



August 1, 2013

Ms. Caroll Mortensen, Director
Department of Resources Recycling and Recovery
1001 I Street
Sacramento, CA 95812

**RE: Draft Waste Sector Management Plan
Comments on the Composting and Anaerobic Digestion Technical Paper**

The California Refuse Recycling Council (CRRC) is a statewide non-profit trade association comprised of over 120 companies involved in the collection and processing of materials that also operate approximately 20 compositing facilities, 50 material recovery facilities (MRFs), 35 construction and demolition debris processing facilities, and 12 landfills statewide. Our industry, in partnership with local government, has been instrumental in our state's efforts to attain the recycling mandate of 50% waste diversion from landfills, required by the California Integrated Waste Management Act of 1989 (AB 939), and will remain critical to the attainment of future greenhouse gas (GHG) reduction goals.

CRRC will be submitting comments on the 2013 Update to the AB 32 Scoping Plan. The 2013 Update provides a great opportunity to better integrate policies and programs across all sectors to achieve the most significant greenhouse gas reductions and other co-benefits. Whereas CRRC comments on this Technical Paper, our comments apply to the transportation and energy sectors as well. According to CalRecycle and CARB Recycling, Reuse and Remanufacturing Technical Paper, the "Waste Sector" includes all municipal and commercial solid waste-related activities (e.g., collection, processing, recycling, remanufacturing, treatment, or disposal) from generation to final disposition of the material within California. *The Overall Vision on the Plan* is to build infrastructure for a low-carbon system in California and improve the sustainability of the California infrastructure.

CRRC recognizes that the Technical Paper provides diverted tonnage amounts based on a 50% diversion rate and a 75% diversion rate split among composting and anaerobic digestion to provide the GHG assessment. It is this type of framework and analysis that is needed here and as part of the 75% Recycling Plan to create policy for the future, and CalRecycle should be commended.

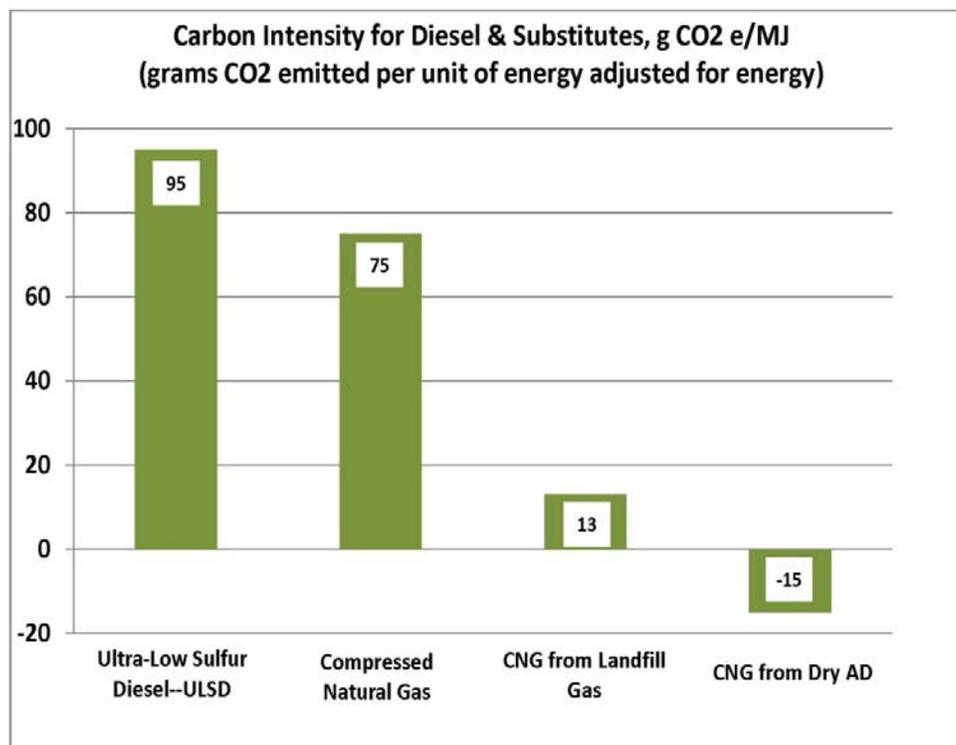
CRRC has the following comments specific to the Technical Paper:

