

Agenda Item II

BUSINESS MATTERS

ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA
DEL NORTE, EL DORADO, GLENN, IMPERIAL, INYO, LASSEN



MADERA, MARIPOSA, MODOC, MONO, NEVADA, PLUMAS,
SIERRA, SISKIYOU, TEHAMA, TRINITY, TUOLUMNE

CHAIR – MICHAEL KOBSEFF, SISKIYOU COUNTY
VICE CHAIR – BOB WILLIAMS, TEHAMA COUNTY
EXECUTIVE DIRECTOR – GREG NORTON

TECHNICAL ADVISORY GROUP (TAG)
TAG CHAIR – KRISTINA MILLER, TEHAMA COUNTY
TAG VICE CHAIR – JIM MCHARGUE, AMADOR COUNTY
PROGRAM MANAGER – MARY PITTO

**Minutes of the Rural Counties'
Environmental Services Joint Powers Authority
Board of Directors Meeting
1215 K Street, Suite 1650, Sacramento, CA**

Thursday March 19, 2015

MEMBERS REPRESENTED

Mary Rawson, Supervisor
Jim McHargue, Director Solid Waste
Steve Rodowick, Recycling Coordinator
Yvonne Van Zee, Recycling Coordinator
Mike Azevedo, Assistant Director
Greg Stanton, Dep. Director Environmental Mgt
William Brunet, Director of Public Works
Aaron Albaugh, Supervisor
Paula Wesch, Program Coordinator
Greg Ollivier, Solid Waste Manager
Tony Dublino, Solid Waste Supervisor
Bob Perrault, Director of Public Works
Michael Kobseff, Supervisor
Arthur Boyd, Grant Recycling Coordinator
Kristina Miller, Landfill Agency Manager
Rachel Ross, Recycling Coordinator
Karl Fisher, Supervisor
Cathy Rash, Solid Waste Tech
Diane Rader, Deputy Director Solid Waste
Dan Hambrink, Solid Waste Specialist
Belinda Barlow, Solid Waste Specialist

Alpine County
Amador County
Butte County
Calaveras County
Colusa County
El Dorado County
Imperial County
Lassen County
Lassen County
Mariposa County
Mono County
Plumas County
Siskiyou County
Siskiyou County
Tehama County
Tehama County
Trinity County
Trinity County
Trinity County
Tuolumne County
Tuolumne County

STAFF IN ATTENDANCE:

Mary Pitto, ESJPA Program Manager
Paul Smith, Senior Legislative Advocate
Larry Sweetser, ESJPA Consultant
Julie Lunn, RCRC Office Assistant

RCRC Governmental Affairs
RCRC Governmental Affairs
Sweetser and Associates, Inc.
RCRC Staff

GUEST SPEAKERS:

Howard Levinson, CalRecycle
Enrique Rodriguez, CBSC
Katie Schmitt, USDA
Laurel Warddrip, SWRCB
Patrick Otsuji, SWRCB

David Ianni, ACES
Joe Rassmussen, CalRecycle
Heidi Sanborn, CPSC
Daria Kent, PaintCare
Rodney Clara, Mattress Recycling Council

OTHERS IN ATTENDANCE:

Paul Brainin, CalRecycle
Terry Brennan, CalRecycle
Spencer Fine, CalRecycle
Daisy Kong, CalRecycle
Alex Sousa, CalRecycle
Jeff Watson, CalRecycle

Jessica Diridoni, Shasta County
Christina Piles, Redding
Mark Urquhart, MJU P.E.
Jack Fiori, Cal-Waste Recovery Systems
Anita Lopez, USDA
Dave Hartwell, USDA

MEMBERS NOT REPRESENTED

Glenn County, Inyo County, Madera County, Modoc County, Nevada County, Sierra County,

I. Call to Order, Determination of Quorum and Self Introductions

Chair Supervisor Michael Kobseff, Siskiyou County called the meeting to order at 9:03 a.m. Self-introductions were made. A quorum was determined at that time.

II. Business Matters

A. Approval of Minutes December 11, 2015. Chair Supervisor Michael Kobseff, Siskiyou County called for the approval of the minutes from the December 11, 2015 Board of Directors Meeting.

The motion to approve the minutes was made by William Brunet, Imperial County and was seconded by Supervisor Fisher, Trinity County. The motion passed unanimously with Supervisor Rawson abstaining.

B. Election of the 2015 ESJPA Chair and Vice Chair

A motion to elect Supervisor Kobseff, Siskiyou County as Chair and Supervisor Rawson, Alpine County Vice-Chair was made by Greg Ollivier Mariposa County and seconded by Belinda Barlow Tuolumne County. The motion passed unanimously.

C. Election of the 2015 ESJPA TAG Chair and Vice Chair

The motion to elect Kristina Miller, Tehama County Chair and Jim McHargue, Amador County Vice-Chair was made by Brunet Imperial County and seconded by Supervisor Fischer. The motion passed unanimously.

III. Public Comment: None

IV. Presentations

A. Proposed new building standards to increase recycling and new Universal Waste Management Plan— Enrique M Rodriguez. Mr. Rodriguez provided an update on the proposed revisions to the Green Building Standard including an increase from 50% diversion to 65% diversion of construction waste and the proposal to require collection of universal wastes. Mary to send template to board for building construction.

B. USDA Rural Development Solid Waste Financing Presented by Katie Schmitt-The presentation provided an overview of the various loans and grants provided by the USDA for

solid waste projects. Some programs will allow for technical assistance and some provide for funds to build infrastructure.

C. Stormwater Compliance: A Haulers Perspective - David Ianni, Principal, ACES Waste Services. Mr. Ianni discussed some recent experiences with proposing rate increases for solid waste services.

D. Report from CalRecycle – Joe Rassmussen, Supervisor, Materials Management and Local Assistance Program, provided a handout for this update, which is available on the ESJPA website.

V. Member County Concerns/Comments - None

VI. Presentation

AB 1826 Mandatory Commercial Organics Recycling and AB 1594 Waste Management: Green Waste as ADC. Howard Levinson, Deputy Director CalRecycle gave an overview of the new mandatory commercial recycling requirements, including the exemption option for counties with populations of less than 70,000. The presentation is posted on the web.

VII. Legislative Update - Paul Smith, Senior Legislative Advocate, provided a brief update on the calendar of the legislative process, noting that the 2015 Legislative Session has begun in earnest with the bill introduction deadline concluded in February. As such, ESJPA staff is aware of the universe of bills introduced relating to solid waste. Furthermore, legislative hearings have been scheduled to hear these measures. In most cases, these bills are facing deadline at the end of May to gain passage in their house of origin.

Much discussion was made on AB 45 (Mullin), a bill requiring curbside collection of household hazardous waste and setting diversion goals for counties. RCRC is in strong opposition to this bill, as are other government organizations.

Mr. Smith also noted that AB 1063 (Williams) is another bill of specific interest. This is a tipping fee increase bill, currently in spot bill form with an unspecified amount. It has long been known that the tipping fee will not be able to support CalRecycle as the state successfully diverts more waste from landfills and funding reform will be necessary. This bill is considered a short term fix to appropriately fund CalRecycle until a long term solution is identified.

Another bill that Mr. Smith asked for input is AB 901 (Gordon) which deals with reporting requirements. AB 901 will require solid waste facility operators, including recycling and composting operations to report to CalRecycle the quantities of materials handled so that CalRecycle can assess progress to the statewide 75% diversion goal. Several ESJPA members indicated that the information would be helpful because they often have a difficult time getting information from various operators.

Mr. Smith touched on several other bills of particular interest to the ESJPA: AB 864 (Williams) regarding temporary permits for solid waste facilities, AB 1045 (Irwin) regarding streamline permitting of compost facilities, and SB 162 (Galgiani) a bill to extend the sunset date for disposal of treated wood waste.

VIII. Solid Waste/Regulatory Update

A. CalRecycle

- AB 2398 Carpet Product Stewardship. Pitto reported CARE is talking with several additional counties to expand carpet recycling in rural counties.
- Beverage Container Recycling Program Reform – There is no real update at this time. The Beverage Container Fund is in better shape than previously expected. CalRecycle is focusing considerable effort on enforcement and fraud investigations. CalRecycle continues to provide mandatory training opportunities to collection center operators. Steve Rodowick reported that city/county payment programs are being audited.
- Compostable Materials, Transfer/Processing regulations. Sweetser reported that at the March 3rd workshop CalRecycle is considering changes to existing regulations to allow the limited acceptance of food waste, land application, sampling criteria, and limits on contamination.

B. Department of Toxic Substances (DTSC)

- Thermostat Recycling Program Update – Sweetser reported that the thermostat manufacturers are in violation of their mandatory collection goal and are continuing to work on providing collection containers for thermostats. DTSC is requiring the manufacturers to expand their outreach efforts including with household hazardous waste programs, stores, and contractors.
- Solar Panel Disposal – Sweetser reported that EC-Refining in Stockton is the only permitted facility that can accept solar panels for recycling otherwise panels must be sent for hazardous waste disposal.-Pitto indicated that Horizon Silicon in Texas is offering to collect panels but has not yet provided details on permit approval or management methods.

C. State Water Resources Control Board (SWRCB) – Larry Sweetser

- Water Quality Fees Stakeholder Process for Fiscal Year 2015-16– Sweetser reported that SWRCB Staff is recommending landfill WDR fees for open landfills be increased by 2.5% and closed landfills are recommended for a 0.1% decrease in the fee. The recommendation is expected to be reviewed by the SWRCB later this year.
- Storm Water Industrial General Permit – Sweetser reported that the July 1, 2015 deadline is approaching and facilities need to submit their storm water pollution prevention plans before the deadline. The afternoon speakers will discuss the upcoming permit requirements and the use of the mandatory online reporting (SMART) system..
- Proposed Trash Amendments – Sweetser reported that the proposed Trash Amendments are still under consideration for approval. No additional stakeholder input is being considered.

D. CA Product Stewardship Council Update. – Heidi Sanborn reported that work continues on opposition to AB45 that currently proposes for jurisdictions to increase diversion of household hazardous waste. A fact sheet is being prepared to address issues with the proposed legislation. CPSC's AB 1159 proposes a pilot program for household batteries and home-generated sharps. There is additional discussion on a possible hazardous waste-China

EPR bill. CPSC is also promoting the use of refillable propane cylinders. CPSC also is coordinating distribution of boxes for collection of all batteries especially in rural area.

- E. **PaintCare Update.** Daria Kent- Ms. Kent indicated that PaintCare is continuing work on the infrastructure for Northern California. PaintCare is also proposing one day events for paint only collections.
 - F. **Mattress Recycling Council Update – Rodney Clara, Mattress Recycling Council – Mr. Clara** updated members on the Council’s efforts to structure the mattress collection program.. Contracts are being proposed to resolve the transportation issues. The Council continues to work with jurisdictions and solid waste operators to gather costs and issues related to development of the program.
 - G. **Grant Program Update – Sweetser** reported that implementation of the USDA grant continues.
 - H. **Highlights of December/January/February/March Meetings. – Sweetser** reported that most of the highlights were covered under the Joe Rassmussen’s report.
 - I. **Other Regulatory Announcements/Issues of Interest.** Mary Pitto directed Members to the Board packet.
- IX. Agenda Suggestions, Member county Presentation Volunteer, Workshop Topics for Next ESJPA Board Meeting Scheduled Thursday, May 21, 2015.**
- X. Articles of Interest**
Mary Pitto directed Members to the Board packet.
- XI. Adjournment- 1:19 pm**

Respectfully submitted,
Julie Lunn, Office Assistant/Receptionist

Technical Advisory Group Breakout Session

Laurel Warddrip of the SWRCB provided an update on the new storm water general industrial permit effective July 1, 2015. Patrick Otsuji of the SWRCB presented how to access and use the mandatory online reporting system (SMARTS).

Agenda Item IV

PRESENTATIONS



NEWS RELEASE

Release #:15-25

Date:05/07/2015

ARB PIO: (916) 322-2990

CONTACT:

Stanley Young

(916) 322-2990

syoung@arb.ca.gov

Air Resources Board releases bold vision to reduce emissions of short-lived climate pollutants

New paper lays out concepts for limiting impact of potent heat-trapping gases

SACRAMENTO - The Air Resources Board today released a concept paper describing ways in which California can move forward aggressively to reduce greenhouse gas and smog-causing emissions from a group of chemicals with extremely high global warming potential. These chemicals may be responsible for as much as 40 percent of the global warming to date.

Short-lived climate pollutants (SLCPs) include methane, black carbon and fluorinated gases (refrigerants, insulating foam and aerosol propellants). These gases trap heat at many times the level of carbon dioxide, but also tend to have a shorter duration in the atmosphere than carbon dioxide, making their most dramatic climate impact over a period of days to about 10 years.

“Reducing the emissions of these short-lived climate gases is an important part of California’s – and the world’s – efforts to keep the planet from exceeding the most dangerous levels of warming,” said ARB Chairman Mary D. Nichols. “Taking steps to significantly reduce these greenhouse gases now will deliver climate and air quality benefits in the short-term while we move our energy systems and vehicle fleets to clean technologies.”

Strong planning and decisive actions on these climate pollutants will deliver reductions over the short-term and will play an important role in achieving the Governor’s goal of reducing greenhouse gases 40 percent by 2030. The concept paper identifies scientific targets that align

with levels of reductions needed worldwide to stabilize the climate, including reducing methane emissions by at least 40 percent.

Senate Bill 605 (Lara) requires ARB to develop, in coordination with other state agencies and local air districts, a comprehensive strategy to reduce emissions of short-lived climate pollutants. Today's release of the concept paper marks the first step in developing that strategy. A public workshop will be held on May 27 to discuss the concept paper and overall strategy development.

Working on a fast-track, ARB will develop an initial draft strategy through public workshops over the summer. The draft proposed strategy will be presented to the Board in the fall and will include specific actions over a broad array of economic sectors, including the natural environment and biological systems.

Action to reduce emissions of these gases can also improve air quality and reduce related health risks, hospitalizations and medical expenses, especially in disadvantaged communities. Other benefits to California include reducing damage to forests and crops, reducing background ozone and particulate levels to help meet federal air quality standards, and reducing disruption of historic rainfall patterns.

For black carbon, produced in California primarily from diesel combustion and burning wood (including wildfires), the concept paper suggests building on, accelerating and expanding existing programs including the ongoing sustainable freight strategy and forest management.

Development of a regulation by ARB is already underway to reduce methane emissions from oil and gas drilling and storage sites. The concept paper addresses the need to act on other sources, including reducing methane emissions from dairies and eliminating the disposal of organic materials at landfills. The concept paper suggests an approach to consider new funding mechanisms and a range of incentive structures to address all sources.

"Reducing methane and other short-lived climate pollutants is an increasingly essential part of achieving California's goals of reducing the impacts of climate change; protecting our land, air, water and communities; and enabling California's farming sector to thrive," said Sustainable Conservation Executive Director Ashley Boren. "Sustainable Conservation looks forward to working with state agencies, our agricultural partners and other stakeholders in developing effective strategies and incentives that work for farmers, agricultural communities and the environment – and putting the state on the path to meeting its climate change and air quality goals."


As for so-called fluorinated gases, the paper looks to an 80 percent reduction by 2030 in the use of hydrofluorocarbons (HFCs) in new refrigeration and air conditioning equipment, and taking early actions to significantly reduce these gases from commercial refrigeration. There is already an ARB program in place to address leaks from commercial systems.

Development of this plan will align with efforts being made by Mexico, one of the State's international partners in efforts to curb the impacts of climate change and fight air pollution. Mexico is the only country to specifically include SLCP emissions in its reduction pledge for the upcoming Paris climate summit. Under an agreement signed last year, California and Mexico are working together on a host of climate and air quality issues, including short-lived climate pollutants. Last December, California and Mexico co-hosted an event on short-lived climate pollutants at the international climate meetings in Lima, Peru.

California already has some of the most stringent and effective regulations in the country for methane and black carbon. Our efforts to control emissions from diesel vehicles have reduced black carbon 90 percent since the 1960s, while diesel consumption has since tripled. These reductions help avoid about 5,000 premature deaths each year in the state, and if similar black carbon reduction levels were achieved globally, studies show it would avoid millions of premature deaths annually and slow the rate of global warming by about 15 percent.

The Short-Lived Climate Pollutants Concept Paper can be found at:
www.arb.ca.gov/cc/shortlived/shortlived.htm

ARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. The ARB oversees all air pollution control efforts in California to attain and maintain health based air quality standards.



Office of Communications 1001 I Street, Sacramento CA 95814. Ph: (916) 322-2990

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This page last reviewed May 7, 2015

Reducing Short-Lived Climate Pollutants in California



What are Short-Lived Climate Pollutants?

Short-lived climate pollutants are powerful climate forcers that remain in the atmosphere for a much shorter period of time than longer-lived climate pollutants, such as carbon dioxide (CO₂). Their relative potency, when measured in terms of how they heat the atmosphere, can be tens, hundreds, or even thousands of times greater than that of CO₂. The impacts of short-lived climate pollutants are especially strong over the short term. Reducing these emissions can make an immediate beneficial impact on climate change.

Short-Lived Climate Pollutants include three main components:

- **Black carbon** is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Diesel particulate matter emissions are a major source of black carbon and are also toxic air contaminants that have been regulated and controlled in California for several decades in order to protect public health.
- **Fluorinated gases (F-gases)** are the fastest growing source of greenhouse gas emissions in California and globally. They include ozone-depleting substances that are being phased out globally under the Montreal Protocol, and their primary substitute, hydrofluorocarbons (HFCs). Most F-gas emissions come from leaks of these gases in refrigeration and air-conditioning systems. Emissions also come from aerosol propellants, fire suppressants, and foam-expansion agents.

What's New

- [Concept Paper](#) (posted on May 7, 2015)
- [News Release: ARB Releases Bold Vision to Reduce Emissions of Short-Lived Climate Pollutants](#)
- [May 27 - Public Workshop:](#)
 - [Notice](#)
 - [Submit Comments](#)
 - [View Comments](#)
- [Fact Sheet: CA's 2030 Climate Commitment - Reducing Short-Lived Climate Pollutants](#)
- [Gov. Brown signs SB 605](#)

- **Methane** (CH₄) is the principal component of natural gas. Its emissions contribute to background ozone in the lower atmosphere (troposphere), which itself is a powerful greenhouse gas and contributes to ground level air pollution. The atmospheric concentration of methane is growing as a result of human activities in the agricultural, waste treatment, and oil and gas sectors. Capturing methane from these sources can improve pipeline safety, and provide fuel for vehicles and industrial operations that displaces fossil natural gas use.

directing ARB to develop a Short-Lived Climate Pollutant Strategy by January 1, 2016.

- [Short-Lived Climate Pollutants Booklet](#)

What are the Benefits of Reducing SLCPs?

The [United Nations Environment Program](#) estimates that by 2030, using technologies and strategies available today, we can reduce global emissions of methane by 40 percent, black carbon by 80 percent, and HFC emissions by 80 percent from expected levels. These reductions will deliver immediate and tangible climate, air quality, economic, and health benefits.

Potential Benefits From Reducing Short-Lived Climate Pollutants by 2030

Global Climate Change Benefits

- Cut global warming in half, by 0.6°C in 2050, and by 1.4°C in 2100.
- Reduce warming in the Arctic by two-thirds (0.7°C) by 2040.
- Reduce sea level rise by 25 percent.
- Increase chances of keeping average warming below 2°C to greater than 90 percent by 2050.

Global Air Quality, Health, and Economic Benefits

- Save 2.4 million lives per year globally.
- Avoid more than 30 million metric tons of agricultural crop losses.
- Preserve key ecosystems, like the Amazon rainforest.
- Provide hundreds of billions of dollars in climate, crop, and health benefits.

Benefits in California

- Improve health in disadvantaged communities.
- Reduce risk for premature death.
- Reduce air pollution-related hospitalizations and associated medical expenses.
- Reduce damage to forests and crops.
- Reduce background ozone levels to help meet federal air quality standards.
- Reduce disruption of rainfall patterns and improve water storage in Sierra snowpack.

What is California doing to reduce SLCPs?

Over the past several decades, California's actions to improve air quality, fight climate change and protect public health have resulted in significant reductions in emissions of short-lived climate pollutants.

- **Black carbon** - Anthropogenic emissions are 90 percent lower than in the 1960s, and will be cut in half again by 2022.

near again by 2020.

- **F-gases** - Regulations adopted under AB 32 will reduce emissions 25 percent by 2020.
- **Methane** - California has taken steps to reduce emissions from the agricultural, waste treatment, and oil and gas sectors.

Futhermore, ARB is sponsoring several research projects related to short-lived climate pollutants. Click on the links below for more information:

- [F-Gas Research Projects](#)
- [Black Carbon Research Projects](#)
- [Methane Research Projects](#)

New Actions to Further Reduce Emissions: The Short-Lived Climate Pollutant Strategy

The Air Resources Board has released a [booklet](#) describing some of California's efforts to reduce emissions of short-lived climate pollutants and is leading a collaborative process to develop California's Short-Lived Climate Pollutant Strategy. This is one of many new actions related to short-lived climate pollutants that were recommended in the [Climate Change Scoping Plan Update](#). In addition, Governor Brown recently signed [SB 605 \(Lara, Chapter 523, Statutes of 2014\)](#) directing ARB to develop a comprehensive short-lived climate pollutant strategy by January 1, 2016. The effort will engage scientific experts, identify additional measures to reduce short-lived climate pollutants, and will build upon California's leading commitments to reduce greenhouse gases and air pollution.

Staying in Touch

To receive electronic notices of future meetings and availability of materials, you can sign up with the climate change list server at: http://www.arb.ca.gov/listserv/listserv_ind.php?listname=cc

For information, please contact:
Sarah Pittiglio, at 916-324-0627, or spittigl@arb.ca.gov



CALIFORNIA'S 2030 CLIMATE COMMITMENT

REDUCING EMISSIONS OF SHORT-LIVED CLIMATE POLLUTANTS

Short-lived climate pollutants (SLCPs) include methane, black carbon, tropospheric ozone, and fluorinated gases (F-gases). They are especially powerful climate forcers and harmful air pollutants that remain in the atmosphere for much less time than CO₂ and are responsible for about 40 percent of current global warming. Slashing SLCP emissions immediately is necessary to address climate change and realize tremendous economic, food security, health, and water benefits.

CONSIDERABLE BENEFITS

Direct benefits from cutting SLCP emissions can be substantial and immediately tangible. California can maximize these benefits as part of an integrated strategy to reduce SLCPs, CO₂, and other pollutants.

Significant Health Benefits

- » Current and past progress in California prevents about 5,000 premature deaths and provides billions in health benefits each year.
- » Similar reductions worldwide would save millions of lives and deliver trillions of dollars in health benefits each year.

Immediate Climate Benefits

- » Only way to immediately slow global warming
- » Immediate global reductions necessary to limit warming below 2°C through at least 2050
- » Cost-effective strategies applied globally can cut the current rate of global warming in half by 2050 and by two-thirds in the Arctic by 2040, reducing sea level rise by 25 percent.

Agricultural, Economic, Health, and Water Benefits in California

- » Reduce asthma risk, hospitalization, and premature death
- » Reduce crop losses and improve soil health
- » Improve health of forests and watersheds
- » Increase availability of renewable natural gas, electricity, and fuels
- » Reduce disruption to precipitation patterns
- » Reduce melting of snowpack

HOW WE GET THERE

Already on Our Way

- » Black carbon levels are 90 percent lower than the 1960s
- » Cutting methane from landfills and oil and gas
- » Will reduce F-gas emissions by 25 percent below expected levels by 2020

Strengthen California Climate Leadership

Pursuant to Senate Bill 605 (Lara, Statutes of 2014, Chapter 523), the State is developing a comprehensive strategy in 2015 to further reduce SLCP emissions. The strategy will be developed through a public process and will describe specific measures to overcome stubborn barriers and significantly cut SLCP emissions, such as:

- » Reducing methane from dairies and utilize it for renewable energy or fuel
- » Diverting organic waste from landfills and convert it to energy and compost
- » Replacing high global-warming potential (GWP) refrigerants with low-GWP alternatives
- » Reducing black carbon from biomass burning with cleaner burning fireplaces and using woody waste for energy or fuel production

Agenda Item VII

SOLID WASTE REGULATORY UPDATES

Mary Pitto

Subject:

FW: Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America



Office of Governor
Edmund G. Brown Jr.



FOR IMMEDIATE RELEASE:
Wednesday, April 29, 2015

Contact: Governor's Press Office
(916) 445-4571

Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America

New California Goal Aims to Reduce Emissions 40 Percent Below 1990 Levels by 2030

SACRAMENTO – Governor Edmund G. Brown Jr. today issued an executive order to establish a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 – the most aggressive benchmark enacted by any government in North America to reduce dangerous carbon emissions over the next decade and a half.

“With this order, California sets a very high bar for itself and other states and nations, but it’s one that must be reached – for this generation and generations to come,” said Governor Brown.

This executive action sets the stage for the important work being done on climate change by the Legislature.

The Governor’s executive order aligns California’s greenhouse gas reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris later this year. The 28-nation European Union, for instance, set the same target for 2030 just last October.

California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32). California’s new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent under 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2 degrees Celsius – the warning threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels.

World Leaders React

United Nations Framework Convention on Climate Change Executive Secretary Christiana Figueres:
“California and Governor Brown have clearly understood, internalised and articulated the science of climate change and today have aligned the state to the growing global understanding of the step changes and strategies needed over the coming years and decades. Resolving climate change requires a swift peaking of emissions and a deep decarbonisation of the global economy by the second half of the century. California’s announcement is a realisation and a determination that will gladly resonate with other

inspiring actions within the United States and around the globe. It is yet another reason for optimism in advance of the UN climate conference in Paris in December.”

World Bank Group President Jim Yong Kim: “Four consecutive years of exceptional drought has brought home the harsh reality of rising global temperatures to the communities and businesses of California. There can be no substitute for aggressive national targets to reduce harmful greenhouse emissions, but the decision today by Governor Brown to set a 40 percent reduction target for 2030 is an example of climate leadership that others must follow.”

Premier of Ontario, Canada Kathleen Wynne: “I applaud Governor Brown's continued leadership on climate change. This shows the important role that sub-national governments can play in shaping a strong global agreement on climate change later this year in Paris.”

Former New York Mayor Michael Bloomberg: “California’s 2030 goal to reduce carbon emissions is not only bold, it’s necessary – for the economy and our future.”

NextGen Climate Founder Tom Steyer: “When it comes to climate change, California has emerged as a global leader – proving that we don’t have to choose between a healthy environment and a strong economy. Today Governor Brown took that leadership to the next level. By setting an ambitious and achievable target to reduce emissions of climate-altering pollutants 40 percent by 2030, Governor Brown is setting a course that will build upon the hundreds of thousands of good paying advanced energy jobs in California, improve the health and wellbeing of Californians and continue our global leadership to solve the greatest challenge of our generation.”

Princeton University Professor Michael Oppenheimer: “Governor Brown’s ground-breaking commitment not only shows that solving the climate problem goes hand-in-hand with economic growth and technology leadership, but points the way toward a climate solution for other states and the world.”

Climate Adaptation

The executive order also specifically addresses the need for climate adaptation and directs state government to:

- Incorporate climate change impacts into the state’s Five-Year Infrastructure Plan;
- Update the Safeguarding California Plan – the state climate adaptation strategy – to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change;
- Factor climate change into state agencies’ planning and investment decisions; and
- Implement measures under existing agency and departmental authority to reduce greenhouse gas emissions.

California’s Response to Climate Change

In his inaugural address earlier this year, Governor Brown announced that within the next 15 years, California will increase from one-third to 50 percent our electricity derived from renewable sources; reduce today’s petroleum use in cars and trucks by up to 50 percent; double the efficiency savings from existing buildings and make heating fuels cleaner; reduce the release of methane, black carbon and other potent pollutants across industries; and manage farm and rangelands, forests and wetlands so they can store carbon.

Since taking office, Governor Brown has signed accords to fight climate change with leaders from Mexico, China, Canada, Japan, Israel and Peru. The Governor also issued a groundbreaking call to action with hundreds of world-renowned researchers and scientists – called the consensus statement – which translates key scientific climate findings from disparate fields into one unified document. The impacts of climate change are already being felt in California and will disproportionately impact the state’s most vulnerable populations.

The text of the executive order is below:

Executive Department

State of California

EXECUTIVE ORDER B-30-15

WHEREAS climate change poses an ever-growing threat to the well-being, public health, natural resources, economy, and the environment of California, including loss of snowpack, drought, sea level rise, more frequent and intense wildfires, heat waves, more severe smog, and harm to natural and working lands, and these effects are already being felt in the state; and

WHEREAS the Intergovernmental Panel on Climate Change concluded in its Fifth Assessment Report, issued in 2014, that "[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia" and that "[c]ontinued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems;" and

WHEREAS projections of climate change show that, even under the best-case scenario for global emission reductions, additional climate change impacts are inevitable, and these impacts pose tremendous risks to the state's people, agriculture, economy, infrastructure and the environment; and

WHEREAS climate change will disproportionately affect the state's most vulnerable citizens; and

WHEREAS building on decades of successful actions to reduce pollution and increase energy efficiency the California Global Warming Solutions Act of 2006 placed California at the forefront of global and national efforts to reduce the threat of climate change; and

WHEREAS the Intergovernmental Panel on Climate Change has identified limiting global warming to 2 degrees Celsius or less by 2050 as necessary to avoid potentially catastrophic climate change impacts, and remaining below this threshold requires accelerated reductions of greenhouse gas emissions; and

WHEREAS California has established greenhouse gas emission reduction targets to reduce greenhouse gas emissions to 1990 levels by 2020 and further reduce such emissions to 80 percent below 1990 levels by 2050; and

WHEREAS setting an interim target of emission reductions for 2030 is necessary to guide regulatory policy and investments in California in the midterm, and put California on the most cost-effective path for long term emission reductions; and

WHEREAS all agencies with jurisdiction over sources of greenhouse gas emissions will need to continue to develop and implement emissions reduction programs to reach the state's 2050 target and attain a level of emissions necessary to avoid dangerous climate change; and

WHEREAS taking climate change into account in planning and decision making will help the state make more informed decisions and avoid high costs in the future.

NOW, THEREFORE, I, EDMUND G. BROWN JR., Governor of the State of California, in accordance with the authority vested in me by the Constitution and statutes of the State of California, in particular Government Code sections 8567 and 8571 of the California Government Code, do hereby issue this Executive Order, effective immediately

IT IS HEREBY ORDERED THAT:

1. A new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 is established in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.
2. All state agencies with jurisdiction over sources of greenhouse gas emissions shall implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.
3. The California Air Resources Board shall update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.
4. The California Natural Resources Agency shall update every three years the state's climate adaptation strategy, *Safeguarding California*, and ensure that its provisions are fully implemented. The *Safeguarding California* plan will:
 - Identify vulnerabilities to climate change by sector and regions, including, at a minimum, the following sectors: water, energy, transportation, public health, agriculture, emergency services, forestry, biodiversity and habitat, and ocean and coastal resources;
 - Outline primary risks to residents, property, communities and natural systems from these vulnerabilities, and identify priority actions needed to reduce these risks; and
 - Identify a lead agency or group of agencies to lead adaptation efforts in each sector.
5. Each sector lead will be responsible to:
 - Prepare an implementation plan by September 2015 to outline the actions that will be taken as identified in *Safeguarding California*, and
 - Report back to the California Natural Resources Agency by June 2016 on actions taken.
6. State agencies shall take climate change into account in their planning and investment decisions, and employ full life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives.



7. State agencies' planning and investment shall be guided by the following principles
- Priority should be given to actions that both build climate preparedness and reduce greenhouse gas emissions;
 - Where possible, flexible and adaptive approaches should be taken to prepare for uncertain climate impacts;
 - Actions should protect the state's most vulnerable populations; and
 - Natural infrastructure solutions should be prioritized.
8. The state's Five-Year Infrastructure Plan will take current and future climate change impacts into account in all infrastructure projects
9. The Governor's Office of Planning and Research will establish a technical, advisory group to help state agencies incorporate climate change impacts into planning and investment decisions.
10. The state will continue its rigorous climate change research program focused on understanding the impacts of climate change and how best to prepare and adapt to such impacts.

This Executive Order is not intended to create, and does not, create any rights or benefits, whether substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

I FURTHER DIRECT that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given to this Order.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 29th day of April 2015.


EDMUND G. BROWN JR.
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

###

Governor Edmund G. Brown Jr.
State Capitol Building
Sacramento, CA 95814

[Forward](#) [View in Browser](#)

2030 Carbon Target and Adaptation

CALIFORNIA IS TAKING EARLY, DECISIVE ACTION TO REDUCE CARBON OUTPUT. THE STATE IS ALREADY EXPERIENCING UNPREDICTABLE SHIFTS IN WEATHER PATTERNS, PROLONGED FIRE SEASONS AND MEASURABLE SEA LEVEL RISE ASSOCIATED WITH CLIMATE CHANGE. BECAUSE OF THIS, MEASURES TO ADAPT TO THESE CHANGES MUST BE TAKEN. WITH THIS EXECUTIVE ORDER, WE ARE ACCELERATING CUTS TO CARBON OUTPUT THROUGH 2030 TO REDUCE CONTINUED TEMPERATURE RISE, AND SHIFTING INFRASTRUCTURE PRIORITIES TO PROTECT AGAINST CLIMATE-CHANGE RELATED IMPACTS IN THE FUTURE.

2030 Target

What is the purpose of a 2030 greenhouse gas reduction target?

Immediate and committed global action is necessary to slow the damaging impacts of climate change. Reducing greenhouse gas emissions by 40 percent below 1990 levels in 2030 ensures that California will continue its efforts to reduce carbon pollution and set the economy on a trajectory to help stabilize global temperatures. Setting a target sends a message around the world to states and regions that California is a potential partner and role model.

Reducing greenhouse gas emissions by 40 percent in 2030 is also important to help us achieve federal health-based air quality standards, and continue to drive investments in clean technology and clean energy in California, where growth in those sectors is outpacing the rest of the country.

But don't we already have a 2050 target? Why a 2030 target in addition?

Reducing greenhouse gas emissions by 40 percent below 1990 levels in 2030 and by 80 percent below 1990 levels by 2050 aligns with scientifically established levels needed in the U.S. to limit global warming below 2°C. The latest science shows that the path taken to achieve necessary science-based targets in 2050 is just as important as achieving the 2050 target itself and that we need a series of coordinated programs to capture cost-effective emission reductions opportunities wherever possible, not only in 2050, but at every point along the way. Setting clear targets beyond 2020 also provides market certainty to foster investment and growth in a wide array of industries throughout the State.

How will the 2030 target affect investment in clean technology, innovation and job development?

California has already made great progress in driving the development of clean technologies thanks to programs developed under AB 32 and other important Legislation; the 2030 target will ensure that success continues beyond 2020. Fighting climate change is a long-term commitment, and to continue -- and accelerate -- the full range of initiatives and solutions we need to send strong policy signals to companies, financiers, and entrepreneurs that continued investment and innovation to decarbonize California's economy, support clean technology and create new jobs will be rewarded over the long term.

Is California 'going it alone' in this effort?

Not at all. As part of their Intended Nationally Determined Contributions (INDCs) to the Conference of Parties meeting of the United Nations Framework Convention on Climate Change in Paris in December of 2015, countries are making pledges to reduce greenhouse gas emissions. The U.S.

has pledged to reduce its emissions by 26-28 percent below 2005 levels by 2025, and the Obama Administration has proposed rules to significantly cut greenhouse gas emissions from the power sector through 2030. The European Union and Norway have pledged to reduce emissions by 40 percent below 1990 levels by 2030, Switzerland has pledged a 50 percent reduction below 1990 levels by 2030, and Mexico has pledged to reduce emissions by 25 percent below 2013 levels by 2030, and potentially as much as 40 percent as part of a broad, global agreement. Additionally, the United Kingdom has legislation requiring a 50 percent reduction below 1990 levels by 2027, and Germany has committed to reduce emissions by 40 percent below 1990 levels by 2020, and by 55 percent below 1990 levels by 2030

In addition, California has linked its cap-and-trade program with the province of Quebec, and is discussing linkage with Ontario. Through the Pacific Coast Collaborative (CA, OR, WA, BC) and other initiatives, California is actively working to develop additional regional and coordinated approaches to greenhouse gas reductions.

How do the Governor's existing 2030 goals align with the overall 40 percent 2030 greenhouse gas reduction target?

In his Inaugural Address in January 2015, Governor Brown identified five key goals for reducing greenhouse gas emissions in California through 2030, and showing the world the way to stabilizing global warming below 2°C:

- Increase renewable electricity to 50 percent,
- Double energy efficiency savings achieved in existing buildings and make heating fuels cleaner,
- Reduce petroleum use in cars and trucks by up to 50 percent,
- Reduce emissions of short-lived climate pollutants, and
- Manage farms, rangelands, forests and wetlands to increasingly store carbon.

These goals are all well-aligned with an overall 40 percent greenhouse gas reduction target. As part of an integrated strategy to help manage the electricity grid efficiently, the energy efficiency and renewable energy goals can help reduce energy costs and greenhouse gas emissions in the electricity, residential and commercial sectors to levels that are in-line with an overall 40 percent target. Similarly, cutting petroleum use in half by 2030 aligns with the 40 percent target and is necessary to meet required federal health-based air quality standards. Emission reductions from all sources – including non-CO₂ gases and from natural and working lands – are necessary to stabilize climate change.

Can California achieve a 40 percent reduction?

Yes. We already have a 'running start' with successful policies in place that are delivering significant reductions as a result of cleaner and more fuel-efficient cars, zero emission vehicles, cleaner low-carbon fuels, more renewable energy and ongoing efforts to improve the energy efficiency of our homes and businesses.

