
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY

Senator Allen, Chair

2021 - 2022 Regular

Bill No: AB 1086
Author: Aguiar-Curry
Version: 4/5/2021
Urgency: No
Consultant: Eric Walters

Hearing Date: 7/1/2021
Fiscal: Yes

SUBJECT: Organic waste: implementation strategy

DIGEST: Requires the California Natural Resources Agency (CNRA), in coordination with specified state agencies and in consultation with specified stakeholders, to prepare a report that provides an implementation strategy that identifies specific measures needed to achieve the state's organic waste and related climate change and air quality, mandates, goals, and targets.

ANALYSIS:

Existing federal law:

- 1) Sets, through the Federal Clean Air Act (FCAA) and its implementing regulations, National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, designates air basins that do not achieve NAAQS as nonattainment, allows only California to set vehicular emissions standards stricter than the federal government, and allows other states to adopt either the federal or California vehicular emissions standards. (42 U.S.C. §7401 et seq.)

Existing state law:

- 1) Establishes the Air Resources Board (ARB) as the air pollution control agency in California and requires ARB, among other things, to control emissions from a wide array of mobile sources and coordinate, encourage, and review the efforts of all levels of government as they affect air quality. (Health and Safety Code (HSC) §39500 et seq.)
- 2) Establishes local air districts to, among other things, control emissions from stationary sources. (HSC §40000 et seq.)
- 3) Establishes a state recycling goal of 75% of solid waste generated by diverting from landfill disposal by 2020 through source reduction, recycling, and composting. (Public Resources Code (PRC) § 41780.01)

- 4) Requires each local jurisdiction to divert 50% of solid waste from landfill disposal through source reduction, recycling, and composting. (PRC § 41780)
- 5) Directs, under SB 605 (Lara and Pavley, Chapter 523, Statutes of 2014), ARB to develop a comprehensive short-lived climate pollutant (SLCP) strategy by January 1, 2016, and in so doing, also complete an inventory of sources and emissions of SLCPs in the state based on available data, identify research needs to address data gaps and existing and potential new control measures to reduce emissions.
- 6) Establishes, under SB 1383 (Lara, Chapter 395, Statutes of 2016) methane emission reduction goals that include targets to reduce the landfill disposal of organic waste by 50% by 2020 and 75% by 2025 from the 2014 level to reduce greenhouse gas (GHG) emissions. Further:
 - a) Requires the Department of Resources Recycling and Recovery (CalRecycle), in consultation with ARB, to adopt regulations to achieve the organics reduction targets, which go into effect in 2022. (Health & Safety Code (HSC) § 39730.6, PRC § 42652.5)
 - b) Requires methane emission reduction goals to include specified targets to reduce the landfill disposal of organics. (HSC § 39730.6)
- 7) Pursuant to the Integrated Waste Management Act (PRC § 40050 et seq.):
 - a) Establishes a state recycling goal of 75% of solid waste generated be diverted from landfill disposal by 2020 through source reduction, recycling, and composting.
 - b) Requires generators of specified amounts of organic waste (i.e., food waste and yard waste) to arrange for recycling services for that material.
 - c) Establishes methane emission reduction goals that include targets to reduce the landfill disposal of organic waste 50% by 2020 and 75% by 2025 from the 2014 level. Requires CalRecycle, in consultation with ARB, to adopt regulations to achieve the organics reduction targets, which go into effect in 2022.
- 8) Requires, under SB 901 (Dodd, Chapter 626, Statutes of 2018) ARB, in consultation with the Department of Forestry and Fire Protection (CAL FIRE), to develop, among other things, a standardized system to quantify the direct carbon emissions and decay from fuel reduction activities for purposes of meeting the accounting requirements for the Greenhouse Gas Reduction Fund (GGRF) expenditures.

This bill:

- 1) Defines “organic waste” to include:
 - a) Food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste;
 - b) Agricultural crop residues; bark, lawn, yard, and garden clippings; leaves, silvicultural residue, and tree and brush pruning; wood, wood chips, and wood waste; nonrecyclable pulp or nonrecyclable paper materials;
 - c) Biosolids, meaning solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works; and
 - d) Livestock waste.

- 2) Requires, by January 1, 2023, CNRA, in coordination with the California Environmental Protection Agency (CalEPA), the Department of Food and Agriculture (CDFA), CalRecycle, and CAL FIRE, and in consultation with stakeholders and relevant permitting agencies, to prepare and submit to the Legislature a report that provides an implementation strategy that identifies specific measures needed to achieve the state’s organic waste, and related climate change and air quality, mandates, goals, and targets.
 - a) Authorizes CNRA to contract with outside entities, including specifically the California Council on Science and Technology (CCST), to prepare the report.

