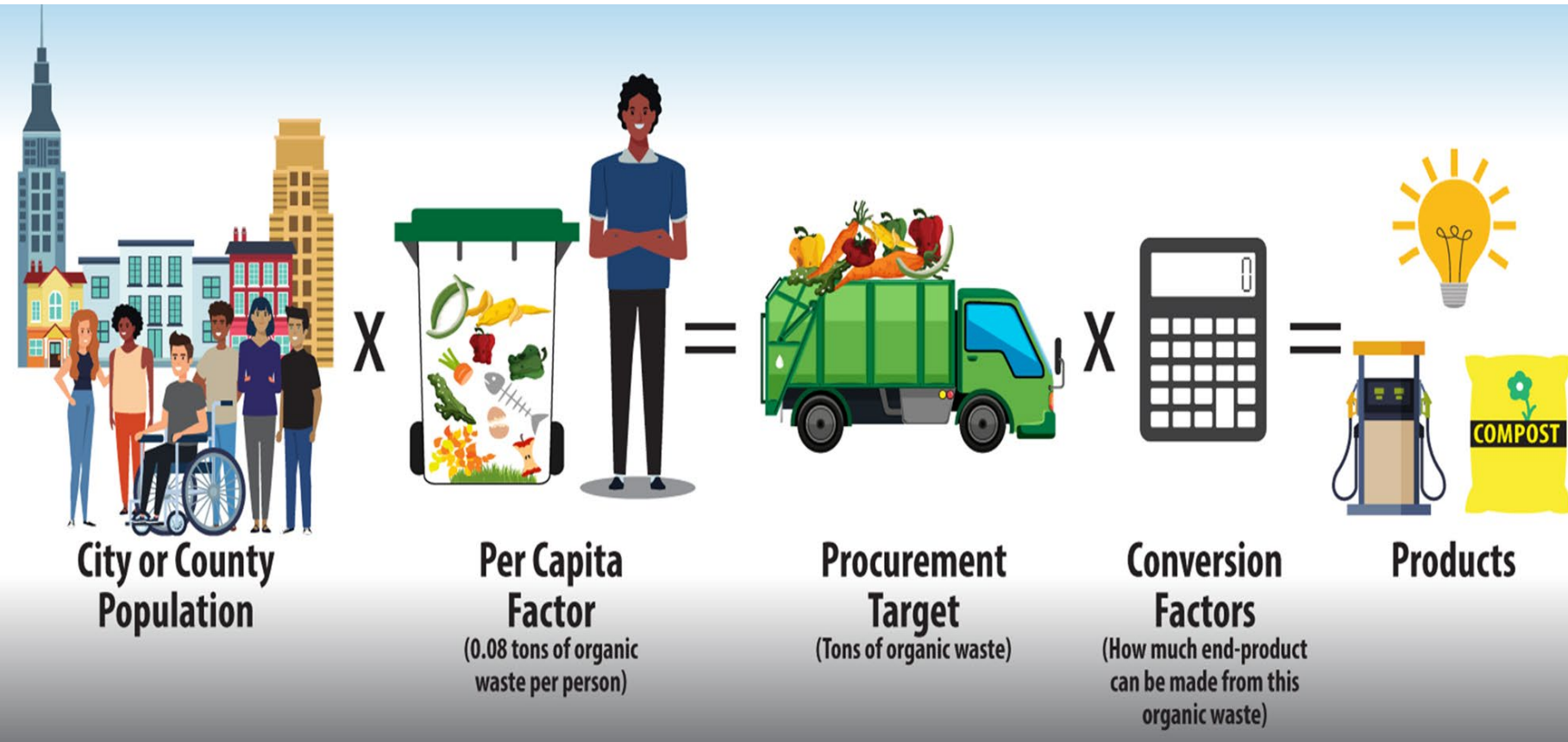
Optional Slides



Challenges



SB 1383 Procurement Requirements

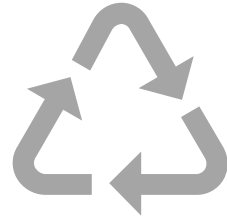


1 Ton of Organic Waste

- 21 DGE of RNG
- 242 kWh of electricity
- 22 Therms for heating
- 0.58 tons of compost
- 1 ton of mulch



How much does LACSD produce?



**Receives 400 tons per day
of organic waste**



**Products can serve 0.6
million residents**



**0.6 million diesel gallon
equiv. (DGE) per year**



**11,500 MW-hours of
electricity per year**



**1.1 million therms for
heating per year**

