

EXAMPLES OF HOW SEVERAL STATE MANDATES CAN BE ACHIEVED SIMULTANEOUSLY BY UTILIZING RNG AND NZEV TECHNOLOGIES

Collaborative, Complementary, and Comprehensive Regulatory Frameworks

Senate Bill (SB) 1383 helps to achieve the State's greenhouse gas emission reduction goals by including market development for beneficial products from organic waste diverted from landfill disposal in the form of procurement requirements for local jurisdictions. We recommend California Air Resources Board (CARB) consider the important contributions that SB 1383 compliant Renewable Natural Gas (RNG) could make towards achieving the State's emissions reductions goals for both the transportation and waste management sectors. SB 1383 compliant RNG procured for Near-Zero Emission Vehicles (NZEV) refuse fleets are currently reducing emissions from diesel trucks while also reducing methane emissions from landfills.

California's Department of Resources Recycling and Recovery noted the following findings in their SB 1383 regulations and related documentation:

- Organic materials that are discarded make up approximately 67 percent of the total waste stream sent for disposal each year.
- Organic waste decomposing in landfills accounts for the second largest emission of methane at 21 percent of the total methane generated in California.¹
- Approximately 27 million tons of organic material including edible food will need to be diverted from landfills by 2025 to meet the SB 1383 reduction goal. Recovered organic materials sent to anaerobic digestion facilities create RNG and hydrogen.²

The Advanced Clean Fleets regulations should acknowledge and help local jurisdictions achieve overlapping State requirements. In order to comply with SB 1383, local jurisdictions throughout California need funding to develop/build organic waste processing infrastructure and implement programs to reduce the amount of organic waste being disposed in landfills.

For example, in 2019 Los Angeles County disposed 5.39 million tons of organic waste due to insufficient organic waste processing capacity. One key byproduct of processing organic waste is biomethane. The implementation of SB 1383 will increase demand for biomethane as local jurisdictions compel the hauling industry to procure biomethane for their fleets to comply with the law. A recent study of RNG supply estimated that by 2024 there will be 9.6 million diesel gallon equivalents of SB 1383 compliant RNG produced annually that can be used to offset diesel fuel³. It is expected that this number will increase as more organic waste processing facilities come online. In the short term, the increased production of RNG from organic waste along with SB 1383 procurement requirements can fuel NZEVs to replace diesel fleets. When durable Zero Emission

¹ California Air Resources Board, California Methane Inventory for 2000-2018, October 15, 2020.

² CalRecycle, Analysis of the Progress Toward the SB 1383 Waste Reduction Goals, August 18, 2020.

³ "An Assessment: California's In-State Rng Supply For Transportation 2020 -2024", Gladstein, Neandross & Associates, July 2020.

Vehicles (ZEV) technologies can replace heavy-duty performance needs RNG from organic waste can be converted to electricity and hydrogen to fuel ZEVs.

NZEVs that run on RNG have many benefits including currently being among the lowest carbon intensity vehicles in the State

In developing the schedule to phase in ZEVs, we recommend CARB consider the use of NZEVs with low-nitrogen oxides (Low-NOx) engines that run on RNG in addition to plug-in hybrid NZEVs.

The 2016 analysis of Zero Emission Bus Options by the Los Angeles County Metropolitan Transportation Authority found that vehicles using RNG with low-NOx engines demonstrate greater emissions reductions than electric vehicles until the year 2055.⁴ CARB's data shows that the average certified Carbon Intensity for RNG generated from organic waste in California was -25.01 gCO₂e/MJ, which is less than the Carbon Intensity for electricity from the California grid at 81.49 gCO₂e/MJ.⁵

Many medium/heavy-duty trucks rely on diesel to handle arduous transport demands, such as, heavy loads and travelling long distances. These diesel trucks often operate along transportation corridors that disproportionately impact disadvantaged communities. Unfortunately in the past 10 years, emergent ZEVs could not perform as well as diesel engine heavy-duty trucks and sufficient electric vehicle charging infrastructure has not been available. Consequently, many waste haulers began investing millions of dollars to convert their fleets to NZEVs that run on Clean Natural Gas (CNG) or RNG. In 2020, refuse vehicles used nearly 31.6 million diesel gallon equivalents of natural gas as a transportation fuel, which is 21 percent of the total amount of CNG/RNG consumed in the State. These upgrades greatly reduced the carbon intensity of waste hauling fleets while eliminating the impacts from diesel emissions.

Create Low Carbon Fuel Standard pathways for Organic Waste to Electricity and Hydrogen

Creating Low Carbon Fuel Standard pathways for organic waste to generate electricity or hydrogen to fuel will assist local jurisdictions with achieving SB 1383 procurement requirements, transition the transportation sector to 100 percent renewable fuels, increase energy resiliency, and create in-state infrastructure and local jobs. Organic waste can be used to create SB 1383 compliant RNG, which can then be used to make electricity and hydrogen to power electric/fuel cell ZEVs. This electricity could replace a portion of the in-State electricity generated from fossil natural gas helping the State's electrical grid become 100 percent renewable by 2030.

⁴ Ramboll Environ, technical consultant to Los Angeles County MTA Advanced Transit Vehicle Consortium, "Zero Emissions Bus Options: Analysis of 2015-2055 Fleet Costs and Emissions", February 5, 2016.

⁵ California Air Resources Board, LCFS Pathway Certified Carbon Intensities, Lookup Table, June 30, 2021.

Exemption for Local Emergency Vehicles

The current CARB proposal only provides an exemption for emergency vehicles as defined in California Vehicle Code Section 165. This section only accounts for emergency vehicles owned by the State or operated by law enforcement and fire fighting agencies. Public Works recommends that the emergency vehicle exemption be expanded to include vehicles owned by local government agencies that provide emergency services.

Public Works is one such agency and provides services in a number of rapid response/emergency scenarios including: storm preparedness and response, wild fire response, and earthquake response. Dump trucks, aerial derricks, vacuum pump trucks, and utility work crew trucks are used to remove debris, maintain street lights and traffic signals, maintain sewer systems, and repair streets. Having these vehicles stopping to charge poses a safety, productivity, and service reliability risk. The new clean fleet regulations should provide exemptions for the types of specialized equipment used by local jurisdictional agencies to protect the health and safety of their residents.