Meeting Agenda

Thursday, July 13, 2023 at 5:30 PM
Eureka City Council Chamber
502 K Street
Eureka, CA

THE HWMA BOARD OF DIRECTORS HAS RESUMED IN-PERSON MEETINGS AND ENCOURAGES THE PUBLIC TO ATTEND EITHER IN PERSON OR TELEPHONICALLY.

Effective March 9, 2023 the HWMA Board of Directors will resume their meetings from the Eureka City Council Chamber. Members of the public are invited and encouraged to participate through the following venues.

HOW TO PARTICIPATE

The public is invited to attend and participate in the HWMA Board of Directors meeting using any of the following methods.

1. **IN-PERSON**
   The public can attend and provide in-person comments during the meeting on regular agenda items and during Oral/Written Comment. in-person hybrid meetings. HWMA asks that when attending meetings, persons socially distance as best they can and be courteous to those who choose to wear a mask.

2. **REMOTE**
   As a courtesy, and technology permitting, members of the public may continue to observe and participate remotely through the Zoom platform. HWMA cannot guarantee that the public's access to teleconference technology will be uninterrupted, and technical difficulties may occur from time to time. In those instances, so long as there is a Board quorum and the public may still attend the meeting in person, the meeting will continue.

   a. Zoom https://us06web.zoom.us/j/87272840425
   b. Zoom Phone Numbers. +17207072699, Meeting ID: 87272840425

   During the meeting, each period for public comment will be announced, and participants may use Zoom's "Raise Hand" feature to request to speak. If calling in via Zoom use ***9** to raise and lower your hand. The meeting host will call on you, by name or last four digits of your phone number, and enable the microphone when it is your turn to speak. To ensure the orderly meeting conduct, providing your name is encouraged, but not required.

3. **EMAIL**

The public may submit public comment via email to board@hwma.net. Any comments received up until 3:00 pm of the meeting date will be:

a. Distributed to Board members via email prior to the meeting,
b. Referenced and attached to the meeting minutes.

Such email comments must identify the agenda item number in the subject line of the email. Comments received will be read into the record by staff, with a maximum allowance of three minutes (approximately 500 words) per individual comment, subject to the Chair's discretion. If a comment is received after the agenda item is heard, but before the close of the meeting, the comment will still be included as part of the written record of the meeting, but will not be read into the record during the meeting.

4. **TO WATCH OR LISTEN ONLY**

The public may view the meeting on one-way video feed on at Access Humboldt's YouTube Channel at www.youtube.com/c/accesshumboldt/live or

***Copies Available**: Copies of the agenda materials are available electronically at www.hwma.net, through individual HWMA member agencies or by calling HWMA at 707-268-8680. There may be a charge for copies.*

***Accessibility:** Accommodations and access to HWMA meetings for people with special needs must be requested in advance of the meeting at 707 268-8680 or emailing board@hwma.net . The Eureka City Council Chamber room is ADA accessible. This agenda and other materials are available in alternative formats upon request.*

1. **Call to Order and Roll Call at 5:30 PM**

2. **Consent Calendar**

All matters listed under the Consent Calendar are considered to be routine by the HWMA Board and will be enacted upon by one motion, unless a specific request for review is made by a Board Member or a member of the public. The Consent Calendar will not be read. There will be no separate discussion of these items unless pulled for discussion.

a. Approve Minutes from the June 8, 2023 HWMA Board of Directors Meeting\

3. **Oral and Written Communications**

This time is provided for people to address the Board or to submit written communications concerning matters not on this agenda. Board Members may respond to statements, but any request that requires Board action will be referred to staff for review. Reasonable time limits may be imposed on both the total amount of time allocated for this item, and on the time permitted to each individual speaker. Such time allotment or portion thereof shall not be transferred to other speakers.

4. **Receive Presentation on Little Hoover Commission and SB 1383 Report**

5. **Standing Item: Board Member Reports.**

6. **Standing Item: Executive Director's Report.**

7. **Adjourn.**

Minutes
Thursday, June 8, 2023 at 5:30 PM
Eureka City Council Chamber

Present:	Meredith Matthews, Frank Wilson, Leslie Castellano, Adelene Jones, Randy Cady, Steve Madrone (arrived at 5:40 PM)
Absent:	None
Staff:	Eric Keller-Heckman, Tony Heacock, Loral Uber
Legal Counsel:	Nancy Diamond

1. **Call to Order and Roll Call at 5:30 PM**
   Chairperson Castellano called the meeting to order at 5:30 PM. A quorum was present and acting.

2. **Consent Calendar**
   a. Approve Minutes from May 11th HWMA Board of Directors Meeting
   b. Declare equipment surplus property
   c. Review and approve Board of Directors Calendar for FY 2023/24, affirm meeting place and time.

Motion:	**Director Matthews** moved and **Director Jones** seconded the motion to approve the Consent Calendar.
Action:	Approve the Motion as made by **Director Matthews** and seconded by **Director Jones**
Ayes:	Unanimous
Noes:	None
Absent:	Steve Madrone

3. **Oral and Written Communications**
   Chairperson Castellano opened the floor to public comment regarding items not on the agenda. No public comment was received.

   Chairperson Castellano closed the floor to public comment.

4. **Approve Authority Officers for Fiscal Year 2023-24**

   Director Matthews and **Director Jones** volunteered for the positions of Chair and Vice Chair, respectively.

Motion:	**Director Wilson** moved and **Director Cady** seconded the motion to approve **Director Matthews** as Chair and **Director Jones** as Vice-Chair.
Action:	Approve the Motion as made by **Director Wilson** and seconded by **Director Cady**
Ayes:	Unanimous

Noes:	**None**
Absent:	**None**

5. **Execute Humboldt Waste Management Authority's restated and amended Joint Powers Agreement.**

Motion:	**Director Matthews** moved and **Director Jones** seconded the motion to execute the amended JPA.
Action:	Approve the Motion as made by **Director Matthews** and seconded by **Director Jones**
Ayes:	Leslie Castellano, Meredith Matthews, Adelene Jones, Steve Madrone, Randy Cady
Abstain:	Frank Wilson
Noes:	**None**
Absent:	**None**

6. **Review and approve recommendation to award WSP USA Inc. as the successful proposer for water quality and landfill gas monitoring and reporting at Cummings Road Landfill**

Executive Director Keller-Heckman informed the board that WSP USA Inc. submitted the only responsive proposal. The Authority has worked with them previously, with positive experiences. In response to questions from the Board he explained that although HWMA circulated the RFP locally, no proposals were received from local organizations.

Motion:	**Director Cady** moved and **Director Madrone** seconded the motion to award WSP USA Inc. as the Successful Proposer, and direct staff to negotiate a final agreement to be presented for Board approval.
Action:	Approve the Motion as made by **Director Cady** and seconded by **Director Madrone**
Ayes:	Unanimous
Noes:	**None**
Absent:	**None**

7. **Standing Item: Board Member Reports**

Director Jones reported that City of Blue Lake's yard waste days are going well.

Director Madrone informed the Board of Little Hoover Commission pushback to SB 1383 due to lack of necessary infrastructure.

8. **Standing Item: Executive Director's Report**
Executive Director Keller-Heckman gave a summary of recent Authority operations, including responses to Organics RFPs and efforts to fill the open Finance Director position.

9. **Chairperson Castellano** adjourned the meeting at 5:50 PM.

HUMBOLDT WASTE MANAGEMENT AUTHORITY

Staff Report

DATE: June 28, 2023 For Meeting of: July 13th, 2023

FROM: Eric Keller-Heckman, Executive Director

SUBJECT: Item 4)
Receive Presentation on Little Hoover Commission and SB1383 Report

RECOMMENDED ACTION: No Action Required: Informational Only

DISCUSSION:
This presentation will touch on the history and purpose of the Little Hoover Commission along with their report regarding SB1383 legislation and implementation as requested by the Board at their June Meeting.

ATTACHMENTS:

1. Little Hoover Commission Report*: Reducing California's Landfill Methane Emissions: SB 1383 Implementation (Report #274 June 2023)*

LITTLE HOOVER COMMISSION

Reducing California's Landfill Methane Emissions: SB 1383 Implementation

Report #274 | June 2023

Milton Marks Commission on California State Government Organization and Economy

www.lhc.ca.gov

Dedicated to Promoting Economy and Efficiency in California State Government

The Little Hoover Commission, formally known as the Milton Marks "Little Hoover" Commission on California State Government Organization and Economy, is an independent state oversight agency.

By statute, the Commission is a bipartisan board composed of five public members appointed by the governor, four public members appointed by the Legislature, two senators and two assemblymembers.

In creating the Commission in 1962, the Legislature declared its purpose:

...to secure assistance for the Governor and itself in promoting economy, efficiency and improved services in the transaction of the public business in the various departments, agencies and instrumentalities of the executive branch of the state government, and in making the operation of all state departments, agencies and instrumentalities, and all expenditures of public funds, more directly responsive to the wishes of the people as expressed by their elected representatives...