- 3) Requires the report to:
 - a) Include a science-based assessment of the benefits and impacts of different end uses of organic waste;
 - b) Identify regulatory conflicts or barriers that need to be addressed to accelerate beneficial reuse of organic waste; and
 - c) Specify potential funding sources and incentives, opportunities for regional and cross-sector coordination, and measures needed to meet the state’s organic waste goals with interagency support and coordination.

- 4) Requires the CNRA, or the outside entity contracted to create the report, to hold at least one public meeting to consider public comments, to provide notice of the meeting, and to publish the draft implementation strategy on its internet website.

- 5) Requires the implementation strategy to include, at a minimum, the following:
 - a) Recommendations on policy and funding support for the beneficial reuse of organic waste, consistent with:

- i) The short-lived climate pollutant strategy and implementing regulations;
 - ii) The 2030 greenhouse gas emissions limit;
 - iii) Actions to achieve the attainment of state and federal ambient air quality standards, including, but not limited to, actions related to the control of organic waste air emissions and AB 617 (C. Garcia, 2017) requirements;
 - iv) Requirements of the California Renewables Portfolio Standard Program;
 - v) The “California Forest Carbon Plan: Managing our Forest Landscapes In A Changing Climate;” and
 - vi) The goal of reducing at least 5,000,000 metric tons of greenhouse gas emissions per year through the development and application of compost on working lands.
- b) Consideration of the beneficial uses of organic waste in comparison to the alternative fate of organic waste, including:
- i) The availability of organic waste in the forestry, agriculture, and solid waste sectors;
 - ii) Beneficial alternatives to the burning, leaving in place, landfilling, or other current waste disposal practices;
 - iii) Net impacts of:
 - a) Carbon emissions, on a life-cycle basis;
 - b) Air quality, including local impacts on areas designated as being in nonattainment of state and federal quality standards;
 - c) Forest health, soil health, soil carbon sequestration, and erosion control;
 - d) Stormwater infiltration and runoff reduction, groundwater recharge and quality, irrigation reduction, surface water pollution, and water supply for each alternative end use;
 - e) Job creation, economic development, community-scale empowerment and economic justice, and local revenues, and where those impacts would accrue;
 - f) Community resilience, including resilience against climate change, catastrophic wildfires, power disruptions, and other impacts; and
 - g) Food waste, food insecurity for humans, and the cost and availability of appropriate feed for pets, livestock, aquaculture, and other uses.
 - iv) Use of organic waste for renewable energy production.

- c) Identification of obstacles to the beneficial reuse of organic waste and activities undertaken by the private and public sectors to address those obstacles.

Background

- 1) *Waste management in California.* For three decades, CalRecycle has been tasked with reducing disposal of municipal solid waste and promoting recycling in California through the Integrated Waste Management Authority (IWMA). Under IWMA, the state has established a statewide 75 percent source reduction, recycling, and composting goal by 2020 and the Legislature has enacted various laws to increase the amount of waste diverted from landfills.

According to CalRecycle's *State of Disposal and Recycling Report for 2019* report, published in February 2021, California's 2019 statewide recycling rate was 37%. Approximately 77.5 million tons of material was generated in 2019; with about 55% sent to landfills; 19% exported as recyclables; 12% composted, anaerobically digested or mulched; and 6% either recycled or source reduced.

The amount of material sent to landfills has been steadily increasing over the years, with an estimated 43 million tons of waste disposed of in California's landfills in 2019. Organic materials account for more than a third of California's waste stream, and GHG emissions caused by the decomposition of organic material in landfills contribute to global climate change. According to CalRecycle's website, methane emissions resulting from the decomposition of organic waste in landfills are a significant source of GHG emissions, contributing to climate change, with organic waste in landfills emitting 20% of the state's methane. Food continues to be the highest single item disposed at approximately 18% of materials landfilled. Leaves, grass, prunings, and trimmings represent just under 7% of the total waste stream.

Local governments have been required to divert 50% of the waste generated within the jurisdiction from landfill disposal since 2000. AB 341 (Chesbro, Chapter 476, Statutes of 2011) requires commercial waste generators, including multi-family dwellings, to arrange for recycling services for the material they generate and requires local governments to implement commercial solid waste recycling programs designed to divert solid waste generated by businesses out of the landfill. AB 1826 (Chesbro, Chapter 727, Statutes of 2014) requires generators of organic waste (i.e., food waste and yard waste) to arrange for recycling services for that material to keep it out of the landfill.

