August 11, 2026

Lauren Sanchez, Chair
California Air Resource Board
Sacramento, CA 95814

RE: 15-day – Proposed California Corporate Greenhouse Gas Reporting and Climate-Related Financial Risk Discloser Initial Regulation – Waste Sector on Scope 3 Emissions

Dear Chair Sanchez;

The Climate Corporate Data Accountability Act requires United States (U.S.) based entities with more than $1 billion in annual revenue that do business in California to annually report all GHG emissions including direct emissions (Scope 1), indirect emissions from consumed energy (Scope 2), and indirect upstream and downstream GHG emissions (Scope 3, starting for reporting year 2027). **Our comments will focus on Scope 3 emissions from the Waste Sector starting in 2027 where the absolute best practice for modeling Scope 3 waste and recycling emissions is to use the EPA GHG Emission Factors Hub for corporate inventory baselines, and where the Waste Sector continues to support the CARB definition of Net-Zero Greenhouse Gas (GHG) definitions.**

The AB 32 Scoping Plan First Update was adopted on May 15, 2014, by the CARB and includes the Net-Zero GHG concept. To achieve Net-Zero, the direct GHG emissions from the Waste Sector would have to be fully offset by avoided GHG emissions. Avoided GHG emissions are reductions in life-cycle GHG emissions that would occur because waste is shifted from landfilling to alternative non-disposal pathways. Based upon available California data, coupled with best practices in GHG modeling, Edgar & Associates estimated that the Waste Sector in 2018 had avoided 3.7 times more GHGs than have been emitted, with about 44 million metric tons of GHG being avoided through recycling, composting and renewable energy. By 2030, following several state mandates such as AB 341, SB 1383, LCFS and RPS, the Waste Sector could be 9.9 times Net-Zero GHG avoiding a total of about 70 million metric tons of GHGs.

Edgar & Associates, Inc. is an environmental engineering company and lobbying firm based in Sacramento specializing in solid waste management, recycling, composting, and renewable energy issues. Edgar & Associates, Inc. acts as technical adviser and consultant to companies involved with all aspects of materials management services including collection, hauling, processing, recycling, composting, and landfilling. Edgar & Associates, Inc., assists in the

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deployment of technologies and in obtaining grant funding to commercialize low carbon systems. Since its inception, we have assisted companies and their franchise cities and jurisdictions prepare for greater levels of waste diversion and the lowest carbon footprint possible. Edgar & Associates has prepared verifiable GHG Footprints for over 10 companies representing over 100 calendar years of Scope 1, Scope 2 and Scope 3 emissions, and prepared the Net-Zero GHG Report for the Waste Sector in 2021 using 2018 data.

Waste Sector Net-Zero GHG Report of 2021 using Scope 3 emissions

In pursuit of reducing GHG emissions, businesses and local government leaders must measure their impact on climate change. The GHG footprint of an organization refers to the amount of GHG that is emitted during the creation and delivery of products or services. Measuring the GHG impacts of a company, or even a state, has become increasingly important, as states pave the way to battle climate change through a range of regulatory and policy measures. Specifically, the Waste Sector can use GHG impact assessments to determine their progress toward Net-Zero GHG emissions. The Waste Sector is uniquely positioned to assist in meeting the State's targets in both its direct emissions inventory, and in its ability to avoid GHG emissions through recycling, composting and generation of renewable energy in benefitting every sector of the State's economy.

Net-Zero GHG emissions for the Waste Sector has been defined by CARB, in their 2014 Scoping Plan First Update, and will be utilized herein. To meet Net-Zero GHG, one's avoided GHG emissions must be greater than, or equal to, one's operational GHG emissions. By analyzing the operational versus avoided emissions, it will be possible to demonstrate that the Waste Sector within California has already achieved Net-Zero GHG status in the year 2018, far ahead of the 2030-2035 goal. Based upon available California data, coupled with best practices in GHG modeling, it is estimated that the Waste Sector has avoided 3.7 times more GHGs than have been emitted.

Table 1. Net-Zero GHG 2018 Analysis Summary (Edgar)

Scope	Emission Type	Data Sources	2018 Amount	
Scope 1	Landfill Methane	CARB	8,700,000	$MTCO_2e$
Scope 1	Compost Emissions	CARB	400,000	$MTCO_2e$
Scope 1	Fleet Emissions	CleanFleet.Net/TCR	825,000	$MTCO_2e$
Scope 1	Shipping Emissions	Edgar & Associates, Inc.	1,930,000	$MTCO_2e$
Scope 2	Electrical Emissions	Edgar/TCR	124,000	$MTCO_2e$
Scope 3	Avoided Emissions (Recycling and Composting)	WARM/CalRecycle	43,980,000	$MTCO_2e$

$$\frac{\text{Avoided GHG Emissions (Scope 3)}}{\text{Direct GHG Emissions (Scope 1 and 2)}} = \frac{43{,}980{,}000}{11{,}979{,}000} = 3.7x$$

The 2017 Scoping Plan Second Update defined a technologically feasible and cost-effective path to achieving California's 2030 GHG emissions reduction target of at least 40% below 1990 levels. Those strategies will be referenced herein to project what the Waste Sector could achieve by 2030, utilizing a Net-Zero GHG Analysis, with implementation of the following policies:

- Inclusion of the specific goals for 2030, from 2013 levels, with a 40% reduction in landfill methane by implementing SB 1383 to divert 75% of all organics from landfills by 2025.
- Increase renewable energy to 50% of the State's electricity consumption by 2030 and encourage on-site community scale development of renewable energy projects.
- The Low Carbon Fuel Standard (LCFS) is designed to reduce the carbon intensity of transportation fuels (e.g., diesel and gasoline) by 20% by 2030 while providing a range of low carbon and renewable alternatives, including the development of transportation fuel production at anaerobic digestion facilities to generate carbon negative transportation fuels; and
- Achieve the statewide recycling rate of 75% by 2030, instead of in 2020 where the statewide recycling rate is projected to be just 40%, down from 50% in 2014.