The Commission fulfills this charge by listening to the public, consulting with the experts and conferring with the wise. In the course of its investigations, the Commission typically empanels advisory committees, conducts public hearings and visits government operations in action.

Its conclusions are submitted to the Governor and the Legislature for their consideration. Recommendations often take the form of legislation, which the Commission supports through the legislative process.

Contacting the Commission

All correspondence should be addressed to the Commission Office:

Little Hoover Commission
925 L Street, Suite 805, Sacramento, CA 95814

(916) 445-2125 | LittleHoover@lhc.ca.gov

This report is available from the Commission's website at www.lhc.ca.gov.

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Letter from the Chair
June 8, 2023

The Honorable Gavin Newsom
Governor of California

The Honorable Toni Atkins
President pro Tempore of the Senate
and members of the Senate

The Honorable Brian Jones
Senate Minority Leader

The Honorable Anthony Rendon
Speaker of the Assembly
and members of the Assembly

The Honorable James Gallagher
Assembly Minority Leader

DEAR GOVERNOR AND MEMBERS OF THE LEGISLATURE:

Combatting climate change is perhaps the defining issue of our era, and California has long been a leader in that fight. In 2016, the state enacted a landmark reform in this area by passing SB 1383, which required the state to reduce the amount of organic material deposited into landfills. The stakes could not be higher. As it decomposes, organic material produces methane, which is extraordinarily efficient at trapping heat and contributing to climate change. In the effort to constrain climate change, no short-term step is as important as reducing methane emissions. The livability of our planet depends on it.

Yet California is falling short of its goals. The state missed its 2020 target, and is poised to miss its 2025 goal. Local governments – the front-line warriors in this fight – are struggling to implement the state's program.

This report follows an extensive study process by the Commission. We held three hearings and convened an online roundtable of stakeholders – a process in which the Commission heard from more than two dozen stakeholders, including state officials, local government leaders, industry executives, environmental advocates, and others. Commission staff conducted dozens of additional background interviews and reviewed hundreds of documents.

As a result of this process, the Commission concluded that significant changes are needed if the state is to meet its target of reducing the amount of organic material going into landfills. We believe the state should reaffirm its goal, while reconsidering its method. Changes in law are needed. Additional funding is required. Local jurisdictions must be given a realistic amount of time to develop infrastructure. The unique requirements of rural California must be considered. Perhaps most important of all, everyday Californians must be educated about the critical need for change. No program of this magnitude succeeds without the public's buy-in and belief.

The recommendations in this report present a critical opportunity to advance California's fight against climate change. We hope and believe you will consider this report in that light – as a plea to fix what is wrong in the pursuit of a noble and critical challenge.

Sincerely,

Pedro Nava, Chair
Little Hoover Commission

Executive Summary

In 2016, California adopted stringent goals for reducing the amount of organic material deposited into landfills. Using 2014 as a baseline, the legislation required a reduction of 50 percent by 2020 and 75 percent by 2025. The purpose was to reduce methane emissions to make near-term improvements to climate change. Methane is a short-lived super pollutant that is extraordinarily efficient at trapping heat and thus contributing to climate change, and landfills are the largest point source of methane emissions in California.

California's ambitions far exceeded those of any other state, a fact of which the state should be proud. Sadly, however, California is falling short of its goals. The state missed its 2020 target and is poised to miss the 2025 target.

The state should recognize the importance of reducing methane emissions as part of the fight against climate change, but should consider changes in implementation that can advance the ultimate goal. Repeated failure to meet the goals of the program could undermine public confidence, increase noncompliance and delay mid-course policy corrections that are routine in projects of this size.

Part I: A Pause in Implementation

2020 Target Missed. The state missed its 2020 target to reduce the amount of organic material deposited into landfills by 50 percent below 2014 levels. Instead, the amount of organic waste going into landfills increased by a million tons from 2014 to 2020. Leaders at CalEPA said they were not surprised by this because until 2022, the regulations created to meet organic waste targets were not enforceable.

2025 Target in Doubt. California is unlikely to meet its 2025 goals. Even if state estimates of increased processing capacity are met, California is likely to be short of the necessary capacity by approximately 8 million tons a year. For reasons of both cost and time, the state is highly unlikely to add sufficient capacity by 2025.

Local Governments Still Catching Up. More than a hundred local jurisdictions have sought an extension of the deadline for complying with the state's requirements.

A TEMPORARY PAUSE

Given these problems, we believe the Legislature should enact a temporary pause to the implementation of SB 1383. Successfully achieving the goals will require changes in law and regulation, additional funding, and creating a more holistic approach to reducing landfill methane emissions. Local jurisdictions must be given a fair and realistic amount of time to make necessary changes. Just as importantly, Californians must support the legislation and its goals. None of this can happen overnight, and it is worth taking the time to get it right.

We recommend the following steps be achieved during the temporary pause:

- Educate Californians about the importance of the goals.
- Improve coordination among state agencies.
- Create a multidisciplinary team to expand market opportunities for recycled organic waste.
- Reconfigure the relationship between state agencies and local governments to better reflect shared responsibility for solid waste management.
- Exempt low-population, low-waste counties from procurement requirements.
- Separate edible food recovery from SB 1383 implementation.
- Invest in repairing and upgrading the super-emitter facilities that produce the majority of landfill methane emissions.
- Develop a realistic financing plan based on holistic cost-benefit analysis understood and supported by Californians.

Recommendation 1: The state should enact a temporary pause on SB 1383 implementation while the recommendations cited above – and discussed in more detail throughout this report – are implemented.

Recommendation 2: The state should fund an educational campaign that explains to Californians why the SB 1383 requirements are important.

Part II: Conflicting Priorities

In order to achieve methane emission reductions, California must do something with the organic waste that is diverted from landfills.

The language in SB 1383 clearly identifies renewable natural gas as an end-use for methane. However, other state actions make plain that the state prioritizes zero-emission energy. Governor Newsom issued an executive order in September 2020 declaring a state goal for sales of zero-emission vehicles. The state subsequently developed a rule to speed the process for government vehicles, although many local governments were planning on fueling their waste collection fleets with renewable natural gas. Doing so would have helped them to meet a separate state requirement that local government procure specified amounts of end-products derived from diverted organic material, such as renewable natural gas.

Local governments are also concerned about how they will meet procurement requirements if they choose other end-products, such as mulch.

Recommendation 3: CalEPA, CalRecycle, and CARB should coordinate to prevent conflicting directives and produce consistent and clear guidelines.

Recommendation 4: The Legislature and Governor should require a multidisciplinary team to develop recommendations on how to expand market opportunities for recycled organic waste.

Recommendation 5: The state should reconfigure the relationship between state agencies and local governments to better reflect statutorily-required shared responsibility for solid waste management.

Recommendation 6: The state should support near-zero emission vehicles until commercially viable zero emission vehicles are available in the waste sector.

Part III: Not Designed for Rural California

The legislation and regulations potentially disadvantage rural Californians. For example, the regulations require most jurisdictions to create curbside organics recycling programs, but many rural communities lack curbside trash pickup and paved roads that can accommodate heavy garbage trucks.

The state has created limited temporary waivers for some rural areas, but most of these waivers only exempt eligible communities from parts of the requirements, and only for a few years.

Recommendation 7: The state should permanently exempt counties that produce less than 200,000 tons per year of waste from SB 1383 requirements, including edible food recovery, except to provide options at self-haul facilities for residents to separate their organic waste from their trash.

Part IV: Missing Community-Centered Response

The state should carve out space for community organic waste recycling. This includes reclassifying those who pick up organic waste on a small scale

as something other than a hauler and designing regulations appropriate to the niche they fill.

Recommendation 8: The state should embrace a concept of keeping waste local, and allow communities to be innovative with organic waste solutions.

Part V: Missing Industry Expertise

Many industry experts discussed regulations and decisions that did not make sense from an operational perspective. In order to be compliant with regulations, for example, organic waste must be sent to facilities that can achieve a 75 percent organics recovery rate from a mixed waste stream. Industry officials say this is unrealistic in most facilities; the average recovery rate in 2020 was 42 percent, according to CalRecycle.

Recommendation 9: The state should position CalRecycle as an international expert and leader in solid waste management by facilitating exchange visits with other countries, externships inside and outside of government, and field-testing the regulations it proposes from these knowledge exchanges.

Part VI: Edible Food Recovery

SB 1383 requires the state to recover and redistribute at least 20 percent of edible food that otherwise would have been thrown away.

Organic waste comprises more than a third of the state's waste stream, and food comprises about 15 percent of municipal waste streams. However, slightly less than 4 percent of that food waste is potentially donatable: The rest is unfit for human consumption.

The Commission urges to the state to conduct a comprehensive analysis of the edible food recovery requirements.

Recommendation 10: The state should separate edible food recovery from SB 1383 implementation.

Part VII: Landfill Methane Emissions

A three-year survey of the state's point source methane emissions revealed that some facilities were leaking at levels six times previous estimates. However, the survey also revealed that a small number of facilities were responsible for nearly half of landfill methane emissions.