Section 111.A – Collection – Discuss fleet emissions, CNG trucks, low carbon fuel, and carbon negative fleets

The compost and AD industry is a system which includes greenhouse gas (GHG) emissions from collection and processing with a company typically emitting 90% of their GHG from collection which is considered as Scope 1 direct emissions, and 10% of their GHGs as Scope 2 indirect emissions from the processing of the material. These GHG emissions are not allocated to the “Waste Sector” and are not landfill emissions. CARB has targeted the collection fleet for criteria pollutants reduction from diesel usage, and our industry has responded with newer trucks using CNG as the fuel of choice.

Today in California, there are over 15,000 collection vehicles in California, with over 2,000 plus collection vehicles running on CNG, or about 13% of the fleet. The South Coast Air Quality Management District (SCAQMD) adopted Rule 1193 requiring the use of CNG vehicles for all new refuse and recycling contracts, and a five-year phase-in for current contracts. SCAQMD reports that today there are over 1,850 CNG vehicles in the district, with a projected 4,500 CNG vehicles by 2020. Using CNG fuel reduces GHG by 21% per truck compared to diesel as noted on the carbon intensity chart on the next page. Whereas the low carbon fuel standard only requires a 10% reduction in carbon intensity by 2020, switching to CNG fuel allows a 21% reduction per truck.

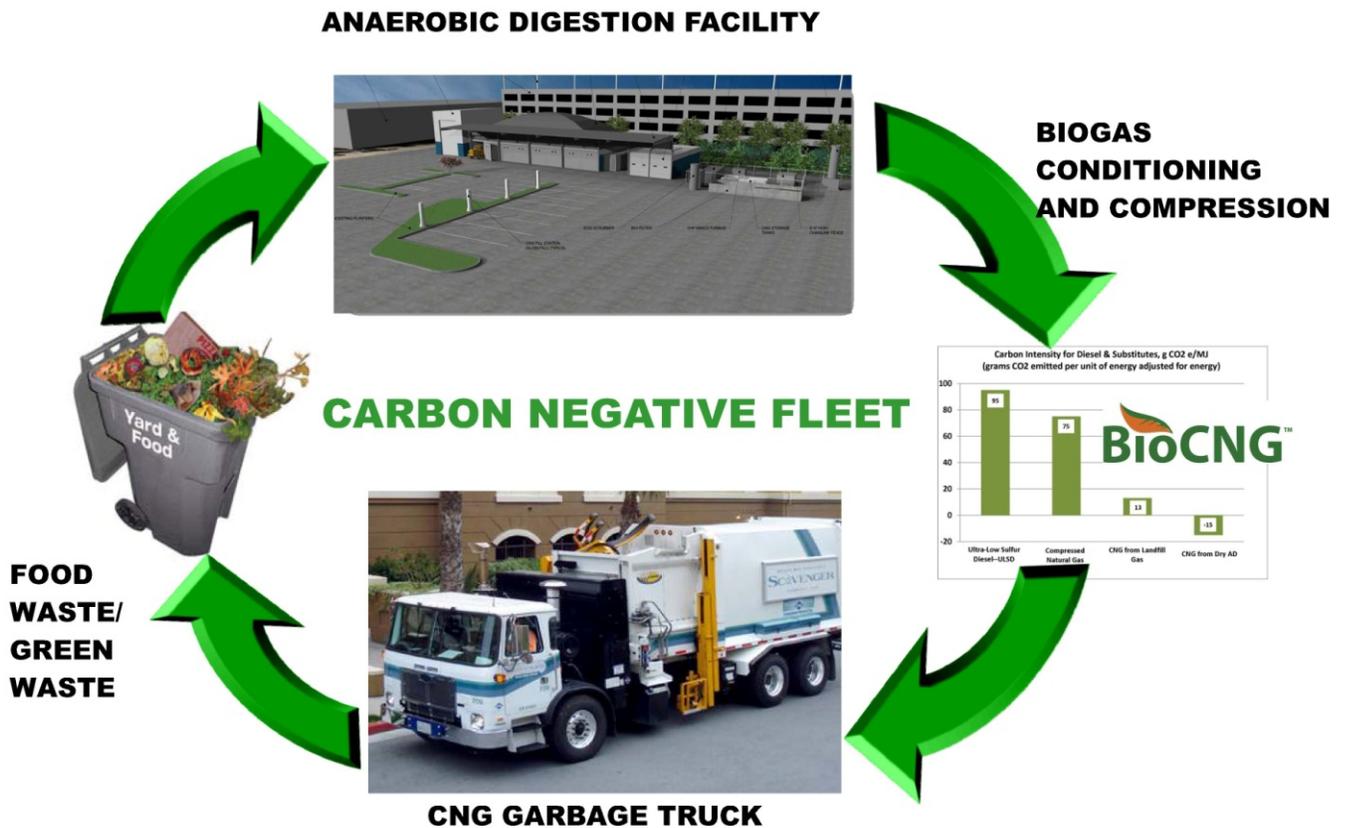
The California Air Resources Board (CARB) studied the lifecycle analysis of diesel and substitutes for diesel, and adopted carbon intensity for each fuel type. The Low Carbon Fuel Standard requires a 10% reduction in fuel carbon intensity from 2010 to 2020. As noted in the graph below, ultra-low sulfur diesel is 95 on the carbon intensity scale using units of g CO₂e/MJ, and pipeline CNG is 75