SB 1383 (Lara, Chapter 395, Statutes of 2016) required ARB to approve and implement a comprehensive short-lived climate pollutant strategy to achieve, from 2013 levels, a 40% reduction in methane, a 40% reduction in hydrofluorocarbon gases, and a 50% reduction in anthropogenic black carbon, by 2030. In order to accomplish these goals, the bill specified that the methane emission reduction goals include targets to reduce the landfill disposal of organic waste 50% by 2020 and 75% by 2025 from the 2014 level. CalRecycle projects that the state will need between 75 and 100 new or expanded compost and anaerobic digestion facilities in California to process the amount of organic materials that is required to be diverted.

- 2) *Short-lived Climate Pollutants*. Greenhouse gases or climate pollutants, such as CO₂, work to warm the earth by trapping solar radiation in the earth's atmosphere. Depending on the molecule, these pollutants can vary greatly in their ability to trap heat, which is termed their global warming potential, and the length of time they remain in the atmosphere. CO₂ remains in the atmosphere for centuries, which makes it the most critical greenhouse gas to reduce in order to limit long-term climate change. However, climate pollutants including methane, tropospheric ozone, hydrofluorocarbons (HFCs), and soot (black carbon), are relatively short-lived (anywhere from a few days to a few decades), but when measured in terms of how they heat the atmosphere (global warming potential, or GWP), can be tens, hundreds, or even thousands of times greater than that of CO₂. These climate forcers are termed short-lived climate pollutants (SLCPs).

Because SLCPs remain in the atmosphere for a relatively short period of time, but have a much higher global warming potential than CO₂, efforts aimed at reducing their emissions in their near term would result in more immediate climate, air quality, and public health benefits, than a strategy focused solely on CO₂. According to ARB's SLCP strategy, "while the climate impacts of CO₂ reductions take decades or more to materialize, cutting emissions of SLCPs can immediately slow global warming and reduce the impacts of climate change." Recent research estimates that SLCPs are responsible for about 40% of global warming to date and that actions to reduce SLCP emissions could cut the amount of warming that would occur over the next few decades by half. The SLCP Strategy's portfolio of policies and measures is an integral part of the state's overall climate blueprint, and is expected to provide approximately 35 percent of cumulative needed GHG emissions reductions between 2021 to 2030 to meet the 2030 target.

- 3) *Composting in California report*. In August of 2018, ARB, CalRecycle, and the California Air Pollution Control Officers Association (CAPCOA) released

a discussion paper titled “Composting in California: Addressing Air Quality Permitting and Regulatory Issues for Expanding Infrastructure.” The report focused on defining the current state of composting in California, discussing the associated air quality and regulatory issues for siting new and expanded large-scale composting facilities in California, and finding ways to overcome the challenges of building the necessary composting infrastructure.

In short, the report found that state agencies, air districts, the composting industry, and other stakeholders had long recognized that it will be challenging to site and permit the 75-100 needed new composting and anaerobic digestion facilities within the existing air quality laws, particularly the FCAA, and requirements. However, overcoming these challenges is critical for the state to meet SB 1383 requirements, and the report suggested the purchase of volatile organic compound credits and/or the co-location of composting operations alongside organic waste generators would facilitate the needed expansion.

- 4) *AB 1045 report.* In November of 2018, Cal/EPA, CalRecycle, ARB, the State Water Resources Control Board (State Water Board), and CDFG released a report titled “Enhancing Organic Materials Management by Improving Coordination, Increasing Incentives & Expediting Decision-Making.” This report was required by AB 1045 (Irwin, Chapter 596, Statutes of 2015), which additionally directed CalRecycle to, in coordination with ARB and the State Water Board, develop a policy to promote the development of coordinated permitting and regulation of composting facilities while protecting the environment.

The report describes existing tools and recommends additional actions that would help to expedite decisions on organic management infrastructure to promote the following policy goals: facilitating local government decision-making, enhancing transparency and community input, incentivizing organic material management infrastructure, expediting permit decision-making, and enhancing the supply of organic materials.

- 5) *CalRecycle 1383 Progress Report.* In August of 2020, CalRecycle, in collaboration with ARB, released a report titled, “Analysis of the Progress Toward the SB 1383 Organic Waste Reduction Goals.” The report stated that reducing the amount of organic waste generated, producing compost, generating electricity and renewable gas through anaerobic digestion, recovering edible food for human consumption, and recycling of paper and cardboard are all critical strategies to achieve the SB 1383 goal.