Recommendation 11: The state should help lower landfill methane emissions by fixing the small proportion of super-emitters that produce the majority of emissions.

- **The state should permanently fund satellites to monitor greenhouse gas emissions and integrate the findings from that data into its strategic planning for climate change adaptation.**

Part VIII: Insufficient Resources for Implementation

The legislation made CalRecycle responsible for oversight of this project, but did not supply the agency with adequate additional resources. Good governance requires sufficient staffing.

Recommendation 12: The state should conduct the holistic cost-benefit analyses discussed in this report, determine measurable outcomes, the costs to achieve those outcomes, and an outline of who will pay, and how, to meet those costs, and be transparent with Californians about what it is asking from them and what they will receive in return.

Introduction

In 2016, California's leaders enacted a once-in-two-generations reform to combat climate change. In passing SB 1383, the state set an ambitious and laudable goal to divert large amounts of organic material out of landfills, reduce dangerous greenhouse gas emissions and improve the state's air, water, and soil quality, as well as Californians' health. The change impacted every city and county, and required Californians to change habits so ingrained they had become muscle memory. Regulations subsequently adopted to implement the bill authorized fines of up to a $10,000 per day for local governments that did not comply.

California set specific goals with short deadlines. Using 2014 as a baseline, SB 1383 required the state to reduce the amount of organic material deposited into landfills by 50 percent by 2020, and by 75 percent by 2025.[1] The purpose was to reduce methane emissions to make near-term improvements to climate change. Methane is a short-lived super pollutant that is extraordinarily efficient at trapping heat, and thus at contributing to climate change. Landfills are the largest point source of methane emissions in California,[2] and meeting the state's 2025 goal would achieve the environmental equivalent of removing 3 million cars from our roads.[3]

California's ambitions far exceeded those of any other state in the United States, a fact of which the state should be proud. Sadly, California is falling short of its goals. Despite the importance of diverting organic waste, the state not only missed its 2020 target, but sent a million tons of organic waste above the 2014 baseline to landfills.[4] The Little Hoover Commission's review of the bill's implementation found that the state is poised to miss its 2025 target.

This report on organic waste disposal and its central role in responding to climate change is consistent with the state's ambitions, but seeks to focus attention on how changes in implementation can advance the ultimate goal. To date, California has made insufficient progress to make the 2025 goal realistic. Keeping an unrealistic target could undermine public confidence, increase noncompliance, and delay adoption of mid-course policy corrections that are routine in projects of this size.

The outcomes are too important and the costs of failure too high to let this effort fade into irrelevance. The state must reduce its landfill methane emissions, and it must do so in a way that is transparent, compatible with its larger climate strategy, and has the buy-in of the Californians it protects.

Part I: A Pause in Implementation

In 2016, the Legislature and Governor enacted SB 1383, which sought to divert most organic waste away from landfills and into greenhouse gas reducing activities. Using 2014 as a baseline, the legislation required Californians to divert 50 percent of organic waste away from landfills by 2020 and 75 percent by 2025. It also required the state to recover and redistribute at least 20 percent of edible food that otherwise would have been thrown away. This is the largest change to how Californians throw away their waste since the enactment of the state's recycling program in 1989.

The objective of the bill was to provide tools to combat climate change through a focus on pollutants that exist in the environment for a shorter period of time than carbon dioxide but still greatly contribute to a warming planet. Such pollutants also cause health impacts. Particulate pollution and increased ozone levels have been linked to cancer, heart disease and asthma. The impact is especially pronounced in disadvantaged communities.

The Legislature charged the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the California Air Resources Control Board (CARB), to create the implementing

What Can Be Done with Organic Waste?

Organic waste can be used to create many useful products, including fuel, electricity, compost, and mulch. California regulations currently allow the following four uses for diverted organic waste:

Anaerobic Digestion: In anaerobic digestion, microorganisms break down organic waste in an oxygen-free environment. This creates digestate, a solid material that can be composted, and biogas, which can be used to produce electricity, heat, and low-carbon transportation fuel, notably compressed renewable natural gas. Anaerobic digesters are expensive and require maintenance and monitoring to prevent leaks, and the facilities must compost or otherwise dispose of the digestate.

Biomass Electricity Production: California's biomass energy plants primarily process woody and agricultural waste, and could service similar materials diverted from landfills. In this method of electricity generation, the organic material is converted into steam, which is then transferred into electricity.[5] Some biomass electricity facilities also use the steam to create heat.

Two large hurdles currently hinder widespread adoption of this electricity production model. One is that California's biomass processing capacity is shrinking. The state could produce more than 800 megawatts (MW) of electricity from 66 facilities during biomass electricity's heyday in the early 1990s.[6] Largely due to the end of government price supports in 1996, the state's production output has fallen to approximately 600 to 650 MW annually from 25 facilities, or 2.9 percent of the state's electrical generation capacity.[7] The other hurdle is the state's turn toward zero-emission energy sources, discussed in further detail in the report.

Composting: California employs two methods for large-scale composting. About three-quarters of facilities use aerated windrow composting, in which organic waste is arranged into long rows and then aerated by mechanically turning the organic matter. Oxygen controls the temperature, kills pathogens, and speeds up the decomposition process. This type of composting requires large tracts of land, making it particularly expensive in California.

The other common method is aerated static pile composting, in which pipes pump oxygen into piles of organic matter. Organic matter can be piled into high vertical mounds instead of long horizontal rows, thus requiring less land than the other method. However, it requires more technology and careful monitoring than windrow composting, which raises costs. In both methods, naturally occurring microbes break down the organic waste into carbon dioxide, leachate, minerals, and stabilized organic matter, which we call compost.

Mulching: Mulch is material spread on the ground to protect or enrich soil. It can be made from many materials, including some that are inorganic. Commonly-used mulches are made from compost, forest waste, and landscape trimmings. Mulch is made by chipping and/or grinding this material into the desired size and density; some mulches are sterilized to prevent the spread of insects and disease.

regulations, specifying they could not to go into effect before 2022. It also tasked CalRecycle with assessing the progress the waste sector and state and local governments had made toward meeting the waste reduction requirements by 2020. If the department found insufficient progress, the legislation authorized it to include additional incentives and requirements in the regulations, as well as the ability to recommend revisions to the goals to the Legislature. Finally, it authorized local jurisdictions to charge fees to cover the costs of compliance.[8]

WHERE ARE WE NOW?

The state missed its 2020 target and will likely miss its 2025 target. At least 126 local jurisdictions have taken advantage of a legislative extension for meeting SB 1383 requirements.

2020 Target Missed. The state missed its 2020 target to reduce the amount of organic material deposited into landfills by 50 percent below 2014 levels. Instead, the amount of organic waste going into landfills increased by a million tons from 2014 to 2020.[9] California state environmental leaders explained that this was not unexpected: "Until this year, CalRecycle's regulations to meet organic waste targets were not enforceable," testified CalEPA Deputy Secretary Sheereen D'Souza in September 2022, "so it makes sense that the 2020 diversion rate required in 1383 was not met."[10]

2025 Target in Doubt. California is unlikely to meet its 2025 goals. To do so, the state would need to divert 27 million tons of organic matter per year away from landfills. The state believes 9 million of that is edible food that can be recovered for human or animal use, contains fibers that can be converted into paper products, or is suitable as feedstock for biomass energy plants. The other 18 million tons will need to be processed, per CalRecycle's regulations, at composting, anaerobic digestion, co-digestion, biomass electricity, and mulching facilities. As of 2020, the state anticipates that by 2025 it will only have the capacity to process 10 million tons of that waste.[11]

Building the additional infrastructure that would be needed to meet the goal is expensive. "The single largest factor impacting the cost of the proposed regulation is the projected amount of disposal that must be redirected to recovery activities," wrote CalRecycle during the rulemaking process.[12]

Setting aside the cost, there is little hope the infrastructure could be planned, permitted, and constructed by 2025. A $100 million anaerobic digester in Perris, California, for example, took six years to permit and construct.[13] Even if this funding and speed were replicated elsewhere, the facilities would not be online until well after the 2025 deadline. Additionally, the time and money necessary to construct roads and other infrastructure needed to comply with the legislation in rural areas were not factored into the regulatory timeline and cost estimate.[14]

Local Governments Still Catching Up. Regulations required most local governments to adopt ordinances implementing the legislation and have an organic waste curbside collection program in place by January 2022. Noncompliance can be punished by fines ranging from $500 to $10,000 per day, depending on the violation. There are steps CalRecycle must take to help the local government attain compliance before it levies fines.

It was unclear how many local jurisdictions were in compliance at the time of this report's publication, but it appeared that at least a quarter of local jurisdictions had either sought an extension of time from the state or for some other reason did not have an ordinance or organic waste curbside collection program in place.