g CO₂e/MJ, a 21% reduction in greenhouse gases. CNG from landfill gas is 13 g CO₂e/MJ on the carbon intensity scale, or an 86% reduction in greenhouse gases. CARB staff has released a fuel path for renewable, or biogenic, CNG to be minus 15 g CO₂e/MJ for carbon intensity, as noted on adjacent chart.

CNG generated from the anaerobic digestion of food waste and green waste that is carbon negative, where the industry could have a carbon negative fleet run on the organic waste it collects. The mass of the digestate is reduced by 25% to 30% and is hauled to a permitted compost facility.

With a dramatic transition underway from diesel to CNG vehicles, there will be a demand for renewable CNG (RNG). Using RNG from biomethane has been declared to be carbon negative where a carbon negative fleet is possible. There is true innovation when the fleet that collects the organic waste can be fueled by the biomethane that is generated from the anaerobic digestion of the same organic waste it collects. We can close the organic loop locally as RNG is used to fuel our carbon negative fleet, and compost is used to grow our food. Having your fleet run on the commercial organics that it collects is the best possible outcome while fully utilizing the waste resources.



The cost for anaerobic digestion facilities go range from \$1.0 to \$1.4 billion by 2020, based upon the CalRecycle/CARB draft Technical Paper – page 5 which has the following tonnage allocation for AD:

- 2.5 million tons AD by 2020 is 1.38 MMTCO₂E reductions based on a 50% disposed of from 2015-2020 with half to composting and half to AD – This is a far assumption – based upon current policy (Strategic Directive No. 6) to divert half of the organics from landfills by 2020.
- 3.75 million tons AD by 2020 is 2.06 MMTCO₂E reductions based on a 75% disposed of from 2015-2020 with half to composting and half to AD, which could be part of the upcoming 75% Recycling Plan.

The potential cost of Strategic Directive No. 6 to divert 2.5 million tons of organics (50% food and 50% green waste) to AD is estimated:

- 40,000 TPY dry AD facility with CNG costs \$15 million each
- Need 65 AD facilities – that's \$1 billion
- Diesel gallon equivalent (DGE) is 400,000 per AD unit – with 65 units, about 26 million dge/year of carbon negative CNG could be produced.
- A Carbon Negative Fleet of 2,600 CNG collection vehicles could be fueled of the 15,000 statewide total fleet – which is about 17% of all CNG fleet by 2020

The potential cost of the 75% Recycling Plan to divert 3.75 million tons of organics (50% food and 50% green waste) to AD is estimated:

- 40,000 TPY dry AD facility with CNG costs \$15 million each
- Need 95 AD facilities – that's \$1.4 billion
- DGE is 400,000 per AD unit – with 95 units is 38 million DGE/year
- A Carbon Negative Fleet of 3,800 CNG collection vehicles could be fueled of the 15,000 statewide total fleet – about 25% of all CNG fleet by 2020

In Summary:

- It could cost \$1 billion to divert half of the 50% organic diversion by 2020 to AD and create 26 million dge to fuel 2,600 CNG trucks – or 17% of the statewide fleet could be carbon negative, if all went to CNG by 2020 with 1.38 MMTCO₂E GHG reductions
- It could cost \$1.4 billion to divert half of the 75% organic diversion by 2020 to AD to produce 38 million dge to fuel 3,800 CNG trucks – or 25% of the statewide fleet could be carbon negative if all went to CNG by 2020 with 2.06 MMTCO₂E GHG reductions

Section III .C – GHG Emissions

Table 2 that provide an estimate of the potential GHG reductions for diverting organic materials from landfills to composting/digestion. This is great work to add to the AB 32 Scoping Plan.

Section IV. Goals for increasing Composting and Anaerobic Digestion and Achieving GHG benefits

This section should also include targeting cap-and-trade auction proceeds for the funding programs for increasing Composting and Anaerobic Digestion and Achieving GHG benefits. CRRC has submitted comments on the **Cap-and-Trade Auction Proceeds Fiscal Years 2013-2014 through 2015-2016**. We are grateful for the Administration's leadership on climate change issues and look forward to working together to help achieve the goals of AB 32. CRRC strongly supports the Air Resources Board efforts to invest cap and trade proceeds into programs regarding Natural Resources and Waste Diversion, which the diversion of organic waste to bioenergy and composting, and organic waste to anaerobic digestion that produces a carbon negative fuel. Anaerobic digestion and composting are at the nexus of the AB 32 Scoping Plan adopted measures where commercial organic wastes are diverted from landfilling to generate renewable energy and negative carbon fuel, resulting in quality compost that is returned to sustainable agriculture in disadvantaged communities.

Section V. Challenges To Meeting Goals

Section B – Long-Term – Beyond 2020

- *Future research*

Research has already been identified and should be listed.

- Water efficiency/savings of using compost products
- Erosion control for SWPPP Caltrans projects
- Increase yields in crops

Section VI – Potential Solutions For Meeting Goals

- *Offsets*

Include the CAR Organic Waste Digestion Protocol and the Organic Waste Composting Protocol as CARB's compliance off-sets as has been requested annually for the last 2 years.

Currently, CARB has only four of CAR's adopted protocols for possible inclusion in the cap-and-trade program. Two of the protocols that are not currently being considered are the CAR Organic Waste Digestion Protocol and the Organic

Waste Composting Protocol. The inclusion of these protocols would provide an incentive to expand food waste diversion from landfills for treatment at anaerobic digestion (AD) and composting facilities. These efforts will help to meet the emission reduction goals of the Scoping Plan, which call for a 2 MMTCO_{2e} reduction from anaerobic digestion of waste and another 2 MMTCO_{2e} reduction from “Increase Production and Markets for Organics Products”. Meeting these two explicit goals requires increasing the capacity of these two organic treatment processes.

As of November 2012, CAR has already approved 18 Organic Waste Composting Projects and one Organic Waste Digestion Projects. It should be noted that although the reductions in greenhouse gases from these two CAR Protocols derive from avoided landfill emissions, there are significant ancillary benefits as well, such as:

- In the case of Organic Waste Digestion, the biomethane created is used either to generate renewable electricity or to produce a very low carbon intensity transportation fuel (CNG or LNG).
- The provision of compost to the agricultural industry, from composting facilities or digestate from anaerobic digestion, can play an important role in climate change adaptation. The increased use of compost can provide an important component of soil moisture management, reducing irrigation requirements. Since agriculture uses about 80% of California’s water supply, a small decrease in demand can create a significant source for other sectors and help farmers adjust to decreasing water availability.

Should you have any questions, please contact me at (916) 444-2772.

Sincerely,

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