The findings of the 2020 Progress Report were as follows:

- a) Organics recycling and recovery infrastructure is growing, but still needs significant expansion to provide the recycling capacity necessary to meet the SB 1383 disposal and methane reduction goals.
 - b) Mandatory collection programs are critical for organics recycling and recovery infrastructure development and to help attract private investments.
 - c) The permitting and regulatory requirements in place are necessary to protect human health and the environment and to ease community concerns regarding organics recycling facilities.
 - d) The procurement requirements in SB 1383 regulations are necessary to develop markets for compost and biomethane and are essential components of achieving the overall methane reduction goals.
- 6) *ARB GHG emissions from Contemporary Wildfire, Prescribed Fire, and Forest Management Activities Report*. In December of 2020, ARB released a draft report (developed in consultation with CAL FIRE and other state agencies) that estimates GHG emissions from wildfire and prescribed burns. It also estimated the amount of ecosystem carbon transformed by forest management activities, including tree harvest and other vegetation fuels management to reduce fire risk.

The report quantified the amount of carbon removed from forests through forest management practices, and found that thinning removed the greatest amount of carbon. ARB found that, between 2002 and 2019, the annual amount of carbon removed by forest management activities was approximately 4.6 million metric tons (MMT) of carbon. While that material removed from forests represents a source of woody organic waste that can be reused beneficially, the report found it difficult to quantitatively model the many different potential emissions outcomes of thinned and harvested wood.

- 7) *Forest Carbon Plan*. In May of 2018, the Forest Climate Action Team (comprised of a number of agencies, including CNRA, CalEPA, CAL FIRE, ARB, among others) released the Forest Carbon Plan. It describes forest conditions across California based on the best available information and provides a projection of future conditions given the ongoing and expected impacts of climate change. It also describes goals and related specific actions to improve overall forest health, enhance carbon storage resilience, increase sequestration, and reduce GHG emissions, and provides principles and policies to guide and support those actions. These principles and policies, which are grounded in existing laws and regulations, elevate enhancement of carbon sequestration and storage and reduction of black carbon and GHG emissions alongside the broader range of public benefits California's forests provide.

Notably, the Forest Carbon Plan found that fuel reduction in forests, such as through mechanical thinning, involves some immediate loss of forest carbon, but can increase the stability of the remaining and future stored carbon. Moreover, it found that current rates of fuel reduction and thinning of overly dense forests were far below levels needed to restore forest health, prevent extreme fires, and meet the state's long-term climate goals. The study suggested that, where necessary and appropriate, incentives should be provided to land managers to support adequate implementation of the forest treatments identified in the Plan.

- 8) *The California Natural Resources Agency*. CNRA is comprised of 7 departments—the Department of Conservation, CALFIRE, the Department of Parks and Recreation, the Department of Water Resources, the California Conservation Corps, and the CALFED Bay-Delta Program—as well as 10 conservancies, and 17 boards and commissions. Overall, CNRA's mission is to restore, protect and manage the state's natural, historical and cultural resources for current and future generations using creative approaches and solutions based on science, collaboration and respect for all the communities and interests involved.

Within the broader CNRA, CAL FIRE has been most connected to organic waste discussions in the state. This has been primarily through the need to reduce combustible fuels in the state's forests as a wildfire reduction strategy, and considerations of the resulting waste stream of woody organic materials.

- 9) *The California Council on Science and Technology (CCST)*. CCST is a nonpartisan nonprofit created via the California Legislature in 1988 to provide objective advice from California's leading scientists and research institutions on policy issues involving science. The network of experts tapped by CCST have responded to requests for analyses on significant and challenging science and technology related issues in California, ranging from education to climate change and exploring California's energy future.

CCST is dedicated to providing impartial expertise that extends beyond the resources or perspective of any single institution. Publications are produced in compliance with a rigorous study process and peer review process.

Comments

- 1) *Purpose of Bill*. According to the author, "AB 1086 requires the California Natural Resource Agency to recommend a coordinated strategy for reducing emissions associated with organic waste across sectors. This strategic plan will

be data-informed and require interagency input. The end result should reduce conflict among state policies intended to reduce net air and climate pollution while balancing the immediate needs of local communities disproportionately exposed to environmental health hazards, including wildfire smoke.”