We will need to continue those efforts, and accelerate them including a focus on zero- and near-zero technologies for moving freight, continued investment in renewables including solar roofs and distributed generation, greater use of low-carbon fuels including electricity and hydrogen, stronger efforts to reduce emissions of short-lived climate pollutants (methane, black carbon and fluorinated gases), and further efforts to create livable, walkable communities and expansion of mass transit and other alternatives to traveling by car. Continuing the cap-and-trade program and ensuring that natural lands become carbon sinks provide additional emissions reductions and flexibility in meeting the target.

Several analyses – including those by E3,¹ Lawrence Berkeley National Laboratory,² the National Renewable Energy Laboratory,³ UC Berkeley,⁴ and Energy Innovation,⁵ among others – demonstrate a range of feasible technologies and policy pathways to meet the target.

1 https://ethree.com/public_projects/energy_principals_study.php
2 <http://eetd.lbl.gov/publications/modeling-california-policy-impacts-on>
3 <http://www.lowcarbongrid2030.org/>
4 Publication forthcoming
5 <http://energyinnovation.org/wp-content/uploads/2015/03/>

What are the economic impacts of a 40 percent target?

The costs associated with any future scenario are uncertain, and depend on a wide array of assumptions related to oil and natural gas prices, as well as technology costs for conventional and clean technologies. In recent years, there has been tremendous innovation that has significantly reduced the cost of clean technologies, and today, tremendous opportunity exists to improve efficiency and cut costs – solar and wind power are cost-competitive in many places, leases for electric vehicles are among the least expensive new car options, and some fueling stations sell renewable diesel at a lower price than conventional diesel. Still, additional innovation, economies of scale, and state and federal policies are needed to accelerate market growth for critical technologies and further bring down costs so that they are competitive on a broad scale.

Analysis by E3 of a 2030 target included an accounting of technology and energy costs, assuming somewhat conservatively that the pace of clean technology innovation and cost reductions slows from recent years. One scenario results in greenhouse gas emission reductions of 38 percent below 1990 levels at an average cost of \$39 per household per month. This analysis does not include savings in health costs or other macroeconomic impacts associated with achieving these reductions, which would be necessary to estimate whether such a scenario would ultimately have a positive or negative impact on economic growth and job creation. Different analyses that consider the macroeconomic impacts of strong action to address climate change have shown potentially positive or negative impacts on economic growth, although all tend to be very small in the context of the entire California economy.

Will meeting this target affect the reliability of the electricity grid?

No. California has effectively integrated a rapidly increasing portion of renewable energy on its grid already, which has reached 40 percent of total generation during some hours, and can easily accommodate 50 percent or more renewables by 2030. Regardless of the fraction of generation coming from renewable resources, effective, integrated grid planning is needed to maintain reliability. The State's energy agencies constantly coordinate to ensure that efforts to increase renewable electricity and reduce greenhouse gas emissions align with those aimed at maintaining and improving grid reliability.

What are the next steps for the 2030 target?

The Executive Order directs state agencies to take measures consistent with their existing authority to reduce greenhouse gas emissions. In addition, the California Air Resources Board will initiate a public process in the summer of 2015 and work closely with other state agencies to update the State's climate change Scoping Plan.

The updated Scoping Plan will provide a framework for achieving the 2030 target and will be completed and adopted by the Air Resources Board in 2016. As part of that process, public workshops will be held over the next several months to discuss new and existing approaches for reducing emissions on a sector-by-sector basis.

Concurrent planning efforts related to energy efficiency in existing buildings (AB 758), short-lived climate pollutants, sustainable freight, Greenhouse Gas Reduction Fund Investments, forest health, and others will be coordinated with, and feed into, the updated Scoping Plan.

This executive action sets the stage for the important work being done on climate change by the Legislature.

Adaptation

Why is adaptation a key part of our climate change program?

California is already experiencing adverse impacts from climate change. These include drought and wildfires; sea level rise that is accelerating coastal erosion; higher levels of harmful air pollution; increased public health risks caused by longer periods of high heat; and loss of biodiversity.

These risks are real; however, we are not out of reach of adapting to and protecting against them. Adaptation efforts can also bring many benefits with long-term planning and investments. Stronger local infrastructure for water and power that does not rely on distant and potentially

fragile connections lowers costs and increases reliability. Measures to reduce air pollution benefit us all. Better defenses against wildfires saves lives and homes.

California is currently in the midst of the worst drought in recorded history. Although the link between global warming and the drought has not been definitely established, peer-reviewed studies suggest that the two are linked, and there is broad consensus that climate change will make severe droughts like this one more frequent in California and other states. This is a glimpse of a new “normal” – a dwindling snowpack with the potential for more warm rain. In the short term, farmers and cities will increasingly turn to reservoirs and groundwater, but adaptation planning and projects are needed for long-term stability. Lack of water has also led to more frequent and intense wildfires, including the Rim fire, which scorched the largest area on record in the Sierra Nevadas.

The majority of Californians live along the coast, exposing them to risk from sea-level rise, storms, and saltwater intrusion. Already, the sea level in California has risen approximately 7 inches (18 centimeters) from 1900 to 2005, reports the National Climate Assessment. The average temperature in California in 2014 was the highest ever recorded; average temperatures were 4 degrees higher than the average temperatures in the 20th century.

Adaptation measures include using scarce water more efficiently, adapting building codes to future climate conditions and extreme weather events, building flood defenses and raising the levels of levees, developing drought-tolerant crops, choosing tree species and forestry practices less vulnerable to storms and fires, and setting aside land corridors to help species migrate.

What guides California’s adaptation activities?

The Safeguarding California Plan, published in July 2014, is a comprehensive strategy to protect the state’s environment, economy, and people from ongoing and inevitable climate threats. It provides guidance in nine broad areas where California will suffer from climate impacts: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, and transportation.

By identifying climate risks and vulnerabilities as well as the sector-specific actions needed to address them, the Plan comprehensively sets the direction for California’s adaptation initiatives.

The Governor’s Order specifically directs planners to present detailed steps for responsible agencies to take in each of these nine areas. These documents can be used by local and state-level policymakers to guide investments in key areas to best protect and improve human health and safety.

What actions is the state currently taking on climate change adaptation?

State agencies implement the Safeguarding California Plan through a range of initiatives, which can be broadly categorized into tools and practitioner guides, sector-specific detailed action plans, and investments.

Tools and practitioner guides help local and regional governments, businesses, and the general public to understand and plan for climate impacts. Cal-Adapt is a web-based adaptation visualization and planning tool that incorporates state-of-the-art climate modeling that shows information about climate threats like extreme heat and permanent warming, sea-level rise, loss of snowpack, and wildfire risk at a local level.

The Adaptation Planning Guide consists of four sets of step-by-step instructions for local and regional planners to prepare for climate threats. Threat-specific guidance like the State of California Sea-Level Rise Document provides local decision-makers the information they need to best prepare for climate-related coastal hazards.

The California Water Action Plan and the State Hazard Mitigation Plan are currently being funded and implemented. Specific threats are being addressed through programs like Preparing California for Extreme Heat, the Bay Delta Conservation Plan and the Desert Renewable Energy Conservation Plan.

The State is investing in climate adaptation through grants and other expenditures, like the Greenhouse Gas Reduction Fund. These programs mitigate climate risks as well as greenhouse gas emissions through activities like urban forestry, wetlands restoration, and water efficiency. Infrastructure funded by the state is another way for California to create a built environment more

resilient to climate impacts as well, including grants from programs funded by Proposition 1, California's historic water bond.

How does this Executive Order further the State's adaptation efforts?

The Executive Order requires that the state's adaptation strategy, *Safeguarding California*, is updated every 3 years; identifies vulnerabilities to climate change by sector or regions; outlines primary risks to residents, property, communities and natural systems; and establishes a process for agency coordination.

The Order also establishes a process for tracking implementation of adaptation activities, and requires that state agencies incorporate climate change into their planning and investment decisions using a full life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives. The Order also requires that the 5-Year Infrastructure Plan incorporates current and future climate change impacts in decisions to construct new infrastructure projects and rehabilitate existing ones. The *Safeguarding Plan* provides the policy base for local and state policymakers to invest in adaptation projects. Infrastructure investments will provide multiple benefits to taxpayers, including heading off drought impacts with water recycling and storage projects and lower insurance rates with improved flood infrastructure.

How will this Order help with the State's drought response efforts?

With California facing one of the most severe droughts on record, Governor Brown has taken action to prepare for the impacts of extreme weather. Near-term actions include mandatory water rationing orders for cities and significant curtailments of water deliveries to farms.

Long-term actions to help prepare California for future droughts present substantial opportunities to improve regional self-reliance for water supplies and enhance and improve flood control projects. Emergency legislation accelerated grant funding for water recycling, storm water capture and managements, groundwater clean-up, and levee and flood control system improvements.

Regional self-reliance projects protect our communities from the impacts of drought and shifting and unpredictable weather patterns caused by climate change. Detailed implementation plans for each sector of the *Safeguarding Plan* as required by this Executive Order will ensure overall policy direction and provide the steps needed to complete these important projects.

The current drought serves as a tangible reminder that our entire state is vulnerable to shifting weather patterns. These projects will help people and the economy adapt to unpredictable impacts.

In addition, moving water around the state requires vast amounts of energy. Continued efforts at water conservation at all levels will reduce the greenhouse gases associated with pumping, moving, heating and using water. Thriving forests that serve as carbon sinks will also help to protect and enhance many of the State's most critical watersheds.

How does the Order relate to adaptation actions carried out at the local and regional level?

The Executive Order makes climate adaptation a top priority in infrastructure planning and identifies sector specific vulnerabilities throughout California. It also establishes accountability for assessing and tracking implementation of adaptation efforts. Local government and regional collaboratives, such as the Alliance of Regional Collaboratives for Climate Adaptation (ARCCA), utilize and benefit from state developed tools, research, guidelines, and planning documents as they assemble local and regional climate adaptation plans and projects.

CALIFORNIA'S 2030 CLIMATE COMMITMENTS

Cutting Petroleum Use in Half by 2030

In order to meet federal health-based air quality standards and our climate change goals, we must cut in half the amount of petroleum we use in our cars and trucks over the next 15 years. We are already on our way, and building on current policies and trends that are providing Californians with more mobility options, more efficient vehicles, and a diverse set of cleaner fuels – we can meet this target, strengthen and grow our economy, and improve public health in our communities.

Benefits from Cutting Petroleum Use in Half by 2030**Less Pollution**

- In California, the production, refining, and use of petroleum accounts for almost half of greenhouse gas emissions, 80 percent of smog-forming pollution, and over 95 percent of cancer-causing diesel particulate matter

Stronger Economy

- Oil dependence costs the U.S. an estimated \$300-500 billion annually (\$33-55 billion in California)
- Reducing energy use and improving vehicle efficiency cuts costs and improves economic productivity and competitiveness
- A diverse mix of domestic and local fuel supplies stabilizes energy prices, improves economic resilience, and creates new investments, businesses, and jobs

Meet Health Standards and Climate Change Goals

- Studies show 45-55% petroleum reduction in 2030 sets California on path to meet its 2050 climate change goals
- Meeting federal health-based air quality standards likely requires additional petroleum reductions

How we get there**Already on Our Way**

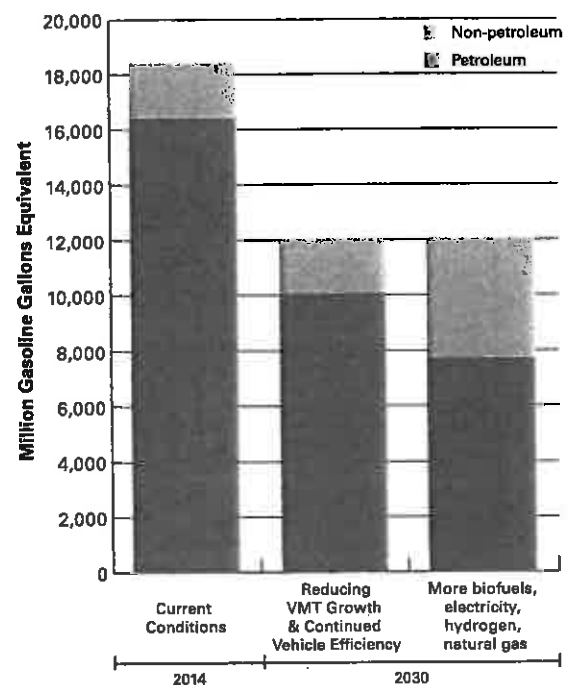
- Existing policies will reduce petroleum use in cars and trucks by more than 20% in 2030
- Planned activities over next two years can achieve significant additional petroleum reductions

Build on California's Climate Change and Air Quality Framework

- Building on existing efforts, California can cut petroleum use from cars and trucks in half by 2030:
 - Build high-speed rail and continue supporting community planning to reduce vehicle miles travelled
 - Continue current levels of light-duty and heavy-duty vehicle efficiency improvements
 - Strengthen the Low Carbon Fuel Standard to continue reducing fuel carbon intensity
 - Continue providing strong market support for zero emission vehicles and renewable fuel production through carbon pricing and other incentives

Sample path to 50% petroleum reduction in 2030

An approach to 50 percent petroleum reduction could include: Reducing growth in vehicle-miles travelled to 4%; increasing on-road fuel efficiency of cars to 35 mpg and heavy-duty trucks to about 7 mpg; and at least doubling use of alternative fuels like biofuels, electricity, hydrogen, and renewable natural gas. (ARB analysis)
See graph at right.



CALIFORNIA'S 2030 CLIMATE COMMITMENT RENEWABLE RESOURCES FOR HALF OF THE STATE'S ELECTRICITY BY 2030

To meet our climate change goals, we must derive 50 percent of the state's electricity from renewable resources by 2030. We are already well on our way as the state currently uses renewable resources for about 25 percent of its electricity use and is on a trajectory to use 33 percent by 2020. California is a leader in reducing greenhouse gases from electricity generation while maintaining an affordable and reliable electricity system.

BENEFITS FROM RENEWABLES FOR HALF OF ELECTRICITY USE BY 2030

Renewables have created thousands of jobs, reduced harmful air pollutants, lowered carbon pollution, and led to greater diversity and resilience in our energy supply.

Meet Climate Change Goals and Health Standards

- » Increasing renewable resources to 50 percent of the state's electricity consumption by 2030 sets California on path to meet its 2050 climate change goals
- » Using renewable resources could help reduce emissions from the transportation sector as increasing numbers of Californians drive electric vehicles, as well as from electricity use in the residential, commercial, and industrial sectors

HOW WE GET THERE

Already on Our Way

- » Existing policies will increase renewable-based electricity use to 33 percent by 2020
- » California has more than doubled renewable capacity installed in the last four years (adding over 11,000 megawatts) and has more than 21,000 megawatts online, which includes 2,300 megawatts on 245,000 homes, businesses, and schools. The graph shows renewable energy procured for California from 1983–2013 by resource type and the steep increase in recent years.
- » Another 11,400 MW of renewable energy projects in California have received environmental permits for development
- » Recent costs for renewables – even without subsidies – are approaching levels competitive with new natural gas plants
- » California has achieved this level of renewable development and maintained the reliability of the electricity grid by developing the capability to integrate the current levels of weather-dependent generation (wind and solar). Moving to 50 percent renewable energy could make balancing electricity

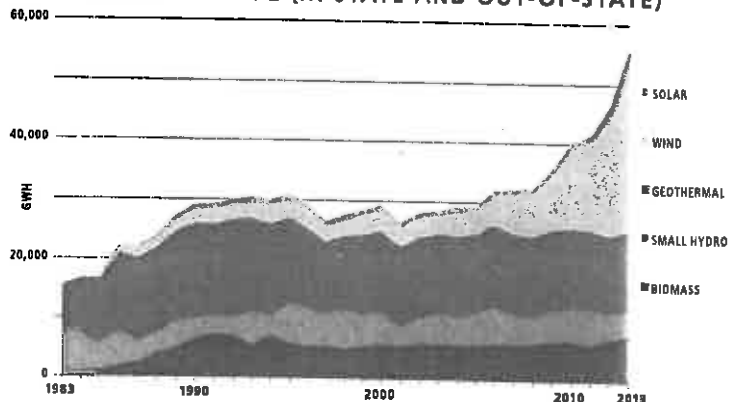
demand and generation increasingly challenging at some times during the day and year. Therefore, additional tools will be needed to maintain reliability including: charging zero emission vehicles at times of high renewable production, balancing supply and demand over broad geographic areas by multistate agreements (such as the Energy Imbalance Market), increasing flexibility in the generating fleet, deploying emerging storage technologies and programs that reward customers for shifting demand, and building a smarter grid.

Build on California's Climate Change Framework

A 50 percent renewables target can be reached in several ways, including:

- » A new utility procurement requirement that focuses on optimizing clean energy technologies, efficiency, and demand management programs according to costs and system benefits.
- » A new procurement requirement to increase renewables beyond 33 percent, including allowing for rooftop solar and better coordination with Western states and Baja California to maximize renewable energy production and better balance production with demand.
- » A clean energy standard requiring reductions in greenhouse gas emissions of electricity sold in California based upon the loading order.

CALIFORNIA RENEWABLE ENERGY GENERATION BY RESOURCE TYPE (IN-STATE AND OUT-OF-STATE)



CALIFORNIA'S 2030 CLIMATE COMMITMENT DOUBLE ENERGY SAVINGS IN EXISTING BUILDINGS & DEVELOP CLEANER HEATING FUELS BY 2030

To achieve our climate change goals over the next 15 years, we must double the planned level of savings from energy efficiency improvements in existing buildings, and develop cleaner heating fuels. Current policies and actions have improved energy service reliability and saved Californians money on their energy bills. Building on and expanding these efforts, we can meet carbon targets, maintain energy service affordability, upgrade our homes and businesses, and transition to cleaner heating fuels.

BENEFITS

Energy Cost Reductions and Improved Comfort

» Efficient buildings are affordable to operate, quiet, comfortable, safe, highly functional, and more valuable.

Meet Air Quality and Climate Change Goals

- » Reducing energy use helps minimize the need to generate electricity from fossil fuel-fired power plants, avoiding associated air pollution and greenhouse gas emissions.
- » Cleaner heating fuels such as low-carbon gases and electricity from renewable resources can reduce local air pollution.

Enhance Energy Service Reliability

- » Energy efficiency strengthens reliability by diversifying the mix of resources to meet our energy needs.
- » Energy efficiency reduces the burden on the electric system, improving its operations and flexibility.

HOW WE GET THERE

Already on Our Way

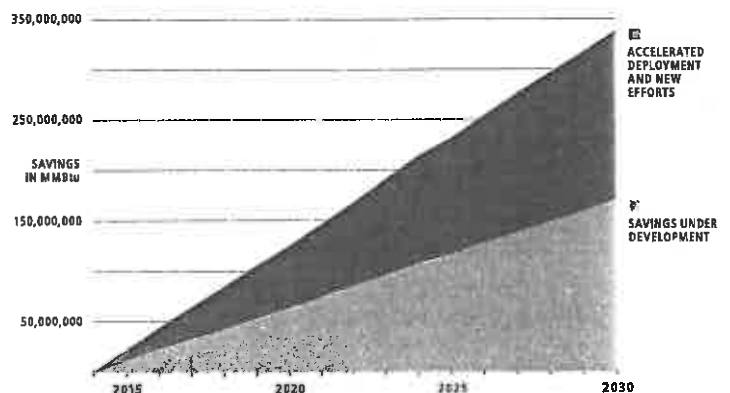
- » Building and Appliance Energy Efficiency Standards, put in place over the last four decades, are saving Californians billions of dollars every year in avoided energy costs.
- » California ratepayers have invested consistently in energy efficiency programs. These programs provided over \$2 billion in net benefits over the past 9 years.
- » California's energy efficiency research and development investments are fostering new technologies and ideas to further improve energy performance of existing buildings and advance cleaner heating technologies.

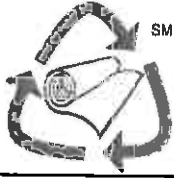


Building on California's Climate Change & Energy Policy Framework

- » **Government Leadership.** Achieve dramatically greater performance levels in publicly-owned buildings; push rigorous code compliance; streamline permitting systems and use data to drive community energy planning.
- » **Simpler Access to Useful Information.** Knowledge drives modern markets. Building benchmarking and other energy assessments provide targeted knowledge to enable and motivate efficiency improvements. Straightforward access to relevant data is needed to target the best opportunities.
- » **Innovative Business Solutions.** Enable widespread delivery of dependable savings from routine upgrade projects.
- » **Financing.** Pervasive access to affordable, innovative financing that matches payments to savings timeframes.
- » **Utility Procurement.** Treat efficiency as a clean distributed energy resource for which utilities contract in a fashion analogous to large-scale generation.
- » **Technical Innovation.** Increased development and commercialization of promising technologies and practices for lighting, cooling, space and water heating, and plug-loads.
- » **Workforce Training.** Bolster the workforce through training in energy efficiency assessment, installation and sales.

DOUBLING THE 2014-2030 ENERGY SAVINGS TRAJECTORY





CARPET AMERICA RECOVERY EFFORTSM
Developing market-based solutions for the recycling & reuse
of post-consumer carpet

Rural Counties Quarterly Update
Thursday, January 29, 2015
NOTES

1. Introductions All
Brent, Humboldt; Steve, Butte; Arthur, Siskiyou; Belinda, Tuolumne; Yvonne, Calaveras; Brennen, CARE; Anthony, CARE; Fareed, CalRecycle
2. Overall Summary of Results Brennen
 - a. Results to Date
 - b. Trailer Bids' Status
 - c. Budget to Date

Reminder – if you have not yet submitted your quarterly report, please submit by 1/31/2015

Thank you—to those of you who have already submitted!

Updates for Q4—CARE

- **Increasing Collection**—Rural Counties appear to have had an uptick in service requests, as more programs come online and collection increases at each site with increased awareness and participation—Good work!
- **New Counties Join the Program**—two new counties have joined the Rural County Program: Napa (Nov 2014) and Marin (Jan 2015)—Welcome!
- **4 Additional Counties to Join the Program by July 2015**—CARE is in discussions with many rural counties about being among the next counties to join the program—stay tuned!
- **New Service Options**—In addition to 28' Trailers, CARE now offers Cargo Shipping Containers for Rural Program Collection Sites. This provides sites with locally attuned choice in consolidation container that is best for them. Contact Brennen for more information.
 - 28' Trailers
 - 53' Trailers, (available for sites with high service frequency and based on availability)
 - 20' Cargo Shipping Bins
 - 40' Cargo Shipping Bins, (available for sites with high service frequency and based on availability)

- **Market Research Study Complete**—CARE hired market communications firm Gigantic Idea Studio in Fall 2014. GIS completed an initial market research study to assess the program and guide improved education and outreach in 2015. Additional educational materials will be under development in 2015—Stay tuned. Thanks to those of you who participated in the market research surveys.
- **Assessment Adjustment**—CARE has requested and CalRecycle has approved an adjustment to the carpet stewardship assessment from \$0.05/square yard of carpet to \$0.10/square yard of carpet sold in California. This increase will take effect April 1, 2015. First round notices are scheduled to be released to retailers and manufacturers in the coming days. Additional information will be available to interested parties in weeks ahead—Stay tuned!
- **New National Program**—CARE is launching a new national voluntary Product Stewardship Program to assist sorters of post-consumer carpet diverted from the nation's landfills.
- **Correspondence**—please be sure to send correspondence including quarterly reports and service requests to Brennen Jensen <bjensen@carpetrecovery.org> . Anthony will be transitioning out of the rural county to guide national program development and implementation.
- **Service Requests**—Please be sure to use the following Subject Line when requesting service of your trailer or cargo bin:
 - Subject: Service Request: [Your County Name]
 - Please address to bjensen@carpetrecovery.org
 - Please copy acline@carpetrecovery.org
 - Attach a photo of your container with carpet
 - Send request approximately 2 weeks prior to your desired service date
 - Record your empty and full weight of collection container when serviced (at your scale house, or send driver to a certified scale)
- **Educational Materials**—Brochures and Signs are available for sites collecting both carpet and pad, as well as just carpet. If you are interested in updating your materials, a separate email/order request will be going out under separate cover. New materials may be available from the new Program communications firm in 2015—Stay tuned!

3. Individual County Reports All

- Humboldt—
 - 4 trailers filled in Q4
 - Trailers weighed on average 16,500 lbs each = 66,000

- Observing that weight is dropping and trailers are filling faster now that Humboldt is collecting both carpet and pad
 - Interested in having two containers to separate pad and carpet (*presently this is not accepted*)
- Base tipping fee = \$153.50; Special tipping fee \$90.00 applied to separated/prepared carpet
- Butte—
 - Still working on filling the first container
 - Would like educational materials to help launch the effort
 - Steve and Brennen to connect to get the brochure updated offline
- Siskiyou—
 - Filling trailer, similar to Butte
 - Interested in new signage when available
- Tuolumne—
 - 1st trailer filled last year; 2nd in process
 - Switched from trailer to cargo bin for 2nd container; working much better for site
 - Challenged by how to get scale weight for filled bins
 - small transfer station does not allow for easy weight of larger trucks
 - Discussion for solutions—best practices:
 - Recommend use of nearby certified scales, for sites that may not be able to weigh on-site
 - If you have an onsite scale, be sure to record the empty and filled weighed of containers as they arrive and leave your facility
 - In process of adopting a new lower rate structure, interested in feedback/experiences of others
 - Discussion for solutions—best practices:
 - Recommend offering a lower tipping rate for source separated rolled carpet (and separately rolled pad) for better participation
 - *Humboldt is offering a rate 2/3 of base tipping fee (Base tipping fee = \$153.50; Special tipping fee \$90.00 applied to separated/prepared carpet)*
- Calaveras—
 - No mic for call, but program is continuing along
 - Interested in seeing new signs referencing padding

4. CalRecycle Comments Kathy and Fareed

- Fareed requested status of estimated cost per pound; CARE indicated it will be revisited once all Q4 data is received as part of 2014 analysis

- Fareed interested in new counties for 2015; CARE indicated that Phase 3 expansion will bring on board an additional 6 counties by July 2015; 2 of these 6 (Napa & Marin) joined the program in the last couple of months, ahead of schedule

5. Issues, Questions All

Incorporated into Updates notes above.

6. Next Steps

- Submit Quarterly Report, if your County has not yet submitted (due 1/31)*
- Please take note of new Service Request Protocol (described above)*
- Brennen to send copies of current signage and brochure options*
 - *Respond if you are interested in updating your educational materials*
- Stay tuned for new developments in 2015*
 - *New assessment, effective April 1, 2015 (more information to come)*
 - *New educational materials under development*
 - *New rural counties to join the program by July 2015*

7. Adjourn

Thanks All!

An Analysis of the Beverage Container Recycling Program



MAC TAYLOR • LEGISLATIVE ANALYST • APRIL 2015

LAO 

AN LAO REPORT

EXECUTIVE SUMMARY

Background

State Program to Increase Recycling. The Beverage Container Recycling Program (BCRP) encourages the recycling of certain beverage containers by California consumers. The program accomplishes this goal by requiring consumers to pay a deposit—the California Redemption Value, or “CRV”—for each eligible container purchased and then guaranteeing consumers repayment of that deposit for each eligible container returned to a certified recycler. The Department of Resources Recycling and Recovery (CalRecycle) administers the program and handles all program payments, including CRV, through the Beverage Container Recycling Fund (BCRF).

Unredeemed Deposits Support Various Supplemental Programs. Despite paying the CRV deposit, not all consumers recycle their CRV-eligible containers. In 2013-14, for example, the BCRF received roughly \$1.2 billion in deposits, but only about \$1 billion—over 80 percent—was spent on redemption payments. The BCRF retains unredeemed deposits, and state law requires that much of the unredeemed CRV be spent on specified recycling-related programs. These supplemental programs are not directly involved in the exchange of CRV, but they are intended to help achieve the programmatic goals of increased recycling and reduced litter. There are currently ten supplemental programs funded from the BCRF (including program administration). Such programs include subsidizing glass and plastic recycling, encouraging supermarket recycling collection sites, and providing grants for market development and other recycling-related activities. CalRecycle estimates that a total of \$279 million will be spent on supplemental programs in 2015-16.

Assessment of Structural Deficit and Supplemental Programs

High Recycling Rates and Spending on Supplemental Programs Create BCRF Shortfall. The BCRF has operated under an annual structural deficit averaging about \$90 million since 2008-09. According to CalRecycle’s estimates, the fund is currently forecast to have an operating deficit of about \$60 million in 2015-16 and run an average deficit of \$56 million from 2014-15 to 2017-18, absent any changes made to reduce expenditures or increase revenues. This deficit is largely due to increased recycling rates in recent years, which have resulted in a greater share of BCRF revenue being paid out for CRV. Moreover, some supplemental programs are paid on a per container basis, and therefore these expenditures increase as the number of containers redeemed increases. The combined effects of higher recycling rates—more spending on CRV payments and certain supplemental program expenditures—make it much more difficult for the BCRF to operate with a structural balance.

For the last several years, the fund balance that accumulated when recycling rates were lower was able to support this expenditure level. However, the balance is being depleted further each year, and programmatic changes will need to be made in the next few years in order to keep the fund solvent and avoid statutorily required automatic funding cuts (referred to as “proportional reductions”). Acting sooner would provide the Legislature a greater number of options to address the deficit and allows for more flexibility when implementing any changes.

Offsets Are Major Cost to BCRF and Do Not Clearly Support Goals. The state subsidizes recycling by making “processing payments” from the BCRF to recyclers and processors. Processing payments are intended to cover the difference between a container’s scrap value and the cost of recycling it (including a reasonable rate of return). These payments are funded from two sources: (1) “processing fees” paid by beverage manufacturers and (2) the BCRF supplemental program, referred to as “processing fee offsets,” which reduces the amount of processing fees that manufacturers must pay. Processing fee offsets—the amount of processing payments covered by the BCRF—are projected to be \$75 million in 2015-16.

It is unclear how current processing fee offsets provided to manufacturers incentivize increased recycling. Additionally, providing offsets does not require manufacturers to consider the lifecycle costs of the materials that they use in their products. By reducing the amount of processing fees, the offsets effectively subsidize materials that are relatively more expensive to recycle.

Effectiveness of Some Supplemental Programs Unclear. While supplemental programs might have merit, we find that many of the programs have not been evaluated for their effectiveness at improving recycling. This lack of evaluation makes it difficult to compare the relative cost-effectiveness of supplemental programs and to determine how they help to achieve program goals of increasing recycling and reducing litter. This information is critical to determine the best use of limited program dollars. In addition, the existing structure of “handling fee” payments currently made to certain recyclers does not maximize convenience for many consumers, and may raise convenience-zone recycler costs, resulting in higher handling fee payments from the BCRF. Finally, the department has not evaluated whether administrative fees—funds that beverage container distributors, processors, and recyclers receive to cover their administrative costs to participate in the BCRP—accurately reflect costs for these program participants.

LAO Recommendations

Shift Processing Costs to Manufacturers. First, we recommend shifting processing costs to manufacturers. This would reduce BCRF expenditures significantly, probably eliminating the structural deficit. It would also require producers to cover the recycling costs of their products, which means that these costs are incorporated or “internalized” into the total cost of the product when it is sold. Therefore, the price that consumers pay reflects the entire cost of the product—its production and disposal. Shifting costs to manufacturers could be done in two ways, either by eliminating processing fee offsets or by moving to a market-based system where manufacturers are responsible for the recycling of materials. While either approach could work, we find that the market-based approach has several potential advantages.

Improve Cost-Effectiveness of BCRP. Second, we make several recommendations designed to improve the cost-effectiveness of the BCRP, including (1) evaluating supplemental programs to determine how cost-effective they are at achieving recycling and litter reduction goals, (2) giving recyclers more flexibility in where they locate and piloting a new payment structure in order to improve convenience for consumers, and (3) adjusting the administrative fee to reflect the actual costs of program participation. In combination, we believe these recommendations would improve the program’s financial sustainability at current and potentially higher future recycling rates.

Mary Pitto

From: Beverage Container Recycling Program [BCRPrclistserv@CalRecycle.ca.gov]
Sent: Tuesday, April 07, 2015 1:24 PM
To: Mary Pitto
Subject: CalRecycle Awarded \$1.74 Million in Settlement

CalRecycle Awarded \$1.74 Million in Settlement

Recycling processor to pay for CRV fund double-dip

SACRAMENTO – The Department of Resources Recycling and Recovery (CalRecycle) has reached a \$1.74 million settlement agreement with San Leandro-based Alco Iron & Metal Co. An extensive investigation revealed the beverage container and scrap metal processing business claimed refunds on California Redemption Value beverage containers it later sold to a company that redeemed them a second time. As a result, the state refunded CRV twice on the same beverage containers.

“CalRecycle will remain vigilant in rooting out behavior that defrauds the state and the consumers who pay CRV,” CalRecycle Director Carroll Mortensen said. “The CRV program provides a proven incentive to maximize beverage container recycling in California. Companies that fail to follow requirements put in place to safeguard the integrity of the fund will be held accountable for their negligence.”

Alco has been under investigation since 2011, after CalRecycle received documents obtained during an investigation by the California Department of Justice. During its own investigation that followed, CalRecycle reviewed Alco transactions that occurred between December 2009 and February 2011. During that time, records show Alco processed 2.23 million pounds of aluminum beverage containers and 2.82 million pounds of plastic containers, resulting in \$6.6 million in payments from the state's beverage container recycling fund. Instead of shipping all of the previously redeemed materials to legitimate end users as required by law, Alco resold 487,926 pounds of the aluminum and 496,121 pounds of the plastic beverage containers to a non-certified recycler, Wan Best Trading of Daly City.

As part of the settlement filed on March 11, 2015, Alco agreed to pay \$1.54 million in restitution and interest resulting from CalRecycle's payment on the previously redeemed materials. Alco will also pay \$21,452 in restitution and interest for other violations discovered during CalRecycle's investigation, including splitting loads of aluminum in order to circumvent daily load limits and filing claims on ineligible material (including out-of-state containers). When the \$13,800 in penalties and \$174,200 cost of the investigation are factored in, the amount Alco agreed to pay under the terms of this agreement is \$1,744,564.

Alco facilities in San Leandro, Vallejo, and Stockton will retain their CRV program certification on a Last Chance Reinstatement basis for the next five years. Any illegal or fraudulent claims or conduct committed by Alco will result in immediate certification revocation. Alco will also be responsible for costs arising from CalRecycle's monthly reviews, audits, and/or investigations of their processor and recycling center operations during this five-year probationary period.

The operators of Wan Best Trading are believed to have fled to China.

CalRecycle continues taking a major and multipronged effort to protect the recycling fund, including new approaches to curb fraud. Much of the effort is on preventing fraud before it occurs, such as enhanced training of recycling center owners and increased scrutiny of payment claims.

[Click here](#) for the official CalRecycle news release.

Please direct all questions, comments, and concerns to BCRPrclistserv@CalRecycle.ca.gov. [Unsubscribe from the Beverage Container Recycling Notices: Certified Recyclers/Processors list](#).

From: Beverage Container Recycling Program [BCRPrclisterv@CalRecycle.ca.gov]
Sent: Friday, March 13, 2015 4:23 PM
To: Mary Pitto
Subject: CalRecycle Enters Partnership with U.S. Labor Department

CalRecycle Enters Partnership with U.S. Labor Department

Joint effort targets labor law violations at California recycling centers

SACRAMENTO – Today, California’s Department of Resources Recycling and Recovery (CalRecycle) signed a cooperative agreement with U.S. Department of Labor’s Wage and Hour Division (WHD) to crack down on illegal labor practices within California’s beverage container recycling industry.

As part of the memorandum of understanding, CalRecycle and WHD will share information and coordinate enforcement efforts to combat wage and hour violations, wage theft, fraud, and other illegal labor practices against vulnerable workers at certified beverage container recycling centers across the state.

“We’re pleased to work with the U.S. Department of Labor as part of our ongoing efforts to protect the integrity of California’s beverage container recycling program,” CalRecycle Director Carol Mortensen said. “This alliance will help us level the playing field and remove non-compliant operators that gain an unfair advantage over legitimate business owners by failing to pay proper wages and taxes.”

The partnership agreement between CalRecycle and WHD follows a WHD investigation that resulted in a \$77,000 judgment against Recycling Innovation and Valley Recycling, and its owner Karim Ameri, who was ordered to pay penalties, damages and back wages to 13 workers at his San Fernando Valley recycling center.

The significant violations found during that investigation led WHD to expand their investigations of recycling centers in Los Angeles’ San Fernando Valley, and to collaborate with CalRecycle to share information and conduct joint training exercises. Those subsequent investigations have thus far revealed substantial wage and hour violations.

“Employees that work in the recycling industry are some of our country’s lowest-paid workers who, especially during hard economic times, are vulnerable to exploitation,” said Ruben Rosalez, regional administrator for the Department of Labor. Rosalez joined with CalRecycle Deputy Director for Beverage Container Recycling Jose Ortiz to sign the three-year agreement at the California Environmental Protection Agency headquarters in Sacramento.

CalRecycle anticipates this partnership with WHD will not only help identify and deter wage and hour violations, but also strengthen its broader ability to deter fraud within the Beverage Container Recycling Program. In order to promote compliance and lasting changes in the industry, both CalRecycle and WHD plan to provide operators with education about proper labor standards and initiate corrective measures as needed. As the location for nearly half of the state’s recycling centers, the greater Los Angeles area and San Fernando Valley will remain the focus of WHD’s and CalRecycle’s current investigative efforts.

[Click here](#) for the official CalRecycle news release.

[Click here](#) for high-resolution photos from today's signing.

Please direct all questions, comments, and concerns to BCRPrprlistserv@CalRecycle.ca.gov. [Unsubscribe from the Beverage Container Recycling Notices: Certified Recyclers/Processors list](#).

 Resource Recycling

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CalRecycle settles beverage container fraud case

By *dylan*

Created 04/14/2015 - 08:25

CalRecycle settles beverage container fraud case

Tue, 04/14/2015 - 08:25 | dylan

CalRecycle settles beverage container fraud case

By Editorial Staff, Resource Recycling

April 14, 2015

California's CalRecycle has rooted out another defrauder of the state's beverage deposit program.