Recognizing the difficulty facing local governments, the Legislature in 2021 pushed back state enforcement of regulations by up to three years

for local jurisdictions willing to file and adhere to an action plan known as an Intent to Comply.[15] When CalRecycle and CalEPA testified before the Commission in September 2022, officials said more than 120 jurisdictions had filed for this opportunity to extend the deadline to adopt ordinances, adjust contracts with their waste management service providers, and make programmatic changes necessary to implement the legislation.[16] As this report was finalized in the spring of 2023, Commission staff asked CalRecycle for updated information on local compliance rates. On May 12, 11 days before the Commission was scheduled to review the draft report, CalRecycle staff emailed Commission staff and said, "Unfortunately, we don't have specific numbers for you, as we are currently conducting compliance evaluations which includes determining if the jurisdictions' ordinances are compliant with SB 1383." In the wake of the meeting at which the Commission considered the draft report, CalRecycle did not respond to the Commission's request for any additional updated information on this issue. However, CalRecycle did provide information to some news organizations. According to that information, as provided to the Commission by the news organizations, 445 of 614 local jurisdictions "already have residential food waste collection," although it was not clear if that signified full compliance with the requirements of SB 1383. The remaining 169 jurisdictions – or 27 percent of the total – apparently did not have residential food waste collection. CalRecycle said that 126 jurisdictions – presumably a subset of the 169 – had used the formal extension process approved by the Legislature.[17]

A TEMPORARY PAUSE

The methane reduction goals of SB 1383 are of utmost importance to ensuring a livable state.

The Commission encountered a passionate community of devoted public servants, environmental champions, industry leaders who

Methane Reduction Matters

Carbon dioxide has long starred as the greenhouse gas receiving the most attention from California policymakers, and for good reason. Alone, it contributes approximately half of the greenhouse gases contributing to climate change and remains in the atmosphere for hundreds of years. We have to reduce carbon emissions in order for our children and grandchildren to have a livable planet. Unfortunately, reductions in carbon emissions will not effect immediate results in slowing and reversing climate change. For that, we must reduce short-lived climate pollutants, meaning gasses and particulate matter that live in the atmosphere for fewer than 20 years. Combined, these pollutants constitute the other half of greenhouse gas emissions contributing to climate change.

Even though methane remains in the atmosphere for only about 12 years, scientists consider it to be the worst contributor to climate change among short-lived pollutants. This is because methane is especially efficient at absorbing radiation (sunlight) and converting it to heat. In a 20-year timespan, one ton of methane will absorb and convert the same amount of energy as 75 tons of carbon dioxide. This highlights the importance of reducing methane to see short-term effects in climate change reversal. Finally, methane reacts with other pollutants in the atmosphere to create another climate pollutant, tropospheric ozone, which impairs the ability of plants to sequester carbon dioxide.

believe their role includes stewardship of the environment, and entrepreneurs willing to bet their livelihood on the idea that reducing methane emissions can be profitable and spur economic development. Despite differing perspectives, goals, and visions for the future, the Commission found the community largely to be engaging in good faith conversations and efforts to implement the legislation and reduce landfill methane emissions.

Californians must understand why they are making these changes and see how their actions impact the state's outcomes. None of this can happen overnight, and it is worth taking the time to get it right.

However, given the problems outlined above, we believe the Legislature should enact a temporary pause to the implementation of SB 1383.

Successfully implementing the bill will require changes in law and regulation, additional funding, and creating a more holistic approach to reducing landfill methane emissions. Local jurisdictions must be given a fair and realistic amount of time to make necessary changes. Just as importantly, Californians must buy in to the legislation and its goals. Public works agencies have been diligent about updating Californians about changes to what waste they can put into which bin, but Californians must understand why they are making these changes and see how their actions impact the state's outcomes. None of this can happen overnight, and it is worth taking the time to get it right.

The Commission believes it is particularly important that the state complete the following recommendations during the temporary pause:

- Educate Californians about the importance of the goals behind SB 1383 and how SB 1383 will create a path toward accomplishing those goals.
- Coordinate among its own agencies to prevent conflicting directives and create clear guidelines on meeting statutory and regulatory requirements, as well as to streamline permitting requirements to develop waste-processing infrastructure.
- Create a multidisciplinary team to expand market opportunities for recycled organic waste.
- Reconfigure the relationship between state agencies and local governments to better reflect statutorily-required shared responsibility for solid waste management.
- Exempt low-population, low-waste counties from procurement requirements.
- Separate edible food recovery from SB 1383 implementation to create an evidence-based initiative to prevent food waste and address hunger, while allowing infrastructure funding to be used for edible food recovery requirements until the law is revised.
- Invest in repairing and upgrading the super-emitter facilities that produce the majority of landfill methane emissions.
- Develop a realistic financing plan based on holistic cost-benefit analysis understood and supported by Californians.

Recommendation 1: The state should enact a temporary pause on SB 1383 implementation while the recommendations discussed above are implemented.

Recommendation 2: The state should fund an educational campaign that explains to Californians why the SB 1383 requirements are important.

Part II: Conflicting Priorities, Missing Perspectives Resulted in Confusing Regulations

The regulations implementing SB 1383 reflect a regulator caught in between administrative and legislative priorities, the exclusion of the input of the regulated, and the increasing need for a multidisciplinary, multi-departmental approach to rulemaking. At best, the regulations are confusing. At worst, they all but ensure noncompliance, deter investment, and contribute to mistrust in government.

The Commission's recommendations aim to navigate priorities among different branches of government, build multidisciplinary expertise into the rulemaking process, incorporate industry expertise without regulatory capture and recognize the different needs of different communities.

CONFLICTING POLICY PRIORITIES

In order to achieve methane emission reductions, California must do something with the organic waste that is diverted from landfills. The biggest policy clash in SB 1383 implementation is what to do with that waste: The bill's authors saw renewable natural gas as the logical end-use for organic waste, while the current administration does not.

Procurement Requirements

A market analysis found that there would not be enough demand for the anticipated organic deluge upon full implementation of SB 1383;[18] the state's solution was to create demand by requiring local governments to acquire specific amounts of end products from California-permitted facilities.[19] The amount each local government must obtain is determined by a population- and product-based formula, and local governments can choose any combination – so long as they meet their required amount – of compost, mulch, renewable gas, and electricity from biomass conversion.[20]

SB 1383 Promoted Renewable Natural Gas

The language in SB 1383 clearly identifies renewable natural gas as an end-use for methane. Renewable natural gas is pipeline-quality gas that is interchangeable with conventional natural gas.[21] The legislation directed the California Energy Commission to develop recommendations for the development and use of renewable gas as part of its 2017 Integrated Energy Policy Report.[22] The bill instructed state agencies to "significantly increase the sustainable production and use of renewable gas, including biomethane and biogas."[23]

The State Prioritizes Zero-Emission Energy

The implementing regulations duly created pathways for renewable natural gas to meet procurement targets. However, other state actions make plain that the state prioritizes zero-emission energy. Notably, Governor Newsom issued an executive order in September 2020 declaring a state goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035, with a 100 percent goal for medium- and heavy-duty vehicles by 2045.[24] "At present, zero-emission vehicle technologies are battery electric vehicles and hydrogen fuel cell electric vehicles," advises CARB on its webpage.[25]

To implement the executive order, the California Air Resources Board developed a rule to speed up the process for government vehicles: In most California counties, half of all new government trucks purchased by 2024 must be zero emission, and all new government truck purchases must be zero emission by 2027,[26] or follow a ZEV Milestones schedule that would require garbage trucks to be zero emission by 2039.[27] This matters because many local governments were planning on fueling their

International Goals

Other countries have adopted plans that are more ambitious than California's. South Korea, for example, banned landfilling organic waste in 2005. Households can purchase special biodegradable bags in which to put their waste then leave it outside for curbside pickup. In some places, households are assigned a barcode that is scanned when residents deposit their waste in local bins, and are charged based on how much they discard.[28] The country's food waste recycling rate increased from 2.6 percent in 1996 to just shy of 100 percent by 2022.[29] Similarly, Switzerland banned sending any type of waste to landfills in 2000. To manage their food and yard waste, residents can compost on their own property or drop it off at local collection centers. About half of the approximately 1.7 million tons of organic waste collected annually is recycled into other products.[30] By 2030, all European Union member states must ban the landfilling of waste that can be recycled.[31]

waste collection fleet with renewable natural gas to meet their procurement targets. This is especially relevant as zero-emission technology has yet to reach the point where it can cost-effectively power heavy trucks with routes that in some areas can encompass 180 miles per day, witnesses testified.

"It's a Lot of Mulch"

In addition to wondering how they will fuel their heavy fleets, local governments have concerns about how they will meet their procurement requirements. In its February 2018 report on forest management, the Little Hoover Commission outlined the challenges in expanding bioenergy facilities: The energy industry is decentralizing with the expansion of Community Choice Aggregation and communities largely do not choose bioenergy; it's expensive; it's not zero emission; and energy companies neither need it nor want it.[32]

Testifying on behalf of the Rural Counties Environmental Services Joint Powers Authority, Staci Heaton reiterated the political and financial challenges facing biomass-to-energy facilities, then discussed the practicalities of trying to meet the procurement requirements with mulch:

> *For example, Nevada County has a population of 101,242 and is required annually to procure 5,000 tons of recovered organic waste products, or around 20,000 cubic yards. If you're a football fan, you can think of that in terms of covering an entire football field with mulch up to the crossbars of the goalposts, which are 10 feet from the ground. In other words, it's a lot of mulch! It's especially a lot of mulch if you need to find people to take it off your hands and put it to use in a county where 30% of the acreage is national forest land.*[33]

Hydrogen: An Impractical Solution for 2025

Methane can be converted to hydrogen with zero carbon dioxide emissions if the right process is used and carbon dioxide is captured and stored underground. This is called "blue hydrogen." The hydrogen then can be used in fuel cells or to store energy.

