



CalRecycle's SB 1383 SLCP Program

CHP Assists Methane Reduction



Did you know the smart use of combined heat and power (CHP) can help states reduce methane emissions? On January 1, 2022, California's Senate Bill (SB) 1383 Short Lived Climate Pollutant (SLCP) Reduction Strategy went into effect to help curtail emissions of greenhouse gases that trap more atmospheric heat than carbon dioxide. Under this law, CalRecycle, a branch of CalEPA, is leading efforts to divert food waste from landfills to prevent landfill methane emissions. The program mandates that jurisdictions statewide collect and recycle organic waste into useable products, such as electricity from renewable natural gas produced by anaerobic digestors. The program uses 2014 as a baseline for the organic waste recycling target and aims to divert at least 75% of organic waste from landfills by 2025. The program is multi-faceted and is designed to put California on a viable, self-sustaining path to cut methane emissions while producing useful byproducts, such as compost, mulch, liquid soil amendments, biofuels, and renewable electricity from biogas fueled CHP.

Organic waste disposed of in California landfills is the third largest emitter of methane in the state, and as a greenhouse gas, methane is eighty-four times more potent than carbon dioxide. Through the SLCP, the state not only intends to improve air quality and soil health while reducing the causes of climate change but also create thousands of permanent green jobs. All California jurisdictions are covered by this law and regulations.

How the SLCP will Work

By January 2022, jurisdictions in California will need to:

- Provide mandatory residential and commercial organic waste collection services
- Have edible food recovery programs for commercial edible food generators
- Procure recovered organic waste products (special districts that provide solid waste collection services are not included and rural exempted jurisdictions have delayed implementation) and recycled-content paper products.

Recovered organic waste products include compost, mulch, biofuel, and **electricity** (from anaerobic digestion (AD) and biomass conversion). Jurisdictions will have procurement targets assigned by CalRecycle based on population. Since jurisdictions will be creating their own product streams, "procurement" does not necessarily mean "purchase" and qualifying organic waste products can be traded between jurisdictions.

Combined Heat and Power will play a critical role in biomass and AD projects where thermal energy can be used in the conversion process. Generated electricity can be used onsite and/or exported to the grid. More specific information on procurement can be found here: <https://www.calrecycle.ca.gov/organics/slcp/procurement>.

Economic Development from Collection and Processing

CalRecycle predicts economic opportunities in the following categories will be brought by complying with SB 1383:

- Infrastructure:
 - 50 to 100 organic waste recycling facilities will need to be expanded or built to handle increased collection
- Collection, processing, and hauling:
 - 20-25 million additional tons of organic waste will be collected annually creating more recovered organic waste products for use or sale
- Green collar jobs:
 - 15,000 permanent jobs could be created to sustainably meet labor demands for SB 1383 compliance

Role of CHP in Procurement Planning to Meet SB 1383 Requirements

Jurisdictions choosing to use collected organics for electricity production can utilize CHP:

- CHP can run on pretreated biogas and provide useful thermal potential for the biomass conversion and AD processes while producing electricity for onsite use *or* to feed the grid.
- CHP is ideal for anchoring microgrids, combining with solar PV, wind, or energy storage.
- The high efficiency of CHP systems can result in significant reductions in GHG emissions per kWh/therm.

An early example of a jurisdiction choosing the electricity procurement route is San Luis Obispo County. Nine member agencies in the county partnered with Hitachi Zosen INOVA (HZI) to build and run an in-vessel digestion facility to meet SB 1383 requirements. The facility has been operating since 2018 and utilizes AD to convert organics to biogas as well as other useful products. The facility then utilizes the biogas to fuel a CHP system that produces electricity for the jurisdiction via Pacific Gas and Electric's distribution system, and the waste heat is utilized by the digester. HZI is pursuing several more similar organics processing facilities with California jurisdictions seeking to comply with SB 1383 by procuring electricity generated from CHP systems. The tonnage processed by this facility represents *less than 1%* of the expected annual increase in organic waste that will need to be recycled statewide. Learn more about this case study here: <https://www2.calrecycle.ca.gov/Docs/Web/117501>

Quick Facts

LOCATION: San Luis Obispo, California

MARKET SECTOR: Waste Processing

CHP System Size: .85 MW

CHP Prime Mover Type: Reciprocating Engine

USE OF THERMAL ENERGY: Anaerobic Digestion

INPUT: 36,500 tons of organic waste

OUTPUTS:

- 6.2 GWh/year electricity
 - 20% to facility
 - 80% to PG&E

Enough for 600 homes
- 21,800 tons/year liquid and solid soil amendments

Source: <https://www.sanluisobispo.com/organics/waste-to-energy-and-compost/>

Next Steps

SB 1383 began on January 1, 2022, and CalRecycle will continue to provide education and guidance to jurisdictions preparing and updating their SB 1383 implementation plans in perpetuity. The next major goal of the program is to achieve 75% organic waste diversion from landfills by 2025. California is currently the only state in the Western region with a state-wide methane reduction via organics collection and recycling program.

For More Information

U.S. DOE WESTERN CHP TECHNICAL ASSISTANCE PARTNERSHIP (CHP TAP)
www.wchptap.org

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CalRecycle
www.calrecycle.ca.gov/organics/SLCP