San Leandro, California-based Alco Metal & Iron Company has agreed to pay the Department of Resources Recycling and Recovery (CalRecycle) \$1.74 million for orchestrating a scheme to redeem beverage containers twice. The company has been allowed to continue participating in the state's deposit program on "a Last Chance Reinstatement basis for the next five years."

According to CalRecycle's April 7 [announcement](#) ^[1], between December 2009 and February 2011 Alco redeemed more than 5 million pounds of aluminum cans and plastic bottles. The company then resold nearly 1 million of those containers to Wan Best Trading, which went on to redeem them a second time.

"The operators of Wan Best Trading are believed to have fled to China," the release states.

The settlement reached with Alco is the latest in a [series of actions](#) ^[2] against bad actors in the state's deposit program. CalRecycle has identified fraud as a significant challenge in attempting to ensure the [solvency of the redemption model](#) ^[3] in California.

"CalRecycle continues taking a major and multi-pronged effort to protect the recycling fund, including new approaches to curb fraud," the release states.



For Immediate Release
May 11, 2015
Release #2015-11

For more information contact:
Media Contact: [Lance Klug \(CalRecycle\)](#)

Fontana Man Charged in Illegal Recycling Haul: Busted at border for beverage container fraud

SACRAMENTO—The Department of Resources Recycling and Recovery (CalRecycle) has announced the arrest of a California truck driver, apprehended at the border with 9,280 pounds of empty beverage containers. The load had the potential to drain California's Redemption Value fund of \$13,586 dollars, if not for the diligence of CalRecycle's enforcement partners at the California Department of Justice and the California Department of Food and Agriculture.

"CalRecycle's increased enforcement efforts are paying off, and this latest arrest sends a strong message that recycling fraud doesn't pay," CalRecycle Director Carol Mortensen said. "Californians contribute to the CRV fund at the cash register and rightfully expect those recycling fees won't wind up in the hands of criminals."

On Feb. 15, CDFA inspectors say a semi-truck entered the Yermo, Calif. agricultural checkpoint from Nevada. The driver, Martin Madrid of Fontana, told a checkpoint inspector that his truck was empty, but an inspection revealed the semi was full of empty beverage containers. DOJ's Recycling Fraud Team was then notified and requested that the California Highway Patrol impound the semi for vehicle code violations, including expired registration.

The DOJ Recycling Fraud Team executed a search warrant on Feb. 19 and seized 2,720 pounds of plastic and 6,560 pounds of aluminum from the truck. CalRecycle personnel helped transport and process the materials, which, had they been illegally redeemed for CRV in California, would have resulted in the hit of nearly \$14,000 to the state's beverage container recycling fund. Madrid was arraigned on recycling fraud charges at the San Bernardino Superior Court in Rancho Cucamonga on April 23.

California's Beverage Container Recycling and Litter Reduction Act incentivizes recycling through a CRV fee paid by California consumers at the time of purchase and refunded upon return of the empty containers. Since the fee is never paid by out-of-state consumers, out-of-state containers are not eligible for CRV redemption. CalRecycle aggressively combats fraud through enhanced training of recycling center owners, increased scrutiny of payment claims, daily load limits, and increased enforcement and inspection efforts with cooperation from California's DOJ and CDFA's agricultural checkpoints.

Connect With Us:     

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CalRecycle is the state's leading authority on recycling, waste reduction, and product reuse. CalRecycle plays an important role in the stewardship of California's vast resources and promotes innovation in technology to encourage economic and environmental sustainability. For more information, visit www.calrecycle.ca.gov.

News Room <http://www.calrecycle.ca.gov/NewsRoom/>
Public Affairs Office: opa@calrecycle.ca.gov (916) 341-6300

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Covered Electronic Waste Recycling Program

REFLECTIONS ON A DECADE

AND THE CHALLENGE OF RESIDUAL CRT DISPOSITION

Jeff Wain, Manager
California E-waste Program
WAE-311-8603 | jeff.wain@recycle.com

IN THE BEGINNING, DTSC CLARIFIED...

- In response to 2001 inquiry, DTSC confirmed CRT devices hazardous when disposed
- De facto landfill ban
- Local government burdened by providing diversion
- Electronic Waste Recycling Act of 2003
 - SB 20 by Senator Mark, amended by SB 60 in 2004

THE ELECTRONIC WASTE RECYCLING ACT OF 2003

- California identified a need, took action
- Dual program model unique in nation
- Recovery volumes are indisputably notable
- After decade of success, emerging concerns
- Is current model and approach equipped for future challenges?

COVERED ELECTRONIC WASTE (CEW) PROGRAM

- Intended to fund the end-of-life management of certain video display devices (TVs, monitors)
- Decrease inappropriate disposal
- Improve compliance with State hazardous waste rules
- Return resources to economic mainstream

PROGRAM PARTICIPANTS



- ~ 500 approved collectors
- ~ 35 approved recycler
- Fewer than 40 approved collectors are local government agencies

PROGRAM ACCOMPLISHMENTS

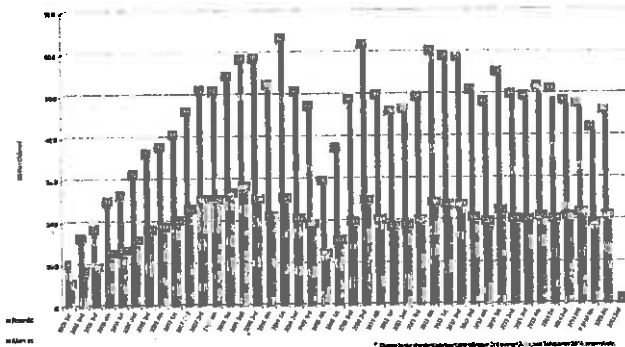
How much?

- ~ 185 million pounds in 2014
- ~ 2.7 million eWaste
- ~ 98% by weight CRT devices
- ~ 1.8 billion pounds total

By who?

- ~ 4% by local government
- ~ 26% by designated collectors*
- ~ 70% by private enterprise
- * Form 907 registration?

Covered Electronic Waste Recycling Payment System
Quarterly Metrics and Funds Collected
(in Millions, \$M)



PROGRAM CURRENT STATUS AND CHALLENGES

STRENGTHS

- Artificial value drives volume
- State oversight improves compliance
- In-state processing requirements
- Track where residual glass flows

PROGRAM CURRENT STATUS AND CHALLENGES

VULNERABILITIES

- Artificial value invites mischief
- State oversight increases overhead
- In-state regulatory implications
- Where does the glass go?

SPEAKING OF CRT GLASS...



Why do we care about residual CRTs / glass?

- Significant volume
 - Proxy tracking of CEW volumes
- Regulated material
- Proper management required under UW rule / HW law

SPEAKING OF CRT GLASS...

Before filing a covered electronic waste (CEW) recycling payment claim:

- CEW recycler must ship residual CRTs to a destination "authorized" to receive and further treat that material

As part of claim, recycler currently must:

- Provide shipping and destination documents (as applicable)
- "Demonstrate" that ultimate disposition is not disposed

TIMES HAVE CHANGED...

Ready markets for CRT / glass at program outset

- CA was not competing with two dozen other states for options

"Destinations" began to take the place of end-markets

- Fostered by recycler's need to ship CRTs / glass
- Regulation of "destinations" often beyond CA jurisdiction

CalRecycle Monthly
September 17, 2013

CRT Abandonment in Arizona

CRT Glass: Manage
Electronic Waste Recycling Program
Department of Resources Recycling &
Recovery (CalRecycle)

Q: WHERE IS THE CRT GLASS HEADED TODAY?



In 2014, over 100
million pounds will be
shipped from CA...

A. Arizona...

Arise...

EMERGING QUESTIONS ABOUT CRT MARKETS

- Conflicting reports about status and longevity of Videocon
 - Indian NGO "Toxic Link" asserts no CRT manufacturing
 - Recent Western audits report functioning furnaces, tube production
 - Notice of furnace maintenance shut-down
 - Longevity / stability of market remain unclear
- Domestic outlets limited
- Glass generators (CEW recyclers) need other options

DTSC'S EMERGENCY CRT RULES

Adopted in Oct 2012 and Readopted in Sept 2014

- Significant public focus on disposal allowances
- More important: DTSC can demand disposition documentation
- Using CalRecycle shipping data, DTSC able to force redirection of majority of CRTs abandoned in Yuma

Emergency rules create options for CEW recyclers

FACTS	KEY POINT	ADVANTAGES	CHALLENGES
<p>FACTS</p> <p>• CRTs are a significant source of hazardous waste.</p> <p>• CRTs contain lead, cadmium, and mercury.</p> <p>• CRTs are a significant source of hazardous waste.</p> <p>• CRTs contain lead, cadmium, and mercury.</p>	<p>KEY POINT</p> <p>CRT Problem: Hazardous CRTs are a significant source of hazardous waste. CRTs contain lead, cadmium, and mercury.</p>	<p>ADVANTAGES</p> <p>• CRTs are a significant source of hazardous waste.</p> <p>• CRTs contain lead, cadmium, and mercury.</p>	<p>CHALLENGES</p> <p>• CRTs are a significant source of hazardous waste.</p> <p>• CRTs contain lead, cadmium, and mercury.</p>

POSSIBLE CRT MARKETS / DISPOSITIONS?

- CRT Manufacturing
- CRT Reuse
- Lead/Copper Smelting
- Glass Furnaces
- Ceramics
- Alkali glass
- Chemical Extraction
- Concrete
- Retrievable Storage
- ADC
- Disposal

CEW PROGRAM NEXT STEPS


Propose regulations that allow all legal CRT disposition

- Improve disposition documentation
- Limit timeframes for ultimate fate
- Restrict Class 2 and 3 disposal to in-state

Adopt rules under emergency authority

CEW PROGRAM FUTURE

- Solving the CRT problem will be "easy"
- Non-CRT devices harder to dismantle, less material value
- Regulatory considerations for CCFLs, LEDs, plasma glass, etc
- Documenting sources, flow, and "cancellation"
- Setting equitable fee levels / adequate payment rates
- Will current model work into the future...?



Residual CRT Glass Management and the CEW Recycling Program

Purpose:

This issue paper proposes adjustments to regulations to allow for all legal ultimate disposition of residual cathode ray tube (CRT) glass derived from California's covered electronic waste (CEW) recycling program. The below discussion revisits assumptions, examines market realities, and assesses existing policies. It is marked as "draft" to indicate that it is not a formally adopted position of CalRecycle.

Summary:

In 2001, when the Department of Toxic Substances Control (DTSC) clarified that CRT devices were in fact considered hazardous when disposed, recycling markets generally existed for recovered residual CRT glass. Although the cost of device recovery and processing typically exceeded the combined value of the glass and other residuals (resulting in a "net cost" to recycle this technology), there were readily available options to send CRT glass. To remain within the universal waste rule framework for hazardous electronic waste and CRT management, such markets were either new CRT manufacturing or lead smelting. While never a high-value commodity or an easy material to handle compliantly, properly sorted and cleaned residual CRT glass reportedly could be sold at that time for between \$100 and \$200 per ton to CRT manufacturers, and metal smelters would accept leaded glass at a nominal cost for use as a flux.

Today, over a dozen years later, new CRT devices are no longer being consumed in any appreciable amount in the developed world. In fact, it is unclear where and in what quantity new CRTs are being fabricated for assembly into video devices. Processed CRT glass from the West is being shipped to India at a significant costs reportedly ranging from \$100 and \$200 per ton. Reportedly only three large metal smelters in North America will accept leaded CRT glass, though their capacity and demand for CRT glass is limited. Long-promised new lead extraction technologies for high-lead content funnel glass are still being developed, with questions remaining about throughput and longevity.

A viable alternative large-scale application for low-leaded residual panel glass (which contains barium oxide for optical properties and radiation shielding) that conforms to California's stringent hazardous waste management rules continues to be elusive, with "recycling" options available in other states limited by environmental rules here.

For the past several years, California's CEW recycling program has generated approximately 100 million pounds of residual CRT glass annually, though volumes appear to be beginning to decline. A key component of the CEW recycling program has been a requirement that the derived residual CRTs and/or CRT glass be "shipped" to a destination authorized to further treat that material, under the assumption (and universal waste management requirement) that the material would eventually reach

an appropriate recycling application. With the use of intermediate facilities and foreign destinations, it is becoming increasingly difficult to ensure when, where, and whether residual CRT glass has achieved an appropriate disposition.

To address these issues, CalRecycle's CEW recycling program is proposing to amend existing regulation in a manner that would eliminate restrictions on the ultimate disposition of residual CRT glass beyond compliance with applicable rules for material management administered by DTSC. While proposing to eliminate restrictions on what becomes of residual CRT glass, the CEW program is also proposing to place limits on where certain dispositions may occur and timeframes within which certain ultimate disposition must occur.

Background:

Soon after the enactment of the Electronic Waste Recycling Act of 2003 (Act) via the passage of SB 20, CalRecycle's predecessor, the California Integrated Waste Management Board (CIWMB), proposed draft regulations to implement the CEW recovery and recycling payment system. The proposed regulations established claim eligibility requirements that included criteria for the management of treatment residuals derived from processed CEW. In order for a recycler to submit a payment claim for recycling CEW that contained CRTs, derived residual CRTs or CRT glass must have been shipped to a destination authorized to receive and further treat that material. In fact, for administrative documentation reasons, the initial proposed regulations based the recycling payment claim on the weight of the shipped glass multiplied by a payment rate factor that depended on the degree of residual glass processing.

SB 50 amended the Act in 2004, prior to the promulgation of the original proposed regulations, and required the CIWMB to pay on the full weight of CEW recovered and cancelled (see Public Resources Code (PRC), Section 42478(b)), establishing a clear distinction between CEW recycling and residual management, including residual CRT glass management. However, regulations continued to condition submittal of recycling payment claims on the shipment of residual CRT glass. During final rulemaking in November 2006, in part due to a 2006 market disruption involving a major lead smelter, regulations were clarified that all CRT glass derived from the processing (cancellation) of CEW must be shipped prior to submitting a recycling payment claim for that CEW.

There were several reasons for establishing residual CRT glass management criteria within the CEW recycling system rules. Residual CRTs and CRT glass, while no longer CEW, remain a regulated hazardous waste. While the ultimate disposition of the residual CRTs and CRT glass would occur in a timeframe and location far beyond the necessary scale of recycling claim cycles, this shipping requirement was deemed prudent to ensure that the CRT material was in fact moving toward a disposition allowable under California universal waste rules, the regulatory framework within which all program participants currently operate. Furthermore, the shipment of glass provided certified weight documentation that could act as an additional proxy measure for the original amount of CEW being claimed for recycling payment.

In addition to the CRT shipping criteria, CEW recycling claimants are also required by regulation to submit as part of a claim “... a discussion of the ultimate disposition of the (CRT) material shipped demonstrating that the disposition is not disposal to land, water or air” -- see California Code of Regulations (CCR), Title 14, Sections 18660.23(g)(4)(C) and 18660.24(g)(4)(C).

This requirement was again intended to be supportive of the foundational hazardous waste regulatory framework, specifically universal waste rules, under which material collection, transportation, and treatment typically occurred. To date, it must be noted that all “ultimate dispositions” have not “ultimately” been in California.

Program Experience:

Universal waste management rules applicable to residual CRT glass handling and treatment have generally recognized new CRT manufacturing and lead smelting as the only appropriate ultimate recycling dispositions for CRT glass. However, neither of these end-uses currently occurs within the state of California. Early program participants generally shipped glass to North American smelters or to glass processors for beneficiation prior to its subsequent marketing to overseas CRT manufacturers. As more volume of CEW was recovered and processed, a larger proportion of derived CRT glass was ostensibly sent toward the so-called “glass-to-glass” market (e.g., CRT manufacturing), either directly or through processors. This practice was influenced by accessibility and price, even as the global production and sale of CRT devices rapidly declined.

By mid-2009, approximately 75% of residual CRTs and/or CRT glass was being shipped to Mexican processors. However, in the 4th quarter of 2009, access to Mexican CRT glass processors was interrupted for nearly a year. Because CEW recyclers are required to ship CRT glass to a destination “authorized to receive and further treat” the glass prior to filing CEW recycling claims, this interruption caused the volume of claimed CEW to decrease dramatically while recyclers searched for alternative outlets for CRT glass. A couple of recyclers pursued establishing their own in-state CRT processing capabilities, while other enterprises started or offered capacities out-of-state.

The requirement to “ship” CRT glass has been interpreted by CalRecycle, as well as its predecessor (CIWMB), as meaning that the glass be moved off-site from the facility where the CEW was cancelled and the treatment residual generated. This interpretation has been supportive of universal waste accumulation time limits by discouraging onsite storage. As ready access to ultimate disposition options became more uncertain, and as the price charged by out-of-state processors increased, more recyclers pursued interest in establishing their own in-state, off-site processing capabilities (or at least authorizations) to fulfill treatment residual shipping criteria. While this would allow CEW recycling payment claims to be submitted with regularity, it did not create new end markets for CRT glass.

Current Situation:

CalRecycle understands that current markets for residual CRTs and CRT glass are limited. Access to traditional lead smelting is reportedly difficult, with only one facility in the U.S. (Doe Run, Missouri) and

two in Canada (Teck Cominco and Glencore (fka Xstrata)) known to accept CRT glass in volume. Furthermore, traditional smelting results in hazardous slag wastes that must be subsequently managed. There remains one known CRT manufacturer available to receive residual glass generated by California recyclers (Videocon Industries, located in India).

Access to Videocon is typically through an intermediate processor and/or broker, such as Glassico (aka TDA/TDM) located in Mexicali. However, given that the residual CRT glass derived from many states' recycling efforts are also competing for the same outlet, reliable access to and the longevity of this market for California recyclers is uncertain.

With the exception of Doe Run and Glencore (smelters) and Videocon Industries (the CRT manufacturer in India), all out-of-state destinations that received residual CRT shipments since 2013 are not ultimate endpoints; instead, they are considered intermediate facilities that ostensibly perform some degree of CRT processing before presumably shipping the glass onto a subsequent destination or ultimate disposition. One such operation, Dow Management in Yuma, AZ, unfortunately abandoned its "facilities" in June 2013, leaving behind in several warehouses substantial volumes of CRT in various stages of processing, including approximately 9 million pounds of CRT received from California recyclers. Most of the recyclers that shipped to Dow have since incurred considerable expense retrieving and redirecting the CRT for which they are legally responsible, though the effort to clear all the warehouses continues.

As of the drafting of this paper, approximately five California CEW recyclers are directly or indirectly affiliated with in-state operations authorized to further treat (e.g., break, cut, sort, separate, clean, etc.) residual CRT and/or CRT glass. These facilities are ostensibly authorized to treat CRTs under CCR, Title 22, Section 66273.73 and may accumulate CRTs and/or CRT glass for up to one year under universal waste rules before presumably shipping the CRTs and/or CRT glass onto another appropriate destination. Meanwhile, with the demise of Dow Management, all intact residual CRT shipped directly out-of-state within the past two years has been sent to either Closed Loop Refining & Recovery in Phoenix, AZ, or to Glassico in Mexicali.

Emergency CRT Management Regulations:

On October 15, 2012, DTSC issued emergency regulations governing the management of CRTs and CRT glass. These rules, readopted September 15, 2014, established stricter specificity on how in-state handlers are regulated depending on the ultimate disposition of this material. The rules preserve the ability of handlers who simply collect and dismantle CRT devices to operate under the universal waste framework. The rules also maintained pathways for CRTs and CRT glass to be shipped and ultimately recycled through traditional markets (smelting and CRT manufacturing) under the universal waste framework.

Perhaps the most significant changes in the rules created the allowance for CRTs and CRT glass to be ultimately managed via alternative recycling applications, if such applications exist, without necessarily jeopardizing the upstream handling and treatment of CRT devices and CRTs under the universal waste

concept. These changes also opened up the possibility of, and specified the standards for, regulated disposal for residual CRT glass should feasible markets be unavailable. (It must be noted again that the CEW recycling program regulations are separate from, though constructed with deference to, the rules that govern the physical management of residual CRTs and CRT glass.)

However, although now afforded the possibility of residual CRT disposal under DTSC's new CRT rules, the current CEW program rules require recyclers to "ship" residual CRTs and CRT glass for purposes other than disposal to land, air, or water. Unless and until that changes, CEW recyclers must continue to search for what appear to be elusive and diminishing residual CRT glass recycling options.

Looking Ahead for CRT Management:

CRT glass can be loosely categorized into leaded glass and non-leaded glass. Sometimes this is referred to as "funnel glass" and "panel glass" respectively, but such classification can be misleading since the panel glass of some CRTs also contains lead. And even so-called non-leaded glass contains other toxic metals, such as barium, at levels that create environmental and regulatory concern, particularly under current California hazardous waste law. The ability to effectively identify, separate, characterize, process, and test residual CRT glass will be critical to future management options.

New lead extraction technologies reportedly are emerging that may be more efficient than traditional smelting. Facilities in AZ, OH, TX, NY, and VA utilizing these new technologies are in differing stages of development but not in production-scale operation. Alternative applications also have been reported for non-leaded CRT glass, such as in building materials, tile, insulation, aggregate, proppant, industrial abrasives, reflective coatings, and fill. However CalRecycle is not aware of any alternative production-scale applications in the United States that have been demonstrated to and evaluated by DTSC and found to constitute an ultimate disposition that would warrant inclusion in the list of uses allowed under universal waste rules. Nor is CalRecycle aware of any proposed use for non-leaded CRT glass that has secured formal concurrence from DTSC as an excluded recyclable material.

As the CEW recycling system moves forward, consideration must be given to the availability of viable CRT glass markets and alternatives, the anticipated lifespan of those markets and the available supply of feedstock, and the environmental impacts associated with moving the glass to those markets versus other management options. Furthermore, while markets in far-off geographic areas may exist today, the economic ripples resulting from use of those markets should be a factor in any policy assessment. Does the fact that California recyclers pay to send CRT glass to certain downstream recipients artificially subsidize the continued consumption of hazardous inputs, prolonging the use of that material in products that will ultimately be disposed elsewhere, while potentially and simultaneously suppressing the development of local recycling infrastructure in certain destination countries?

The fact that the ultimate disposition of essentially all residual CRT glass currently occurs beyond California's borders, and in a timeframe that makes the effective monitoring of that disposition problematic, suggests policies that ensure more certain fates closer to home should be considered.

Proposed Next Steps:

CalRecycle's CEW recycling program is proposing to amend existing regulation in a manner that would eliminate restrictions on the ultimate disposition of residual CRT glass beyond compliance with applicable rules for material management administered by DTSC.

Doing so would afford California recyclers the opportunity to explore the viability of all legal residual CRT disposition options available under the emergency regulations promulgated by DTSC, giving both the CEW recycling industry and regulators an opportunity to gain experience with such practices, should they be pursued. It would also create an alternative to an essentially monopolistic downstream market, which could better illuminate industry economics and reveal the actual costs and value associated with the management of this waste stream.

While proposing to eliminate restrictions on what becomes of residual CRT glass, the CEW program is also proposing to place limits on where certain dispositions may occur and timeframes within which certain ultimate disposition must occur. Additional demonstration of disposition will be required. Specifically, in the interest of maintaining direct access for California regulators to disposal sites that might receive processed panel glass, staff is proposing that any disposal of residual CRT glass derived from the CEW program be limited to Class II or Class III landfill units located in California. Additionally, staff is proposing that any residual CRT glass derived from the CEW program destined for disposal must be documented as having been legally disposed prior to the submittal of a payment claim for the originating CEW.

With the intent of limiting the possibility for indeterminate and speculative accumulation of CRT glass derived from the CEW program, it is also proposed that CalRecycle establish the obligation on CEW recycling claimants to be able to demonstrate, upon request and under penalty of forfeiture of any received recycling payment, that CRT and/or CRT glass shipped to an intermediate facility has reached its intended ultimate disposition within one year of initial shipment. Such demonstration would build upon the foundation of disposition documentation requirements established in DTSC's emergency regulations, specifically CCR, Title 22, Sections 66273.72(b)(4)(F) and 66273.75(f)(6).

While other, broader revisions to the current CEW program regulations are needed in the coming months, along with new regulations necessary to implement a civil liability facet to the program, this specific proposal focuses on amending only those sections that affect the disposition of residual CRT glass derived from CEW processing within the CEW recycling program, along with associated documentation requirements to demonstrate compliant dispositions. The amendments would be made under the emergency rulemaking authority granted by PRC, Section 42475.2.

For reference and discussion, an associated workshop attachment shows draft regulatory revisions via underline and ~~strike through~~ in applicable sections of Title 14 of the California Code of Regulations.

RESIDUAL CRT MANAGEMENT

PROPOSED REGULATORY CHANGES

Jill Hunt, Manager
California E-waste Program
916.311.8622 | jill.hunt@calrecycle.com

PROPOSED CHANGES TO CURRENT CEW RULES

- Applicable rules are found in 14 CCR 18660.5 et seq
- Associated workshop document presents proposed changes in underline and ~~strikethrough~~
- Focus of changes is lifting CRT disposition restrictions
 - Improving ultimate disposition documentation / awareness
 - Placing limits on location and timing of zerohole activities
- CalRecycle recognizes there are other rules requiring attention

14 CCR 18660.5 DEFINITIONS

(46) "Treatment residual" means any material resulting from the dismantling or treatment of a CEW. Treatment residuals are not considered CEWs and are not eligible for payment, however the costs and/or revenues associated with handling treatment residuals shall be factored into the net cost of recycling CEW. ~~Residuals~~ Treatment residuals may be used to demonstrate the proper processing of CEWs, and bills of lading for documentation demonstrating the subsequent movement and/or ultimate disposition of the material (treatment residual) may be required as part of the claim for payment submitted by an approved recycler.

14 CCR 18660.5 DEFINITIONS

(47) "Ultimate disposition" means, for the purposes of this Chapter, the consumption of a treatment residual into a manufacturing process or the disposal of a treatment residual at a permitted disposal facility. Storage of a treatment residual at a site of generation or at an intermediate facility, or accumulation of a treatment residual at a location prior to consuming or disposing, is not ultimate disposition.

14 CCR 18660.6 APPLICABILITY AND LIMITATIONS

- (h) Limitations on recycling payments on exported CEWs and the disposition of treatment residuals.
- (i) Disposal of treatment residual CRT glass by an approved recycler shall not be limited to recycling payments for the exported CEW unless the treatment residual is not commercially recoverable as well as unless an estimate of cost of the material is provided to the health, safety and the environment.
- (j) Approved recycler may not qualify for CEW recycling payments if treatment residuals are managed in a nonapproved or noncertified manner.
- (k) Treatment residuals shall be managed for 221 until the system is successfully installed.
- (l) Financial liability may be determined by management records related to treatment residuals and legal management options.
- (m) CalRecycle may demand demonstration of financial liability.

14 CCR 18660.6 APPLICABILITY AND LIMITATIONS

- (h) Limitations on recycling payments on exported CEWs and the disposition of treatment residuals.
- (i) Approved recycler that ships treatment residual CRT glass for the purpose of recycling shall be capable of demonstrating to CalRecycle or its designee upon demand that the material has reached an ultimate disposition within one year of the initial shipment.
- (j) If treatment residuals are disposed, an approved recycler shall ensure that the disposal is compliant with all applicable laws and conforms to any condition of authorization or approval under which the approved recycler managed the CEW from which the treatment residuals were derived.

14 CCR 18660.6 APPLICABILITY AND LIMITATIONS

- (h) Limitations on recycling payments on exported CEWs and the disposition of treatment residuals.
- (i) Disposal of treatment residual CRT glass by an approved recycler at a Class II or Class III waste management unit as defined in Title 27 of the California Code of Regulations shall be limited to facilities located within the state of California.
- (j) CalRecycle may demand demonstration of compliance and/or conformance with all laws associated with treatment residual disposition.

14 CCR 18660.21 REQUIREMENTS FOR RECYCLER

- (k) In addition to the general record keeping requirements in 14 CCR 18660.8 of this Chapter, an approved recycler shall maintain the following records:
 - (1) Records for all export receipts for treatment residuals including the following information:
 - (A) Applicable state and federal laws, including but not limited to export and import permits, bills of lading, manifests, destination records, taxes, and payment.
 - (2) Applicable records shall be maintained pursuant to 32000.1 (b)(5) of this Chapter and for purposes of demonstration of financial liability.
- (l) Date of shipment.
- (m) Quantity and name of type of shipment.
- (n) The facility and address of shipping vendor.
- (o) The facility and address of the buyer or other recipient, and destination name and address if different.
- (p) Dates of receipt and delivery of the ultimate disposition of the treatment residual.

14 CCR 18660.22 REQUIREMENTS FOR CLAIMS

(a) An approved recycler shall submit all of the following general information in a claim for recycling payments from CalRecycle:

(7) The signature and title of a person with signature authority for payment claims as designated pursuant to Section 18660.11 of this Chapter. The signature block shall include the following certification statements:

(A) "I hereby declare under penalty of perjury that:"

14 CCR 18660.22 REQUIREMENTS FOR CLAIMS

2. "All claimed CEWs have been cancelled as specified in Section 18660.32 and are unable to re-enter the payment system, and all treatment residuals specified in Section 18660.22(c) derived from the claimed CEWs have been shipped off-site to an end-use destination authorized to receive and further treat or legally dispose of those treatment residuals;"

4. "This payment claim, including any and all accompanying documents, has been examined by me and is true and correct-and-complete."

5. "I understand that errors or omissions on my part may result in CalRecycle delaying or denying payment."

14 CCR 18660.22 REQUIREMENTS FOR CLAIMS

(c) Prior to submitting a payment claim for cancelled CEWs, an approved recycler shall:

(1) Ship off-site all the following treatment residuals derived from the cancelled CEWs to an end-use destination authorized to receive and further treat or legally dispose of the treatment residual:

(A) CRT glass cullet if conducting CRT or CRT-containing CEW cancellation through crushing or shredding;

(B) Bare CRTs and/or CRT glass cullet if conducting CRT or CRT-containing CEW cancellation through dismantling to a bare CRT after relieving the vacuum.

14 CCR 18660.23 REQUIREMENTS FOR CLAIMS

(c) An approved recycler shall attach to the payment claim the following documentation from all shipments of CRT glass cullet made during the reporting period of a calendar month:

(4) Verification of post-cancellation disposition, including:

(C) For all shipments of CRT glass cullet, a disposition of the ultimate disposition of the material shipped demonstrating that the disposition is not disposed to land, water or atmosphere in any applicable law and conformant with the approved recycler's conditions of authorization.

1. All documentation necessary to demonstrate compliant material disposition shall be included in the disposition.

2. CalRecycle may demand additional documentation as necessary from an approved recycler to determine the legitimacy of material disposition.

14 CCR 18660.24 REQUIREMENTS FOR CLAIMS

(g) An approved recycler shall attach the following documentation for all shipments of bare CRTs made during the reporting period of a calendar month:

(4) Verification of post cancellation disposition, including:

(C) For all shipments of bare CRTs, a discussion of the ultimate disposition of the material shipped demonstrating that the disposition is not disposal-to-land, water or air in violation of applicable law and conformant with the approved recycler's conditions of authorization.

1. All documentation necessary to demonstrate compliant material disposition shall be included in the discussion.

2. CalRecycle may demand additional documentation as necessary from an approved recycler to determine the legality of material disposition.

14 CCR 18660.X MISCELLANEOUS

14 CCR 18660.23 & .24

(e) (1) The total weight of CRT-containing CEWs cancelled for the reporting month from which all treatment residuals specified in Section 18660.22(c)(1) of this Chapter have been shipped off-site to an end-use destination authorized to receive and further treat or legally dispose of those treatment residuals.

14 CCR 18660.X MISCELLANEOUS

14 CCR 18660.23 & .24

(h) In addition to the documentation required in subsection (g), an approved recycler shall attach to the payment claim a description and verification quantification of the disposition of other treatment residuals derived from cancellation of the CRT-containing CEWs, including but not limited to metals, plastics, fibers and wood.

NEXT STEPS

- Receive, review, incorporate comments
- Prepare "Request for Approval" and post notice
- Summarize proposal at June CalRecycle Monthly
- Seek approval to submit emergency regulation package to OAL

• Questions? Comments?



EDMUND G. BROWN JR.
GOVERNOR



MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

NOTICE OF AVAILABILITY, NOTICE OF PUBLIC WORKSHOP, AND NOTICE OF PUBLIC MEETING

DRAFT ENVIRONMENTAL IMPACT REPORT AND PROPOSED GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS

NOTICE IS HEREBY GIVEN that the State Water Resources Control Board (State Water Board) has prepared a draft California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) and proposed General Waste Discharge Requirements for Composting Operations (General Order). The State Water Board will receive public comments on the draft EIR and proposed General Order.

NOTICE IS ADDITIONALLY HEREBY GIVEN that the State Water Board will hold a public workshop to provide information and receive comments on the draft EIR and proposed General Order. A quorum of the State Water Board Members may attend this workshop. However, the State Water Board will not make a determination, certify the EIR, or adopt the General Order at this meeting. Details of the public workshop are provided below.

Friday, February 13, 2015 – 10:00 a.m.
Joe Serna Jr. - Cal/EPA Headquarters Building
Byron Sher Auditorium
1001 I Street, Second Floor
Sacramento, CA 95814

NOTICE IS ADDITIONALLY HEREBY GIVEN that the State Water Board will hold a public meeting to receive comments on the General Order and associated EIR. The State Water Board may certify the EIR and adopt the General Order at the end of this meeting. Details of the meeting are provided below.

Tuesday, June 16, 2015 – 9:00 a.m.
Joe Serna Jr. - Cal/EPA Headquarters Building
Coastal Hearing Room
1001 I Street, Second Floor
Sacramento, CA 95814

BACKGROUND

The State Water Board is preparing a General Order for composting operations. The General Order will be used by the Regional Water Quality Control Boards (Regional Water Boards) to streamline permitting and protect water quality. The General Order includes conditions that address appropriate water quality protection measures at existing and proposed composting operations.

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE DIRECTOR

1001 I Street, Sacramento, CA 95814 | Mailing Address: P.O. Box 100, Sacramento, Ca 95812-0100 | www.waterboards.ca.gov



The project may have significant effects on agriculture, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gases, hazards and hazardous materials, hydrology and water quality, noise, transportation, and utilities. The draft EIR analyzes potential impacts associated with the adoption of the proposed General Order and reasonably attempts to identify potential mitigation measures to address any identified significant impacts.

AVAILABILITY OF DOCUMENTS

The draft EIR and General Order are available for review online at:
http://www.swrcb.ca.gov/water_issues/programs/compost/.

For those without internet access, please contact Ms. Leslie Graves at (916) 341-5810 or by email at: Composting@waterboards.ca.gov to obtain the documents.

SUBMISSION OF WRITTEN COMMENTS

The State Water Board will accept both written and oral comments on the draft EIR and General Order. The comment period will begin on Tuesday, January 13, 2015 and will end on Monday, March 2, 2015. Written comments must be received by **12:00 p.m. (noon) on March 2, 2015** and be addressed to:

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Comment letters may be submitted electronically (preferred), by facsimile, U.S. Mail, or courier. Please indicate on the transmittal subject line: "**Comment Letter – General Order for Composting Operations.**"

Electronic submittals shall be in pdf text format (less than 15 megabytes in total size), to the Clerk to the Board via e-mail at commentletters@waterboards.ca.gov. If the file is greater than 15 megabytes in total size, then the comment letter may be submitted by fax at (916) 341-5620. U.S. Mail must be **received** (not postmarked) at the State Water Board offices by the close of the comment period. Couriers delivering comment letters must check in with lobby security personnel, who can contact Ms. Townsend at (916) 341-5600.

PROCEDURAL MATTERS

At the public meeting there will be no sworn testimony or cross-examination of participants. However, the State Water Board and its staff may ask clarifying questions. Participants will be given an opportunity to summarize and supplement their written materials with oral presentations. To ensure a productive and efficient meeting in which all participants have an opportunity to participate, oral presentations may be time-limited. For other presentation recommendations, please go to the State Water Board's web site at:
http://www.waterboards.ca.gov/board_info/meetings/board_presentations.shtml

EX PARTE DISCLOSURE REQUIREMENTS FOR PENDING GENERAL ORDERS

This item is subject to the ex parte communication disclosure requirements of Water Code section 13287, as explained in:

http://www.waterboards.ca.gov/laws_regulations/docs/exparte.pdf

Any communications between interested persons and board members (other than at a noticed board meeting or submitted as a comment letter in compliance with the public notice) must be disclosed by the interested person within seven days of the communication. Sample disclosure

forms are available at: http://www.waterboards.ca.gov/laws_regulations/docs/swrcb_godf_fillin.pdf. Beginning **June 3, 2015**, ex parte communications between interested persons and board members concerning this item are prohibited.

PARKING AND ACCESSIBILITY

For directions to the Joe Serna, Jr. (Cal/EPA) Building and public parking information, please refer to the map on the State Water Board web site at: <http://www.calepa.ca.gov/EPAbldg/location.htm>. The Cal/EPA Building is accessible to persons with disabilities. Individuals requiring special accommodations are requested to call (916) 341-5880 at least five working days prior to the meeting. TDD users may contact the California Relay Service at (800) 735-2929 or voice line at (800) 735-2922. An audio broadcast of the meeting will be available via the Internet and can be accessed at: <http://www.calepa.ca.gov/broadcast>.

All visitors to the Cal/EPA Building are required to sign in and obtain a badge at the Visitor Services Center located just inside the main entrance (10th Street entrance). Valid picture identification may be required. Please allow up to 15 minutes for receiving security clearance.


FUTURE NOTICES

The State Water Board will hold the public workshop and public meeting at the time and place noted above. Any change in the date, time, and place of the public workshop and public meeting will be noticed on the State Water Board electronic mailing list (Lyris list). Any persons desiring to receive future notices concerning the proposed General Order and EIR, including any changes to the notice of public meeting and consideration of adoption, must sign up for Lyris list, access the E-mail List Subscription form, select "Water Quality" category, check the box for "Composting Operations," and provide the required information. The subscription form is located at: http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml.