However, this technology will not be deployed at scale in time to play a substantial role in meeting the SB 1383 target for 2025. According to the California Energy Commission (CEC), California has 63 light-duty and six heavy-duty retail hydrogen refueling stations operating in California, the vast majority in Los Angeles County. Another 30 light-duty and four heavy-duty refueling stations are currently planned or in construction.[34] To put these numbers into perspective, in 2021 the California

Energy Commission estimated there were more than 10,000 retail fuel stations in the state.[35] Even under ambitious expansion plans, the state's hydrogen fuel network would remain a small sliver of the total. For example, the state's Clean Transportation Program, in partnership with the private sector and funding from the Volkswagen Mitigation Trust Fund, is planning a network of 200 hydrogen refueling stations with the capacity to serve nearly 274,000 vehicles by 2027.[36] The California Department of Motor Vehicles reports there are more than 32 million cars and trucks registered in the state.[37]

The state is in the process of evaluating ways to scale up production of low-carbon hydrogen. In February, 2023, for example, the California Energy Commission produced a draft report which includes an analysis of the role of hydrogen in California's clean energy future. That report cited a future energy scenario developed by the California Air Resources Board "in which low-carbon hydrogen will help decarbonize the transportation and industrial sectors," but notes that under that scenario, "the supply of low-carbon hydrogen would need to increase by 1,700-fold." The Energy Commission report goes on to identify barriers to the widespread adoption of low-carbon hydrogen, including:

- Higher production costs than for fossil fuel-derived hydrogen.
- The need to scale up infrastructure and storage capacity.
- No state framework for blending low-carbon hydrogen into existing gas pipelines.
- The potential for fugitive hydrogen emissions.[38]

The last point is particularly salient considering the purpose of SB 1383 was to combat climate change. Hydrogen is the smallest known molecule, making it easy to escape faulty containment methods. Once in the atmosphere, it extends the life of other greenhouse gases, including methane, by reacting with radicals that otherwise would neutralize greenhouse gases. Over a 10-year period, hydrogen has a global warming effect about 100 times stronger than carbon dioxide.[39]

Work on future use of hydrogen in California should and will continue. In 2022, the Legislature passed a bill requiring that by June 2024 the California Air Resources Board evaluate "the development, deployment, and use of hydrogen." But while low-carbon hydrogen has promising implications for the future, it would be unrealistic and unreasonable to expect even the state government to meet the procurement requirements with hydrogen by 2025 given the factors noted above. Presenting it as a feasible alternative for local governments to have in place by 2025 is setting them up to fail.

Moving the Goalposts

The conflicting directives are seen as moving the goalposts by local governments, testified Ms. Heaton. It makes it difficult, if not impossible, for local governments to determine how to meet their procurement requirements. The state's changing its priorities also prevents investment from both government and private sector investors. Writing about co-digestion at wastewater treatment plants (WWTP), one market analyst concluded:

> …WWTPs cannot typically justify high-risk ventures that come at significant cost to their ratepayers. They are often unable to take on risk associated with a new technology or burdensome requirements for contract lengths, energy production guarantees, or similar contract terms. Furthermore, many communities cannot or will not agree to rate increases for upgrades perceived as unrelated to a WWTP's core business.[40]

The goalposts may not be done moving. There is a type of hydrogen called green hydrogen, in which electricity derived from clean renewable energy is used to split water molecules into hydrogen and

International Innovations in Organic Waste Products

AUSTRIA: FROM WOODY WASTE TO ELECTRICAL CIRCUITS

Austrian researchers have discovered that the skin, called mycelium, from a type of mushroom grown on woody waste can replace the substrate in electrical chips. Substrate, usually made from plastic, insulates and cools the conductive metal in the circuit. While long-lasting when kept dry, the mycelium decomposes in two weeks when composted. Researchers are developing uses for the mycelium in wearable health monitors and electronic near-field communication tags.

There are qualities to the mycelium that provide advantages to other biodegradable materials, the researchers told CNN, "but most importantly, it can simply be grown from waste wood and does not need energy or cost intensive processing."[41]

THE NETHERLANDS: USING AI TO PREVENT COMMERCIAL FOOD WASTE

Dutch entrepreneurs are harnessing artificial intelligence to prevent food waste in commercial settings. One company has unveiled scanning technology that growers, distributors, and retailers can use to determine the shelf life of produce down to an accuracy, it says, of one day, even for the notoriously tricky avocado. Another company has developed a camera designed to scan trash cans in kitchen restaurants to analyze what is being thrown away, when, and at what stage in the preparation/cleanup process the waste occurs. Consequently, kitchens are able to adjust their processes and menus to minimize food waste.[42]

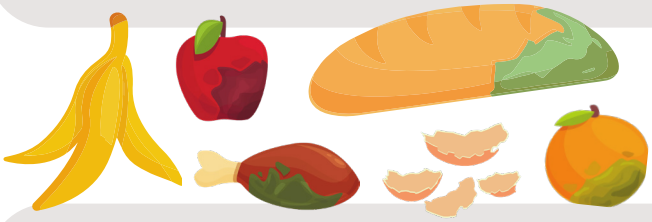
GERMANY: OVERCOMING CONSUMER FEARS OF EXPIRED FOOD

A small grocery chain in Germany prevents 2,000 tons of food waste per year by selling expired and close-to-expired food at up to 80 percent off. It works with 700 farmers, logistics companies, and sellers to obtain its stock, and shares overstock with charities. Going beyond companies that focus on selling "ugly" (misshapen, discolored, or bruised) produce, the chain offers a wide variety of perishable products that might give others pause, such as yogurt. Supported by a German law that allows the sale of expired food as long as it's labeled as such, the grocery store tests taste, smell, consistency, and packaging before putting products on its shelves – and calls in a laboratory if there is any doubt. Beginning operations in 2017, the company initially was funded through crowd-sourcing and a loan from a bank cooperative focused on sustainability. By 2018, the company had made a €1.2 million profit –and tripled it the next year, showing it can be a profitable business model.[43]

SPAIN: FISH SKINS TO FASHION

Spanish salmon smokeries discard more than 300,000 tons of salmon skin annually. Industry leaders realized that salmon skin could be turned into leather goods much like reptile skin, but did not know how to bring their idea to market.

The European Union solved this problem through funding designed to help small companies that lack the capacity for this type of research and development. The smokeries partnered with research centers, tanneries, and leatherwear producers in Spain, France, Italy, and Greece, ultimately creating salmon leather shoes and accessories that were well-received by the fashion industry. In developing environmentally-friendlier ways of processing the leather, ultimately the partnership reduced water consumption by 60 percent, processing time from 14 days to five, and the use of amines and sulfur-containing compounds to about a quarter of traditional leather processing techniques.[44]



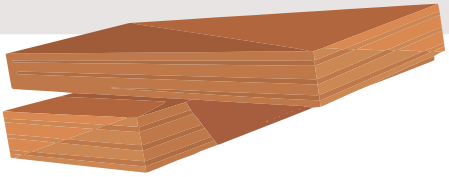
JAPAN: FROM FOOD SCRAPS TO CEMENT

Cement is responsible for 8 percent of the world's human-caused carbon emissions; a Tokyo-based company is working to change that by replacing the limestone in cement with dried, compressed, and molded food scraps.

Roughly half of the carbon emissions during typical cement production comes from limestone calcination, meaning the limestone is broken down into calcium oxide and carbon dioxide. Another 40 percent comes from using fossil fuels to heat the limestone and other materials. Replacing the limestone and using clean renewable energy to create the cement not only can reduce deadly greenhouse gas emissions, but allows the finished product to be edible. While currently creating household goods and panels for emergency shelters, the company's ultimate goal is to produce completed and furnished emergency shelters that could be used as a food source in a disaster.[45]

NORWAY: USING AGRICULTURAL WASTE TO MIMIC HARDWOOD PROPERTIES

A Norwegian company, in conjunction with universities and research institutions, developed a wood treatment that both adds value to agricultural waste and prevents tropical deforestation. It uses agricultural byproducts to create furfuryl alcohol, which it then uses with heat to impregnate sustainably-sourced fast-growing softwoods, such as maple and Nordic pine. The resulting alterations to the wood's cellular structure give the treated wood characteristics typically found in tropical hardwoods, protecting it from decay, moisture, and insects. This allows it to replace wood such as teak and mahogany for applications that require a particularly hard material.[46]



oxygen: no methane required, no carbon dioxide to capture and store. The oxygen is able to be vented into the atmosphere. The bill discussed earlier that requires the state to evaluate the use of hydrogen, SB 1075, is about green hydrogen. Given Californians' preference for clean energy, it is not difficult to imagine the future of the state's hydrogen development centering on green hydrogen, raising the question of what will happen to investments in blue hydrogen.