- 2) *Beneficial reuse of organic waste.* The activities highlighted in AB 1086 (producing organic soil amendments, animal feed ingredients, low-carbon wood products, materials for water purification and conservation, renewable and low-carbon energy, and more) serve to not only divert organic waste from landfills in furtherance of state waste reduction goals, but also to use that organic waste in beneficial ways. For these alternative and beneficial uses of organic wastes, the report is directed to include numerous considerations of impacts, such as on air quality, forest health, soil health, soil carbon sequestration, erosion control, stormwater infiltration, runoff reduction, groundwater recharge and quality, irrigation reduction, surface water pollution, water supplies, job creation, economic development, community-scale empowerment and economic justice, local revenues, community resilience, food waste, human food insecurity, and food availability for pets and livestock.

Suffice to say, the scope of the proposed report and implementation plan is extensive. However, given the volume and variety of organic waste feedstocks, and the plurality of varied end uses competing for that supply, taking a comprehensive, holistic approach is likely prudent. Successfully achieving California’s SLCP and organic waste diversion goals alongside broader climate, environmental quality, and landfill diversion goals will undoubtedly require a broad suite of solutions. In deciding what the optimal mix of solutions is to pursue, it will be important to look at the big picture. The report required by AB 1086 could provide such a perspective.

- 3) *Who should write this report?* There is no single agency whose jurisdiction encompasses all of the factors that need to be considered in the report required by AB 1086. As with past reports, a number of agencies must collaborate to provide the data and recommendations requested by the Legislature.

Notably, CNRA has not been the lead agency tasked with preparing the previous reports described above. CNRA’s jurisdiction is undoubtedly relevant to the report mandated by AB 1086, and their coordination with regards to forest thinning and other sources of woody organic waste will be essential.

However, the primary questions and considerations in this report are not in their wheelhouse. On matters of landfill diversion, GHG emissions, air quality impacts, effects on AB 617 communities, and water quality impacts, all of

which are central to the mission of the AB 1096 report, CalEPA and its constituent boards and departments have primary jurisdiction.

Admittedly, the numerous previous reports led by CalEPA entities have not broken the logjam and led to the rapid and widespread changes needed to achieve our SLCP and organic waste diversion goals. However, it is not clear how this proposed solution—changing the lead agency tasked with the study to one with less jurisdiction and therefore expertise in the topics—would be more likely to succeed.

Fortunately, in addition to differing from past studies by appointing CNRA as lead agency, AB 1086 also provides explicit and clear direction about a number of topics to be included in the report. This holistic, comprehensive assessment of organic waste sources, uses, and limitations could serve as a useful resource in helping all levels of government take the necessary actions to meet the state's goals. However, the wide scope of the report makes coordinating all the parts and recommendations that much harder, especially given the technical nature of many of the issues (FCAA compliance, community-specific air pollution, forest carbon flux quantification, etc.) and beneficial reuses (energy production, soil carbon sequestration, economic development, etc.).

As written, AB 1086 allows CNRA to contract the report out to CCST. CCST has a thirty-plus year record of providing comprehensive, science-based reports to the Legislature. Recent CCST reports, such as “Orphan Wells in California – An Initial Assessment of the State’s Potential Liabilities,” “Biomethane in California Common Carrier Pipelines: Assessing Heating Value and Maximum Siloxane Specifications,” and “Long-Term Viability of Underground Natural Gas Storage in California: An Independent Review of Scientific and Technical Information,” were performed at the request of the Legislature or administration, and provided robust, technical analyses of complex issues. The findings and recommendations of these reports were based off of extensive interagency collaboration and stakeholder engagement, and they were delivered in an actionable policy framework.

Given the contention of which agency should lead this report, the number of previous reports already published by CalEPA-housed entities, the technical nature of the subject matter, the author’s desire to include a science-based assessment, and CCST’s mission to provide unbiased, independent assessment of public policy issues, the committee may wish to amend this bill to instead request CCST to produce the report.

Related/Prior Legislation

AB 144 (Aguiar – Curry, 2019) would have required, on or before December 31, 2020, the Strategic Growth Council to create a scoping plan for the state to meet its organic waste management mandates, goals, and targets. This bill was held in the Assembly Appropriations Committee.

DOUBLE REFERRAL:

If this measure is approved by the Senate Environmental Quality Committee, the do pass motion must include the action to re-refer the bill to the Senate Natural Resources and Water Committee.

SOURCE: Author

SUPPORT:

Allweather Wood
Association of California Water Agencies (ACWA)
Bioenergy Association of California
California Compost Coalition
Californians Against Waste
Ecoconsult
Humboldt Redwood Company LLC
Humboldt Saw Wood Company
Mendocino Forest Products
Northern California Recycling Association
Resource Recovery Coalition of California
South Bayside Waste Management Authority (sbwma) DbA Rethinkwaste
Tss Consultants

OPPOSITION:

None received

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