CONTACT INFORMATION

Please direct all questions regarding the proposed General Order and/or CEQA documents to Ms. Leslie Graves by telephone at (916) 341-5810 or by email at Composting@waterboards.ca.gov.

Date January 13, 2015



Jeanine Townsend
Clerk to the Board



Fact Sheet

DRAFT GENERAL WASTE DISCHARGE REQUIREMENTS FOR COMPOSTING OPERATIONS



OVERVIEW

The State Water Resources Control Board (State Water Board) is preparing an Environmental Impact Report (EIR) for General Waste Discharge Requirements for Composting Operations (General Order) that would cover facilities that collect certain organic material such as leaves, tree trimmings, grass, food leftovers, and scrap paper products to create compost. Compost contains beneficial micro-organisms that break down organics into a stable humus-rich soil amendment. Compost helps soils retain moisture and nutrients, potentially reducing runoff and irrigation needs.

Composting operations help keep organic material out of landfills and may help the state to meet its goal to recycle, compost, or reduce 75 percent of solid waste in landfills by 2020. However, composting operations have the potential to pose a threat to water quality. The State Water Board supports the goal of composting, when operated in a manner that protects water quality.

HOW DOES COMPOSTING AFFECT WATER QUALITY?

Composting piles form leachate – a liquid created when certain wastes decompose or as excess moisture flows through the pile. Depending on its source and composition, leachate can contain a wide variety of pollutants, which, if allowed to seep into groundwater or run off into surface waters, could cause water quality problems. Leachate can potentially deplete oxygen in waterways and may contain unacceptably high levels of nitrogen, phosphorus, metals, and other pollutants that could impact waters of the state.



CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

STATE WATER RESOURCES CONTROL BOARD

1001 J Street, Sacramento, CA 95814 • 916-341-5254 • Mailing Address: P.O. Box 100, Sacramento, CA 95812-0100 • www.waterboards.ca.gov



WHO WILL BE AFFECTED BY THIS ORDER?

The proposed General Order will apply to existing and new composting operations, including commercial, agricultural, institutional, and governmental facilities. The General Order will exempt most small composting operations, such as home composting or community gardens.

The proposed General Order will set standards for the construction, operation, and maintenance of composting facilities to protect surface water and groundwater. The proposed General Order provides a number of requirements, including standards for the permeability of the ground underneath the composting piles, drainage, and specifications for leachate collection and containment. The Order will also include requirements for monitoring and reporting.

This is not a new regulatory endeavor. Regional Water Boards previously regulated composting operations under region-specific conditional waivers of waste discharge requirements or general orders. Some composting operations in California are currently operating under individual waste discharge requirements. Individual waste discharge requirements address site-specific conditions and may contain more stringent requirements than what is in the proposed General Order.

PUBLIC PROCESS

The State Water Board follows a strict, legally-mandated process when adopting general orders. There will be multiple opportunities for public comment and discussion. The Draft EIR and General Order was released for public comment on January 13, 2015. State Water Board members consider items for adoption at publicly noticed meetings that are open to the general public. The General Order will be presented to the State Water Board for consideration in June 2015.

HOW TO STAY INFORMED

To keep apprised of the status of the proposed General Order, you can sign up for State Water Board notifications at the link below, check the box for "Composting Operations."

http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml#quality

And you can get more information on the State Water Board web site:

http://www.waterboards.ca.gov/water_issues/programs/compost/

If you have any questions, you can submit them via email to Composting@waterboards.ca.gov.

(Fact Sheet updated 2.9.2015)

County of San Diego
City of Rocklin
City of Vista
City of Del Mar
County of Stanislaus
City of Tracy
City of El Paso Robles
City of Chula Vista
City of Escondido
City of Yuba
City of Santee
City of Elk Grove
County of Butte
City of Folsom
City of San Marcos
County of El Dorado
City of Sacramento
County of Lassen
City of Galt
City of Roseville
City of Rancho Cordova
County of Solano
City of Lemon Grove
County of Sacramento
City of La Quinta
County of Yolo
County of Santa Cruz
County of Riverside
Town of Truckee
City of Pismo Beach
City of Corona
City of Redding
City of Watsonville
City of Encinitas
City of Yreka
City of Hanford
City of Santa Cruz
City of Murrieta
Calaveras County
California State Association of Counties
San Diego County Regional Airport
Authority
Rural County Representatives of CA

April 6, 2015

Dear Chairwoman Marcus:

The undersigned local government agencies and organizations support clean waterways. We respectfully request that the State Water Resources Control Board not adopt the proposed Final Trash Amendments on April 7, 2015, and instead consult with stakeholders to develop a more strategic and cost-effective approach that focuses regulatory requirements on areas with documented trash problems originating from the storm drain system.

However, if the State Water Resources Control Board moves forward with amending the Water Quality Plans at the hearing on April 7, 2015, the undersigned local government agencies and organizations respectfully request that the Board include the attached changes to improve the workability of the proposed Final Trash Amendments. A subgroup of our entities has worked collaboratively with the State Water Resources Control Board and with the California Stormwater Quality Association (CASQA) to develop this language, which would address some of the local agencies' key concerns. These changes will provide much needed flexibility for communities to develop more strategic and cost-effective approaches that focus action and resource expenditures on areas with verified trash problems that originate from the storm drain system.

We ask that our proposed changes be included in both the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California (ISWEBE) and the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) as attached. The proposed changes are designed to provide flexibility in implementing the Trash Amendments to account for the wide range of conditions around the state. They would also allow MS4 permittees to provide information to demonstrate that trash is not present in amounts of concern in certain areas and to instead focus limited resources on higher priority issues rather than implementing Track 1 or Track 2. In addition, we have proposed changes that allows for the use of a more realistic assessment method using visual assessment procedures for MS4 permittees to demonstrate compliance with the Track 2 requirements. As written, the proposed methods for assessing compliance with the Trash Amendments will be challenging to implement and will not effectively demonstrate compliance.

We thank the State Water Resources Board members for their dedication to protecting the waterways of our State. The local government agencies and organizations signatory to this letter support these changes that will be presented at the April 7, 2015 hearing.

Sincerely,



Richard E. Crompton
 RICHARD E. CROMPTON
 Director Public Works
 County of San Diego



Steve M. Pedretti
 Steve Pedretti
 Director Community
 Development Agency
 County of El Dorado



Thomas Valentino
 Thomas Valentino,
 P.E. Manager
 Lassen Regional Solid Waste
 Management Authority
 County of Lassen



Michael L. Peterson
 MICHAEL L. PETERSON
 Director
 Sacramento County
 Department of Water
 Resources



Bill Emlen
 Bill Emlen
 Director of Resource
 Management
 County of Solano



William S. Valle
 WILLIAM S. VALLE
 ASSISTANT DIRECTOR OF ENGINEERING



Al Corti
 Al Corti, Mayor
 City of Del Mar



Richard W. Shepard
 Richard W. Shepard, P.E.
 Public Works Director
 City of Elk Grove



Christopher W. McK...
 Christopher W. McK...
 City of Escondido



David E. Miller
 David E. Miller, AICP
 Director of Public Works
 and Community
 Development
 City of Folsom



Steven Winkler
 Steven Winkler
 Public Works Director,
 City of Galt Public Works Department



Graham Mitchell
 Graham Mitchell
 City Manager
 City of Lemon Grove



Steve C. Horn
 Steve C. Horn
 County of Riverside



Cyrus Abhar
 Cyrus Abhar
 Public Works Director
 City of Rancho Cordova



Carol Garcia
 Mayor Carol Garcia
 City of Roseville



John F. Shirey
 John Shirey
 City Manager
 City of Sacramento



Mike Edwards
 Mike Edwards
 Director Public Works
 City Engineer
 City of San Marcos



Melanie Kush
 Melanie Kush
 Acting Director of Development Services
 City of Santee



Judy Ritter

Judy Ritter, Mayor
City of Vista



Diana Langley
Diana Langley
Public Works Director
City of Yuba City



Karen Keene

Karen Keene
Senior Legislative
Representative
California State Association
of Counties



Mary Pfitz

Rural County
Representatives of CA



Paul Manasjan

Paul Manasjan
Director of Environmental
Affairs
San Diego County Regional
Airport Authority



David Lacaro

David Lacaro
Stormwater Program Manager
City of El Paso De Robles



David Mohlenbrok

David Mohlenbrok
Environmental Services Manager
City of Rocklin



Stephanie K. Reyna-Hiestand

Stephanie K. Reyna-Hiestand
Water Resources Analyst II
City of Tracy



Mike Crump

Mike Crump
Director, Department of
Public Works
County of Butte



David A. Leamon

David A. Leamon, PE
Deputy Public
Works Director
County of Stanislaus



Taro Echiburi

Taro Echiburi, AICP
Director
Department of Planning, Public
Works, and Environmental Services
County of Yolo



John J. Presleigh

JOHN J. PRESLEIGH
Director of Public Works



Jessica Thompson

Jessica Thompson, P.E.
Senior Engineer
Town of Truckee



Benjamin A. Fine

Benjamin A. Fine
City Engineer
Director of Public Works
City of Pismo Beach



Brian Crane

Brian Crane
Director of Public Works
City of Redding



Nelson D. Nelson
 Nelson D. Nelson
 Director of Public Works
 City of Corona



Robert Ketley
 Robert Ketley
 City of Watsonville



Erik Steenblock
 Erik Steenblock
 Environmental Program Manager
 City of Encinitas



Steve Baker
 Steve Baker, City Manager
 Steve Baker
 City of Yreka



Lou Camara
 Lou Camara
 Director of Public Works
 City of Hanford

Mark R. Dettie
 SANTA CRUZ
 Mark R. Dettie
 Director of Public Works
 City of Santa Cruz



Bryan McKinney, P.E.
 Bryan McKinney, P.E.
 Principal Engineer
 City of La Quinta



Jeff Crovitz, P.E.
 Jeff Crovitz, P.E.
 Director of Public Works
 Calaveras County



Robert K. Moehling, P.E.
 Robert K. Moehling, P.E.
 City Engineer
 City of Murrieta

Attachments:

- Attachment A – Recommended Edits to March 26, 2015 Final Trash Amendments
- Attachment B – Proxy Letters
- Attachment C – Agency Letters

Mary Pitto

From: California Product Stewardship Council [Jordan=calpsc.org@mail155.atl101.mcdlv.net] on behalf of California Product Stewardship Council [Jordan@calpsc.org]
Sent: Tuesday, April 14, 2015 2:30 PM
To: Mary Pitto
Subject: 2015 Arrow Awards Press Release

Press Release: 2015 Arrow Awards Open

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**APPLICATION PERIOD OPEN FOR THE
6th ANNUAL ARROW AWARDS**

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**RECOGNIZING CALIFORNIA BUSINESS AND INDUSTRY LEADERS
IN PRODUCT STEWARDSHIP**

FOR IMMEDIATE RELEASE

Sacramento, California – April 14, 2015



Application Period Open!

Today, the California Product Stewardship Council announced that applications are being accepted for the 6th annual Arrow Awards, recognizing business and industry leaders for system and design innovations, coalition building, service and take-back and overall excellence in product stewardship and green design. Any business entity (division or facility located in California), third party stewardship organizations and non-profits are eligible to apply.

"This is our opportunity to recognize the accomplishments of California businesses with innovative product stewardship programs and outstanding partnerships that make product stewardship possible. We want to inspire others to integrate the principles of product stewardship into their operations," said Heidi Sanborn, Executive Director of the California Product Stewardship Council.

The awards categories are:

- Golden Arrow Award for Overall Excellence in Product Stewardship
- Green Arrow Award for System and Design Innovations
- Bow and Arrow Award for Coalition Building
- Infinity Arrow Award for Service and Take-Back



**2013 Golden Arrow Award Winner pictured left to right:
Sean Burchill, Call2Recycle; Lynn France, Chair, CPSC Board
Photo credit: Bob Hollis**

Applications are open and will be accepted until midnight PST on Monday, June 29, 2015. Applications are available at: <http://calpsc.org/arrow-awards-application/>. The Awards Presentations will take place at the California Resource Recovery Association's Annual Conference on August 6, 2015 in Los Angeles, CA. More than six-hundred local and state government representatives, state legislators and industry representatives are expected to attend. To review previous award winners go to: <http://calpsc.org/get-involved/arrow-award-winners/>.

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March 13, 2015

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Alameda County Safe Drug Disposal Ordinance

[Supreme Court Appeal](#): The Court has requested a response from Alameda County by April 15, 2015.

[Public Hearing on Product Stewardship Plans](#): Two Product Stewardship Plans - the [Exelsis Safe Drug Disposal Plan](#) and the [Alameda Med-Project LLC Stewardship Plan](#) - were discussed at the 2/23 public hearing. Both were approved by the County on 2/25.

San Francisco Safe Drug Disposal Ordinance

The ordinance was considered on March 10th at [San Francisco Board of Supervisors Meeting](#). The Board of Supervisors voted 11 - 0 to adopt the ordinance at the first reading. The second and [final reading and vote](#) will be on March 17th. Watch the meeting [here](#).

[Government Audit and Oversight Committee Public Hearing](#) (February 26, 2015): The Ordinance was heard in Committee and passed by a 3-0 vote with two clarifying amendments. At the hearing Supervisor Yee requested to be a co-author. Watch the hearing [here](#).



Marin County Rx Safe Disposal Workgroup

First Workgroup Planning Meeting - The first workgroup planning meeting was held on February 27th and discussion outlined what the community would like to see in a program, which will be brought before the Board of Supervisors at an upcoming meeting.



[Secure Medicine Return - Fighting an Epidemic of Drug Overdoses](#) video by King County

King County, WA Secure Medications Return Regulations

[Stewardship Plans Submitted for Review](#) Comments due by March 19th, 2015.

- [King County MED-Project Plan](#)
- [Return Meds LLC](#)

Press

San Mateo County Supervisor Tissier Talks Meds with *San Mateo County Today* on 2/27/2015



CPSC Interviewed on Go Green Radio

[Should Pharmaceutical Companies Pay for Local Drug Take-Back Programs?](#) - CPSC's Heidi Sanborn along with Guillermo Rodriguez and Conor Johnston with the City of



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San Francisco and Dr. Matt Willis with Marin County Health & Human Services Department discuss the issues around safe medicine disposal on the national Go Green radio show 3/6/15



[Creating Safe Medicine Disposal Options](#) - Op Ed by San Francisco Board President London Breed, 2/25/2015



[That Flushing Sound: San Francisco Moves Closer to a Take-Back Program](#) - Ed Silverman, The Wall Street Journal, 2/27/2015

**International Meds & Sharps Programs
New Fact Sheets Posted!**

CPSC has researched international industry financed & operated take back programs for medicines and sharps and prepared summary fact sheets available on CPSC's [pharmaceutical page](#). The following are new fact sheets uploaded in late February 2015:

- [Province of Nova Scotia, Canada](#) (meds & sharps)
- [Province of Prince Edward Island, Canada](#) (meds & sharps)
- [Province of Saskatchewan, Canada](#) ("transitional" meds EPR program)



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California Paint Stewardship Program

Each year about 650 million gallons of architectural paint is sold in the United States. Did you know that about 10 percent goes unused and is available for recycling?

California's Paint Stewardship Law requires the paint manufacturing industry to develop a financially and environmentally sustainable program to manage postconsumer architectural paint. The program includes: education about buying the right amount of paint, tips for using up remaining paint and setting up convenient recycling locations throughout the state.

PaintCare is a non-profit organization established by paint manufacturers to run the program in California and any state with a paint stewardship law.

Program Products

These products have fees when you buy them and are accepted for free at drop-off sites:

- Interior and exterior architectural paints: latex, acrylic, water-based, alkyd, oil-based, enamel (including textured coatings)
- Deck coatings, floor paints (including elastomeric)
- Primers, sealers, undercoaters
- Stains
- Shellacs, lacquers, varnishes, urethanes (single component)
- Waterproofing concrete/masonry/wood sealers and repellents (not tar or bitumen-based)
- Metal coatings, rust preventatives
- Field and lawn paints

Leaking, unlabeled and empty containers are not accepted at drop-off sites.

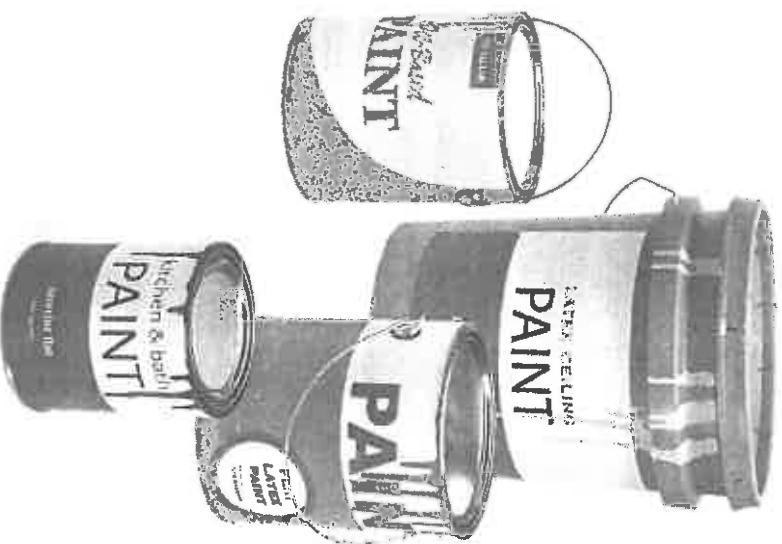
⊘ Non-Program Products

- Paint thinners, mineral spirits, solvents
- Aerosol paints (spray cans)
- Auto and marine paints
- Art and craft paints
- Caulk, epoxies, glues, adhesives
- Paint additives, colorants, tints, resins
- Wood preservatives (containing pesticides)
- Roof patch and repair
- Asphalt, tar and bitumen-based products
- 2-component coatings
- Deck cleaners
- Traffic and road marking paints
- Industrial Maintenance (IM) coatings
- Original Equipment Manufacturer (OEM) (shop application) paints and finishes

For information about recycling and proper disposal of non-program products, please contact your garbage hauler, local environmental health agency, household hazardous waste program or public works department.



Recycle
with PaintCare



Places to Take Old Paint

Paint recycling is more convenient with PaintCare. We set up paint drop-off sites throughout California. To find your nearest drop-off site, use PaintCare's search tool at www.paintcare.org or call our hotline at (855) 724-6809.

How to Recycle

PaintCare sites accept all brands of old house paint, stain and varnish – even if they are 20 years old! Containers must be five gallons or smaller, and a few types of paint are not accepted. See back panel for a list of what you can recycle.

All PaintCare drop-off sites accept at least five gallons of paint per visit. Some sites accept more. Please call the site in advance to make sure they can accept the amount of paint you would like to recycle.

Make sure all containers of paint have lids and original labels, and load them securely in your vehicle. Take them to a drop-off site during their regular business hours. We'll take it from there.



What Happens to the Paint?

PaintCare will make sure that your leftover paint is remixed into recycled paint, used as a fuel, made into other products or properly disposed.

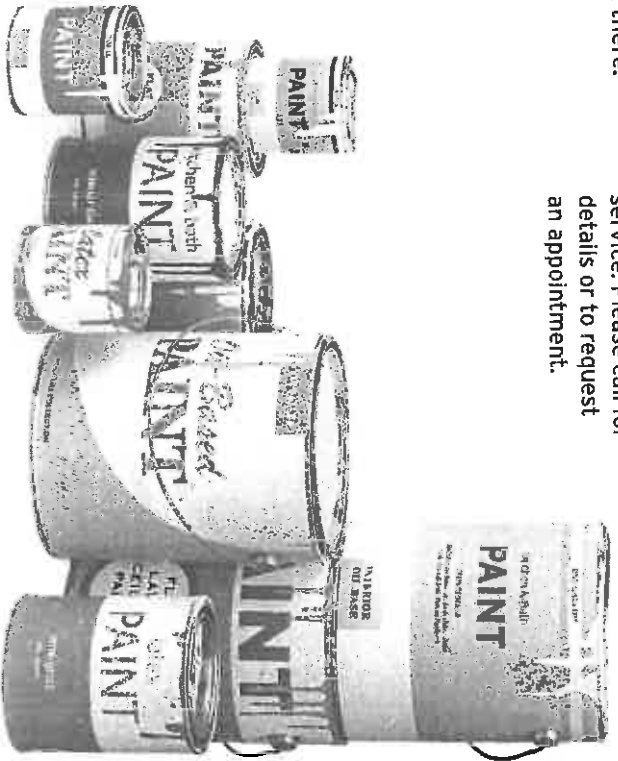
Who Can Use the Program?

Residents bringing paint from their home can bring as much latex or oil-based paint as the site is willing to accept.

Businesses (painting contractors and others) can use this program with one restriction: If your business produces more than 220 pounds (about 20-30 gallons) of hazardous waste per month, you may use the drop-off sites for your latex paint only and not for your oil-based paint. To learn more about this restriction, contact PaintCare.

Large Volume Pick-Up

If you have at least 300 gallons of paint to recycle from your business or home, ask about our pick-up service. Please call for details or to request an appointment.



PaintCare Recovery Fee

PaintCare is funded by a fee paid by paint manufacturers for each can of paint they sell in the state. Manufacturers pass the fee to retailers, who then apply it to the price of paint. Stores can choose whether or not to show the fee on their receipts. Fees are based on the size of the container as follows:

- \$0.00 Half pint or smaller
- \$0.35 Larger than a half pint to smaller than 1 gallon
- \$0.75 1 gallon
- \$ 1.60 Larger than 1 gallon to 5 gallons

Not a Deposit

The fee is not a returnable deposit – it is part of the purchase price. The fees are used to pay the costs of running the program: recycling, public education, staffing and other expenses.

Contact Us

Please visit www.paintcare.org or give us a call at (855) 724-6809 to find a drop-off site or to learn more.

1 **Proposed Regulations for the Used Mattress Recovery and Recycling Program**

2
3
4 **PROPOSED REGULATIONS**

5 **USED MATTRESS RECOVERY AND RECYCLING PROGRAM**

6 **TITLE 14: NATURAL RESOURCES**
7 **DIVISION 7. DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY**
8 **CHAPTER 11. PRODUCT STEWARDSHIP**
9 **ARTICLE 3. USED MATTRESS RECOVERY AND RECYCLING PROGRAM**

10 **§18959. Purpose.**

11 The purpose of this Article is to clarify existing statute and establish administrative
12 procedures to efficiently and effectively implement the department's responsibilities
13 under the law and to provide a uniform competitive business environment to all mattress
14 manufacturers, renovators, distributors, recyclers, and retailers pursuant to Chapter 21
15 (commencing with section 42985), Part 3, Division 30 of the Public Resources Code.

16 Authority cited: Sections 40401 and 40502, Public Resources Code, Reference:
17 Sections 42985, 42985.1, 42986, 42987, 42987.1, 42987.2, 42987.3, 42987.4, 42987.5,
18 42988, 42988.1, 42988.2, 42989, 42989.1, 42989.2, 42989.2.1, 42989.3, 42990,
19 42990.1, 42990.2, 42991, 42992, 42993, 42993.1, 42993.2, 42993.3, 42993.4, 42994,
20 Public Resources Code.

21
22 **§18960. Definitions.**

23
24 **(a)** Except as otherwise noted, the definitions of this Article supplement and are
25 governed by the definitions set forth in Chapter 21 (commencing with section 42985),
26 Part 3, Division 30 of the Public Resources Code:

1 (b) "Brand" means a name, term, symbol, design, type, Universal Registry Number
2 (URN) or any other feature that attributes a mattress to the manufacturer or renovator of
3 such mattress.

4 (c) "Collection" means any method by which a service provider receives used
5 mattresses ~~from a program participant~~.

6 (d) "Operational costs" means costs to operate a mattress recycling organization's
7 mattress recycling program, including, but not limited to, collection, transportation,
8 processing, disposal, and education and outreach costs.

9 (e) "Significant or material change" includes a change in a required element of the
10 used mattress recovery and recycling plan that affects the organization's costs or
11 revenues, such as a change that results in a modification of the recycling charge, a
12 change that requires a party other than the mattress recycling organization to make a
13 major change in how it participates in the program, or a change that reduces the goals
14 set for the organization in the existing approved recycling plan.

15

16 Authority cited: Sections 40101 and 40502, Public Resources Code, Reference:
17 Sections 42985, 42985.1, 42986, 42987, 42987.1, 42987.2, 42987.3, 42987.4, 42987.5,
18 42988, 42988.1, 42988.2, 42989, 42989.1, 42989.2, 42989.2.1, 42989.3, 42990,
19 42990.1, 42990.2, 42991, 42992, 42993, 42993.1, 42993.2, 42993.3, 42993.4, 42994,
20 Public Resources Code.

21

22 **§18961. Used Mattress Recovery and Recycling Plan Submittal.**

23

24 (a) A corporate officer, acting on behalf of a mattress recycling organization, shall
25 submit as part of the used mattress recovery and recycling plan (plan) the following
26 information:

27 (1) Contact information of the corporate officer responsible for submitting the
28 plan to the department and for overseeing used mattress recycling program
29 activities, including, but not limited to:

30 (A) Contact name

31 (B) Title

1 (C) Name of mattress recycling organization

2 (D) Mailing address

3 (E) Phone number

4 (F) E-mail address

5 (G) Web address, if applicable

6 (2) List contact information for each manufacturer, renovator, and retailer the
7 mattress recycling organization is composed of, including, but not limited to:

8 (A) Name of Company

9 (B) Mailing or corporate address

10 (C) Upon request by the department, the following information shall be
11 provided, if available: individual Web address, contact name, title, phone
12 number, and e-mail address of participating manufacturers, renovators,
13 and retailers. The requested information shall be submitted within 30
14 days of the request unless extended as determined by the department.

15 (3) List of brands covered under the plan.

16 (4) Any changes to the information in subsections (1), (2), and (3) of subdivision
17 (a) of this section shall be submitted to the department quarterly, or more
18 frequently as the mattress recycling organization desires, according to
19 instructions provided by the department.

20 (b) The plan may be submitted electronically according to instructions provided by the
21 department. If the plan is submitted electronically, the date of electronic submittal will be
22 considered the date of receipt by the department, provided that the organization also
23 submits to the department a hard copy submittal letter referencing the plan electronic
24 document with the signature of a corporate officer of a mattress recycling organization.

25
26 Authority cited: Sections 40101 and 40502, Public Resources Code, Reference: Section
27 42985, 42986, 42987, 42987.1, 42987.2, 42987.3, Public Resources Code.

28

29

30

31

1 **§18962. Used Mattress Recovery and Recycling Plan.**

2
3 **(a)** A used mattress recovery and recycling plan (plan) shall follow the standard outline
4 below and contain the following:

5 **(1)** Proof of Certification.

6 **(2)** Program Goals, Methods, and Activities.

7 **(A)** Identify program objectives consistent with California's solid waste
8 management hierarchy as required by subdivision (a) of section 42987.1
9 of the Public Resources Code.

10 **(B)** Describe how the program will meet the requirements of subdivisions (d),
11 (g), (i), (j), (k), (l), (m), (o), and (p) of section 42987.1 of the Public
12 Resources Code.

13 **(C)** Describe proper end of life management of used mattresses, including but
14 not limited to, a description of how the program will prevent cross
15 contamination of mattresses by bed bugs.

16 **(D)** Describe how the program will increase the quantity of materials
17 recovered and recycled, and market development activities that will be
18 conducted in order to ensure these materials will be used.

19 **(E)** Describe how the program will provide convenient ~~and efficient~~ mattress
20 collection and drop-off services, ~~delivery of services~~ without unnecessary
21 duplication of effort and expense, including, but not limited to, contractual
22 agreements.

23 **(F)** Describe how consumers of mattresses in California will have a
24 convenient opportunity to recycle and properly manage their used
25 mattresses, including the number, location, and type of collection points in
26 the program.

27 **(G)** For plans submitted after January 1, 2018, identify objectives and
28 activities that will comply with the state mattress recycling goals, pursuant
29 to section 42987.5 of the Public Resources Code.

30 **(3)** Contact information per section 18961.

- 1 **(4)** Stakeholder Consultation Process per subdivision (c) of section 42987.1 and
2 42987.2 of the Public Resources Code.
- 3 **(5)** Performance Measurement. Include the requirements of subdivisions (f) and
4 (h) of section 42987.1 of the Public Resources Code.
- 5 **(6)** Financing Mechanism. Includes the requirements of subdivisions (e) of
6 section 42987.1 of the Public Resources Code, and audits per subdivision (b)
7 of section 42990 of the Public Resources Code. A mattress recycling
8 organization shall allocate revenues and expenses applicable to this program
9 in accordance with Generally Accepted Accounting Principles (GAAP).
- 10 **(7)** Education and Outreach. Describe education and outreach efforts as
11 required by subdivision (n) of section 42987.1 of the Public Resources Code,
12 including methods of distribution. The plan may also include a description of
13 education and outreach efforts to all parties affected by the program and may
14 include additional options available for consumers to dispose of their used
15 mattresses, such as mattress renovation.
- 16 **(8)** Advisory Committee Report. Include the report by the mattress recycling
17 organization advisory committee as required by subdivision (q) of section
18 42987.1 of the Public Resources Code. The mattress recycling organization's
19 plan may include a description of how it addressed the points or
20 recommendations raised in the advisory committee report.
- 21 **(b)** ~~A~~ A The mattress recycling organization submitting ~~the~~ a plan shall provide, upon
22 request, additional information that is reasonably related to compliance with the
23 recycling plan and that the organization can reasonably compile to assist the
24 department as may be necessary for the approval of the plan.
- 25 **(c)** The department shall determine if the plan is complete and notify the submitting
26 mattress recycling organization within 30 days of receipt of the plan. If the department
27 finds that the plan is complete, the department's 90-day review period for consideration
28 of approval of the plan, set forth in section 42987.3 of the Public Resources Code, will
29 commence upon the original date of receipt. If the plan is incomplete, the department
30 shall identify what additional information shall be submitted to make it complete and the
31 plan shall be resubmitted within not less than 30 days or as determined by the director.

1 If the department determines upon resubmittal that the plan is complete, the
2 department's 90-day review period for consideration of approval of the plan will
3 commence upon the original date of receipt of the resubmittal.

4 (d) If the department conditionally approves a plan, the department shall identify the
5 deficiencies in the plan and the mattress recycling organization shall comply with the
6 conditions of approval within not less than 60 days or as determined by the director of
7 the notice date. If the conditions are met, the department shall approve the plan.

8 (e) If the department conditionally approves a plan and the conditions are not met, the
9 department shall disapprove the plan.

10 (f) If the department disapproves a plan, the department shall identify the deficiencies
11 in the plan and the mattress recycling organization shall resubmit a plan or provide
12 supplemental information requested within not less than 60 days of the notice date or as
13 determined by the director.

14 (g) The mattress recycling plan shall be submitted for re-approval upon any significant
15 or material change, as defined. The department shall review the revised plan within 90
16 days of receipt. The department may approve, disapprove, or conditionally approve the
17 revised plan. The department may also require the mattress recycling organization to
18 resubmit a revised mattress recycling budget if there is a significant or material change,
19 as defined.

20
21 Authority cited: Sections 40401 and 40502, Public Resources Code, Reference:
22 Sections 42985, 42986, 42987, 42987.1, 42987.2, 42987.3, 42989.1, 42989.2,
23 42989.2.1, 42989.3, Public Resources Code.

24
25 **§18963. Mattress Recycling Charge and Annual Budget.**

26
27 (a) A corporate officer, acting on behalf of a mattress recycling organization, shall
28 submit a used mattress recycling program budget on or before July 1, 2015, and
29 on or before July 1 annually thereafter. The annual budget may be submitted
30 electronically according to instructions provided by the department. If the annual
31 budget is submitted electronically, the date of electronic submittal will be

1 considered the date of receipt by the department, provided that the organization
2 also submits to the department a hard copy submittal letter referencing the annual
3 budget electronic document with the signature of a corporate officer of a mattress
4 recycling organization.

5 **(b)** In addition to the requirements of subdivisions (a), (b), and (c) of section 42988 of
6 the Public Resources Code, the information submitted in the used mattress
7 recycling program budget shall contain the following:

- 8 (1) Contact information. Identify the corporate officer of the mattress recycling
9 organization responsible for annual used mattress program budget submittal.
- 10 (2) Anticipated revenues and costs. Describe anticipated revenues and costs of
11 implementing the program, including related programs, projects, contracts,
12 and administrative expenses.
- 13 (3) Mattress recycling charge and itemization. Identify the amount of the mattress
14 recycling charge, including an itemization of costs that each charge covers.
- 15 (4) For used mattress recycling program budgets submitted on or by July 1, 2017
16 all actual expenses incurred to date shall be included. For annual reports
17 submitted thereafter, the previous two years of actual expenses shall be
18 included.

19 Authority cited: Sections 40101 and 40502, Public Resources Code, Reference:
20 Sections 42985, 42986, 42987, 42988, 42988.1, 42988.2, 42989, 42989.1, 42989.2,
21 42989.2.1, 42989.3, Public Resources Code.

22
23 **§18964. Mattress Recycling Organization Annual Report.**

24
25 **(a)** The mattress recycling organization annual report shall be submitted by a
26 corporate officer acting on behalf of a mattress recycling organization that is operating a
27 used mattress recycling program under a department-approved used mattress recovery
28 and recycling plan. The annual report may be submitted electronically according to
29 instructions provided by the department. If the annual report is submitted electronically,
30 the date of electronic submittal will be considered the date of receipt by the department,
31 provided that the organization also submits to the department a hard copy submittal

1 letter referencing the annual report electronic document with the signature of a
2 corporate officer of a mattress recycling organization.

3 (b) The annual report shall follow the outline below and contain the following:

4 (1) Contact information. Identify the corporate officer of the mattress recycling
5 organization responsible for annual report submittal.

6 (2) Executive Summary. The purpose of the Executive Summary is to provide a
7 broad understanding of the mattress recycling organization's program as a
8 whole and to put into context the data and information that will follow. Provide
9 a brief description of the mattress recycling organization's used mattress
10 recovery efforts during the ~~reporting period~~ calendar year pursuant to section
11 18962.

12 (3) A description of the methods used to collect, transport, and process used
13 mattresses in California.

14 (4) Include an updated list of participating manufacturers, renovators, and
15 retailers and any updates to their respective contact information per section
16 18961(a)(2) and an updated list of brands covered under the plan per section
17 18961(a)(3).

18 (5) Description of how consumers of mattresses in California had an opportunity
19 to recycle and properly manage their used mattresses, including the number,
20 location, and type of collection points in the program.

21 (6) May include a description of activities ~~followed by program participants~~ to
22 ensure proper collection and management of used mattresses.

23 (7) A description of methods used by the mattress recycling organization to
24 coordinate with existing used mattress collection and recycling programs with
25 regard to the proper management or recycling of discarded or abandoned
26 mattresses.

27 (8) Description of objectives and activities based on the used mattress recovery
28 and recycling plan, per section 18962(a)(2). State objectives from the approved
29 plan and describe report on achievement progress toward achieving those
30 objectives during the reporting period. Describe any adjustments to objectives
31 stated in the approved plan that may be made for the upcoming reporting

1 period and accompanying rationale for those changes. If any changes are
2 significant or material, as defined, the mattress recycling organization shall
3 amend and resubmit its plan for approval by the department. The annual report
4 shall include:

5 (A) Quantitative information on subdivisions (b), (c), (d), (e), (f), (g), and (j) of
6 section 42990.1 of the Public Resources Code, including conversion
7 factor(s), if used. When describing the uses for the recycled materials,
8 the annual report shall identify the secondary markets ~~and end uses of~~ to
9 which those materials are sold, and potential end uses of those
10 materials.

11 (B) Qualitative and/or quantitative information on subdivisions (g), (l), and
12 (m) of section 42987.1 of the Public Resources Code.

13 (9) Financing Mechanism. Include the mattress recycling organization's total
14 expenses and revenues associated with the implementation of the used
15 mattress recycling program. Changes to the mattresses recycling charge shall
16 be reflected in the annual program budget for approval by the department. If a
17 mattress recycling organization changes the amount of the mattress recycling
18 charge in the first 12 months during which the mattress recycling charge is
19 being collected per subsection (1) of subdivision (c) of section 42989 of the
20 Public Resources Code, the mattress recycling organization shall provide the
21 department no less than 90 days' notice before the change in the amount of the
22 mattress recycling charge takes place. If a mattress recycling organization
23 conducts activities that are separate from the implementation and management
24 of the California used mattress recycling program, then the annual report shall
25 include documentation on how the collection and use of funds from the
26 California mattress recycling charge were kept separate from other activities of
27 the mattress recycling organization, including the methodology for distribution
28 of shared costs. Consistent with subdivision (a) of section 42990.1 of the Public
29 Resources Code, the annual report shall include the following:

30 (A) Mattress recycling charge per mattress size

31 (B) Capital costs

- 1 (C) Education/Outreach costs
- 2 (D) End-of-life used mattress management costs with line items, if
- 3 applicable, for collection, transportation, recycling, renovating, reuse,
- 4 and proper disposal
- 5 (E) Program administration costs including, but not limited to, the
- 6 department's costs pursuant to subdivision (a) of section 42988.2 of the
- 7 Public Resources Code, and third party legal costs. Surplus funds, if
- 8 any, and detailed rationale for the specified level of surplus.
- 9 (F) For the first 12 months during which the mattress recycling charge was
- 10 collected, include a description of any changes to the amount of the
- 11 mattress recycling charge, and how implementation of the change
- 12 complied with subsection (1) or (2) of subdivision (c) of section 42989 of
- 13 the Public Resources Code, if applicable. The mattress recycling
- 14 organization may also include a description of why the change was
- 15 made.
- 16 (10) Education and Outreach. Provide a description of educational materials that
- 17 were provided to ~~program participants~~, including electronic examples of these
- 18 materials. Identify any method(s) used to determine the effectiveness of
- 19 educational and outreach efforts (e.g., surveys, hits on specific web pages,
- 20 number of participants at events, etc.), if applicable. Describe any changes to
- 21 those materials that are planned for subsequent years, if applicable.
- 22 (11) Audits. The annual report shall include an independent financial audit of the
- 23 used mattress recovery and recycling program funded from the mattress
- 24 recycling charge. The audit shall be conducted in accordance with auditing
- 25 standards generally accepted in the United States of America, and standards
- 26 set forth in Government Auditing Standards issued by the Controller General of
- 27 the United States. The financial audit submitted to the department shall be
- 28 prepared by an Independent Certified Public Accountant (CPA). The CPA shall
- 29 not perform non-audit services for the mattress recycling organization that
- 30 would impair independence as defined in the Government Auditing Standards
- 31 issued by the Controller General of the United States (e.g., accounting

1 services, development of internal controls, management decisions). The
2 independent financial audit shall include:

3 (A) Mattress recycling program financial statements, as required by GAAP.