The Commission does not mean to discourage the development of hydrogen fuel cells and other clean technologies. The Commission does not see it as a viable option, however, for local governments to meet their procurement requirements by 2025.

Recommendation 3: CalEPA, CalRecycle, and CARB should coordinate to prevent conflicting directives on waste processing, and produce consistent and clear guidelines on how to meet statutory and regulatory requirements. Additionally, they should work together and with other state agencies to streamline permitting requirements to construct necessary infrastructure.

Recommendation 4: The Legislature and Governor should require a multidisciplinary team to develop recommendations on how to expand market opportunities for recycled organic waste, and then work to implement those recommendations.

Recommendation 5: The state should reconfigure the relationship between state agencies and local governments to better reflect statutorily-required shared responsibility for solid waste management.

- **The state should expand the list of compliance pathways and products eligible to count toward a jurisdiction's procurement requirements.**
- **The state should allow procurement of California-derived materials processed out of state.**
- **The state should allow woody waste chipped onsite to count toward procurement targets.**
- **Agencies inside and outside of CalEPA should work together to ensure that conflicting needs are addressed.**

In short: The state should build in as much flexibility as possible for local governments to recycle their organic waste, and let communities choose the best options for them.

Recommendation 6: The state should support near-zero emission vehicles until commercially viable zero emission vehicles are available in the waste sector.

Part III: SB 1383 Was Not Designed for Rural California

The legislation and regulations potentially disadvantage rural Californians. The 26 counties represented by the Rural Counties Environmental Services Joint Powers Authority contribute only 5 percent of the state's organic waste stream,[47] raising the question of whether the environmental and financial costs of complying with SB 1383 outweigh the benefits.

The regulations require most jurisdictions to create curbside organics recycling programs, but many rural communities lack curbside trash pickup (or curbs) and paved roads that can accommodate heavy garbage trucks. Instead, residents self-haul their refuse to local transfer stations. Few organics recycling facilities exist near rural communities, and the closest ones may lie outside of state borders, and therefore are unlikely to be licensed under a California permit as regulations require. Many rural jurisdictions are located in rugged terrain that lowers fuel efficiency and for which electric batteries

cannot yet accommodate, and experience extreme temperatures and weather events that can close roads seasonally. Many rural communities also contend with permanent wildlife populations; in these areas, leaving food waste curbside can lead to catastrophic consequences for both humans and wildlife.

The state has created limited temporary waivers for counties with less than 70,000 people; unincorporated census tracts with a population density of less than 50 people per square mile; jurisdictions with fewer than 7,500 people and that disposed of less than 5,000 tons of solid waste in 2014; and census tracts above 4,500. Most of these waivers only exempt eligible communities from parts of the requirements, and only for a few years.[48]

The timeline required by SB 1383 and the estimated costs of implementation did not account for planning, permitting, and constructing new roads or paving existing roads to accommodate collection vehicles across the Sierra Nevada or Mojave Desert. Compliance means so much more for rural Californians than simply adding organic waste pickup to already-existing trash and recycling pickup.

Recommendation 7: The state should permanently exempt counties that produce less than 200,000 tons per year of waste from SB 1383 requirements, including edible food recovery, except to provide options at self-haul facilities for residents to separate their organic waste from their trash.

Part IV: Missing Community-Centered Response

California communities have other needs that can be better accommodated by a community-centered response to organic waste. One such solution is community composting. Community composting keeps the value-added product, compost, in the community where the waste originated, benefiting residents who garden. This solution could also employ members of the community and provide teaching opportunities to local schoolchildren to instill environmentally-friendly habits.

There are myriad benefits to keeping organic waste hyperlocal. There are the obvious environmental benefits: a reduction in the amount of waste that must be transported long distances by heavy, low-mileage vehicles. The Commission learned about community composting efforts accessible by foot or bicycle, the cleanest method of waste collection.

This helps equalize the burden of solid waste; landfills and waste processing facilities – even the ones transforming organic waste into useful products – historically have been located such that waste typically flows from wealthier communities to lower-income communities. The state should do all it can to create a waste management system where, for example, Malibu's waste stays in Malibu.

There are few reasons for state and local governments *not* to encourage these community efforts. However, entrepreneurs who try to create a business model from it report legal obstacles because waste technically belongs to the hauler who has the contract for the region – and one-person operations cannot, nor desire to, compete with multinational companies in bidding for contracts. Residents who choose to pay for the hyperlocal approach still have to pay for their jurisdiction's mandatory organic waste pickup. Even volunteers working to establish drop-off locations in community locations report reticence to use public land for this purpose.[49]

The Commission recommends carving out space for community organic waste recycling. This means reclassifying those who pick up organic waste on a small scale as something other than a hauler and designing regulations appropriate to the niche they fill. The state should consider a tax credit or some

The Potential of Satellite Monitoring

California is partnering with scientific, academic, and charitable institutions to deploy satellites to find and measure methane and carbon dioxide emissions and leaks, as well as 25 other environmental indicators.[50]

Carbon Mapper, a nonprofit devoted to accelerating reductions in methane and carbon dioxide emissions, will launch two satellites in 2023, with a full constellation of satellites expected to be in place by the end of 2025.[51] The goal is to be able to pinpoint methane and carbon dioxide emissions at the facility level in order to rapidly address leaks and better understand the sources and scale of these emissions.[52] Additionally, this data should yield useful information to help policymakers make greenhouse gas reduction and climate change decisions, as well as influence new technology and strategies to combat emissions.[53] The data from this monitoring program will be made publicly available at no cost.

This initiative is California's first foray into using "homegrown satellites," as described by Governor Newsom,[54] to combat climate change. The state joins a growing international effort to use satellites to monitor and reverse climate change. Methane, carbon dioxide, and the other 25 environmental indicators represent only a small fraction of information this technology can provide. Other countries are using satellite monitoring to reduce fuel emissions from vehicles, ships, and trains by optimizing when and how trips are made.[55] They're tracking changes in forest and wildland ecosystems, ice and permafrost, and soil health.[56] They are incorporating satellites into early-warning systems for extreme events and improved forecasting models.[57] The possibilities for California to improve its natural resource and environmental health via satellite monitoring are promising.

Even with the latest technology and the brightest minds to analyze the data, there still is one catch to satellite monitoring, scientists say: It's useless without leaders willing to act on the information collected. The full promise of satellite monitoring depends on Californians' willingness to adapt to the lessons we learn from the data.

other financial incentive to ease the burden for those who pay a community provider to collect their organic waste. The state should create opportunities for community composting in state parks where practical, as well as incentives for local governments to allow public land to be used for the same purpose. Nonprofit organizations running community composting operations exist on a shoestring budget, so the state should take steps to ensure grant funding they receive is distributed in as short a timeframe as possible.

Recommendation 8: The state should embrace a concept of keeping waste local, and allow communities to be innovative with organic waste solutions.

- **The state should reclassify community composters and develop regulations targeted to their end product.**
- **The state should legally protect community compost operations by encouraging jurisdictions to develop contracts or carve-**

outs in franchise agreements for community composting.

- **The state should provide a tax credit or other incentive to households that use community composters while also being subscribed to their jurisdiction's collection service.**
- **The state should expand regulatory permissions to allow community composting in parks.**
- **The state should expand funding opportunities to community-based composters and shorten the post-award processing time.**

Part V: Missing Industry Expertise

Many industry experts discussed regulations and decisions that did not make sense from an operational perspective or did not meet best practices. Sampling regulations, for example, are expensive and, as written, will not obtain a representative sample of the waste, study participants told the Commission.[58] The definitions for compost feedstock, the Commission heard, create poor quality and unsaleable compost. One example: Carpet technically is defined as compostable, but it has been decades since organic carpet was in widespread use, and composting facilities do not want the synthetic product that most people have.[59]

Industry insiders said the in-state processing requirements and lack of geographic consideration hurt them, as rural waivers mostly apply to collection and not the processing requirements. Hauling organic waste to the nearest composting site, operators told the Commission, can require a lengthy journey over rugged terrain in low mileage trucks.[60]

In order to be compliant with regulations, organic waste must be sent to facilities that can achieve a 75 percent organics recovery rate from a mixed waste stream. Industry officials say this is unrealistic in most facilities; the average recovery rate in 2020 was 42 percent, according to CalRecycle.[61] Further, study participants said, this requirement deters investment because if, for example, a facility only achieves a 70 percent recovery rate, jurisdictions won't be allowed to send organic waste to them, and that's a risk many investors do not want to take.[62]

In short, study participants argued, a lack of familiarity with the operations of the facilities processing California's waste resulted in some regulations that aren't workable and can even be at cross-purposes with the state's goals.