Should California implement the 2030 goals and policies of the 2017 Scoping Plan Second Update, it is estimated that the Waste Sector can avoid 9.9 times more GHGs than would have otherwise been emitted. From 2018 to 2030, the Waste Sector can increase their Net-Zero GHG standing by 267%, as California plans a carbon neutral future in 2045 with the upcoming 2027 Scoping Plan Fourth Update. The Waste Sector is leading the way now and will continue to in the future.

Table 2. Net-Zero GHG 2030 Analysis Summary (Edgar)

Scope	Emission Type	Calculated 2018 Emissions		Projected 2030 Emissions	
Scope 1	Landfill Methane	8,700,000	$MTCO_2e$	3,700,000	$MTCO_2e$
Scope 1	Compost Emissions	400,000	$MTCO_2e$	1,060,000	$MTCO_2e$
Scope 1	Fleet Emissions	825,000	$MTCO_2e$	450,000	$MTCO_2e$
Scope 1	Shipping Emissions	1,930,000	$MTCO_2e$	1,800,000	$MTCO_2e$
Scope 2	Electrical Emissions	124,000	$MTCO_2e$	62,000	$MTCO_2e$
Scope 3	Avoided Emissions (Recycling and Composting)	43,980,000	$MTCO_2e$	69,780,000	$MTCO_2e$

$$\frac{\text{Avoided GHG Emissions (Scope 3)}}{\text{Direct GHG Emissions (Scope 1 and 2)}} = \frac{43{,}980{,}000}{11{,}979{,}000} = 3.7x \quad \frac{69{,}780{,}000}{7{,}072{,}000} = 9.9x$$

AB 32 Scoping Plan - Avoided Emissions Goals

AB 32 was signed into law in 2006 and is a statewide goal of reducing greenhouse gas emissions to 1990 levels by the year 2020. The AB 32 Scoping Plan, adopted in 2008 by CARB, included mandatory commercial recycling with a target of avoiding 5 $MMTCO_2$ in 2020. AB 341 (Chesbro, 2011) was adopted into law which requires recycling services be offered for businesses with more than 4 cubic years of solid waste services per week, and for multi-family residencies with more than 5 units. Recycling reduces the demand for raw or virgin materials, while re-manufacturing with recycled materials generally reduces overall energy use. Recycling also results in increased carbon sequestration by forests since fewer trees need to be harvested for wood and paper products. Additionally, well-managed composting ultimately results in increased soil carbon storage, and end use of compost results in reduced demand for water, fertilizer, and other soil inputs. Organic woody materials that are not used for composting are used in the production of biomass energy, which reduces the demand for fossil fuels.

'Net-Zero' GHG Emissions by Mid-term (2030 to 2035)

The AB 32 Scoping Plan First Update was adopted on May 15, 2014, by the CARB and includes the Net-Zero GHG concept as copied below. Net-Zero has been defined by the CARB as when an organization's avoided indirect emissions offset their operational emissions. By reporting the progression of operational vs avoided emissions, it is possible to demonstrate that the Waste Sector has achieved this goal already. To meet Net-Zero, one's avoided GHG emissions must be greater or equal to one's operational GHG emissions.

Achieving Net-Zero GHG Emissions from the Waste Sector by Mid-term

Beyond 2020, additional reductions in GHG emissions from the Waste Sector will be needed to achieve a Net-Zero GHG emissions goal. To achieve these reductions, even greater diversion of organics and other recyclable commodities from landfills must be realized and further expansion and enhancement of the alternative non-disposal pathways must be developed. In addition, greater emphasis will need to be placed on reducing the volume of waste generated, recycling/reusing products at the end-of-life and remanufacturing these materials into beneficial products. To achieve Net-Zero, the direct GHG emissions from the Waste Sector would have to be fully offset by avoided GHG emissions. Avoided GHG emissions are reductions in life-cycle GHG emissions that would occur because waste is shifted from landfilling to alternative non-disposal pathways.

AB32 Scoping Plan – First Update May 2014

Life-Cycle GHG Emissions Best Practices in Modeling

The absolute best practice for modeling Scope 3 waste and recycling emissions is to **use the EPA GHG Emission Factors Hub for corporate inventory baselines and restrict the EPA WARM Model**

strictly to scenario comparisons and material strategy decisions. For accounting Scope 3 emissions (Waste Generated in Operations), best practice requires using the absolute emissions values from the EPA GHG Emission Factors Hub. Under the GHG Protocol, "avoided emissions" (such as the massive life-cycle benefits of recycling over virgin production modeled by WARM) they must be reported separately. The EPA specifically states that WARM is not designed to provide baseline greenhouse gas inventory data because it uses a streamlined life-cycle assessment approach that incorporates avoided upstream emissions in which CARB defined in their AB 32 Scoping Plan First Update in 2014.

Join CARB's Listening Session 4: Energy, Utilities, Transportation, Logistics & Waste Management

CARB has invited reporting entities, stakeholders and interested parties to participate in virtual listening sessions to provide input to CARB staff on the California on August 26, 2026, in which we plan to attend and discuss this letter. This session invites companies involved in generating electricity, renewable energy, water and gas utilities, transportation, freight, airlines, rail, shipping, and waste management.

Should you have any questions, please contact me at 916-444-5345.

Sincerely,

Evan WR Edgar
Regulatory Affairs Engineer

cc; Zoe Heller, CalRecycle