4 (B) An opinion on the mattress recycling organization's compliance with the
5 financial aspects of Chapter 21 (commencing with section 42985), Part
6 3, Division 30 of the Public Resources Code and Title 14, Division 7,
7 Chapter 11, Article 3 of the California Code of Regulations.

8 (C) Findings and recommendations as they relate to the financial aspects of
9 the program.

10 (D) Management Letter, if issued, by the mattress recycling organization's
11 CPA.

12 (12) Advisory Committee Report. The annual report shall include the report of the
13 advisory committee required by subdivision (k) of section 42990.1 of the Public
14 Resources Code. The mattress recycling organization's annual report may
15 include a description of how it addressed the points or recommendations raised
16 in the advisory committee report.

17 (13) Good faith effort. For annual reports submitted on and after July 1, 2019, a
18 demonstration of good faith effort with the state mattress recycling goals
19 established pursuant to section 42987.5 (b) of the Public Resources Code.

20 (c) The department shall determine if the annual report is complete and notify the
21 submitting mattress recycling organization within 30 days. If the department finds
22 that the ~~plan~~ annual report is complete, the department's 60-day review period for
23 consideration of approval of the annual report will commence upon the original date
24 of receipt. If the annual report is incomplete, the department shall identify what
25 additional information shall be submitted to make it complete and the annual report
26 shall be resubmitted within not less than 60 days or as determined by the director. If
27 the department determines upon resubmittal that the annual report is complete, the
28 department's 60-day review period for consideration of approval of the annual report
29 will commence upon the original date of receipt of the resubmittal. The department
30 may adopt a determination of compliance or non-compliance by approving,
31 disapproving, or conditionally approving the annual report.

1 (1) If the department conditionally approves the annual report, the department
2 shall identify the deficiencies in the annual report and the mattress recycling
3 organization shall comply with the conditions of approval within not less than
4 60 days of the notice date or as determined by the director. If the conditions
5 are met, the department shall approve the annual report.

6 (2) If the department disapproves the annual report, the department shall identify
7 the deficiencies in the annual report and the mattress recycling organization
8 shall resubmit an annual report or provide supplemental information
9 requested within not less than 60 days of the notice date or as determined by
10 the director.

11 (3) If the department conditionally approves an annual report and the conditions
12 are not met, the department shall disapprove the annual report.

13
14 Authority cited: Sections 40401 and 40502, Public Resources Code, Reference:
15 Sections 42985, 42986, 42987.5, 42990, 42990.1, 42990.1, Public Resources Code.

16
17 **§18965. Used Mattress Recycler Annual Report.**

18
19 (a) An annual report shall be submitted to the department and the mattress recycling
20 organization by a person that is engaged in business as a used mattress recycler. The
21 annual report may be submitted electronically according to instructions provided by the
22 department. A hard copy, signed by a corporate officer of a mattress recycler shall be
23 submitted to the department upon request.

24 (b) The annual report shall contain the following:

25 (1) Contact information. Identify the corporate officer of the mattress recycler
26 responsible for annual report submittal.

27 (2) Quantitative information on the number of used mattresses received from
28 California sources and out of state sources and recycled in the state during the
29 preceding calendar year. Conversion factor(s), if used, shall also be provided.

30 (3) Quantitative information on the number of used mattresses from California
31 sources and sent out of state for recycling or other method of disposition.

1 (4) Other information deemed necessary by the department that is reasonably
2 related to compliance with this chapter and that can be reasonably compiled.

3
4 Authority cited: Sections 40401 and 40502, Public Resources Code, Reference:
5 Sections 42985, 42986, 42987, 42991, Public Resources Code.

6
7 **§18966. Used Mattress Renovator Annual Report.**

8
9 (a) An annual report shall be submitted to the department and the mattress recycling
10 organization by a person that is engaged in business as a used mattress renovator. The
11 annual report may be submitted electronically according to instructions provided by the
12 department. A hard copy, signed by a corporate officer of a mattress renovator ~~recycler~~
13 shall be submitted to the department upon request.

14 (b) The annual report shall contain the following:

15 (1) Contact information. Identify the corporate officer of the mattress renovator
16 responsible for annual report submittal.

17 (2) Quantitative information on the number of used mattresses received from
18 California sources and out of state sources and renovated in the state during
19 the preceding calendar year. Conversion factor(s), if used, shall also be
20 provided.

21 (3) Quantitative information on the number of used mattresses generated in
22 California and sent out of state for renovation or other method of disposition.

23 (4) Other information deemed necessary by the department that is reasonably
24 related to compliance with this chapter and that can be reasonably compiled.

25
26 Authority cited: Sections 40401 and 40502, Public Resources Code, Reference:
27 Sections 42985, 42986, 42987, 42991, Public Resources Code.

1 **§18967. Solid Waste Facility Annual Report.**

2
3 (a) An annual report shall be submitted by a person that is engaged in business as an
4 operator of a solid waste facility to the department and the mattress recycling
5 organization. The annual report may be submitted electronically according to
6 instructions provided by the department. A hard copy, signed by a designated
7 representative of a solid waste facility shall be submitted to the department upon
8 request.

9 (b) The annual report shall contain the following:

10 (1) Contact information. Identify the designated representative of the solid waste
11 facility responsible for annual report submittal.

12 (2) The number of used mattresses disposed of at the site in the preceding
13 calendar year and the number of mattresses the facility recycled, renovated, or
14 sent away to be recycled or renovated in the preceding calendar year. Facility
15 operators are required to count, track, and report on each mattress they
16 observed during the normal operation of the facility. Facility operators are not
17 required to do additional sorting or processing to find a mattress that was an
18 incidental part of a load, or that could not be counted or observed upon receipt.

19
20 Authority cited: Sections 40401 and 40502, Public Resources Code, Reference:
21 Sections 42985, 42986, 42987, 42991, Public Resources Code.

22
23 **§18968. Mattress Recycling Organization Advisory Committee Annual Report.**

24
25 (a) An annual report shall be submitted by a designee of the mattress recycling
26 organization advisory committee, established pursuant to subsection (3) of subdivision
27 (a) of section 42987 of the Public Resources Code to the mattress recycling
28 organization no later than 30 days prior to when the annual report is due to the
29 department. The annual report may be submitted electronically according to instructions
30 provided by the department. A hard copy, signed by a designated representative of the
31 advisory committee shall be submitted to the mattress recycling organization.

1 (b) The annual report shall contain the following:

2 (1) Contact information. Identify the designated representative of the advisory
3 committee responsible for annual report submittal and each member of the
4 advisory committee, including member name and company/affiliation.

5 (2) A summary of the consultative process between the advisory committee and
6 the mattress recycling organization relating to the ongoing implementation of
7 the plan, as well as any other information deemed pertinent by the advisory
8 committee to maximize the recovery and recycling of used mattresses in the
9 state, per subdivision (k) of section 42990.1 the Public Resources Code.

10

11 Authority cited: Sections 40401 and 40502, Public Resources Code, Reference:
12 Sections 42985, 42986, 42987, 42990.1, Public Resources Code.

13

14 **§18969. Records.**

15

16 Each mattress recycling organization, manufacturer, renovator, retailer, recycler, and
17 distributor required to comply with Chapter 21 (commencing with section 42985), Part 3,
18 Division 30 of the Public Resources Code shall:

19 (a) Maintain records to support the requirements in this Article.

20 (1) Mattress recycling organizations shall maintain records to support section
21 18962.

22 (2) Retailers, renovators, recyclers and distributors shall provide access to existing
23 records on all mattresses sold or offered for sale in the state including:

24 (A) The manufacturer of the mattress.

25 (B) The date(s) the retailer purchased the mattress from the manufacturer.

26 (C) The date(s) the retailer sold the mattress.

27 (D) Certification letter(s) from the department, if provided by a manufacturer,
28 to demonstrate that the mattress from the manufacturer is or was subject
29 to a department-approved mattress recycling plan. A retailer shall
30 provide access to a certification letter only if it is being used as proof of
31 compliance, pursuant to subdivision (b) of section 42993 of the Public

1 Resources Code that a manufacturer not listed on the department's
2 internet website is in compliance and may sell or offer for sale
3 mattresses in California.

4 **(b)** Provide the department with reasonable and timely access, as determined by the
5 department, to its facilities, operations, and any relevant records necessary to
6 determine compliance with this Article, upon request.

7 **(1)** Manufacturers, renovators, retailers, distributors, and recyclers will maintain
8 and provide access to records required by this Article for 3 years.

9 **(2)** Mattress recycling organizations will maintain and provide access to records
10 required by this Article for 3 years after submission of the annual report which
11 relies upon those records.

12 **(c)** The department may take enforcement action against any mattress recycling
13 organization, manufacturer, renovator, retailer, recycler, or distributor who fails to
14 provide the department with access pursuant to this section and subdivision (c) of
15 section 42993.3 of the Public Resources Code.

16 **(d)** In addition to the provisions in subdivision (c) of section 42987.3 of the Public
17 Resources Code, records supplied to the department pursuant to this Article that are, at
18 the time of submission, claimed to be proprietary, confidential, or trade secret shall be
19 subject to the provisions in Title 14, California Code of Regulations, Division 7, Chapter
20 1, Article 4 (commencing with section 17041).

21

22 Note: Authority cited: Sections 40401 and 40502, Public Resources Code; and Section
23 6253, Government Code. Reference: Sections 42985, 42986, 42987. 42987.1, 42987.2,
24 42987.3, 42987.4, 42987.5, 42988, 42988.1, 42988.2, 42990, 42990.1, 42990.2, 42991,
25 42993.2, 42993.3, Public Resources Code and Sections 6250 et seq., Government
26 Code.

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1 **§18970. Criteria to Impose a Civil Penalty.**

2

3 In assessing or reviewing the amount of civil penalty imposed for a violation of this
4 article, the department or the court shall consider the totality of the circumstances,
5 which may include, but is not limited to, the following:

6 (a) The nature, circumstances, extent, and gravity of the violation(s).

7 (b) The number and severity of the violation(s).

8 (c) Evidence that the violation was intentional, knowing, or negligent.

9 (d) The size of the violator.

10 (e) History of violation(s) of the same or similar nature.

11 (f) The willfulness of the violator's misconduct.

12 (g) Whether the violator took good faith measures to comply with this chapter and the
13 period of time over which these measures were taken.

14 (h) Evidence of any financial gain resulting from the violation(s).

15 (i) The economic effect of the penalty on the violator.

16 (j) The deterrent effect that the imposition of the penalty would have on both the
17 violator and the regulated community.

18 (k) Any other factor that justice may require.

19

20 Note: Authority cited: Sections 40401 and 40502, Public Resources Code. Reference:
21 Sections 42985, 42986, 42993, 42993.1, 42993.2, 42993.3, Public Resources Code.

22

23 **§18971. Procedure for Imposing Civil Penalties.**

24

25 (a) Civil penalties may be administratively imposed in accordance with the procedures
26 outlined in the Administrative Procedure Act at Article 10 of Chapter 4.5 (commencing
27 with section 11445.10) of Part 1 of Division 3 of Title 2 of the Government Code.

28 (b) The accusation or complaint and all accompanying documents may be served on
29 the respondent by the following means:

30 (1) Personal service.

1 **(2)** Substitute service by using the same service procedures as described in
2 section 415.20 of the Code of Civil Procedure.

3 **(3)** Certified Mail: For respondents who have submitted a mattress recycling plan,
4 certified mail or registered mail if the letter containing the accusation or
5 complaint and accompanying material is mailed, addressed to the respondent
6 at the latest facility or mailing address(es) on file with the department. Proof of
7 service of the accusation or complaint shall be the certified mail receipts or
8 registered mail receipts proving the accusation or complaint and
9 accompanying materials were sent to respondent by certified mail or
10 registered mail. For respondents who have not submitted or are not required
11 to submit a mattress recycling plan to the department, certified mail or
12 registered mail pursuant to the procedures indicated in the Administrative
13 Procedure Act at subdivision (c) of section 11505 of the Government Code
14 applies.

15 **(c)** Civil penalties may be imposed pursuant to subdivision (a) of section 42993.1 of
16 the Public Resources Code.

17
18 Note: Authority cited: Sections 40401 and 40502, Public Resources Code. Reference:
19 Sections 42985, 42986, 42993, 42993.1, 42993.2, 42993.3, Public Resources Code;
20 and Section 11500, Government Code.

21

REQUEST FOR APPROVAL

To: **Caroll Mortensen**
Director

From: **Howard Levenson**
Deputy Director, Materials Management and Local Assistance Division

Request Date: **April 14, 2015**

Decision Subject: Eligibility, Scoring Criteria, and Evaluation Process for the Greenhouse Gas Reduction Programs: Organics Grant Program; Recycled Fiber, Plastic, and Glass Grant Program; and Greenhouse Gas Reduction Revolving Loan Program (Greenhouse Gas Reduction Fund and Greenhouse Gas Reduction Revolving Loan Fund, FY 2015–16)

Action By: **April 21, 2015**

Summary of Request:

This Request for Approval seeks approval of the proposed eligibility, scoring criteria, and evaluation process for the Greenhouse Gas Reduction Grant and Loan Programs for Fiscal Year (FY) 2015–16, pursuant to California Public Resources Code (PRC) sections 42995 et seq., upon passage and the adoption of the Governor’s Proposed Budget for FY 2015–16. The proposed changes for these programs are summarized below and described fully under the *Proposed Changes* section.

Organics Grant Program & Recycled Fiber, Plastic, and Glass Grant Program

- Change grant payment methodology
- Include additional requirements for preprocessing applicants
- Limit number of applications per eligible applicant
- Adjust points in Scoring Criteria

Organics Grant Program Only

- Establish a \$2 million Rural Program
- Expand eligible costs for food waste prevention/rescue projects

Loan Program Only

- Evaluate applications on a first-come, first- served basis, provided the project meets the minimum passing score
- Organics and recycled fiber, plastic, and glass projects are both eligible
- Eliminate two Scoring Criteria categories and adjust points in Scoring Criteria

Recommendation:

Staff recommends approval of the proposed eligibility, scoring criteria, and evaluation process for the Greenhouse Gas Reduction Grant and Loan Programs for FY 2015–16, as described below under *Proposed Eligibility and Process* and as shown in detail in Attachments 1 – 4.

Action:

On the basis of the information and analysis in this Request for Approval and the findings set out herein, I hereby approve proposed eligibility, scoring criteria, and evaluation process for the Greenhouse Gas Reduction Grant and Loan Programs for Fiscal Year 2015–16, as set forth below and in Attachments 1 – 4.

Dated: _____

Caroll Mortensen
Director

Attachments

1. Organics Grant Program – Scoring Criteria
2. Recycled Fiber, Plastic, and Glass Grant Program – Scoring Criteria
3. Greenhouse Gas Reduction Loan Program (Organics) – Scoring Criteria
4. Greenhouse Gas Reduction Loan Program (Recycled Fiber, Plastic, and Glass) – Scoring Criteria

Background & Analysis:**Statutory Authority**

PRC section 42995 et seq., added to statute by the enactment of SB 862 (Statutes of 2014, Chapter 36), authorizes the California Department of Resources Recycling and Recovery (CalRecycle) to award grants and loans to provide financial incentives for capital investments that expand waste management infrastructure resulting in greenhouse gas emission (GHG) reductions, with a priority in disadvantaged communities. The total funding in the Governor's proposed budget for these programs for FY 2015–16 is \$25 million.

Program Background

California has an estimated diversion rate of 65 percent (this rate includes materials being sent to landfills for alternative daily cover and other beneficial uses, and materials being sent to transformation facilities). Although impressive, about 30 million tons of materials are still going to landfills, which are a significant source of methane emissions. Of the material going to landfills, over 30 percent is organic material (grass, yard waste, food waste, lumber and wood waste), 17 percent is paper and paperboard, 10 percent is plastics, and 30 percent is inert construction and demolition debris.

Two important pieces of legislation, AB 32 and AB 341, provide the policy drivers to realize significant GHG emission reductions through increased diversion of materials from landfills via source reduction, recycling and composting.

- ***AB 32 and Climate Change Priorities***

The Air Resources Board's AB 32 Scoping Plan Update, adopted in 2014, identifies recycling and organics management issues as key priorities in the Waste Management Sector Plan and includes activities to foster increased diversion of organics and recyclables from landfills. Organic materials management was also identified as a key priority in the Administration's April 2013 Cap-and-Trade Auction Proceeds Investment Fund and in the FY 2014-15 Budget.

- ***AB 341 and Statewide Goal of 75 Percent***

AB 341 established a new statewide goal of reducing, recycling, or composting 75 percent of the state's waste by 2020. There is a direct relationship between waste diversion from landfills and GHG emission reductions. CalRecycle estimates that about 20 to 25 million more tons of material will need to be reduced, recycled, or composted by 2020 to reach this goal. This would dramatically reduce methane emissions from landfills and GHG emissions associated with manufacturing processes, by approximately 20 to 30 million metric tons of GHG emission reductions, as well as result in creating up to 100,000 new local jobs, to the extent that these organic and recyclable materials can be used in California.

The Greenhouse Gas Reduction Grant and Loan Programs provide funds to support expansion of the waste management infrastructure that meets both AB 32 and AB 341 policies; investment is needed for new or expanded organics infrastructure, such as composting and anaerobic digestion facilities, as well as for facilities that manufacture recycled materials into beneficial products. This investment will result in reduced methane emissions from landfills and further GHG reductions in upstream resource management and manufacturing processes; benefit disadvantaged communities by upgrading existing facilities and, where warranted, establishing new facilities that reduce GHG emissions; provide for greater compliance with water and air quality standards; and create jobs.

Staff held a workshop on March 19, 2015, to discuss draft program overview and scoring criteria documents for the proposed grant and loan programs. The workshop, stakeholder comments, and subsequent revisions are addressed in the *Proposed Changes* section below and in the Scoring Criteria documents for each program (Attachments 1 – 4). A summary of major stakeholder comments and CalRecycle staff's rationale for making or not making changes is provided in *Stakeholder Comments and CalRecycle Responses* section at the end of this document.

Funding

Grant Programs

The Organics Grant Program and the Recycled Fiber, Plastic, and Glass Grant Program will be administered by both the Financial Resources Management Branch and the Statewide Technical and Analytical Services Branch. The total appropriation in the proposed Budget is \$20,041,000. Approximately \$19,416,000 will be available for both of the grant programs, with \$625,000 allocated for staffing costs for FY 2015–16. Staff proposes:

- 1) Allocating \$14,416,000 to the Organics Grant Program, with a maximum award of \$3,000,000 for the standard program.
 - a. Within the Organics Grant Program, allocating \$2,000,000 (out of the total \$14,416,000 funding) for a Rural Program for organics projects in rural counties, with a maximum grant award for the Rural Program of \$1,000,000.

- 2) Allocating \$5,000,000 for the Recycled Fiber, Plastic, and Glass Grant Program, with a maximum award of \$2,500,000.

If one grant program is oversubscribed and the other grant program undersubscribed, CalRecycle may move funds from one greenhouse gas reduction grant program to the other in order to fund eligible applications.

Loan Program

The Greenhouse Gas Reduction Revolving Loan Program will be administered by the Financial Resources Management Branch, with assistance from the Statewide Technical and Analytical Services Branch to score the project components. The total appropriation in the proposed Budget is \$5,000,000. Approximately \$4,536,000 will be available for the Greenhouse Gas Reduction Revolving Loan Program, with \$464,000 allocated for staffing costs for FY 2015–16. Staff proposes that:

- 1) The maximum loan amount is \$2,000,000 or 75 percent of total project cost, whichever is less;
- 2) The matching fund requirement is 25 percent of the total project cost;
- 3) A borrower and its related entities may receive more than one loan, but may not have more than \$5,000,000 in total principal outstanding on all CalRecycle loans at any one time;
- 4) Loan proceeds cannot be used to pay for expenses that were funded by other GHG programs; and
- 5) A loan project is defined as the activity for which the loan proceeds will be disbursed for (i.e. purchase equipment, equipment installation, etc.).

Proposed Eligibility and Process

Grant Programs

Attachments 1 & 2 are the proposed Scoring Criteria for both the Organics Grant Program and the Recycled Fiber, Plastic, and Glass Grant Program. These attachments have been revised in light of stakeholder comments, which are summarized in *Stakeholder Comments and CalRecycle Responses* further below.

Staff will conduct an initial review of all applications to confirm applicant eligibility and application completeness. Applications will then be evaluated and scored by a review panel of CalRecycle staff based on the attached Scoring Criteria for each program.

Eligible applicants include:

- Local governments
 - Cities, counties, and cities and counties as defined in Public Resources Code section 30109.
 - Regional or local sanitation agencies, waste agencies, or Joint Powers Authorities.
- Private, for-profit entities. For purposes of this program, a “private, for-profit entity” is defined as a business intended to operate at a profit and return a profit to its owners. The business must be qualified to do business in California and be in good standing with all applicable California state agencies, including, but not limited to, the Secretary of State and the Franchise Tax Board. Any and all subsidiaries, divisions or affiliated businesses are considered part of the primary business entity for the purpose of applying for and receiving a grant award under the Organics and Recycled Fiber, Plastic and Glass Grant Programs.

- State agencies (including offices, departments, bureaus, and boards).
- The University of California, the California State University, or California Community Colleges.
- Nonprofit organizations (except private schools) registered with the federal government under 501(c)3, (c)4, (c)6 or (c)10 of the Internal Revenue Code.
- Qualifying Indian Tribes. A “Qualifying Indian Tribe” is defined as an Indian tribe, band, nation or other organized group or community, residing within the borders of California, which:
 - 1) Is recognized for special programs and services provided by the United States to Indians because of the status of its members as Indians; or
 - 2) Can establish that it is a government entity and which meets the criteria of the grant program.

Project requirements are as follows:

- Projects must be located in California and result in permanent, annual, and measurable reductions in greenhouse gas (GHG) emissions from the landfilling of California-generated green and food materials; and
- Projects must increase the quantity (tons) of: 1) for the Organics Grant Program, California-generated green or food materials, or ADC diverted from landfills and composted or digested; or 2) for the Recycled Fiber, Plastic, and Glass Grant Program, new diversion of these materials from landfills.

Eligible projects include:

- Construction, renovation, or expansion of facilities to increase in-state infrastructure for:
 - 1) The digestion or composting of organics into compost, soil amendments, biofuels, or bioenergy; or
 - 2) The manufacturing of value-added products using California derived recycled content fiber, plastic, or glass into finished products.
- Construction, renovation, or expansion of facilities to increase in-state infrastructure for:
 - 1) The preprocessing of organics when providing preprocessed materials to an in-state digestion or composting facility that is using the waste to make compost, soil amendments, biofuels, or bioenergy; or
 - 2) The preprocessing of fiber, plastic and glass waste when providing preprocessed materials to an in-state manufacturing facility that is using the waste to make finished products.
- Expansion of projects that have previously received Greenhouse Gas Reduction Funds (GGRF) are eligible provided the project meets the grant criteria and the previously funded project is progressing in a manner satisfactory to CalRecycle.
- Food waste prevention projects must be partnered with a compost or digestion project and result in measurable food waste reduction. Food waste prevention projects are projects that prevent edible food from becoming waste normally destined for landfills and result in rescued food being distributed to people, with any food waste residuals from the project being sent to composting or digestion when available within their service area.

Rural Program applicant requirements for organics grants are as follows:

An eligible applicant may choose to apply under the Rural Program if the project will be sited in a rural county and serve, at least in part, a rural community. Rural is defined as a county annually disposing no more than 200,000 tons of solid waste. In order to determine if the County where the facility is located disposes less than or equal to 200,000 tons of waste in a

year, applicants must generate a Single-year Countywide Origin Detail Disposal Reporting System web report. Applicants should use the latest report to determine this eligibility (currently 2013 data).

The Rural Program has a maximum award amount of \$1 million per applicant with \$2,000,000 being set aside for this program from the \$14,416,000 allocation for organics grants. Rural Program applications will be scored separately from the standard applications. The project requirements, eligible projects, ineligible costs, required application documents, scoring criteria, and minimum score requirements are the same for the Rural Program as the standard Organics Program.

Loan Program

Attachments 3 & 4 are the proposed Scoring Criteria for loans from both the Organics Program and the Recycled Fiber, Plastic, and Glass Program. Applicant and project eligibility are the same as for the grant programs, with the exceptions of a narrower range of eligible applicants (Local Governments, private for-profit entities, and nonprofit only) and food waste prevention not being an eligible organics loan project. Staff will conduct an initial review of all applications to confirm applicant eligibility and application completeness. Project-related documents will then be evaluated by a review panel of CalRecycle technical staff. Applications that score 30 or more points, out of 60 total possible, will be evaluated by loan staff for repayment ability and adequate collateral to secure the loan.

Proposed Changes

Organics Grant Program & Recycled Fiber, Plastic, and Glass Grant Program Grant Payment Methodology

Both CalRecycle staff and stakeholders have raised the concern that GGRF funds will be disbursed yet awarded grant projects may not fully achieve anticipated GHG emission reductions for a variety of reasons (e.g., partial construction, inadequate funding for the total project, project delays, permit issues, failure to secure adequate feedstock, etc.). To address this concern, staff is proposing to change the payment methodology for the FY 2015–16 grant programs to develop a performance incentive approach to ensure that projects not only execute construction but also successfully achieve production that realizes anticipated GHG emission reductions. This performance-based payment methodology also provides an incentive to set realistic tonnage and GHG emission reduction projections and a disincentive to grant “banking” (i.e., when grant funds are awarded but not expended for an extended period of time; see *Stakeholder Comments and CalRecycle Responses* below) or to applying for and receiving funding for projects that are unlikely to develop in a manner similar to that originally proposed.

Organics Grant Program

- An applicant can request up to \$3,000,000 in total funds for the project. Payment of requested funds are divided between infrastructure and performance payments. An applicant can request up to \$2,500,000 for capital expenses and other eligible expenses for the infrastructure of the project as described in the eligible projects section. An amount up to twenty percent (20%) of the amount requested for those expenses can then be requested as performance payments. The infrastructure portion of the grant will be paid on a reimbursement basis. Performance payments are made for each ton of California-generated greenwaste, food materials, or ADC diverted from landfills and composted or digested during the term of the grant. The payments will be made quarterly on a per ton basis with the dollar amount being determined by dividing the amount

requested for performance payments by the total number of tons diverted under the project during the grant term, as stated in the application.

- *Example 1:* Applicant may request \$2,500,000 for the construction of a new AD facility that will divert 50,000 tons of previously landfilled organic material during the grant term (10,000 tons per year for the five year term of the grant). This applicant may request \$500,000 in performance payments. These payments would be at a rate of \$10/ton. (\$500,000 divided by 50,000 tons)
- *Example 2:* Applicant requests \$1,000,000 for the conversion of a windrow composting facility into an aerated static pile. The conversion will allow the facility to compost an additional 50,000 tons of organic waste during the grant term (10,000 tons per year for the five year grant term). The applicant may request up to \$200,000 (20% of 1,000,000) in performance payments. These payments would be at a rate of \$4/ton. (\$200,000 divided by 50,000 tons)
- An applicant in the Rural Program can request up to \$1,000,000 in total funds for the project. Payment of requested funds are divided between infrastructure and performance payments. An applicant can request up to \$800,000 for capital expenses and other eligible expenses for the infrastructure of the project as described in the eligible projects section. An amount up to twenty percent (20%) of the amount requested for those expenses can then be requested as performance payments. The infrastructure portion of the grant will be paid on a reimbursement basis. Performance payments are made for each ton of California-generated greenwaste, food materials, or ADC diverted from landfills and composted or digested during the term of the grant. The payments will be made quarterly on a per ton basis with the dollar amount being determined by dividing the amount requested for performance payments by the total number of tons diverted under the project during the grant term, as stated in the application.

Recycled Fiber Plastic and Glass Grant Program

- An applicant can request up to \$2,500,000 in total funds for the project. Payment of requested funds are divided between infrastructure and performance payments. An applicant can request up to \$2,000,000 for capital expenses and other eligible expenses for the infrastructure of the project as described in the eligible projects section. An amount up to twenty percent (20%) of the amount requested for those expenses can then be requested as performance payments. The infrastructure portion of the grant will be paid on a reimbursement basis. Performance payments are made for each ton of California-generated postconsumer recycled fiber, plastic, or glass diverted from a landfill and used to manufacture a product during the term of the grant. The payments will be made quarterly on a per ton basis with the dollar amount being determined by dividing the amount requested for performance payments by the total number of tons diverted by the project during the grant term, as stated in the application.
 - *Example 1:* Applicant may request \$2,000,000 for the construction of a new facility that will divert 50,000 tons of previously landfilled plastic during the grant term. (10,000 per year for the five year term of the grant) This applicant may request \$400,000 in performance payments. These payments would be at a rate of \$8/ton. (\$400,000 divided by 50,000)
 - *Example 2:* Applicant requests \$1,000,000 for the expansion of an existing facility. The conversion will allow the facility to utilize an additional 50,000 tons of fiber waste during the grant term. (10,000 tons per year for the five year grant term) The applicant may request up to \$200,000 (20% of 1,000,000) in

performance payments. These payments would be at a rate of \$4/ton. (\$200,000 divided by 50,000)

Preprocessing

- Project must result in new diversion from landfills, i.e., beyond that which the preprocessor was already diverting.
- Preprocessor must provide proof of binding agreement with a California facility that is receiving the preprocessed feedstock to make compost, soil amendments, biofuels, bioenergy, or recycled content finished products.
- If the composting, digestion or manufacturing facility that receives materials from a preprocessing applicant also submits an application, the applicant must demonstrate how each project will result in discrete increases in tons of material diverted from landfills and GHG reductions.

Number of Applications Per Eligible Applicant

- Limit to one application per eligible applicant

Adjusting Points in Scoring Criteria

- Eliminate 5 points for “Application Completeness” and add 5 points to “Tonnage” (diversion) - new points for Tonnage would be 20
- Deduct 5 points from Air & Water Quality Benefits and add them to Disadvantaged Communities; new points would be 5 for Air/Water and 15 for DAC

Organics Grant Program Only

Rural Program

- Reserve \$2 million for rural organics projects, with a maximum of \$1 million per application
 - Rural is defined as a county annually disposing no more than 200,000 tons of solid waste.
 - Maintain funding for the Rural Program separately from the rest of the Organics Grant Program, with rural applicants scored competitively against each other. Applicants may decide upon applying whether to partake in the Rural Program or the standard Organics Grant Program. If the funding for the Rural Program is not fully allocated, it may be put towards the standard Organics Grant Program.

Food Waste Prevention/Rescue Projects

- Expand eligible costs to include purchase of food waste prevention software that can be shared with food waste generators.
- Remove Food Waste Prevention salaries (driver/nonprofit labor) from 5% of the total grant budget cap on salaries; allow up to 50% of Food Waste Prevention budget to pay for salaries.

Loan Program Only

- Evaluate applications evaluated on a first-come, first-served basis, provided the project meets the minimum passing score and the application is complete.
- Make both organics projects and recycled fiber, plastic, and glass projects eligible.
- Eliminate two scoring criteria categories: 1) Project Readiness and Permits, and 2) Air and Water Quality Benefits; adjust the points in the remaining categories to match grant scoring. Applicants must score a minimum of 30 out of 60 points to be eligible for funding.

Tentative Timeline for FY 2015–16

As shown in the table below, staff will post a Notice of Funds Available (NOFA) on CalRecycle's website informing potential applicants of the funding, eligibility requirements, deadlines, and other important information. Notices will also be distributed through the Grants Management System database, various listservs, outreach presentations, and newsletters. NOFAs will be sent to current and past grant and loan recipients and shared with CalRecycle's Local Assistance and Market Development staff to inform their local jurisdictions.

Grant Programs

Target Date	Activity
May 2015	Post Notice of Funds Available, Application, and related instructions and documents on the web site
June/July 2015	Applications due
July – November 2015	Conduct application evaluation/review process; determine funding for eligible applicants
December 2015	Awards presented at CalRecycle Public Meeting
January 2016	Agreements distributed and executed: term ends, April 2020

Loan Program

Target Date	Activity
June 2015	Application release
First-come, first-served	Loan applications submitted
90-120 dates after a complete application is received	Loan awards

Stakeholder Comments and CalRecycle Responses

On March 19, 2015, CalRecycle held a workshop to discuss draft grant and loan program overviews and scoring criteria. Staff received stakeholder input at the workshop as well as additional comments in writing. Information prepared for the workshop and stakeholder comments submitted in writing have been posted on the CalRecycle website and can be accessed at www.calrecycle.ca.gov/Climate/GrantsLoans/.

Staff has reviewed all stakeholder comments and revised the grant scoring criteria to incorporate stakeholder input as appropriate (see Attachments 1-4). Staff made numerous clarifying changes to these documents. In addition to these, there were several common, higher-level themes among the stakeholder comments received that can be organized into the following five categories:

1. Funding
2. Rural Program
3. Number of Applications
4. Disadvantaged Communities
5. Technology and Feedstock

The following section summarizes the major stakeholder comments in these five categories and staff recommendations for proposed revisions to the application documents and Scoring Criteria documents for each program (Attachments 1–4).

1. Funding

- A) Grant Banking/Stacking:** Concerns were expressed about grant banking and grant stacking. Grant banking is when grant funds are awarded but not expended for an extended period of time. Related concerns are that GGRF funds will be disbursed yet awarded grant projects may not fully achieve anticipated GHG emission reductions for a variety of reasons, e.g., partial construction, inadequate funding for the total project, project delays, permit issues, failure to secure adequate feedstock, etc. Grant stacking is when a single project receives multiple grant awards.
- *Staff Recommendation for Grant Banking and related GGRF fund disbursement concerns:* Change payment methodology for the FY 2015–16 grant program to create a performance-based incentive approach that provides a disincentive to grant banking and ensures that projects not only execute construction but also successfully achieve production that realizes anticipated GHG emission reductions. As discussed above, staff proposes that CalRecycle will pay up to 20 percent of amount requested for infrastructure projects based on project performance during the grant term. This approach will also encourage applicants to set realistic tonnage and GHG emission reduction projections in their applications.
 - *Staff Recommendation for Grant Stacking:* Staff recommends clarifying that grant stacking is allowed but limited to projects that are performing. Expansion of projects that have previously received GGRF funds would be eligible for separate and distinct eligible expenses provided the project meets all the grant criteria and the previously funded project is progressing as expected.
- B) Incentive Payments:** Stakeholders suggested the Department consider an incentive payment approach rather than strictly funding grants.
- *Staff recommendation:* No changes for the FY 2015–16 grant program. A long-term, dedicated funding stream would be required to implement an effective incentive payment program.
- C) Capital Costs:** Stakeholders recommended that use of grant funds be limited to reimbursement of capital costs.
- *Staff Recommendation:* CalRecycle staff recommend no change as limited expenditures for non-capital costs such as education and outreach, design and engineering, salaries, and labor associated with food rescue are critical to successfully implement grant projects. The current grant program limits the use of grant funds for non-capital expenditures.
- D) Matching Funds:** Stakeholders suggested that the Department establish a minimum requirement for matching funds for each project.
- *Staff Recommendation:* CalRecycle staff recommend no change for the FY 2015–16 grant program. The FY 2014–15 grant program was very competitive and successful applications included considerable amounts of matching funds and leveraged the State’s investment of GGRF. Matching funds are considered as part of the fiscal soundness and budget sections of the scoring criteria.

E) Shift Loan Funds to Grant Funds: Stakeholders noted that the grant programs were oversubscribed while the loan program was undersubscribed and recommended shifting the loan funding to the grant program.

- **Staff Recommendation:** CalRecycle staff recommend no change. The grant program is established in the Budget Act and loan program is separately established in the Budget Act and not subject to modification by CalRecycle.

F) Adjust funding between grant programs: Stakeholders suggested consideration of a sliding scale for each grant program (both Organics and FPG) that would allow CalRecycle flexibility to pick the best projects based on diversion/emission reductions (e.g., \$9-13M for Organics and \$5-9M for FPG).

- **Staff Recommendation:** CalRecycle staff recommend no change for the FY 2015–16 grant program. If FPG becomes more significantly oversubscribed, CalRecycle may consider proposing future adjustments to the funding accordingly.

2. Rural Program

Several stakeholders expressed concerns that setting aside funding for rural programs would allocate a disproportionate share of the funding to a small percentage of California's population. Some stakeholders also requested that rural be defined as a county with a population of less than 150,000 people.

- **Staff Recommendation:** CalRecycle staff recommends inclusion of a Rural Program as part of the FY 2015–16 Organics grant program. In the FY 2014–15 Organics Grant Program, several projects were proposed in rural areas but were not of sufficient size to effectively compete and receive an award. Many rural areas lack organics processing capacity. Using the following definition for "rural" will result in approximately 33 eligible counties for the Rural Program: "Rural is defined as a county annually disposing no more than 200,000 tons of solid waste."

3. Number of Applications

Stakeholders requested that the Department clarify how it will define a primary business entity. Stakeholders wanted clarification that a technology provider could supply equipment and services to more than one grant application.

- **Staff Recommendation:** Staff recommends limiting applications to 1 per eligible applicant. A technology provider can provide equipment and services to more than one grant applicant.