California previously has proven that it can lead the world on environmental concerns, and the Commission sees the potential for CalRecycle to become an international leader in solid waste management. It needs to build into its organizational culture at all levels familiarity with the industry, within California and the United States as a well as abroad. The Commission is sensitive to the need to prevent agency capture, so it is recommending short-term interactions such as externships. Companies have indicated to the Commission that they would be happy to participate in such endeavors.

Naturally, the new ideas encountered and shared during these information exchanges would result in new regulations. To ensure feasibility, the proposed regulations should be field-tested in advance to the extent possible.

Recommendation 9: The state should position CalRecycle as an international expert and leader in solid waste management by facilitating exchange visits with other countries, externships inside and outside of government, and field-testing the regulations it proposes from these knowledge exchanges.

Part VI: Edible Food Recovery

On their face, the edible food recovery requirements sound like a great idea: Reduce landfill methane emissions and feed the hungry. However, while much is made of the fact that organic waste comprises more than a third – 35 percent – of the state's waste stream, food comprises about 15 percent of municipal waste streams. And, according to the state's own studies, slightly less than 4 percent of that food waste is potentially donatable: The rest is unfit for human consumption.[63]

Typically, the food bank model is not to collect leftover food from local businesses. Food banks work with growers and manufacturers to obtain large amounts of food either as a donation or at wholesale prices. The food banks then deal with the logistics of transportation, warehousing, and distribution to individual food pantries, which distribute food to community members.[64] A significant percentage of these community members are children; children comprise nearly half of food insecure people in California.[65] So in addition to ensuring the right food is available where and when it is needed, food banks are concerned with food safety and a nutritious diet for the most vulnerable Californians. Day old-croissants from a chain restaurant don't fit that bill, yet food banks are expected to expand their operations and the way they do business to help local governments follow the law. Again, the Commission wonders if this is the most effective use of taxpayer dollars, and there is no cost-benefit analysis to provide answers.

To answer this and other complex questions, the Commission recommends the state create an interagency or independent environmental analysis unit that can provide policymakers with vital information across multiple sectors of the state's environment and economy to inform decision-making. If woody waste burned in bioenergy facilities is prohibited from counting toward procurement requirements, for example, what are the consequences to the state's forest health initiatives if local governments quite reasonably switch to activities that do count toward their organics procurement requirements?

Slightly less than 4 percent of that food waste is potentially donatable: The rest is unfit for human consumption.

The annual greenhouse gas emissions anticipated to be saved when SB 1383 is fully implemented may be equivalent to removing 3 million cars from the road, but California's wildfire emissions in 2020 alone were equivalent to adding more than 24 million cars on the road for a year.[66] Should that information impact how California incentivizes what type of organic waste is burned in bioenergy facilities? The Commission believes good policymaking depends on it.

The Commission urges to the state to conduct a comprehensive analysis of the edible food recovery requirements. If so, is the state's model the most effective way to redistribute food?

Recommendation 10: The state should separate edible food recovery from SB 1383 implementation. It should conduct studies to better understand from where the edible waste is being initiated. Once that factor is understood, it should create incentives for bottom-up solutions to prevent food waste and distribute unused food to the hungry in ways that meet communities' needs instead of imposing top-down solutions. Until that happens, the state should consider infrastructure to meet current edible food recovery requirements as eligible for SB 1383 infrastructure funding.

Part VII: Landfill Methane Emissions

Aside from setting a goal of reducing methane emissions by 40 percent below 2013 levels as part of a suite of other goals to reduce short-lived climate pollutants, and the 20 percent edible food recovery requirement, SB 1383 did not identify measurable outcomes or the role it expected landfill diversion and livestock operations to play in achieving those goals.

The assumptions underlying SB 1383 appear to be that decomposing organics create methane; landfills are a leading contributor to the state's methane inventory; therefore, diverting organics out of landfills will reduce the state's methane emissions.

It's not that simple, however, and digging into landfill data reveals nuance that needs to be addressed.

First, it is true that landfills are by far the largest point source of methane emissions in California.[67] A point source refers to a non-moving origin of emissions, whereas a mobile source refers to a moving origin, such as a vehicle or gas-powered leaf blower. Clusters of point sources with emissions too small to measure individually, such as gas stations, but that combined create a measurable effect are referred to as nonpoint or area sources.

In fact, a three-year survey of the state's point source methane emissions conducted by NASA's Jet Propulsion Laboratory (JPL), CARB, and the California Energy Commission revealed that the U.S. Environmental Protection Agency's methodology that previously had been in use to estimate methane emissions had underestimated those from the solid waste industry. Some facilities were leaking at levels six times the estimates afforded by the federal government's measure.[68]

However, the survey also revealed that a small number of facilities were responsible for nearly half of landfill methane emissions. The researchers surveyed 436 landfills and composting facilities, and found persistent methane plumes from 32 of them: 30 landfills and two composting facilities.[74] These super-emitters, as they're colloquially called, were responsible for 41 percent of landfill emissions.[75] Alone, they were responsible for 20 percent of CARB's total 2016 methane inventory.[76]

A $40 Billion Price Tag

The estimated cost to implement SB 1383 steadily increased from the bill's inception to implementation. A legislative analysis drafted in April 2016 stated its fiscal impact was "Unknown, but potentially millions of dollars."[69] By August 2016, the fiscal impact had increased, with the analysis stating "unknown cost pressures, potentially in the tens of millions of dollars or more."[70]

The state's 2018 Standardized Regulatory Impact Assessment (SRIA) summary estimated the costs of implementing the bill to be approximately $20 billion, largely due to " the required expansion of solid waste infrastructure necessary to collect, process, and recycle 20 million tons of material that are currently landfilled."[71]

By 2019, the gross cost of implementation under the state's chosen implementation scenario was determined to be $40 billion between 2019 and 2030.[72] About 5 percent of this figure represents soft costs: the work local jurisdictions must do to create organic waste programs, educate the public, and ensure health, safety, and quality control measures are met. The other 95 percent represents the cost of disposing of organic waste, including constructing infrastructure.[73]

The Commission would like to see the data indicating that the best environmental benefits the state can achieve with $40 billion come from rural Nevada County having an organic waste collection program instead of, for example, fixing the super-emitters. Addressing those 32 facilities creating 20 percent of the state's methane inventory would help the state make significant progress toward its goal of a 40 percent methane reduction.

The Commission also notes that two of the super-emitters were composting facilities. Without understanding and addressing the causes of the methane leaks at the composting facilities, how can the state be sure that diverting even more organic waste to composting facilities will decrease methane emissions?

Recommendation 11: The state should help lower landfill methane emissions by fixing the small proportion of super-emitters that produce the majority of emissions.

- **The state should permanently fund satellites to monitor greenhouse gas emissions and integrate the findings from that data into its strategic planning for climate change adaptation.**

Part VIII: The Legislation Did Not Include Sufficient Resources for Implementation

The Legislature's analysis of SB 1383 estimated the fiscal effect to be "potentially in the tens of millions of dollars or more" due to unknown cost pressures for programs to implement the strategies.[77]

As discussed in the background of this report, the estimated price tag over an 11-year period is $40 billion. CalRecycle testified that the Legislature had provided $193 million in funds for organic recovery and recycling as part of larger circular economy funding, plus an additional $180 million in the 2022-23 budget.[78] Additionally, CalRecycle testified, the Legislature provided $60 million in local assistance grants.[79]

These are not insignificant sums, but they fall far short of $40 billion, leaving the burden of the remainder on ratepayers. Yes, the state hopes to attract private investment to cover some of the $40 billion, but investors will recoup their investment by charging for the services they provide, putting ratepayers on the hook again.

REGULATIONS EXCLUDE SOME EXISTING INFRASTRUCTURE

Given the hefty price tag attached to implementing the legislation, government officials expressed surprise that the regulations *de facto* excluded some existing infrastructure from counting toward procurement targets: wastewater co-digestion plants that already are converting methane into renewable natural gas.

The Los Angeles County Sanitation Districts testified that they have the infrastructure, expertise, and desire to process organic waste through their wastewater facilities, though they would need to scale up to meet the anticipated supply of organic waste. However, they cannot source their feedstock from facilities that meet the 75 percent organic waste requirement discussed earlier in the report, which means the renewable natural gas they produce doesn't "count." This effectively removes their infrastructure from the available pool to process organic waste – a problem when the state already lacks the capacity to process 45 percent of the organic waste it has mandated to be diverted.[80]

PROCUREMENT REQUIREMENTS REPRESENT UNFUNDED MANDATE

Many stakeholders questioned whether the procurement requirements were an unfunded mandate. The state claims it is not, because local governments theoretically can obtain these products

without buying them from an outside organization. CalRecycle's website advises:

> *Procurement does not necessarily mean that products must be purchased. Jurisdictions that own an organics recovery facility can procure end products for city and county use without a financial transaction. A jurisdiction may also acquire products in another way, such as free delivery or distribution of products from a hauler, and subsequently use or donate those products to meet its procurement target.*[81]

This is a somewhat disingenuous read of the procurement requirements. Local governments with the ability to produce these products themselves will have to scale up to process an increased supply of organic waste. This will require investment in land, facilities, machinery, and labor, and it is difficult to see how local governments could secure these additional resources, presumably adhering to wage and hour laws and health and safety codes, without financial transactions. As for local governments without the capacity to produce these products: The Commission heard from many industry officials during its study process, but did not encounter any with a business model based on helping local governments meet their procurement targets for free.