4. Disadvantaged Communities

Stakeholders expressed concern that increasing the number of points for DACs would make it harder for meritorious projects located out of a DAC to compete.

- **Staff Recommendation:** CalRecycle staff recommend allocating 15 points for DACs as proposed. Projects located outside of a DAC can structure their project to provide benefits to a DAC and effectively compete for the funding.

5. Technology & Feedstock

A) Cost Effectiveness/Innovation: Several stakeholders suggested that CalRecycle focus on cost-effective and/or innovative technologies such as aerated static piles and anaerobic digestion as opposed to the expansion of windrow composting.

- *Staff Recommendation:* CalRecycle staff recommends no change. The grant criteria is structured to reward projects that achieve the greatest amount of GHG emission reductions, divert the most material away from landfills, provide benefits to DACs, and realize air and water quality improvements. In the FY 2014–15 grant cycle, a number of technologies were competitive and staff does not see a benefit to restricting the types of eligible composting and digesting projects.

B) Feedstock Supply: Some stakeholders suggested establishing projects with long-term commitments (minimum of five years) from food and green waste providers to ensure that feedstock for the project is secured throughout the grant term.

- *Staff Recommendation:* CalRecycle staff do not recommend additional changes for the FY 2015–16 grant program. This concern is addressed by scoring criteria and supporting documentation for new diversion tons for the project as well as the proposed reimbursement methodology which, in part, would disburse payment based on performance (i.e., the actual tons of material a project diverts from a landfill).

C) Animal Feed: Some stakeholders suggested expanding eligible projects types under the Organics Grant program to include production of animal feed.

- *Staff Recommendation:* Staff recommends not expanding the eligible project to include production of animal feed for the FY 2015–16 grant cycle, because of insufficient time to ascertain legal and health and safety requirements for the use of previously disposed organics for animal feed, and fully understand the implications of these requirements in the context of CalRecycles GGRF programs. CalRecycle staff could consider proposing this for future cycles.

Organics Grant Program - Scoring Criteria

Fiscal Year 2015 – 16

Applicants must score a minimum of 60 points of a possible 100 points to be considered for funding.

25	<p>GREEN HOUSE GAS (GHG) EMISSION REDUCTIONS</p> <p>Explain how the proposed project will result in reduction of Greenhouse Gas (GHG) emissions annually compared to existing practices of landfilling green or food materials.</p> <ul style="list-style-type: none"> • Explain GHG calculation methods, provide citations for calculation methods, state the metric tons of CO₂ equivalents (MTCO₂e) that will be reduced annually, and describe how you will verify annual CO₂e reductions once the project is operating. Specify the life of the project and how GHG emission reductions will continue to occur over the life of the project. Describe how you will verify the annual CO₂e emission reductions once the project is operating. Calculate GHGs reductions in MTCO₂e and in MTCO₂e per grant dollar spent. • GHG calculations should include destination and GHG impacts of all products and byproducts from the project; estimates for both upstream and downstream emissions should be included as well, e.g., transportation of feedstocks and products, production of low-carbon fuels, renewable electricity, heat or power used on site, digestate, liquid products/effluents, fertilizer, and management of residuals. • For a food waste prevention component of a project, include a detailed GHG reduction calculation that demonstrates the amount of food rescued, how and where this will be accomplished and delivered to people and state the associated GHG emission reductions. Food waste prevention projects are projects that rescue or prevent edible food from becoming waste normally destined for landfills and result in rescued food being distributed to people, with any food waste residuals from the project being sent to composting or digestion when available within their service area.
20	<p>TONS OF ORGANIC MATERIAL COMPOSTED, DIGESTED, OR FOOD WASTE PREVENTED</p> <p>Explain how the proposed project will result in tons of green or food materials being composted, digested or result in edible food being rescued to feed people and prevented from becoming waste. Explain how these tons are currently being generated in California and landfilled or used for alternative daily cover (ADC).</p> <ul style="list-style-type: none"> • How many tons of additional material will be composted, digested, or rescued to feed people and what is the projected timeline for the project to be operating at full capacity? Indicate where these materials are currently being landfilled or used for ADC. Also calculate in terms of tons per grant dollar spent. • Provide as much information as possible regarding the origin of the feedstock materials including jurisdictions of origin for the material, a list of the jurisdiction(s) name, hauler(s) and type of collection program, and whether a contract for collection or delivery of these materials is in place. • Provide documentation that demonstrates an adequate amount of feedstock will be provided to make the project feasible. This may include a signed contract, letter of intent, or other documentation which shows the feedstock will be available by the time the project is operational. • Explain in detail how you will verify that the extra tons of greenwaste or food waste were in fact composted, digested, or rescued to feed people once the project is operating. Explain how you will verify the material had been landfilled. Explain how you will verify that product is not being landfilled or used for ADC.

Organics Grant Program - Scoring Criteria

Fiscal Year 2015 – 16

Points	Description
	<ul style="list-style-type: none"> • If materials are to be digested, explain how much solid and liquid digestate will result and what will happen to the digestate (if it is to be landfilled, land applied or composted) and where that will occur. • Explain how you will manage residuals that are either removed in a pre-processing step or remain after processing is complete. • For a food waste prevention component of a project include the amount of food rescued and distributed to people that results in tons of food waste avoided from landfilling. Include an estimate of any food waste residuals from the project and explanation on how the residuals will be managed without being sent to landfill when alternative residual management is available within the service area, e.g., composting, anaerobic digestion, or other digestion or fermentation process.
15	<p>DISADVANTAGED COMMUNITIES Explain how your project will benefit disadvantaged communities.</p> <ul style="list-style-type: none"> • Explain economic benefits that will be provided to these communities. If your project will create construction or permanent jobs in disadvantaged communities, indicate how many jobs, what types, approximate salaries and benefits, and how long these jobs will last. • Explain how expected air and water quality benefits will improve air and water quality in the disadvantaged community. • Describe any food waste reduction component of your project or one that will be implemented by teaming with a partner. The food waste reduction component needs to be a project that rescues edible food from becoming waste normally destined for landfills and results in increased food distribution to people in the community, with any food waste residuals from the project being sent to composting or digestion when it is available within the projects service area. Include an explanation of the project, the amount of food that will be rescued as a result of the project, and the associated amount of waste avoided and greenhouse gas reductions achieved. • Explain other environmental benefits of the project that will accrue to the community. • Provide letters of support that your project is supported by citizens, elected officials, government bodies or non-profit entities in the disadvantaged community(ies).
10	<p>PROJECT READINESS AND PERMITS California Environmental Quality Act (CEQA) Describe the level of anticipated CEQA review required for the project (e.g., notice of exemption, negative declaration, mitigated negative declaration, or environmental impact report) as determined by the lead agency, the current status of their CEQA review, and the projected timeline for completing CEQA. Provide copies of or a link to your CEQA documentation that is currently available. If no CEQA review will be required, provide documentation from the lead agency confirming that CEQA review is not required.</p> <p>General Checklist of Business Permits, Licenses and Filings (CalRecycle Form 669) Form 669 is a required application document. CalRecycle staff will use this information to determine your permitting, construction, and start-up status. In addition, please indicate:</p> <ul style="list-style-type: none"> • Conditional Use Permit (CUP): If your project requires a conditional use permit, indicate the status of that permit and any barriers to obtaining the permit. If your project has permit by right, or is covered under an existing CUP, explain.

Organics Grant Program - Scoring Criteria

Fiscal Year 2015 – 16

Points	Description
	<ul style="list-style-type: none"> • Air Quality Permit: <ul style="list-style-type: none"> ○ If your project requires the use of Best Available Control Technologies or the purchase of Emission Reduction Credits (offsets) in order to meet local air quality permit requirements, indicate the steps you will take to obtain an Authority to Construct and a Permit to Operate from the appropriate air quality agency. This includes increases in GHG and criteria pollutant emissions. ○ If you are running an internal combustion engine or turbine to use bio-gas produced from this project, provide a copy of your air quality permit for that engine or explain how you will obtain that permit by the time the project is operational. • If power is sold to the grid, provide documentation that verifies the sale can happen (e.g. grid connection status and/or signed agreements). • Provide status regarding all other media regulatory permit requirements, including but not limited to Solid Waste Facilities Permit, water permits, fire permits.
5	<p>AIR & WATER QUALITY BENEFITS Describe how your project will result in air and water quality benefits if applicable; do not include GHG emission reductions:</p> <ul style="list-style-type: none"> • If the benefits are reduced emissions of air quality pollutants, their precursors or odors, provide an explanation of how the reductions will occur and include a quantification or an estimate of emission reductions for each criteria pollutant or precursor. • If the benefits are long-term protection of ground or surface water quality, please explain how the waters will be protected and which constituents of concern will be reduced.
10	<p>WORK PLAN Specific list of all grant eligible procedures or tasks used to complete your project. Use the Work Plan template.</p> <ul style="list-style-type: none"> • Include a detailed Work Plan that clearly and concisely describes the tasks and activities required to achieve the goals/objectives in the proposed project narrative. If renewable power or low-carbon fuels are to be produced, explain the process and how this energy will be utilized, and whether any electricity produced will be sold to the grid or used on site. • Demonstrate that the applicant (including its contractors) and cooperating organizations have sufficient staff resources, technical expertise, and experience to successfully complete the proposed project. Provide the resumes of key project personnel and contractors. • Include major work items (e.g., permitting, site planning, engineering, construction, equipment, field supervision, health and safety requirements, testing, bonds, etc.). • Demonstrate that all tasks are logical and achievable within the grant term, and with available resources. • Identify measurable targets that must be met to accomplish your project within the grant timeline, with specific dates for each target. Include a schedule that details the quantity of additional material processed until the project is operating at full capacity. • Include an evaluation component (including progress reports) to measure success of the project and to determine whether the goals/objectives were accomplished, and build in measurable milestones and a timeline to complete the evaluation before the grant term expires.

Organics Grant Program - Scoring Criteria

Fiscal Year 2015 – 16

10	<p>BUDGET</p> <p>Provide a clear accounting of all costs associated with all activities necessary to complete the project. Use the Budget template. Applicant/grantee shall not incur costs prior to CalRecycle's issuance of Notice to Proceed. Indicate additional funding sources and your ability to commence work on the project while waiting for grant payments in arrears.</p> <ul style="list-style-type: none">• Costs shall be itemized into categories and be consistent with the activities included in the Work Plan.• All budget backup documentation including quotes, estimates, and equipment details shall be uploaded, clearly marked and support budget costs.• Describe and quantify source and amount of local, state, and federal funds, loans, other grants, and all other funding necessary to complete the proposed project (if applicable). Describe which activities these monies will fund.• Demonstrate that the applicant (including its contractors) and cooperating organizations have sufficient staff resources, technical expertise, and experience to successfully complete the proposed project.• Describe and quantify expenditures already incurred to initiate work on project, such as engineering, site preparation, infrastructure, utility hookups, permitting and environmental review.• Demonstrate how operation and maintenance costs of the project will be sustained beyond the term of the grant. Describe any ongoing funding sources, if any.
5	<p>FISCAL SOUNDNESS</p> <p>Provide the appropriate financial documentation regarding your organization's financial strength. Documentation is related to the category your operation forms under (Business Applicants, Newly Formed Business Applicants, and Government Applicants). You may also include other documentation that proves your organization's financial stability (e.g., other funding sources, the ability to continue the project beyond grant funding, partnerships.)</p> <ul style="list-style-type: none">• Provide an explanation and assessment of your organization's financial strength along with any financial weaknesses and how they can be mitigated.
100	<p>TOTAL POSSIBLE POINTS</p>

Recycled Fiber, Plastic & Glass Grant Program - Scoring Criteria

Fiscal Year 2014/15

Applicants must score a minimum of 60 points of a possible 100 points to be considered for funding.

Points	Description
25	<p>GREEN HOUSE GAS (GHG) EMISSION REDUCTIONS</p> <p>Explain how the proposed project will result in reduction of greenhouse gas (GHG) emissions annually compared to the existing practices for the fiber (paper, textiles, carpet or wood), plastic or glass materials at landfills.</p> <ul style="list-style-type: none"> • Explain GHG calculation methods, provide citations for calculation methods, state the metric tons of CO₂ equivalents (MTCO₂e) that will be reduced annually, and describe how you will verify annual CO₂e reductions once the project is operating. Specify the life of the project and how GHG emission reductions will continue to occur over the life of the project and beyond. Describe how you will verify annual CO₂e emission reductions once the project is operating. Calculate GHGs reductions in MTCO₂e and in MTCO₂e per grant dollar spent. • GHG calculations should include destination and GHG impacts of all products and byproducts from the project; estimates for both upstream and downstream emissions should be included as well, e.g., transportation of feedstocks and products, heat or power used on site, and management of residuals.
20	<p>TONS OF RECYCLED MATERIAL USED IN MANUFACTURING</p> <p>Explain how fiber, plastic or glass currently being generated in California and landfilled will instead be used in manufacturing new products or packaging in California.</p> <ul style="list-style-type: none"> • How many tons of additional material will be used in manufacturing (e.g., amount of recycled feedstock) and what is the projected timeline for the project to be operating at full capacity? Indicate the landfill(s) where these materials are currently landfilled. Also calculate in terms of tons per grant dollar spent. • Provide as much information as possible regarding the origin of the feedstock materials including jurisdictions of origin for the material, a list of the jurisdiction(s) name, hauler(s) and type of collection program, and whether a contract for collection or delivery of these materials is in place. • Explain in detail how you will verify that the extra tons of recycled feedstock were in fact manufactured into new products once the project is operating. Explain how you will verify the recycled feedstock had previously been destined for a landfill(s). • What percentage of yield loss (the difference between tons of recycled feedstock versus tons actually used to make new products) do you anticipate? What happens to yield loss material (e.g., feedstock residuals that are not used to make new products)? Is it sold as scrap, landfilled, etc.?
15	<p>DISADVANTAGED COMMUNITIES</p> <p>Explain how your project will benefit disadvantaged communities.</p> <ul style="list-style-type: none"> • Explain the economic benefits that will be provided to these communities. If your project will create construction or permanent jobs in disadvantaged communities, indicate how many jobs, what types, approximate salaries and benefits, and how long these jobs will last. • Explain how expected air and water quality benefits will improve air and water quality in the disadvantaged community. • Explain other environmental benefits of the project that will accrue to the community. • Provide letters of support that your project is supported by citizens, elected officials, government bodies or non-profit entities in the disadvantaged community(ies).

Recycled Fiber, Plastic & Glass Grant Program - Scoring Criteria

Fiscal Year 2014/15

Points	Description
10	<p>PROJECT READINESS AND PERMITS</p> <p>California Environmental Quality Act (CEQA) Describe the level of anticipated CEQA review required for the project (e.g., notice of exemption, negative declaration, mitigated negative declaration, or environmental impact report) as determined by the lead agency, the current status of its CEQA review, and the projected timeline for completing CEQA. Provide copies of or a link to your CEQA documentation if it is available. If no CEQA review will be required, provide documentation from the lead agency confirming that CEQA review is not required.</p> <p>General Checklist of Business Permits, Licenses and Filings (CalRecycle Form 669) Form 669 is a required application document. CalRecycle staff will use this information to determine your permitting, construction, and start-up status. In addition, please indicate:</p> <ul style="list-style-type: none"> • Conditional Use Permit (CUP): If your project requires a conditional use permit, indicate the status of that permit and any barriers to obtaining the permit. If your project has permit by right, or is covered under an existing CUP, explain. • Air Quality Permit: If your project requires the use of Best Available Control Technologies or the purchase of Emission Reduction Credits (offsets) in order to meet local air quality permit requirements, indicate the steps you will take to obtain an Authority to Construct and a Permit to Operate from the appropriate air quality agency. This includes increases in GHG and criteria pollutant emissions. • Provide status regarding all other media regulatory permit requirements, including but not limited to Solid Waste Facilities Permit, water permits, fire permits.
5	<p>AIR & WATER QUALITY BENEFITS</p> <p>Describe how your project will result in air and water quality benefits if applicable; do not include GHG emission reductions:</p> <ul style="list-style-type: none"> • If the benefits are reduced emissions of air quality pollutants, their precursors or odors, provide an explanation of how the reductions will occur and include a quantification or an estimate of emission reductions for each criteria pollutant or precursor. • If the benefits are long-term protection of ground or surface water quality, please explain how the waters will be protected and which constituents of concern will be reduced.
10	<p>WORK PLAN</p> <p>Specific list of all grant-eligible procedures or tasks used to complete your project. Use the Work Plan template.</p> <ul style="list-style-type: none"> • Include a detailed Work Plan that clearly and concisely describes the tasks and activities required to achieve the goals/objectives in the proposed project narrative. • Demonstrate that the applicant (including its contractors) and cooperating organizations have sufficient staff resources, technical expertise, and experience to successfully complete the proposed project. Provide the resumes of key project personnel and contractors. • Include major work items (e.g. permitting, site planning, engineering, construction, equipment, field supervision, health and safety requirements, testing, bonds, etc.). • Demonstrate that all tasks are logical and achievable within the grant term, and with available resources. • Identify measurable targets that must be met to accomplish your project within the grant timeline, with specific dates for each target. Include a schedule that details the

Recycled Fiber, Plastic & Glass Grant Program - Scoring Criteria

Fiscal Year 2014/15

Points	Description
	<p>quantity of additional recycled fiber, plastic or glass that will be used as manufacturing feedstock from the start of the grant until the project is operating at full capacity.</p> <ul style="list-style-type: none"> • Include an evaluation component to measure success of the project and to determine whether the goals/objectives were accomplished, and build in measurable milestones and a timeline to complete the evaluation before the grant term expires.
10	<p>BUDGET</p> <p>Provide a clear accounting of all costs associated with all activities necessary to complete the project. Use the Budget template. Applicant/grantee shall not incur costs prior to CalRecycle's issuance of Notice to Proceed. Indicate additional funding sources and your ability to commence work on the project while waiting for grant payments in arrears.</p> <ul style="list-style-type: none"> • Costs shall be itemized into categories and be consistent with the activities included in the Work Plan. • All budget backup documentation including quotes, estimates, and equipment details shall be uploaded, clearly marked and support budget costs. • Describe and quantify the source and amount of local, state and federal funds, loans, other grants, and all other funding necessary to complete the proposed project (if applicable). Describe which activities these monies will fund • Describe and quantify expenditures already incurred to initiate work on project, such as engineering, site preparation, infrastructure, utility hookups, permitting and environmental review. • Demonstrate how operation and maintenance costs of the project will be sustained beyond the term of the grant. Describe any ongoing funding sources, if any.
5	<p>FISCAL SOUNDNESS</p> <p>Provide the appropriate financial documentation regarding your organization's financial strength. Documentation is related to the category your operation forms under (Business Applicants, Newly Formed Business Applicants, Government Applicants). You may also include other documentation that proves your organization's financial stability (e.g., other funding sources, the ability to continue the project beyond grant funding, partnerships.)</p> <ul style="list-style-type: none"> • Provide an explanation and assessment of your organization's financial strength along with any financial weaknesses and how they can be mitigated.
100	<p>TOTAL POSSIBLE POINTS</p>

**Greenhouse Gas (GHG) Reduction Loan Program
Scoring Criteria – Organics Projects
Fiscal Year 2015 – 16**

Applicants must score a minimum of 30 points of a possible 60 points to be considered for funding.

Points	Description
25	<p>GREENHOUSE GAS (GHG) EMISSION REDUCTIONS Describe the proposed project and explain how it will result in reduction of metric tons of Greenhouse Gas (GHG) emissions annually compared to existing practices for the green and/or food materials at a landfill(s).</p> <ul style="list-style-type: none"> • Explain the methods of all GHG calculations, citations for calculation methods, the claimed metric tons of CO₂ equivalents (MTCO₂e) reduced, and how you will verify CO₂e reductions once the project is operating. Specify the life of the project and how GHG emission reductions will continue to occur over the life of the project and beyond. Describe how you will verify the annual CO₂e emission reductions once the project is operating. Calculate annual GHGs reductions in MTCO₂e and in loan dollars per total MTCO₂e. Include explanations and citations for all calculations to support the MTCO₂e that will be reduced as a result of the loan. • GHG calculations should include destination and GHG impacts of all products and byproducts from the project; estimates for both upstream and downstream emissions should be included as well, e.g., transportation of feedstock and products, production of low-carbon fuels, renewable electricity, heat or power used on site, digestate, liquid products/effluents, fertilizer. • For a food waste prevention component of a project, describe the proposed food waste prevention component, explain the amount of food rescued and delivered to people and the associated GHG emission reductions. The food waste prevention component needs to be a project that rescues edible food from becoming waste normally destined for landfills and results in increased food distribution to people in the community, with any food waste residuals from the project being sent to composting or anaerobic digestion or other digestion or fermentation process when it is available within their service areas.
20	<p>TONS OF ORGANIC MATERIAL COMPOSTED, DIGESTED, OR PREVENTED Explain how the proposed project will result in tons of green or food materials being composted or digested annually which are currently being generated in California and landfilled or used for alternative daily cover (ADC).</p> <ul style="list-style-type: none"> • How many tons of additional material annually will be composted, digested, or prevented from becoming waste and what is the projected timeline for the project to be operating at full capacity? Indicate where these materials are currently being landfilled or used for ADC. Also calculate in terms of tons per loan dollar spent. • Provide as much information as possible regarding the origin of the feedstock materials for this project including where are the jurisdictions of origin for the materials, a list of the jurisdiction(s) name, hauler(s) and type of collection program, and whether a contract for collection or delivery of these materials is in place. • Explain in detail how you will verify that the extra tons of greenwaste or food waste were in fact composted or digested once the project is operating. Explain how you will verify the material had been landfilled. Explain how you will verify that product from the project is not being landfilled or used for ADC.

Points	Description
	<ul style="list-style-type: none"> • If materials are to be digested, explain how much solid and liquid digestate remains and what will happen to the digestate (e.g., if it is to be landfilled, land applied or composted, and where will that occur). • Explain how you will manage residual contaminants that are either removed in the preprocessing step or left over after processing is completed. • Provide documentation that guarantees an adequate amount of feedstock will be provided to make the project feasible. This may include a signed contract, letter of intent, or other documentation which shows the feedstock will be available by the time the project is operational. • Describe the amount of food that will be rescued as a result of the project and the associated amount of waste avoided.
15	<p>DISADVANTAGED COMMUNITIES Explain how your project will benefit and/or impact disadvantaged communities, as defined in California Health & Safety Code 39711.</p> <ul style="list-style-type: none"> • Which disadvantaged community(ies) will benefit? • Explain economic and social benefits that will be provided to these communities. If your project will create construction and/or permanent jobs in disadvantaged communities, indicate how many jobs, what types, approximate salaries and benefits, and how long these jobs will last. • Explain how expected air and water quality benefits, as defined in California Health & Safety Code 39711, will improve air and water quality in the disadvantaged community. • If you are incorporating a food waste prevention component with your project and the food waste prevention component is located in a disadvantaged community, you should have described it in the GHG section above. Include any additional explanation here regarding potential economic/environmental benefits to the disadvantaged community that are specific to the food waste prevention component. Explain other environmental benefits of the project that will accrue to the community. • Provide letters of support that your project is supported by citizens, elected officials, government bodies or non-profit entities in the disadvantaged community(ies).
60	TOTAL POSSIBLE POINTS

**Greenhouse Gas (GHG) Reduction Loan Program
Scoring Criteria – Recycled Fiber, Plastic, and Glass Projects
Fiscal Year 2015 – 16**

Applicants must score a minimum of 30 points of a possible 60 points to be considered for funding.

Points	Description
25	<p>GREEN HOUSE GAS (GHG) EMISSION REDUCTIONS</p> <p>Describe the proposed project and explain how it will result in reduction of metric tons of greenhouse gas emissions annually compared to the existing practices for the fiber (paper, textiles, carpet or wood), plastic or glass materials at a landfill(s).</p> <ul style="list-style-type: none"> • Explain the methods of all GHG calculations, citations for calculation methods, the claimed metric tons of CO₂ equivalents (MTCO₂e) reduced, and how you will verify CO₂e reductions once the project is operating. Specify the life of the project and how GHG emission reductions will continue to occur over the life of the project and beyond. Describe how you will verify annual CO₂e emission reductions once the project is operating. Calculate GHGs reductions in MTCO₂e and in MTCO₂e per grant dollar spent. Include explanations and citations for all calculations to support the MTCO₂e that will be reduced as a result of the grant. • GHG calculations should include destination and GHG impacts of all products and byproducts from the project; estimates for both upstream and downstream emissions should be included as well, e.g., transportation of feedstock's and products, production of low-carbon fuels, renewable electricity, heat or power used on site.
20	<p>TONS OF RECYCLED MATERIAL USED IN MANUFACTURING</p> <p>Explain how fiber, plastic or glass currently being generated in California and landfilled will instead be used in manufacturing new products or packaging in California.</p> <ul style="list-style-type: none"> • What types of materials will be handled? Explain the specific material type(s) of recycled fiber, plastic or glass that will be diverted from a landfill and used as manufacturing feedstock. Will the materials be source-separated or sorted at a material recovery facility (MRF) or transfer station? Provide any relevant information that will help quantify the tonnage of material that will be diverted from landfills and used to manufacture new products. • How many tons of additional material will be used in manufacturing (e.g., amount of recycled feedstock) and what is the projected timeline for the project to be operating at full capacity? Indicate the landfill(s) where these materials are currently landfilled. Also calculate in terms of tons per grant dollar spent. • Where are the jurisdictions of origin for the recycled feedstock? List the jurisdiction(s) name, hauler(s) and type of collection program. Is a contract in place for collection or delivery of these materials to the manufacturing facility? • Explain in detail how you will verify that the extra tons of recycled feedstock were in fact manufactured into new products once the project is operating. Explain how you will verify the recycled feedstock had previously been destined for a landfill(s). • What percentage of yield loss (the difference between tons of recycled feedstock versus tons actually used to make new products) do you anticipate? What happens to yield loss material (e.g., feedstock residuals that are not used to make new products)? Is it sold as scrap, landfilled, etc.? • Provide feedstock documentation that guarantees an adequate amount of feedstock will be provided to make the project feasible. This may include a signed contract, a letter of intent, or other documentation which shows the feedstock will be available by the time the project is operational.

**Greenhouse Gas (GHG) Reduction Loan Program
Scoring Criteria – Recycled Fiber, Plastic, and Glass Projects
Fiscal Year 2015 – 16**

15	<p>DISADVANTAGED COMMUNITIES Explain how your project will benefit disadvantaged communities, as defined in California Health & Safety Code 39711.</p> <ul style="list-style-type: none"> • Which disadvantaged community(ies) will benefit? • Explain the economic benefits that will be provided to these communities. If your project will create construction and/or permanent jobs in disadvantaged communities, indicate how many jobs, what types, approximate salaries and benefits, and how long these jobs will last. • Explain how expected air and water quality benefits, as defined in California Health & Safety Code 39711, will improve air and water quality in the disadvantaged community. • Explain other environmental benefits of the project that will accrue to the community. • Provide letters of support that your project is supported by citizens, elected officials, government bodies or non-profit entities in the disadvantaged community(ies).
60	TOTAL POSSIBLE POINTS



Monthly Public Meeting

CalRecycle

10:00 A.M., April 21, 2015

Cal/EPA Building – Byron Sher Auditorium

A. DIRECTOR'S REPORT

Presentations or discussions by the Director and/or Executive Offices regarding department matters, legislative updates, public affairs or 75% initiative/legislative report.

B. PUBLIC COMMENT*

People may speak on any matter concerning CalRecycle with the exception of items appearing elsewhere on this agenda or items related to pending adjudicative (certification or enforcement) proceedings.

*Please note that while CalRecycle affords members of the public the opportunity to participate by Webcast, CalRecycle strongly encourages public comments to be made in person.

C. BEVERAGE CONTAINER RECYCLING PROGRAM

Possible decisions or announcements regarding BCRP matters including fund condition, rates, approval of new/renewed certifications, or enforcement actions.

Action Items

No actions at this time

Information Items

1. Recycling Program Certification & Registration Report
Quarterly Report on Branch workload metrics and key data.
Department Staff Contact: George.Donkor@CalRecycle.ca.gov
2. Recycling Program Enforcement Report
Quarterly Report on the Branch activities, including Probationary Reviews, Inspections, Investigations completed, and accusations filed. Updates will also be provided on Department of Justice/Office of the Attorney General interagency activities.
Department Staff Contact: John.Halligan@CalRecycle.ca.gov
3. Recycling Program Operations Report
Quarterly Report on the Branch activities will include a summary of Rate Determination Studies statistics, Market Information and Statistics and Update on Plastic Market Development Program for 2014.
Department Staff Contact: Mike.Miller@CalRecycle.ca.gov
4. Quarterly Report on the Status of the Beverage Container Recycling Fund
Update on the Status of the Beverage Container Recycling Program and the "Quarterly Report" that CalRecycle prepares for the Legislature every calendar quarter. This report will cover program updates as well as the status of the Recycling Fund Balance, forecast for future Fund Balances and the Department estimates on when Proportional Reductions may be implemented.
Department Staff Contact: Mike.Miller@CalRecycle.ca.gov

D. ELECTRONIC WASTE RECYCLING PROGRAM

Possible decisions or overview regarding the reuse, recycling, and handling of covered electronic devices; including matters related to fees, recyclers, enforcement, claim reviews and adjustments.

Action Items

No actions at this time

Information Items

Nothing to report at this time

E. LOCAL ASSISTANCE

Possible approval or discussion of locally adopted planning documents, bi-annual reviews, compliance and enforcement actions, or other program-related proceedings.

Action Items

No actions at this time

Information Items

1. Amended Countywide Siting Element For San Bernardino County
Department Staff Contact: Melissa.Vargas@Calrecycle.Ca.Gov
Public Notice

F. GRANT AND LOAN PROGRAMS

Possible decisions or overview regarding matters related to the used oil and household hazardous waste programs.

Action Items

1. Eligibility, Scoring Criteria, and Evaluation Process for the Greenhouse Gas Reduction Programs: Organics Grant Program; Recycled Fiber, Plastic, and Glass Grant Program; and Greenhouse Gas Reduction Revolving Loan Program (Greenhouse Gas Reduction Fund and Greenhouse Gas Reduction Revolving Loan Fund, FY 2015–16)
Department Staff Contact: Divina.Cadiz@Calrecycle.Ca.Gov
Public Notice

Information Items

1. Awards for the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program (Farm and Ranch Cleanup Account, FY 2014–15)
Department Staff Contact: Carla.Repucci@CalREcycle.Ca.Gov
Public Notice
2. Awards for the Tire-Derived Aggregate Grant Program (California Tire Recycling Management Fund, FY 2014–15)
Department Staff Contact: Loreto.Tamondong@CalRecycle.Ca.Gov
Public Notice
3. Awards for the Tire-Derived Product Grant Program (Tire Recycling Management Fund, FY 2014–15)
Department Staff Contact: Calvin.Young@CalRecycle.Ca.Gov
Public Notice

G. SOLID WASTE AND TIRE FACILITIES

Possible decisions or reconsiderations to petitions for a facility or landfill permit or modification; and, possible determinations of enforcement actions, clean-up requirements; or LEA training.

Action Items

1. Green World, LLC - Los Angeles County, Minor Waste Tire Facility Permit, Action Needed May 20, 2015
Department Staff Contact: Shannon.Hill@CalRecycle.ca.gov
[Public Notice](#)
2. Olinda Alpha Landfill - Orange County, Revised Solid Waste Facility Permit, Action Needed May 29, 2015
Department Staff Contact: Dianne.Ohiosumua@CalRecycle.ca.gov
[Public Notice](#)
3. West Central Landfill - Shasta County, Revised Solid Waste Facility Permit, Action Needed May 29, 2015
Department Staff Contact: Reinhard.Hohlwein@CalRecycle.ca.gov
[Public Notice](#)
4. Gilton Resource Recovery/Transfer Facility – Stanislaus County, Minor Waste Tire Facility Permit, Action Needed July 8, 2015
Department Staff Contact: Joy.Isaacson@Calrecycle.ca.gov
[Public Notice](#)
5. Golden By-Products – Merced County, Major Waste Tire Facility Permit, Action Needed September 20, 2015
Department Staff Contact: Margaret.Comotto@CalRecycle.ca.gov
[Public Notice](#)

Information Items

1. Waste Tire Enforcement Report
Department Staff Contact: Bill.Albert@CalRecycle.ca.gov
2. Approval of the Rancho Carpeta Trust Illegal Disposal Site Cleanup Project, Tehama County, Solid Waste Disposal and Codisposal Site Cleanup Program (solid Waste Disposal Trust Fund, FY 2014/2015)
Department Staff Contact: Stephanie.Young@CalRecycle.ca.gov
[Public Notice](#)

H. POLICY MANDATES/WORKSHOPS/RULEMAKING PROCEEDINGS

Possible decisions or discussions by department staff regarding any order instituting a rulemaking proceeding to develop and adopt regulations and/or policy guidelines specifying the procedures to implement or revise program guidelines or requirements such as Product Stewardship, Commercial Recycling, Organics Roadmap or the 75% initiative.

Action Items

1. Reallocation of Tire Funds (Tire Recycling Management Fund, FY 2014/15)
Department Staff Contact: Sally.French@CalRecycle.Ca.Gov
[Public Notice](#)

2. Adoption of the Five-Year Plan for the Waste Tire Recycling Management Program (8th Edition Covering Fiscal Years FYs 2015/16-2019/20)
Department Staff Contact: Sally.French@CalRecycle.Ca.Gov
[Public Notice](#)

Information Items

1. Mandatory Commercial Organics Recycling (AB 1826) Stakeholder Workshop
April 28, 2015 9:00AM – 3:30PM (Southern California – Diamond Bar)
Repeat of Information from the April 16, 2015 Sacramento Workshop
Department Staff Contact: Marshall.Graham@CalRecycle.Ca.Gov
[Public Notice](#)
2. Covered Electronic Waste Stakeholder Workshop: Managing Residual Cathode Ray Tubes
Please Note: New Time and Date
May 12, 2015 1:00PM – 4:00PM
Department Staff Contact: Jeff.Hunts@CalRecycle.Ca.Gov
[Public Notice](#)
3. June 17, 2015 – CalRecycle Packaging Workshop: Manufacturers' Challenge
Department Staff Contact: Cynthia.Dunn@CalRecycle.Ca.Gov
[Public Notice](#)

I. OTHER

Possible decisions or discussions regarding the development or implementation of a new or an amendment to policies and procedures for grants, loans and contracts. Please note that grants, loans, or scopes of work will be agendized specific to program area unless otherwise noted here.

Action Items

No actions at this time

Information Items

1. Status of Quarterly Disposal Report Submittals for the Fourth Quarter of 2014 and Submittal reminder and status of submittals for the 2014 Annual Facility Methods Summary Reports.
Department Staff Contact: Peter.Staklis@calrecycle.ca.gov

J. COMPLIANCE AND ENFORCEMENT HEARINGS

Hearings for Compliance and Enforcement matters and Administrative Appeals which are required to have a public hearing prior to the Department taking action

Action Items

No actions at this time

Information Items

Nothing to report at this time

We want to assure all of our stakeholders that transparency and stakeholder involvement remains a high priority for CalRecycle. In keeping with a history of providing stakeholders with information about programs, activities, and departmental decisions, CalRecycle has a public noticing site. To review Final CalRecycle Decisions and other department activities, please go to: <http://www.calrecycle.ca.gov/Actions/> or <http://www.calrecycle.ca.gov/BevContainer/Notices>. For meeting participation, listserv, and feedback information, please go to: <http://www.calrecycle.ca.gov/PublicMeeting/>.

Monthly Public Meeting

CalRecycle

10:00 A.M., May 19, 2015
Cal/EPA Building – Byron Sher Auditorium

A. DIRECTOR'S REPORT

Presentations or discussions by the Director and/or Executive Offices regarding department matters, legislative updates, public affairs or 75% initiative/legislative report.

B. PUBLIC COMMENT*

People may speak on any matter concerning CalRecycle with the exception of items appearing elsewhere on this agenda or items related to pending adjudicative (certification or enforcement) proceedings.

*Please note that while CalRecycle affords members of the public the opportunity to participate by Webcast, CalRecycle strongly encourages public comments to be made in person.

C. OTHER

Possible decisions or discussions regarding the development or implementation of a new or an amendment to policies and procedures for grants, loans and contracts. Please note that grants, loans, or scopes of work will be agendaized specific to program area unless otherwise noted here.

Action Items

No actions at this time

Information Items

1. Highlights of CalRecycle's 2014 Waste Characterization Study
Department Staff Contact: Nancy.Carr@CalRecycle.ca.gov

D. ELECTRONIC WASTE RECYCLING PROGRAM

Possible decisions or overview regarding the reuse, recycling, and handling of covered electronic devices; including matters related to fees, recyclers, enforcement, claim reviews and adjustments.

Action Items

No actions at this time

Information Items

Nothing to report at this time

E. LOCAL ASSISTANCE

Possible approval or discussion of locally adopted planning documents, bi-annual reviews, compliance and enforcement actions, or other program-related proceedings.

Action Items

No actions at this time

Information Items

1. Approval of 2012-13 Jurisdiction Review Findings For The Source Reduction And Recycling Element And Household Hazardous Waste Element For: Orange County: Cypress
Department Staff Contact: Jennifer.Caldwell@CalRecycle.ca.gov
[Public Notice](#)
2. Approval of 2012-13 Jurisdiction Review Findings For The Source Reduction And Recycling Element and Household Hazardous Waste Element For: Butte County: Oroville; Fresno County: Huron, Mendota, Sanger, San Joaquin; Humboldt County: Ferndale; Mariposa County: Mariposa Unincorporated; Nevada County: Nevada Unincorporated; Orange County: Laguna Woods; Plumas County: Portola; San Mateo County: Daly City; Sierra County: Sierra County Regional Agency Department
Staff Contact: Jennifer.Caldwell@CalRecycle.ca.gov
[Public Notice](#)
3. Approval of 2012-13 Jurisdiction Review Findings For The Source Reduction And Recycling Element, Household Hazardous Waste Element And Transformation Claims For: Fresno County: Firebaugh; Los Angeles County: Compton, Downey
Department Staff Contact: Jennifer.Caldwell@CalRecycle.ca.gov
[Public Notice](#)
4. Approval of 2007-11 and 2012-13 Jurisdiction Review Findings For The Source Reduction And Recycling Element, Household Hazardous Waste Element And Transformation Claims For: Los Angeles County: Gardena
Department Staff Contact: Jennifer.Caldwell@CalRecycle.ca.gov
[Public Notice](#)
5. Approval of 2007-11 and 2012-13 Jurisdiction Review Findings For The Source Reduction And Recycling Element And Household Hazardous Waste Element For: Mendocino County: Point Arena
Department Staff Contact: Jennifer.Caldwell@CalRecycle.ca.gov
[Public Notice](#)
6. Approval of 2007-11 and 2012-13 Jurisdiction Review Findings For The Source Reduction And Recycling Element And Household Hazardous Waste Element For: Sacramento County: Rancho Cordova
Department Staff Contact: Jennifer.Caldwell@CalRecycle.ca.gov
[Public Notice](#)

F. GRANT AND LOAN PROGRAMS

Possible decisions or overview regarding matters related to the used oil and household hazardous waste programs.

Action Items

No actions at this time

Information Items

1. Awards for the Local Government Waste Tire Enforcement Grant Program (Tire Recycling Management Fund, FY 2014–15)
Department Staff Contact: Phanessa.Fong@CalRecycle.ca.gov
[Public Notice](#)

2. Greenhouse Gas Reduction Loan for Harvest Power California, LLC. (Greenhouse Gas Reduction Revolving Loan Fund, FY 2014-15)
Department Staff Contact: Bruce.Quigley@CalRecycle.ca.gov
[Public Notice](#)
3. Greenhouse Gas Reduction Loan for Nursery Products, LLC. (Greenhouse Gas Reduction Revolving Loan Fund, FY 2014-15)
Department Staff Contact: Tim.Brannan@CalRecycle.ca.gov
[Public Notice](#)

G. SOLID WASTE AND TIRE FACILITIES

Possible decisions or reconsiderations to petitions for a facility or landfill permit or modification; and, possible determinations of enforcement actions, clean-up requirements; or LEA training.

Action Items

1. Olinda Alpha Landfill - Orange County, Revised Solid Waste Facility Permit, Action Needed May 29, 2015
Department Staff Contact: Dianne.Ohiosumua@CalRecycle.ca.gov
[Public Notice](#)
2. West Central Landfill - Shasta County, Revised Solid Waste Facility Permit, Action Needed May 29, 2015
Department Staff Contact: Reinhard.Hohlwein@CalRecycle.ca.gov
[Public Notice](#)
3. Tehachapi Landfill – Kern County, Revised Solid Waste Facilities Permit, Action Needed June 5, 2015
Department Staff Contact: Christine.Karl@CalRecycle.ca.gov
[Public Notice](#)
4. Pena's Disposal, Inc. Transfer Station and Recovery Facility – Tulare County, Revised Solid Waste Facility Permit, Action Needed June 28, 2015
Department Staff Contact: Joy.Isaacson@CalRecycle.ca.gov
[Public Notice](#)
5. Sycamore Landfill – City of San Diego, Revised Solid Waste Facilities Permit, Action Needed July 3, 2015
Department Staff Contact: Virginia.Rosales@CalRecycle.ca.gov
[Public Notice](#)
6. Badlands Sanitary Landfill – Riverside County, Revised Solid Waste Facilities Permit, Action Needed July 3, 2015
Department Staff Contact: Megan.Emslander@Calrecycle.ca.gov
[Public Notice](#)
7. Lamb Canyon Sanitary Landfill - Riverside County, Revised Solid Waste Facilities Permit, Action Needed July 4, 2015
Department Staff Contact: Megan.Emslander@Calrecycle.ca.gov
[Public Notice](#)

8. Gilton Resource Recovery/Transfer Facility – Stanislaus County, Minor Waste Tire Facility Permit, Action Needed July 8, 2015
Department Staff Contact: Joy.Isaacson@CalRecycle.ca.gov
[Public Notice](#)
9. Golden By-Products – Merced County, Major Waste Tire Facility Permit, Action Needed September 20, 2015
Department Staff Contact: Margaret.Comotto@CalRecycle.ca.gov
[Public Notice](#)

Information Items.

Nothing to report at this time

H. POLICY MANDATES/WORKSHOPS/RULEMAKING PROCEEDINGS

Possible decisions or discussions by department staff regarding any order instituting a rulemaking proceeding to develop and adopt regulations and/or policy guidelines specifying the procedures to implement or revise program guidelines or requirements such as Product Stewardship, Commercial Recycling, Organics Roadmap or the 75% initiative.

Action Items

1. Adoption of Proposed Used Mattress Recovery And Recycling Program Regulation
Department Staff Contact: Nicole.Castagneto@CalRecycle.ca.gov
[Public Notice](#)

Information Items

1. June 17, 2015 – CalRecycle Packaging Workshop: Manufacturers' Challenge
Department Staff Contact: Cynthia.Dunn@CalRecycle.ca.gov
[Public Notice](#)

I. BEVERAGE CONTAINER RECYCLING PROGRAM

Possible decisions or announcements regarding BCRP matters including fund condition, rates, approval of new/renewed certifications, or enforcement actions.

Action Items

No actions at this time

Information Items

1. Annual Beverage Container Recycling Fact Sheet
Department Staff Contact: Mike.Miller@CalRecycle.ca.gov
2. Quarterly Report on the Status of the Beverage Container Recycling Fund
Update on the Status of the Beverage Container Recycling Program and the "Quarterly Report" that CalRecycle prepares for the Legislature every calendar quarter. This report will cover program updates as well as the status of the Recycling Fund Balance, forecast for future Fund Balances and the Department estimates on when Proportional Reductions may be implemented.
Department Staff Contact: Mike.Miller@CalRecycle.ca.gov
3. Review of Biannual Report of Beverage Container Sales, Returns, Redemption, and Recycling Rates
Department Staff Contact: Amy.Yhnell@CalRecycle.ca.gov

4. Commencement of Handling Fee and Processing Fees Cost Surveys
Department Staff Contact: Mike.Miller@CalRecycle.ca.gov
5. Update on 2014 California Glass Container and Fiberglass Production Minimum Content Report
Department Staff Contact: Hieu.Le@CalRecycle.ca.gov

J. COMPLIANCE AND ENFORCEMENT HEARINGS

Hearings for Compliance and Enforcement matters and Administrative Appeals which are required to have a public hearing prior to the Department taking action

Action Items

No actions at this time

Information Items

Nothing to report at this time

We want to assure all of our stakeholders that transparency and stakeholder involvement remains a high priority for CalRecycle. In keeping with a history of providing stakeholders with information about programs, activities, and departmental decisions, CalRecycle has a public noticing site. To review Final CalRecycle Decisions and other department activities, please go to: <http://www.calrecycle.ca.gov/Actions/> or <http://www.calrecycle.ca.gov/BevContainer/Notices>. For meeting participation, listserv, and feedback information, please go to: <http://www.calrecycle.ca.gov/PublicMeeting/>.

2015 CalRecycle/LEA Trainings: Load-Checking

This one day, 7-hour class will provide information on the implementation of hazardous and prohibited waste load-checking programs at solid waste disposal facilities. For 2015, the class will have a "hands-on" section. The class will head outside to the waste receiving area for "hands-on" demonstration by the instructor for practicing safe and effective load-checking procedures. The class will also actively participate in these load-checking procedures under the supervision of the instructor. Check-in begins at 8:30 a.m. and the class will begin promptly at 9:00 a.m. A boxed sandwich lunch will be provided with this class. You may choose your sandwich selection on the registration form. The class ends at 4:30 p.m. The topics covered will include:

- Fundamental concepts of a load-checking program
- Regulations related to load-checking at solid waste facilities
- The types of wastes that are prohibited from disposal and should be looked for in a load checking program
- Methods for identifying hazardous and other prohibited wastes
- Basic health and safety practices and emergency procedures
- Specific waste handling and storage procedures
- Record keeping
- Program evaluation

Workshop Goals:

- Understand why load-checking is conducted
- Learn what to look for during load-checking activities
- Become skilled at safely reviewing waste loads
- Understand how to manage wastes found during load checking

Out-Door Training Exercise: A portion of this class will take place outside at the facilities load-checking area. You are required to bring/wear the following to the class in order to participate in this exercise:

1. Closed Toed Boots/Shoes
2. Pants
3. Orange Safety Vest
4. Safety Glasses
5. Hard Hat
6. Ear Plugs (optional)
7. Water Bottle (optional)
8. Sunscreen Lotion/Spray

Continuing Education Units (CEUs): This workshop is certified for CEU contact hours. CEU Certificates will be emailed to the attendees after completion of the workshop.

- Solid Waste Association of North America (SWANA) CEUs are offered.
- Registered Environmental Health Specialist (REHS) 6 contact hours are offered. Course number is: 01-029-15.

Registration: Please select the workshop date that you are interested in attending and complete the registration process. Registration for the Load-Checking workshop is free.

Please note, morning coffee service and a boxed sandwich lunch will be provided at this year's Load-Checking workshops. You can choose sandwich selection on the registration form page.

Confirmation: To ensure you receive a confirmation letter and map to the facility, please register no later than one week prior to the workshop. Attendees who register after this may not receive a confirmation letter and map.

Cancellation Policy: To allow us to provide the highest quality workshops possible, fiscal responsibility is crucial. If you cannot attend the workshop and must cancel or send a substitute, please contact the CSUS CCE Conference & Training Services registration department at (800) 858-7743.

Planner
Tomi Amundsen

2015 CalRecycle/LEA Trainings: Load-Checking Load-Checking Instructor



Larry Sweetser

Larry Sweetser of Sweetser and Associates will open the class with information on the fundamentals of load-checking, regulations, types of wastes to look for, how to identify those wastes and how to handle and store them when they are found. He will also present information on health and safety, emergency response, and chain of evidence.

Larry is the principal/owner of Sweetser and Associates. Sweetser and Associates specializes in environmental regulatory assistance to local government and the solid waste industry. Services include: waste screening/load-checking program development, training and program review; development and review of household hazardous waste programs; environmental assessment of solid waste operations; hazardous materials management support; occupational safety and health program assistance; and guidance with AB 939 Integrated Waste Management Plans and related components. Larry Sweetser has over 20 years of experience in the solid and hazardous waste field including assisting with the California Annual Household Hazardous Waste Conference Training Sessions since 2002. He has been responsible for development of household hazardous waste activities, load-checking programs, and other services for the Rural Counties' Environmental Services Joint Power Authority, the California Integrated Waste Management Board, Norcal Waste Systems and other public and private organizations.

2015 CFCC Funding Fairs



Please join the California Financing Coordinating Committee (CFCC) for this no-cost event



United States
Department of
Agriculture

2015 SCHEDULE:

April 2, 2015

San Diego Regional Water Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

May 6, 2015

Southern Ca. Edison, Energy Ed. Ctr.
4175 S. Laspina
Tulare, CA 93274

June 3, 2015

City of Eureka Wharfinger Building
1 Marina Way
Eureka, CA 95501

August 5, 2015

Truckee Town Hall—Council Chambers
10183 Truckee Airport Road
Truckee, CA 96161

September 2, 2015

City of Watsonville Community Room
275 Main Street, 4th floor
Watsonville, CA 95076

September 23, 2015 **

Sacramento County Sanitation
10060 Goethe Rd
Sacramento, CA 95827

** The Sacramento workshop will be webcast. Access will be available online at:
<https://meet.saccountv.net/baileyn/9f2hivj2>

CFCC agencies fund primarily the following types of infrastructure projects:

- Drinking water
- Wastewater
- Water quality
- Water supply
- Water conservation
- Water use efficiency
- Energy efficiency
- Flood management

Some of the participating agencies also fund other types of infrastructure projects including streets and highways, emergency response vehicles, solid waste, and community facilities.



AGENDA

At each location, the Funding Fair Agenda is as follows:

Check in: 8 a.m.-8:30 a.m.
Agency Presentations: 8:30 a.m.-Noon
Discuss your projects: Noon-3 p.m.

ATTENDEE REGISTRATION

Go to www.cfcc.ca.gov and click on **Funding Fairs**

For questions, please call (916) 447-9832 x 1029

For more information, please visit our website at: www.cfcc.ca.gov



United States
Department of
Agriculture

California Financing Coordinating Committee (CFCC)

What is CFCC?

The California Financing Coordinating Committee (CFCC) was formed in 1998 and is made up of six funding members: four state, two federal. CFCC members facilitate and expedite the completion of various types of infrastructure projects helping customers combine the resources of different agencies. Project information is shared between members so additional resources can be identified. CFCC members conduct free funding fairs statewide each year to educate the public and potential customers about the different member agencies and the financial and technical resources available.

Purpose of CFCC Funding Fairs

CFCC Funding Fairs provide opportunities to obtain information about currently available infrastructure grant, loan and bond financing programs and options. Each attendee receives a copy of all slide presentations and additional useful infrastructure financing material. Funding Fairs also provide an opportunity for attendees to speak directly with program staff about specific projects and issues affecting their community.

Who should attend?

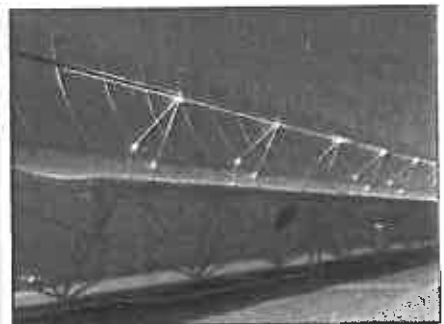
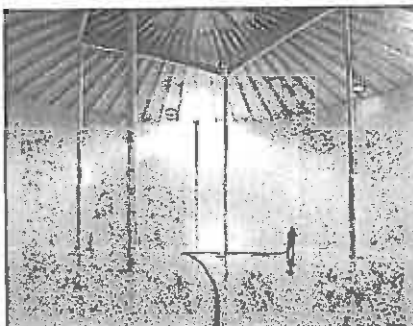
Representatives from public works, local governments, and California Native American Tribes. This includes city managers and planners, economic development and engineering professionals, officials from privately owned facilities, water and irrigation district managers, financial advisors and project consultants.

Eligible Project Types

CFCC agencies fund primarily the following types of infrastructure projects: drinking water, wastewater, water quality, water supply, water conservation water use efficiency, energy efficiency, and flood management. Some of the participating agencies also fund other types of infrastructure projects including streets and highways, emergency response vehicles, solid waste, and community facilities.

CFCC Information

Please log on to the CFCC website at www.cfcc.ca.gov for the 2015 Funding Fair schedule, CFCC Member Directory and general information.





Enforcement News

Central Valley Regional Water Quality Control Board

<http://www.waterboards.ca.gov/centralvalley/>

Central Valley Water Board Issues \$440,440 Penalty to Recology at Yuba Sutter Landfill

FOR IMMEDIATE RELEASE
April 21, 2015

Contact: Wendy Wyels
Phone: (916) 464-4835

SACRAMENTO – The Central Valley Regional Water Quality Control Board has issued a \$440,440 civil liability against Recology Inc. for water quality violations at its Yuba Sutter Landfill near Marysville.

Recology operates a transfer station and green waste composting facility on top of the Yuba Sutter Landfill, a closed landfill located next to the Yuba River. The site is regulated by the Central Valley Water Board through Waste Discharge Requirements and a Cleanup and Abatement Order.

The Cleanup and Abatement Order requires Recology to enhance its operations at the compost area to collect leachate generated from compost piles during rainstorms. Compost leachate contains high levels of salt, nitrogen, metals, pathogens and oxygen-demanding substances, and can adversely affect groundwater and surface waters.

The Administrative Civil Liability Order finds that Recology violated the Cleanup and Abatement Order by failing to install an appropriately sized leachate collection system by the mandated due date of Oct. 1, 2014. As a result, Recology failed to collect all the leachate from the compost area during the December 2014 storms. The Order also finds that Recology did not install a proper leachate collection system until late January 2015.

“Recology’s failure to design and install an appropriate leachate management system resulted in spills during two moderate and predicted rain events” said Andrew Altevogt, assistant executive officer of the Central Valley Regional Water Quality Control Board. “Recology failed to live up to the requirements of the Cleanup and Abatement Order that they negotiated with Board staff.”



Media Release

The Central Valley Regional Water Quality Control Board is a California state agency responsible for preservation and enhancement of quality in water resources. For more information, visit: <http://www.waterboards.ca.gov/centralvalley/>.

The State Water Boards are now on Twitter! Follow us at:
<https://twitter.com/CaWaterBoards>

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JOINT ADVISORY ON DESIGNING CONTRACTS FOR PROCESSING OF MUNICIPAL RECYCLABLES

A. INTRODUCTION

This joint advisory is being issued by the National Waste & Recycling Association (NW&RA) and the Solid Waste Association of North America (SWANA). The purpose of the advisory is to provide both the public and private sector professionals in solid waste management with guidance, protocols and standards regarding contracting for processing of municipal recyclables. As such, the information in this Advisory is primarily focused on situations where recyclables are collected from the residential sector and delivered to a Material Recovery Facility (MRF) for processing and preparation for sale. There may be other circumstances for processing recyclables where the information in this Advisory is also applicable.

This Advisory presents options and considerations to guide the local agency and the contractor on anticipating and managing scenarios that may arise.

A local agency that intends to execute a contract for managing recyclables should consider their options to ensure a competitive marketplace and options to ensure the highest level of service at fair prices. Likewise, a private sector contractor will have interests to ensure the safety of employees, high quality materials are delivered to the MRF for processing to ensure the highest and best use for the materials and to reduce the quantity of materials that is required to be disposed, in order that the contractor makes a fair profit.

The information provided in this Advisory is for general guidance only and not for the purpose of providing legal advice. Public entities should consult with their legal counsel to obtain legal advice with respect to any particular contract, issue or problem. The application and impact of laws can vary widely based on the specific locality and facts involved.

The Changing Waste Stream

The characteristics of the solid waste stream are in flux due to many factors including the increase in use of electronic devices, the decline in the publication of newspapers, more products made using plastic, light-weighting of products, redesign of packaging, increase in online shopping and home delivery, new waste diversion programs, and many other factors. These changes create challenges in the marketplace for defining fair value for both the local agency (municipalities, counties, townships, and other political subdivisions) and the contractor. In addition, the recycling markets can be volatile. Within very short order, prices for commodities can rise or fall significantly.

The Contracting Process

A local agency interested in selecting a service company to manage and process recyclables will need to make decisions on how that process will move forward. Decisions on important topics such as ownership of the recyclables, the type of program used to collect the recyclables, and the services necessary to deliver the recyclables to the processing service company (such as a MRF) must be



evaluated in advance of starting the public selection process. After the parameters of the program are determined, the local agency should commence and complete the contracting process in the manner provided by state, provincial or local law, as the case may be, and in consultation with its legal counsel.

B. ESTABLISHING CONTRACT PROCUREMENT PROTOCOLS

One option for public entities to consider is developing a competitive bidding process, which could include one or more of the following:

- Expressions of Interest
- Requests for Qualifications
- Request for Proposals
- Tender

Obtaining Initial Feedback

Prior to releasing a request for proposal or bid documents, the local agency could solicit input through public workshops from the recycling community, local haulers, elected officials and the general public. These workshops could help in defining the scope of work for the services requested and minimize confusion through the proposal/bid process. A pre-bid meeting with potential contractors could also be advertised and follow as part of the procurement process. Any questions, comments or concerns that are raised during this pre-bid meeting can be dealt with through an addendum to the contract.

Contents of Bid Documents

It is recommended that local agencies work with their legal counsel when preparing bid documents. Bid documents should include standard contractual provisions and consider the following for recycling contracts: Fully disclose business risk allocation (e.g. who assumes the risk; or % of risk), who owns the recyclable materials, and those situations that may protect the contractor or procurement agency from breach of contract. Some of these may include:

- changes in law
- labor disturbances
- acts of God, etc.

Very specific definitions need to be included in the bid documents to provide a level playing field for all bidders. Some provisions may be negotiated during the contract negotiations period.

C. PRESCRIBING PERFORMANCE SPECIFICATIONS AND STANDARDS

Contract Documents

The content of the contract is a key element of a successful relationship between the contractor and local agency. The contract should:



- Ensure that the service specifications and standards meet the needs of the identified waste generators (e.g. residents) demands of law realistic processing capabilities and market conditions, as applicable.
- Recognize that the residential recycling stream is dynamic in terms of material types, volume or weight, and value of materials. Careful record keeping and review of this data will help identify changes. Also, audit protocols of the materials should be established, and audits should be performed by the contractor and local agency or an impartial third party to ensure accurate assessments of changes to the collected materials as they arrive at the MRF
- Identify provisions for compensating both parties due to market fluctuations.
- Ensure the local agency and contractor take reasonable steps to promote and ensure the quantity and quality of the recyclable material streams. If there is a third party hauler, then they need to be part of the education of the customers as well.
- Recognize the value of the materials (and the ability to process efficiently) is dependent on the quality of the inbound stream and define acceptable levels of contamination, moisture, and other factors.

Fundamental Contract Provisions

Contracts should include the following fundamental provisions:

- A well-drafted contract contains definitions of key terms. Pay particular attention to the following words and phrases: “Applicable Law”, “Recyclables”, “Maximum Non -Recyclables Level” (sometimes called contamination rate), “Non-Recyclables”, “Residue”, “Uncontrollable Circumstances” (sometimes called Force Majeure or acts of God)
- Contract term/length, including mutual extension rights/obligations, or a contractor bonus that can be earned through performance
- Specify obligations that survive the term (such as indemnifications, certain reporting requirements, etc.)
- Termination rights, such as cure periods for defaults, no-fault termination for lack of funding, or convenience.
- Local agency’s responsibilities and rights, e.g. (dis)approval rights with respect to key personnel and contract delegation and assignment (including sales, mergers, bankruptcy, transfer of ownership, etc.)
- Contractor’s responsibilities and rights
- Performance specifications and standards (e.g. receiving hours, vehicle tipping/turnaround times, weighing protocols (including scale house operation, fee collection/security), throughput capacity requirements, identification of acceptable materials; hazardous waste load checking protocol (including responsibility/protocol for handling and paying for hazardous wastes and processing residue), and load rejection rights.
- When the contract is for a municipally owned facility: utility consumption guaranties (if local agency pays utility charges), routine and extraordinary maintenance and repair, and replacement of publicly owned equipment and facility.



- Other specifications may include waste composition preconditions and reject limits, recovery guarantees and residue management/disposal, allowable levels of non-recyclables and moisture, marketability guarantees, product specifications, materials marketing obligations (including market risk allocation), performance/recovery incentive(s), recovered materials revenue sharing options, and rebate requirements for materials delivered by haulers to the facility
- Collection service details, such as: type of customers (e.g. residential, commercial, multi-family, institutional, governmental, seniors and), service days and hours, collection method (e.g. containers, trucks, number of sorts), use of alternative fuels
- Public education and outreach program
- Contract administration tools with feedback loops. Record keeping, reporting (performance, operations and financial), responsiveness standards, access to facility and inspection protocols, performance (dis)incentives should be reviewed together on a routine schedule
- Compensation/payment structure. Note: if compensation will include the marketing of the recyclables, material valuations should be taken into account and they should include:
 - agreed upon value for materials sold – actual value or recognized indices
 - what the material is worth at the processing facility, i.e. make allowance for transportation
 - negative values of marketed materials and disposal costs
 - tip fees where applicable
 - consideration of who assumes responsibility for disposal costs, recognizing that inbound material quality and processing efficiencies affect these costs.
 - Adjustments over time to the percentages of each recyclable and non-recyclable component set at the inception of the contract. Adjustments through jointly agreed upon protocols for audits should be done at regular intervals
 - Allowances for changes in the contract over time due to such circumstances as: acts of God, changes in market conditions (including but not limited to lack of commercially reasonable market availability for processed recyclables, changes in market specifications affecting the salability of recyclables, changes in law (e.g. bottle bills) affecting the recyclability of materials, changes in the quantity, quality or composition of the inbound recyclables). Note: quantities could be affected by the removal of more valuable commodities from the mix or allowance of scavenging, and these issues should be addressed. Any other change which prevents, precludes or substantially affects the benefit(s) bargained for under the agreement (mutually agreed upon by local agency and contractor)
 - Compensation adjustment methodologies for any increase or decrease in services or other obligations required of the Contractor due to changes in contract conditions and at time of any contract extensions, such as increases in cost due to mandated wage increases and/or changes in fuel costs.
 - Flexibility for the contractor to dispose of recyclables when no reasonable commercial market exists (mutually agreed upon by local agency and contractor pursuant to predetermined standards)
 - Defaults, cure periods, and remedies



- Representations and continuing warranties
- Dispute resolution and enforcement options
- Performance assurance (e.g. bonds, letter of credit) where the ability to perform may be in doubt

D. CONCLUSIONS

This Advisory highlights important issues that come into play during a public process to select processing services for recyclables. Contracts should ultimately be designed to ensure that they are functional and cost effective for both public entities and contractors and ensure high quality service that return recyclables to the marketplace as commodities.



**Unified Program Newsletter
March 2015**

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- Cal OES** **Title 19 Release Reporting Regulations Public Workshops**
- CAL - FIRE** **Aboveground Petroleum Storage Act (APSA) Program Meetings**
- OSFM** **Underground Fuel Storage Tanks Prohibited for Use as Aboveground Fuel Storage Tanks**

California Environmental Protection Agency

CERS FAQ

A new FAQ entitled Can a Submittal relate to Construction Permitting has been posted to the CERS Help/Training section.

Department of Toxic Substances Control

Financial Assurance and Inflation Factor (CCR, T22, 67450.13)

Financial assurance (FA) is required for tier permitting facilities that are under the permit by rule (PBR) and conditional authorization (CA) tiers. Closure cost estimates are required as part of the closure plans under PBR and CA. PBR and CA facilities are required to adjust their closure cost estimates for inflation by March 1st of every year.

Inflation adjustments should be made as follows: Inflation changes in a closure plan's closure cost estimate and a facility's financial assurance mechanism should be made using the U.S. Department of Commerce, Bureau of Economic Analysis (BEA).

The adjusted cost = current cost estimate x inflation factor.

How do you calculate the inflation factor?

Since the inflation factor for the full 2014 year does not come out until the end of March 2015, DTSC recommends you use the third quarter number of the past two years to get the inflation factor.

1. First select the tab from the following website <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1>
SECTION 1 - DOMESTIC PRODUCT AND INCOME

2. Next select the tab:

Table 1.1.9. Implicit Price Deflators for Gross Domestic Product (A) (Q)

3. Use the 3rd quarter numbers from the Table 1.1.9, line 27 (gross national product). The 3rd quarter number for 2014 is 108.722 divided by the 3rd quarter number for 2012 which is 107.044.

Inflation factor for 2015 = $108.722/107.044 = 1.016$

Therefore, for facilities that must use the inflation factor before the end of March, use the 3rd quarter numbers. For all other facilities, use the annual number that comes out in early April.

Contact: Asha Arora at (510) 540-3874

Counting Hazardous Waste

DTSC has a new webpage on counting hazardous waste to determine generator status. Please refer to this link for additional information: <http://www.dtsc.ca.gov/hazardouswaste/countinghw.cfm>

Quarterly Public Meeting

DTSC's Quarterly Public Meeting will be held on Friday, April 17, 2015, at 9 a.m. in the Coastal Hearing Room at the Cal/EPA building, 1001 I Street, Second Floor, Sacramento, California. Details and an agenda will be posted shortly.

State Water Resources Control Board

Remanufactured Leak Detection Equipment

It has come to the attention of State Water Resources Control Board (State Water Board) staff that remanufactured underground storage tank (UST) leak detection equipment is being offered to California UST owners/operators. California compliant leak detection equipment must be third-party tested, the third party testing must be evaluated by the National Work Group on Leak Detection Evaluations (NWGLDE), and it must be listed by the State Water Board in Local Guidance Letter 113 (LG 113). Remanufactured equipment may not be identical to the original manufactured equipment. NWGLDE states in their disclaimer that subsequent modifications or changes to the equipment may produce parameters and data values that are significantly different than the listed third-party evaluation parameters and data values. Use of remanufactured leak detection equipment that is not listed in LG 113 could result in the owner/operator of the tank system being in violation and subject to a fine of \$500 to \$5000 per day per violation. If you have questions regarding this update, contact Laura Fisher at laura.fisher@waterboards.ca.gov or (916) 341-5870.

Designated Operator Monthly Inspection Form

The designated operator (DO) inspection form is not a form required by regulation. The form was developed as a courtesy to aide in DO monthly inspections. California Code of Regulations, section 2715(c) requires the DO to make monthly site inspections. During these inspections the DO must document the results of each inspection in a monthly inspection report. The DO is required to provide the owner/operator with a copy of the inspection report to alert the owner operator of any conditions that requires follow-up action. Therefore, if the inspection report includes the dates of any required testing, describes action taken in response to any alarm, and alerts the owner operator of any conditions that requires follow up action, then the requirement to document the inspection is met. If you have questions regarding this update, contact Cory Hootman at cory.hootman@waterboards.ca.gov or (916) 341-5668.

CERS 3 UST Subcommittee

State Water Board staff is working with Cal/EPA, CUPA representatives, and industry representatives on the upcoming California Environmental Reporting System (CERS) revisions, commonly referred to as CERS 3. CERS 3 is expected to be operational in 2017. Since Cal/EPA is on a strict deadline to implement proposed upgrades, focused working groups have been created to address various parts of CERS. The CERS 3 UST Subcommittee consists of State Water Board staff, members of the UST steering committee, other CUPA representatives, and an industry representative. The list of proposed

enhancements can be viewed at <https://cersbusiness.calepa.ca.gov/Enhancement>. For questions regarding this update, contact Gabriel Herrera at gabriel.herrera@waterboards.ca.gov or (916) 319-9128.

California Office of Emergency Services

Title 19 Release Reporting Regulations Public Workshops

Senate Bill 1261 (Jackson, 2014) requires the Governor's Office of Emergency Services (Cal OES) to have hazmat release reporting regulations in place by January 1, 2016. As part of that effort, staff of the Hazardous Materials Section, Fire and Rescue Division of Cal OES is holding a series of public workshops in March and April, 2015, to solicit input from industry, local and state regulators and fire services, and any other interested persons, as to how best structure these regulations to offer the highest level of protection to human health and safety, the environment, and property in the state of California.

The workshops are scheduled as follows:

- March 17 – South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765-4182

- April 9 – Butte Community Employment Center (Andes Room)
78 Table Mountain Drive
Oroville, California 95969

- April 14 – Tulare County Agricultural Commissioner
4437 S. LaSpina Street
Tulare, California 93274-9537

- April 21 – Santa Clara County Environmental Health Department
1555 Berger Drive
San Jose, California 95112-2716

Anyone with an interest in release reporting is encouraged to attend one of the regional workshops, and to participate in the discussion.

Those unable to attend one of the workshops are encouraged to offer comments via email to Jack.Harrah@calOES.ca.gov, with "Release Reporting Comments" in the subject line.

CAL FIRE - Office of State Fire Marshal

Aboveground Petroleum Storage Act (APSA) Program Meetings

Group	Next Meeting Date
APSA Regulations Workgroup	TBA
Tanks in Underground Areas	March 20, 2015
APSA Advisory Committee	TBA

Underground Fuel Storage Tanks Prohibited for Use as Aboveground Fuel Storage Tanks
CAL FIRE – Office of the State Fire Marshal published an addendum to the Information Bulletin (IB) 14-005 on the prohibited use of underground storage tanks as aboveground storage tanks. The information relating to these tanks, as well as the IB 14-005, can be found on the Office of the State Fire Marshal's website at <http://osfm.fire.ca.gov/informationbulletin/informationbulletin.php>.

Questions or comments regarding this Information Bulletin and addendum should be directed to Denise Gibson, Senior Environmental Scientist, Code Development and Analysis Division at (916) 445-8289 or denise.gibson@fire.ca.gov.



**Unified Program Newsletter
April 2015**

IN THIS ISSUE:

CalEPA	None
DTSC	New SEPs Policy Quarterly Public Meeting
SWRCB	City of Long Beach \$2.5 Million Penalty for Violating 2010 Consent Judgment in Underground Storage Tank (UST) Case
Cal OES	None
CAL - FIRE OSFM	Aboveground Petroleum Storage Act (APSA) Program Meetings Underground Fuel Storage Tanks Prohibited for Use as Aboveground Fuel Storage Tanks

Department of Toxic Substances Control

New SEPs Policy

DTSC is adopting a Supplemental Environmental Projects (SEPs) Policy. The SEPs Policy is part of DTSC's commitment to environmental justice. DTSC is holding two public workshops in April on its draft **SEPs Policy**. Everyone is welcome and encouraged to participate. For more information, click [here](#). The public comment period ends on April 17, 2015. Comments can be submitted at: SEP-comment@dtsc.ca.gov.

Quarterly Public Meeting

DTSC's Quarterly Public Meeting will be held on Friday, April 17, 2015, at 9 a.m. in the Coastal Hearing Room at the CalEPA Building, 1001 I Street, Second Floor, Sacramento, California. The agenda can be located at:

http://www.dtsc.ca.gov/GetInvolved/PublicMeetings/upload/Public_Meeting_Agenda_041715.pdf

State Water Resources Control Board

City of Long Beach \$2.5 Million Penalty for Violating 2010 Consent Judgment in Underground Storage Tank (UST) Case

The City of Long Beach was issued a \$2.5 million penalty from Los Angeles County Superior Court on March 11, 2015 for violating the terms of a Consent Judgment related to historic UST violations issued on January 21, 2010.

The 2010 judgment resolved UST violations alleged by the State Water Resources Control Board (State Water Board) against the City of Long Beach that began in 2003. Under the terms of the 2010 judgment, \$2.5 million in penalties was suspended as long as the City of Long Beach remained in compliance with the terms of the agreement for five years. Between January 2013 and August 2014 the State Water

Board conducted compliance inspections at 15 UST facilities in the City of Long Beach. Numerous UST violations were found during these inspections, which triggered the reinstatement of the suspended \$2.5 million penalty.

The State Water Board filed its Motion to Enforce in Los Angeles Superior Court on December 23, 2014. In its ruling, the Court found that the City of Long Beach failed to conduct required leak detection testing prior to placing USTs in use, failed to timely repair secondary containment, and failed to install tamper-proof sensors as required.

The press release and judgment can be found at the website below.
http://www.waterboards.ca.gov/water_issues/programs/enforcement/orders_actions.shtml#a2015

CAL FIRE - Office of State Fire Marshal

Aboveground Petroleum Storage Act (APSA) Program Meetings

Group	Next Meeting Date
APSA Regulations Workgroup	TBA
Tanks in Underground Areas	April 17, 2015
APSA Advisory Committee	April 29, 2015

Underground Fuel Storage Tanks Prohibited for Use as Aboveground Fuel Storage Tanks
CAL FIRE – Office of the State Fire Marshal published an addendum to the Information Bulletin (IB) 14-005 on the prohibited use of underground storage tanks as aboveground storage tanks. The information relating to these tanks, as well as the IB 14-005 can be found on the Office of the State Fire Marshal's website at <http://osfm.fire.ca.gov/informationbulletin/informationbulletin.php>.

Questions or comments regarding this Information Bulletin and addendum should be directed to Denise Gibson, Senior Environmental Scientist, Code Development and Analysis Division, at (916) 445-8289 or denise.gibson@fire.ca.gov.



**Unified Program Newsletter
May 2015**

IN THIS ISSUE:

- CalEPA** **CERS 3.0 Subcommittee Proposes Suggested Enhancements to the Data Steering Committee**
REMINDER: Compliance Monitoring and Enforcement (CME) Data must be entered into CERS
CERS Tips and Tricks
- DTSC** **None**
- SWRCB** **Settlement Reached with University of California**
Rescinded Secondary Containment Testing Document
March 2015 CERS UST Status Report
- Cal OES** **None**
- CAL- FIRE** **Farms and the Federal Water Resources Reform and Development Act**
OSFM

CalEPA

CERS 3.0 Subcommittee Proposes Suggested Enhancements to the Data Steering Committee
Beginning January 2015, efforts to gather and evaluate suggestions which would improve and enhance the functionality and usability of the Unified Program California Environmental Reporting System (CERS) have been underway, via the CERS 3.0 Subcommittee. The CERS 3.0 Subcommittee consists of representatives from the California Environmental Protection Agency, the Department of Toxic Substances Control, the California Office of Emergency Services, the State Water Resources Control Board, Cal-Fire Office of the State Fire Marshal, Certified Unified Program Agencies and the CERS Business Users Group. Collaborative efforts of various CERS 3.0 Subcommittee workgroups have addressed every submitted enhancement suggestion, developed a justification for the enhancement when needed, and proposed resolutions for each supported enhancement when applicable.

On April 30, 2015, the Data Steering Committee (DSC) began reviewing the CERS 3.0 enhancement suggestions to determine whether or not proposed recommendations will be further supported for development and implementation. Additionally, the DSC will establish prioritization for each supported CERS 3.0 enhancement. Upon completion of review, the DSC will propose the recommended CERS 3.0 enhancement suggestions to CalEPA for final review and approval.

REMINDER: Compliance Monitoring and Enforcement (CME) Data must be entered into CERS
Starting fiscal year 2014/2015, CME data must be submitted electronically within 30 days of each completed quarter [CCR Title 27, Division 1, Subdivision 4, Section 15290(b)]. Submittal deadlines are listed below:

Fiscal Year Quarterly CME Action Occurs (including updates)	Deadline for Electronic Submittal Of Quarterly CME Data
July 1 – September 30	October 30
October 1 – December 31	January 30
January 1 – March 31	April 30
April 1 – June 30	July 30

Beginning August 1, 2014, CUPAs will be evaluated on quarterly CME electronic reporting requirements for inspection and enforcement activities occurring on or after July 1, 2013.