Other Financial Concerns

There are other financial concerns with regard to the implementation of SB 1383. Currently, food banks are ineligible for infrastructure funding despite their need to expand operations.

The legislation made CalRecycle responsible for oversight of $40 billion' worth of facilities and operations, plus significant enforcement and outreach activities, all without supplying the department with adequate additional resources.[82] Good governance requires sufficient staffing.

Finally, providing financial assistance via competitive grants hurts those who need the assistance the most: the smaller and less-resourced local governments who cannot afford grant writers.

There is too much at stake for the state to not have a solid financial plan to implement SB 1383. It should use the pause the Commission recommends in Recommendation 1 to develop a financial plan to implement the legislation and clearly communicate what that plan will cost, who will pay it, and what Californians will receive in return.

Recommendation 12: The state should conduct the holistic cost-benefit analyses discussed in this report, determine measurable outcomes, the costs to achieve those outcomes, and an outline of who will pay, and how, to meet those costs, and be transparent with Californians about what it is asking from them and what they will receive in return.

- **The Office of the Governor should ensure that the state's financial experts across state government weigh in on the realistic costs of the strategy's implementation.**
- **The state must give its agencies the necessary resources, including administrative resources, to successfully implement the changes the law requires.**
- **The state should not rely on competitive grants to meet basic requirements. Competitive grants redirect resources away from implementation and into competing. Additionally, they disadvantages less-resourced jurisdictions, which are the very ones that most need financial assistance.**
- **If private sector investment is part of the financial plan, then:**
    - **Be clear with Californians about what kind of returns these investors will expect, and**

who will pay for them, e.g. ratepayers, and what burden that will put on them.

- **Investors need stability and to know the rules won't change mid-stream, so the state must commit to using the facilities in which they invest.**
- **The state must create regulations that attract private investment and allow for reasonable profit. If there are benefits the state wants to achieve that cannot be achieved with market incentives, then don't plan on private investment in those areas.**

Appendix A: Letter from José Atilio Hernández, Commission Member

As one of the most recent appointees to the Commission, I first commend my fellow Commissioners and staff for working diligently to address the implementation of SB 1383 and the overall goal of diverting organic waste in order to reduce methane emissions, as well as other landfill issues. This report is inclusive and addresses many of the issues moving forward and is consistent with the Commission's mission to ensure government is more efficient and effective. Most importantly, the report clearly highlights the goals set by the Legislature that will not be met by 2025.

While I support most of the recommendations in the report, I respectfully dissent with regard to Recommendations 1, 7, and 12 for the following reasons.

Recommendation 1. Cities and counties are working towards the landfill diversion goals. In some cases, they have sought to take advantage of extensions or temporary exemptions provided by the state, but I believe local jurisdictions remain committed to the goals. In the policy world, it is difficult in my view to pause the implementation of a program and then begin again. A policy this comprehensive needs multiple approaches to implementation, and local jurisdictions should continue to work on those approaches. Moreover, the state should consider augmenting specific technical training and assistance. The state may also wish to address the looming fees and penalties in a way that provides assistance to local jurisdictions without pausing implementation.

The State should be especially concerned about the effect a pause will have on emerging industries. Existing capacity does not equate to future investment and opportunity. For the past 25 years California has evolved its investment and support of converting Biomass into electricity, fuel, hydrogen or other forms of energy. SB 1383 has fast tracked investment and technology in this industry. A pause in implementation may send a counter-productive message to investors and companies.

Recommendation 7. In my view, policy should not be made by exemption. Smaller cities and counties should use best practices or develop their own strategies to meet the diversion goals. If they are still not able to meet the requirements of SB 1383, even with technical assistance from the state, they should explore ways to collaborate with other jurisdictions.

Recommendation 12. The Commission's goal is to make government more efficient and effective, and I am concerned that this recommendation may create duplication of effort. It seems that several cities and counties have already developed cost estimates with regard to this program, including administrative costs. The State may want to borrow from the education policy world and create communities of learning whereby different jurisdictions can partner and learn how to best meet diversion goals.

I thank the Commission for its time and effort on this critical issue, and look forward to implementing most of the recommendations in this report, which will help California achieve its goal of lowering landfill emissions.

-- José Atilio Hernández

Notes

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Little Hoover Commission Members

CHAIRMAN PEDRO NAVA | Santa Barbara
Appointed to the Commission by Speaker of the Assembly John Pérez in April 2013 and reappointed by Speaker of the Assembly Anthony Rendon in 2017 and again in 2021. Government relations advisor. Former State Assemblymember from 2004 to 2010, civil litigator, deputy district attorney and member of the state Coastal Commission. Elected chair of the Commission in March 2014.

VICE CHAIRMAN SEAN VARNER | Riverside
Appointed to the Commission by Governor Edmund G. Brown Jr. in April 2016 and reappointed in January 2018. Managing partner at Varner & Brandt LLP where he practices as a transactional attorney focusing on mergers and acquisitions, finance, real estate, and general counsel work. Elected vice chair of the Commission in March 2017.

DION ARONER | Berkeley
Appointed to the Commission by the Senate Rules Committee in April 2019. Partner for Aroner, Jewel, and Ellis. Former State Assemblymember from 1996 to 2002, chief of staff for Assemblymember Tom Bates, social worker for Alameda County, and the first female president of Service Employees International Union 535.

DAVID BEIER | San Francisco
Appointed to the Commission by Governor Edmund G. Brown Jr. in June 2014 and reappointed in January 2018. Managing director of Bay City Capital. Former senior officer of Genentech and Amgen, and counsel to the U.S. House of Representatives Committee on the Judiciary.

ANTHONY CANNELLA | Ceres
Appointed to the Commission by the Senate Rules Committee in March 2022. Civil engineer and principal with Northstar Engineering Group. Former State Senator from 2010 to 2018. Previously served on the Ceres City Council and was twice elected mayor of that city.

ASM. PHILLIP CHEN | Yorba Linda
Appointed to the Commission by Speaker of the Assembly Anthony Rendon in October 2021. Elected in November 2016 to represent 55th District. Represents portions of Los Angeles, Orange and San Bernardino counties and the cities of Brea, Chino Hills, Diamond Bar, La Habra, Industry, Placentia, Rowland Heights, Walnut, West Covina and Yorba Linda.

BILL EMMERSON | Redlands
Appointed to the Commission by Governor Edmund G. Brown Jr. in December 2018. Former senior vice president of state relations and advocacy at the California Hospital Association, State Senator from 2010 to 2013, State Assemblymember from 2004 to 2010, and orthodontist.

GIL GARCETTI | Los Angeles
Appointed to the Commission by Governor Gavin Newsom in November 2021. Professional photographer and author of ten books. Former Los Angeles County District Attorney, teaching Fellow at Harvard University's Kennedy School, and president of the California Science Center Foundation's Board of Trustees.

JOSÉ ATILIO HERNÁNDEZ | Burbank
Appointed by Speaker of the Assembly Anthony Rendon in April 2023. Founder and CEO of IDEATE California. Also, Founder and Board Chairman of ideateLABS non profit.

SEN. DAVE MIN | Irvine
Appointed to the Commission by the Senate Rules Committee in September 2021. Elected in November 2020 to represent the 37th Senate District. Represents Anaheim Hills, Costa Mesa, Huntington Beach, Irvine, Laguna Beach, Laguna Woods, Lake Forest, Newport Beach, Orange, Tustin, and Villa Park.

ASM. LIZ ORTEGA | San Leandro
Appointed to the Commission by Speaker of the Assembly Anthony Rendon in March 2023. Elected in November 2022 to represent the 20th Assembly District. Represents Hayward, San Leandro, most of Union City, portions of Dublin and Pleasanton, and several unincorporated communities.

JANNA SIDLEY | Los Angeles
Appointed to the Commission by Governor Edmund G. Brown Jr. in April 2016 and reappointed in February 2020. Partner at Ichor Strategies and appointed to the Board of the Los Angeles City Employee Retirement System ("LACERS"). Former general counsel at the Port of Los Angeles and city attorney at the Los Angeles City Attorney's Office.

SEN. SCOTT WILK | Santa Clarita
Appointed to the Commission by the Senate Rules Committee in April 2023. Elected in November 2016 to represent the 21st Senate District. Represents communities in the Antelope, Santa Clarita, and Victor Valleys.

Full biographies are available on the Commission's website at www.lhc.ca.gov.

“DEMOCRACY ITSELF IS A PROCESS OF CHANGE, AND SATISFACTION AND COMPLACENCY ARE ENEMIES OF GOOD GOVERNMENT.”

By Governor Edmund G. “Pat” Brown,
addressing the inaugural meeting of the Little Hoover Commission,
April 24,1962, Sacramento, California

Milton Marks Commission on California State Government Organization and Economy

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