All CME data must include the complete detail record fields identified in the CERS Regulator Portal (<http://cers.calepa.ca.gov/>) and defined in the Unified Program Data Dictionary (www.calepa.ca.gov/LawsRegs/Regulations/T27/DataDict.pdf).

For more information, please refer to Unified Program Guidance Letter 14-02 (<http://www.calepa.ca.gov/CUPA/Bulletins/2014/Jan17.pdf>).

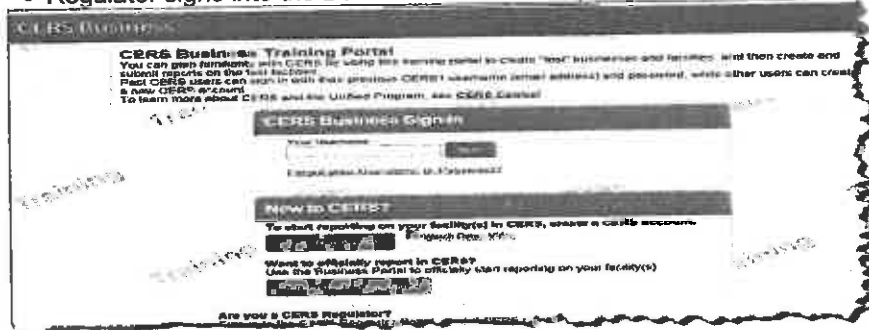
CERS Tips and Tricks

CERS Tips and Tricks are helpful explanations and resolutions regarding current issues recently received by the CERS Technical Support Team. If you have questions or concerns, please contact the CERS Technical Support Team at cers@calepa.ca.gov.

QUESTION:	Can a regulator create an organization for a business?
ANSWER:	Yes, by signing into the Business Portal.

Here's How

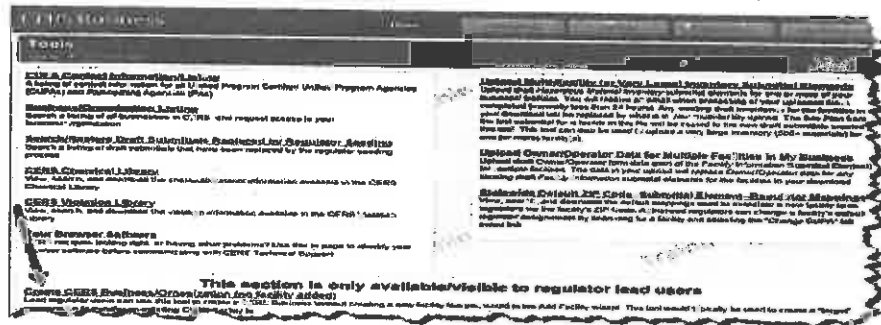
- Regulator signs into the Business Portal in the production environment.



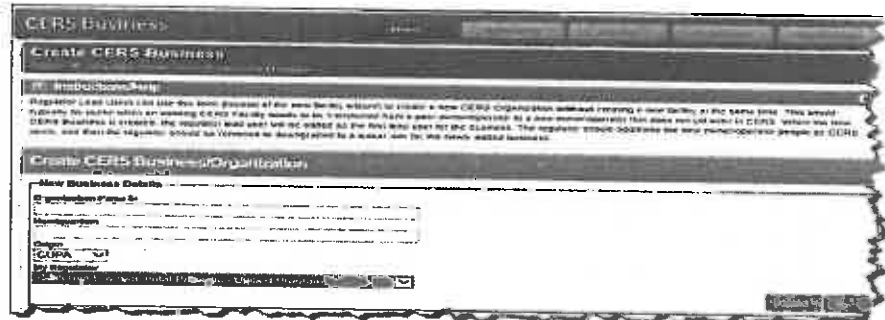
- Select "Tools" in the top tool bar



- Select "Create CERS Business/Organization (no facility added)"



- Complete the following fields: "Organization Name," "Headquarters," "Origin," "My Regulator." Select "Save."



Once the organization is created, the business can transfer their facilities into the organization.

Look for other "CERS" Tips and Tricks" in next month's Unified Program Newsletter.

State Water Resources Control Board

Settlement Reached with University of California

The State Water Resources Control Board (State Water Board) and the California Department of Fish and Wildlife's (CDFW) Office of Spill Prevention and Response have collaborated in reaching a \$449,000 settlement with the Regents of the University of California regarding the improper storage of hazardous substances in underground storage tanks (USTs) and natural resource damage violations.

On December 10, 2011, an underground storage tank that supplied a backup generator located at Stanley Hall on the University's campus in Berkeley spilled 1,650 gallons of diesel fuel. About 850 gallons of the spilled diesel entered a storm drain and was then discharged into Strawberry Creek – an urban stream that runs directly into the San Francisco Bay.

In 2013, the State Water Board reviewed the University's overall management of USTs and discovered numerous additional violations including: failure to monitor for leaks, failure to maintain adequate spill containment, failure to provide adequate corrosion protection, and other UST violations.

The press release and judgment can be found at the website below.

http://www.waterboards.ca.gov/water_issues/programs/enforcement/orders_actions.shtml#a2015

Rescinded Secondary Containment Testing Document

The guidance document adopted by the CalCUPA Forum Southern California Region UST Technical Advisory Committee, "Standard for Secondary Containment Testing of Underground Storage Tank Systems", was developed in 2002 and was located on the CalCUPA website for reference. This guidance document describes policy that is not consistent with current statutes and regulations. Therefore, this guidance document has been formally rescinded and may no longer be used as a document for enforcement purposes.

Local guidance documents developed for secondary containment testing, or any equipment testing purposes, must follow manufacturer's specifications for testing or must follow industry standards, such as from the Petroleum Equipment Institute (PEI).

For questions regarding this update, contact Cory Hootman at Cory.Hootman@waterboards.ca.gov or (916) 341-5668.

March 2015 CERS UST Status Report

The State Water Board has recently published the latest quarterly status reports intended for tracking progress towards entering all UST related business and compliance, monitoring and enforcement (CME) data into the California Environmental Reporting System (CERS). The "March 2015 CERS UST Status Report" can be found at the website below.

http://www.waterboards.ca.gov/water_issues/programs/ust/adm_notices/qtrly_cersrpt_2015mar.pdf

The report shows 93% of UST sites are now in CERS. Since the first report in May 2014, there has been an increase from 33% to 51% of UST facilities that now have an accepted UST submittal and an increase from 9% to 59% that now have CME data. The report includes a breakdown by Unified Program Agency (UPA). The next quarterly status report will be in June 2015.

CAL FIRE - Office of State Fire Marshal

Farms and the Federal Water Resources Reform and Development Act

The United States Environmental Protection Agency (U.S. EPA) has published a fact sheet explaining the impacts of the Water Resources Reform and Development Act (WRRDA) on the Spill Prevention, Control, and Countermeasure (SPCC) rule and farms. WRRDA was signed into law by the President on June 10, 2014 and changes certain applicability provisions of the SPCC rule for farms as well as modifying the criteria under which a farmer may self-certify an SPCC Plan.

WRRDA also requires that U.S. EPA conduct a study, in conjunction with the United States Department of Agriculture, to determine the appropriate applicability threshold for farms based on the risk of discharge. The study is scheduled to be completed by June 2015, after which U.S. EPA will anticipate future amendments to the SPCC requirements with regard to the findings of the study. The fact sheet can be found on U.S. EPA's website at

http://www.epa.gov/emergencies/docs/oil/spcc/spcc_wrrda.pdf.

Please note that WRRDA does not change the Aboveground Petroleum Storage Act (APSA). Questions or comments regarding the WRRDA fact sheet should be referred to the "For More Information" section of the fact sheet.

Mary Pitto

From: CalRecycle Electronic Product Management ListServ [EWaste@calrecycle.ca.gov]
Sent: Thursday, March 26, 2015 10:24 AM
To: Mary Pitto
Subject: California E-Waste Updates: Implementing the Electronic Waste Recycling Act

March 26, 2015

Dear Electronic Waste Stakeholder:

This electronic newsletter is an update on the implementation of California's Electronic Waste Recycling Act of 2003 (Act) and other electronic waste (e-waste) management developments in California.

In this issue:

ALERT: APRIL 13 CEW STAKEHOLDER WORKSHOP POSTPONED

NET COST REPORT FAILURES LEAD TO CEW PROGRAM REVOCATIONS

Alert: April 13 CEW Stakeholder Workshop Postponed

The California Department of Resources Recycling and Recovery (CalRecycle) has postponed a planned stakeholder workshop originally scheduled for Monday, April 13, 2015. The workshop will now be held the afternoon of Tuesday, May 12. That workshop will still focus on the subject of cathode ray tube (CRT) disposition allowances and limitations in the context of California's covered electronic waste (CEW) recycling program.

A revised public notice has been posted at:

<http://www.calrecycle.ca.gov/Actions/PublicNoticeDetail.aspx?id=1443&aiid=1311>

Additional information and background documents will be posted closer to the workshop date.

Net Cost Report Failures Lead to CEW Program Revocations

Net Cost Reports were due to CalRecycle on or before March 1, 2015. This year, 27 participants in the covered electronic waste (CEW) recycling program who failed to submit annually required Net Cost Reports had their approval revoked. Active participants in the CEW recycling program should determine the status of entities with whom they transact business to ensure that applicable documentation is established, maintained, and transferred.

A list of active, as well as inactive, CEW program participants can be found on CalRecycle's website at:
<http://www.calrecycle.ca.gov/Electronics/Reports/default.aspx>

More information about Net Cost Reports can be found at:
<http://www.calrecycle.ca.gov/Electronics/Act2003/Recovery/NetCost/>

Other Resources

Covered Electronic Waste (CEW) Recycling Program Information:

<http://www.calrecycle.ca.gov/Electronics/Act2003/>

CEW Recycling Payment System Regulations:

<http://www.calrecycle.ca.gov/Laws/Regulations/Title14/Chap08pt2/default.htm>

DTSC Universal Waste Electronics Handler and Recycler Information:

<http://www.dtsc.ca.gov/HazardousWaste/EWaste/>

Public Resources Code (PRC), Health and Safety Code (HSC), and other statutes:

<http://www.leginfo.ca.gov/calaw.html>

Please note that e-mail correspondence with the Department of Resources Recycling and Recovery (CalRecycle) related to e-waste management in general, and implementation of the Electronic Waste Recycling Act in particular, should be directed to ewaste@calrecycle.ca.gov

Also note that an archive of past distributions of this newsletter is available at:

<http://www.calrecycle.ca.gov/Electronics/Act2003/Stakeholder/Updates/>

Thank you for your interest in shaping California's e-waste management future.

To subscribe to or unsubscribe from the E-Waste listserv or other listservs, please go to <http://www.calrecycle.ca.gov/Listservs/>. For information on California's Electronic Waste Recycling Act of 2003 (SB 20) implementation efforts, as well as other relevant developments go to <http://www.calrecycle.ca.gov/Electronics/>.

Mary Pitto

From: CalRecycle Electronic Product Management ListServ [EWaste@calrecycle.ca.gov]
Sent: Tuesday, May 05, 2015 11:21 AM
To: Mary Pitto
Subject: California E-Waste Updates: Implementing the Electronic Waste Recycling Act

May 5, 2015

Dear Electronic Waste Stakeholder:

This electronic newsletter is an update on the implementation of California's Electronic Waste Recycling Act of 2003 (Act) and other electronic waste (e-waste) management developments in California.

In this issue:

REMINDER: MAY 12 CEW STAKEHOLDER WORKSHOP

Reminder: May 12 CEW Stakeholder Workshop

The California Department of Resources Recycling and Recovery (CalRecycle) will host a stakeholder workshop on the afternoon of Tuesday, May 12, from 1PM until approximately 4PM. The workshop will focus on the subject of residual cathode ray tube (CRT) glass disposition allowances and limitations in the context of California's covered electronic waste (CEW) recycling program.

There is no cost or registration necessary to attend and participate in the workshop. Interested parties who cannot attend in person can monitor the proceedings via a webcast and will be able to submit questions or concerns via email before and during the event.

A public notice with additional information and links to background documents has been posted at:
<http://www.calrecycle.ca.gov/Actions/PublicNoticeDetail.aspx?id=1443&aiid=1311>

Other Resources

Covered Electronic Waste (CEW) Recycling Program Information:
<http://www.calrecycle.ca.gov/Electronics/CEW/>

CEW Recycling Payment System Regulations:
<http://www.calrecycle.ca.gov/Laws/Regulations/Title14/Chap08pt2/default.htm>

DTSC Universal Waste Electronics Handler and Recycler Information:
<http://www.dtsc.ca.gov/HazardousWaste/EWaste/>

Public Resources Code (PRC), Health and Safety Code (HSC), and other statutes:
<http://www.leginfo.ca.gov/calaw.html>

USEPA Information on the Management and Regulation of CRTs:
<http://www.epa.gov/epawaste/hazard/recycling/electron/index.htm>

Please note that e-mail correspondence with the Department of Resources Recycling and Recovery (CalRecycle) related to e-waste management in general, and implementation of the Electronic Waste Recycling Act in particular, should be directed to ewaste@calrecycle.ca.gov

Also note that an archive of past distributions of this newsletter is available at:
<http://www.calrecycle.ca.gov/Electronics/NewsEvents.htm>

Thank you for your interest in shaping California's e-waste management future.

To subscribe to or unsubscribe from the E-Waste listserv or other listservs, please go to <http://www.calrecycle.ca.gov/Listservs/>. For information on California's Electronic Waste Recycling Act of 2003 (SB 20) implementation efforts, as well as other relevant developments go to <http://www.calrecycle.ca.gov/Electronics/>.

Agenda Item IX

ARTICLES OF INTEREST

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
Anaerobic Digestion Byproducts Distinguish Foodwaste From Composting Disposal

Why Feedstock Solutions Might Fuel US Growth of Private Anaerobic Digester Companies

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Monday, March 16, 2015

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This introductory piece provides the background and basics of anaerobic digestion technology as Author Bruce Clark begins to explore the feasibility of overcoming local community challenges of waste food recycling as a potentially viable alternative to disposal in the municipal solid wastestream.

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New Directions for Foodwaste (Part One)

"Anaerobic digestion of food scraps establishes a beachhead in the US"—By Bruce Clark

Anaerobic digestion (AD) has become a viable alternative method for disposal of the foodwaste portion of the solid wastestream.

Although long established and popular in Europe, AD technology has been slow to catch on in the US. This has been mostly a result of low tipping fees in many parts of the US relative to those in Europe. The European Union also effectively banned the disposal of organic wastes in landfills over a decade ago. The purpose of this article is to provide an overview of the basics of the technology, the attributes of some popular systems, and the factors that are critical and desirable to make the integration of this technology into a community feasible.

Background

AD technology has been used in the US wastewater treatment industry for decades, in the processing and treatment of raw liquid sludge. The process uses naturally occurring microorganisms in a series of biochemical reactions to decompose the organic fraction of the waste in an oxygen-free atmosphere, usually conducted inside a tank. Anaerobic digestion produces two desirable byproducts from the biochemical process: biogas with high methane content, and low-solids digested sludge. This liquid-based (or "wet") technology has been the first to be adapted to including



Credit: OWS
A dry anaerobic digester under construction in Bourgen-Bresse, France

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foodwaste, along with other more traditional liquid feedstock, including fats, oils, and grease (FOG) and manure. And although there are several plants of this type successfully operating in the US, the focus of this article is on anaerobic digesters that have been developed to process a feedstock (i.e., foodwaste and greenwaste) that are considered "dry."

Composting is another method to process foodwaste that is more widespread in the US than AD. However, the basic attributes of an AD system, as opposed to aerobic composting of foodwaste, include the following:

- Production of renewable energy
- Reduction in the footprint of the main plant site
- Significant reduction of odor nuisance potential of the plant
- Reduction of CO₂ emissions
- Consistent high-quality of treatment

Operating US Systems

It was not until Europe adapted the technology to mix feedstocks with a far higher solids content—up to 50%—that the technology became viable for use on municipal solid waste. Several European companies have established US offices and technical representatives, including but not limited to Eggersmann Group, Organic Waste Systems (OWS), Eisenmann Corp., and Viessmann. Several US universities are conducting research and have teamed with private US companies to introduce adaptations of AD technology that work with foodwaste.

Viessmann's waste company, BIOFerm Energy Systems, has an operating plant in Oshkosh Wisconsin that started in 2011 and processes about 6,000 tons annually of foodwaste from the University of Wisconsin campus. Eggersmann Group, represented in the US by Zero Waste Energy LLC (ZWE), has a plant, based on its SmartFerm technology in Monterey, CA, that started operation in early 2013 and at the time was processing about 300 tons per month of foodwaste and greenwaste. ZWE also recently completed a plant in San Jose, CA, based on its Kompoferm technology system, that is operational and designed for a capacity of 90,000 tons annually of commercial organics. OWS has several plants in the planning stages across the US. These, however, are by no means the only companies active. Several other companies that have plants in the planning, permitting, or construction phases.

Author's Bio: Bruce Clark is a solid waste engineer with SCS Engineers in Tampa, FL

In Part Two of this continuing series our author continues to profile foodwaste and anaerobic digestion technologies in the US

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Anaerobic Digester Resource Streams Compared to Operating Costs

Digestate disposal versus liquid nutrient resources are among economic factors that anaerobic digestion systems must address.

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Monday, March 30, 2015

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Concluding this three-part series that evaluates anaerobic digester technologies, author Bruce Clark answers frequently asked questions focused upon foodwaste disposal through anaerobic digestion systems rather than MSW landfill waste streams. Ultimately, communities should conduct feasibility studies to evaluate whether economic costs of building and operating an anaerobic digester facility could be a viable alternative of diverting foodwaste from traditional wastestream disposal. Follow Clark's conclusion of this series in the final segment below.

New Directions for Foodwaste By Bruce Clark
Anaerobic digestion of food scraps establishes a beachhead in the US.

Frequently Asked Questions

Some of the key questions that often are asked, especially when a relatively new technology is introduced, include the following.

What is the ideal scenario for considering use of an Anaerobic Digestion (AD) system?

Positive factors would include these:

- Relatively high tipping fees for traditional waste disposal facilities (i.e., landfills and waste-to-energy plants). One company indicated its system is competitive when the tipping fees for traditional methods hit about \$75 per ton, including such other factors as higher utility power costs.
- Relatively high power costs from traditional sources. One company indicated its preference for a rate at least \$0.12 per kilowatt-hour.
- A power utility that is receptive to offering a long-term power purchase agreement (PPA) for the energy

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Credit: OWS
A dry anaerobic digester under construction in Bourgen-Bresse, France

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produced from the biogas, or an onsite use, or a nearby industrial customer for the power.

- A sufficient volume and sustainable source of high-quality feedstocks. For foodwaste, these preferably would be such commercial production facilities as vegetable and fruit canning, bakeries, dairy products, and supermarkets. Less desirable, but usable sources, include restaurants, mall food courts, and residential collection programs.
- Local resources for composting the digestate and a viable market (as in the ability to charge for the product) for the compost.
- An agricultural region with infertile soils and/or a farming community that understands the value of compost to soil.

What are the key economic factors for an AD system?

A summary of key economic factors to include in an economic pro forma and feasibility study would include those in Table 2.

Table 2. Summary of Key Economic Factors for Dry Anaerobic Digesters	
Revenue Streams	Operating Costs
Tipping Fees	Feedstock processing and conditioning
Sale of energy from biogas (power, heat)	Biogas cleaning for power and heat production or use as pipeline gas
Sale of compost and liquid nutrient (if any)	Equipment O&M
Sale of biogas (i.e., for conversion to pipeline gas or liquid fuel)	Labor
	Biogas conversion to liquid fuel
	Digestate / Compost site operations, including replacement of air emissions filter (i.e., wood chips)
	Disposal of digestate (if not used as a liquid nutrient or converted and used as compost)

A review of reports by others and discussions with some vendors indicate that AD system capital cost (including design, engineering, construction, and commissioning) can range from around \$175,000 per daily ton of capacity, for a basic system without extra equipment such as temporary raw waste storage areas that have a negative air capture and biofilter odor removal system, to upwards of \$230,000 per daily ton for a more sophisticated AD system with options.

Is one system any better than the other?

There is no definite answer to this question: Each system has its pros and cons and trade-offs. So far in the US, for feedstock primarily of food scraps, there is no one dry system that is dominant, although several static pile systems have been the first to become operational. The first few systems being operated are multiple-chamber designs that, because of the redundancy provided by multiple processing chambers, may be perceived to be easier to recover if a batch of feedstock goes bad. And mechanical complexity is somewhat less.

Batch systems however, inherently require more space to process a ton of waste versus continuous feed systems. On the other hand, the vertical process reactor system has a design that has the potential to produce more biogas

per ton of feedstock, up to approximately 30% more, based on vendor operating reports. All of the systems mentioned are successful, popular, and have had multiple plants operating in Europe for many years, even decades.

Vendors with outlets for supplying parts within the US may offer an advantage as plants get larger in capacity.

Closing

Any community or company interested in AD technology should consider conducting an initial feasibility study. This would include an economic pro forma of one or more representative systems. Plants will vary in capital and operating costs, complexity of operation, energy outputs, and the level of technical service provided by the vendor. The initial reports clearly indicate that the dry AD systems up and running in the US are working well. However, also visiting operating plants can provide a wealth of key details and better understanding that diagrams and pictures alone cannot convey, and should also be high on the list when evaluating different systems and vendors.

Author's Bio: Bruce Clark is a solid waste engineer with SCS Engineers in Tampa, FL.

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The Latest


Reviewing Anaerobic Digestion Technologies and Foodwaste Processing

Anaerobic digester designs sorted by type and defined by criteria such as biogas production, solids handling, processes, and performance

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Monday, March 23, 2015

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In Part Two of this three-part series, author Bruce Clark profiles anaerobic digestion technologies presently in use as dry system anaerobic digester designs that are capable of processing foodwaste into feedstock mixtures. Categorized as vertical-flow, static-pile (heap), and horizontal-flow anaerobic digesters, these systems manage and process foodwaste through a similar biochemical process. However, these designs vary according to system complexity as well as potential advantages, such as energy production output piped to combined heat and power. These and other technological factors involved in anaerobic digestion systems are further detailed in the continuation of Clark's article below.

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New Directions for Foodwaste (Part Two)—By Bruce Clark

"Anaerobic digestion of food scraps establishes a beachhead in the US"

Technology Overview

Although all of the established vendor systems are based on the same basic biochemical process, there are some significant design and operating variations between systems. In a "dry" system the truly low-solids content materials are limited in quantity, so that the feedstock mixture is dry enough that it can be managed as a solid material. This has resulted in other design options for the container where the foodwaste is processed. In the systems from BIOFerm, ZWE (SmartFerm), and Eisenmann, wastes in bulk are placed in long, rectangular chambers usually constructed of reinforced concrete, however, the Eisenmann system also uses stainless steel tubular vessels.

The Viessmann dry technology is based on bulk feedstock being loaded into a pile inside the unit with a front-end loader. Feedstock can be ground up, but this is not necessary. Heat is applied with a convection system in the walls and floor.

Leachate is continuously collected in a large underground storage tank, heated, and sprayed over the pile with



Credit: OWS
A dry anaerobic digester under construction in Bourgen-Bresse, France

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header pipe to hasten decomposition. Biogas is collected in a flexible membrane holder located above the chamber and then piped to a combined heat and power (CHP) plant.

The Kompoferm system is unique in that it has the flexibility to integrate several waste processing technologies, if desired, for the production of refined materials and multiple energy sources to serve a variety of markets and to meet restrictions on the landfilling of residual materials, if required. The components of the system include; automated mechanical pre-processing (i.e., bulk separation of inerts), fine separation of recyclables, production of refuse-derived fuel (RDF), aerobic composting, a wet digestion element, and a dry AD process.

The SmartFerm dry technology is based on the Kompferm dry anaerobic element process, but is optimized for compact, smaller-scale applications. In a general sense, the SmartFerm system design is somewhat similar to the Viessmann system.

The Eisenmann technology applied to foodwaste is based on a horizontal flow model that consists of the processing chamber fitted with a mixing element. Feedstock is first reduced to less than 1.5-inches in size. Liquid, usually leachate generated from the process, is added, and then the mixture is fed into the digester and slowly pushed through it by a paddle system fixed to an axle turned by an electric motor. The axle runs the length of the vessel. Similar to the Viessmann technology, heat is supplied by convection from a piping system in the walls. Leachate is collected at the end of the chamber in a separate tank and may be recycled to the pile or sent to a secondary digester where additional biogas is produced. Biogas generated from the processes can be sent directly to a CHP plant. The input of the energy from the continuous mixing action has the potential for relatively high biogas production.

In the OWS system, a unique vertical system, wastes are ground up to about 1.5 inches, injected with steam, and pumped using a high-pressure unit (not unlike a concrete pump) into an elevated steel silo tank, where the decomposition takes place and the processing waste moves downward in a compact mass by gravity. Digestate is drawn off the bottom of the digester, and some of that is diverted back to the mixing pump to seed incoming feedstock. The OWS system's design combining a high solids tolerance with the weight of the waste providing a high degree of contact has the potential for higher biogas production.

Table 1. General Features and Performance of Three Types of Dry Digesters

Criteria	Vertical Flow Digester	Static Pile (Heap) Digester	Horizontal Flow Digester
Estimated biogas production potential (ft ³ /ton)	Greater than 4,400	Greater than 3,000	Not available
Estimated biogas energy production potential (kw-hr/ton)	up to 200	Up to 150	Not available
Solids handling	Up to 50%	Up to 35%	Not available
Process	Continuous	Batch	Continuous
Feedstock preparation	Grind to less than 1-1/2 inch	No pre-grinding of feedstock	Grind to less than 1-1/2 inch
Redundancy	None—Typically single chamber	Multiple chambers provide some redundancy	Multiple chambers provide some redundancy
Feedstock heating	Feedstock heating	Continuous heating of waste	Continuous heating of waste
Process mechanical complexity	Medium	Low	Low-Medium
Leachate management	Leachate not produced	Storage tank and circulation system required	Storage tank and circulation system
Relative energy input	Medium	Low	Low-Medium

A general summary of the features and performance of three types of digesters is provided in Table 1. All of the systems process a full waste load in about 20 to 28 days, and operate in the thermophilic range (a temperature of at least 50°C to 55°C, or 122°F to 131°F), which provides for maximum biogas production and pathogen kill. The anaerobic digestion of foodwaste and greenwaste also produces digestate, which can be a low- to medium-solids liquid or more like a cake. The digestate can be used as a liquid soil conditioner or composted with additional organic solids into a soil conditioner.

Information in Table 1 is not meant to be specific to any of the vendors mentioned. The author advises to contact the vendor directly (some contacts are provided at the end of this article) for specific data, costs, and performance of their particular technology and system configurations, which may differ from that indicated. Some, but not all of the information was obtained from vendor websites and their reference publications.

Author's Bio: Bruce Clark is a solid waste engineer with SCS Engineers in Tampa, FL.

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The Latest

Landfill Design and Operational Changes Curtail Odor Sources

Identifying and solving odor sources from solid waste management facilities

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Monday, April 13, 2015

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As authors Daryl R. O'Dell and Matthew Beebe describe in Part 3 of this concluding series, odor-causing compounds in high concentrations—whether insufficiently controlled through landfill design or standard operations procedures—might require modifications to existing landfill design elements; installation of gas treatment systems, as well as changes to standard operating procedures in order to control extensive on-site odor generation. Of benefit to landfill managers and operators, our author cites advanced solutions for managing odor-generating materials in the concluding segment of this series. Public-health and worker-safety concerns continue to drive this discussion.

And Then There Was Odor (Part 3), by Daryl R. O'Dell, P.E., P. Eng. and Matthew Beebe, E.I.T.

"Odor. There, we said it! The four-letter word that can anger an entire community with a shift of the wind. This word haunts the dreams of many landfill managers."

When Landfill Gas Collection Is not Enough

In most cases, sound engineering landfill design and good operational practices will successfully manage on-site and off-site odor, but when odorous compounds are present in high concentrations, a landfill gas treatment system may be warranted. The purchase, installation, and operation of such a system is a large expense, so landfill operators and landfill gas system design engineers must carefully consider a variety of factors before determining the best system for a particular application. Landfill gas treatment is not a "one size fits all" proposition.

Since H₂S is one of the primary odorous compounds of concern, we will focus on this compound for purposes of this discussion. The two largest contributing factors when determining which system is the best for an application are the H₂S loading and the long term trend for H₂S generation based on modeling and waste compositions. Other considerations are the required outlet gas concentration based on permit conditions or equipment needs, short and long term budgeting, personnel, and disposal of waste byproduct produced from treatment.

Several technologies are available to remove H₂S from extracted landfill gas. These landfill design technologies include solid scavenger, liquid reduction-oxidation, absorbers, filters, and biological systems.

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Solid scavenger systems are the best choice when a facility has a low H₂S loading.

Solid scavenger systems pass raw landfill gas saturated with water over a media bed where adsorption and biofiltration processes remove H₂S from the gas stream. These systems are generally most cost effective for applications producing less than 150 pounds of H₂S per day. The most common type of solid scavenger system is an "iron sponge," which converts H₂S to iron sulfide. These systems have been in use in various industries for over 100 years. No operators are needed and the systems typically have lower installation costs. In larger scale systems, media cost may be prohibitive.

Spent media from a solid scavenger system is generally nonhazardous and can typically be disposed of in the landfill. The media fixes the extracted sulfur in a solid state and does not allow it to be released back into the landfill once it is disposed of. These systems can be expanded or contracted by adding or removing vessels as treatment needs change.

The media changeout can be completed by local contractors; however media changeout can be messy and temporarily odoriferous. Also be aware that iron oxide can react with air and ignite, so additional care should be taken during change outs. Liquid reduction-oxidation (liquid-redox) systems are most cost effective for applications producing more than 150 pounds of hydrogen sulfide per day.

These systems pass raw landfill gas through a catalyst solution in which H₂S is converted to elemental sulfur and treated landfill gas exits the scrubber vessel. The catalyst is then regenerated using air and returned to the scrubber vessel. Sulfur is separated from the catalyst and removed from the system.

Liquid-redox systems have several benefits for LFG applications, including lower operating costs at higher H₂S removal rates, no media change-outs, and high efficiency (99% H₂S removal). But these benefits come with high initial installation cost, sulfur disposal cost, and operational cost for electricity, chemicals, and operators.

A high H₂S loading in the landfill gas does not necessarily mean that a liquid-redox system is required. If a facility expects a high H₂S loading in the short term, but the load will decrease due to in-situ treatment by reducing the intake of hydrogen sulfide producing waste and capping to limit stormwater entering the landfill, it may be more cost effective to use a solid scavenger system. This would require either sizing a larger system or more frequent media change outs, but as the system loading decreases, the economy of the system will increase.

Other Systems

Other systems used to control H₂S include biological treatment, caustic scrubbers, and activated carbon. Activated carbon will also remove other volatile organic compounds because it is not a selective treatment system. The biological systems use thiobacillus bacteria, which are anaerobic, acidophilic (acid loving) bacteria that oxidize H₂S.

There are many systems available and each should be considered as you determine which one will serve your facility best. Carefully consider such aspects as treatable flow, H₂S concentrations, installation and operations costs, and regulatory considerations before purchasing a system.

Passing the Smell Test

Readers of this article who design landfill and landfill gas control systems, or who deal with landfill operations in their day-to-day working lives have probably borne witness issues related to odor. Many of these situations require changes to landfill operations or landfill gas management systems when it becomes clear that initial landfill design did not consider the full spectrum of potential future considerations. We have seen that the investment required to control odor in advance is relatively small compared to installing expensive treatment systems after the fact. While it can be difficult to anticipate the full future effect of an initial design, proper planning will aid in avoiding rework or repair, saving money, and ultimately providing the best service to the community.

Ultimately, when odor-producing compounds begin emanating from a waste facility, additional effort and engineered controls must be implemented. While multiple approaches to successful odor management can be used, a proactive approach to odor control will provide greater peace of mind than a reactive approach. And, while none of us can claim to be clairvoyant, a few bad experiences coupled with known industry and regulatory trends show us that applying good knowledge and experience will pay off in the end.

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Solid Waste Management Solutions for Controlling Odor

Posted By [Daryl R. O'Dell and Matthew Beebe](#) On April 10, 2015 @ 1:00 pm In [Landfill Disposal](#) | [No Comments](#)

Odor from landfill operations can become a resurfacing issue in solid waste management. As authors Daryl R. O'Dell and Mathew Beebe discuss in the following series, landfill odor management is an industry-wide issue that prompts the assessment of multiple landfill site variables, such as the analysis of waste volume, daily cover methods, and other landfill procedures. In Part 1 in the segment below, our author discusses identifying the possible source(s) of that odor—specifically ruling out the “rotten egg” that is hydrogen sulfide emissions. This series continues to consider worker safety, landfill design factors, and the re-evaluations of current standard operating procedures. Follow this series toward its concluding objective of pragmatically managing onsite odor issues.

And Then There Was Odor (Part 1), by Daryl R. O'Dell and Matthew Beebe

Odor. There, we said it! The four-letter word that can anger an entire community with a shift of the wind. This word haunts the dreams of many landfill managers.

Dealing with odor at solid waste facilities is a fact of life. Many regulations and standard operating procedures have been written focusing on avoiding landfill odor. Even with these precautionary measures, we still hear news reports of community outrage when landfill odor is not managed properly. Questions are raised about the source of the odor and why the facility was unable to control it. Who is responsible? Landfill management, field technicians, landfill gas plant operators, landfill design engineers, regulators...who?

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Twenty-twenty hindsight being what it is, all of us at one time or another have said, “If I only knew then what I know now...” about many aspects of landfill operations, and dealing with odor has to be number one on the list. So if it's odor that you are worried about, here are a few steps that we typically ask ourselves when identifying and dealing with odor issues. And since there is justifiable industry-wide fear of hydrogen sulfide (H₂S) when talking about odor, the discussion will consider H₂S as its own animal.

Where Is Odor Coming From?

Before talking about how to deal with landfill odor, we must first look at why odor occurs. Odor occurs because we smell it. The human nose contains roughly 5 million to 10 million olfactory cells and can distinguish between many thousands of different odors in our environment. Sound like a lot? In comparison to man's best friend, our canine companions can, depending on breed, have anywhere from 100 million to 600 million olfactory cells.

We have identified more than 300 odor-producing compounds in landfill gas that can influence the community's “Ewww” response. Many odors contain such compounds as sulfides, nitrogen, and mercaptans, which are detected by the human nose at varying concentrations. These same compounds can also be generated by other natural, agricultural and industrial sources, some of which may be located near landfills. These include, but are not limited to, composting operations, municipal and industrial wastewater treatment facilities, oil and gas processing facilities, and petrochemical refineries, just to name a few. Since humans are all different, our capacity to detect, identify, and react to odor varies. For odor treatment at landfills it's important to determine the source of the odor. Is it mainly coming from the disposal vehicles whose queue time is increasing in length? Has the landfill

gas collection system's efficiency decreased? Is the waste being covered in a timely manner and with the right fill type and enough depth? Has the waste stream changed?

In some instances it is obvious why a landfill smells. Case in point: Ask a facility that has accepted a high volume of wallboard or used processed construction-and-demolition (C&D) fines as daily cover. Ask them what happens when the waste gets wet, or when it is disposed of in a manner in which the gypsum is allowed to mix with MSW. Chances are the facility has had to deal with odor related to H₂S generation and if not, it will in the future.

Why is this important? Because H₂S is detectable by the human nose at very low concentrations. Even in the very low (parts per billion or ppb) levels, H₂S can produce a "rotten egg" smell that is easily recognizable and a common odor nuisance these days at landfills. At increased levels in the landfill gas stream (the hundreds and into the thousands of parts per million, or ppm) H₂S can cause collection pipes to cake with sulfur and cause increased maintenance to engines or landfill gas flares. The resulting decreased capacity of the GCCS over time can further complicate issues. As H₂S levels increase or exposure time increases, the human nose may no longer detect odor; at these levels H₂S exposure can become deadly. Landfill operators must ensure that safety procedures properly protect the public and their employees from this potential danger.

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Odor Prevention Through Solutions in Landfill Design and Operations

Posted By [Daryl R. O'Dell and Matthew Beebe](#) On April 10, 2015 @ 1:03 pm In [Landfill Disposal](#) | [No Comments](#)

As authors Daryl R. O'Dell and Matthew Beebe illustrate in Part 2 of this continuing series, Odor emissions—whether attributed to landfill design factors or slip-ups in standard operations procedures—are solid waste management issues that can be identified at the source and managed through best practices in waste coverage and landfill systems monitoring. These authors examine such solutions for landfill managers in the following segment of this series. Naturally, issues such as public health and worker safety remain continuing these interconnected throughout this topic's discussion.

And Then There Was Odor (Part 2), by Daryl R. O'Dell and Matthew Beebe

Odor. There, we said it! The four-letter word that can anger an entire community with a shift of the wind. This word haunts the dreams of many landfill managers.

Odor Prevention Through Landfill Design and Operations

While the ubiquitous nature of odor problems may make a landfill owner want to raise his hands in the air and say, "I quit," there are ways to help reduce odor potential and ultimately increase the longevity of equipment, which will help reduce exposure to your employees and the community.

First, make sure the waste is deposited into the landfill as soon as possible. Properly tarping and containing incoming loads will help, but long queue times may increase the likelihood of odor [disbursement or odor detection].

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Once the waste is tipped, be sure it is sufficiently covered and remains covered with an appropriate cover material. The amount of cover necessary depends on how long it will be before the next lift is placed. Daily cover is not sufficient if the next lift won't be installed for six months! In addition, many landfill facilities utilize available onsite soils that vary in physical properties, for example sand, compost, wood chips, or blasted rock. When using such cover materials, 6 inches of cover may not be sufficient to contain odor.

If soils are not enough to control the odor, there are a variety of other types of cover systems available, including synthetics, spray-on mortars, or other alternate daily/intermediate covers. In addition, some of the most successful sites we deal with are proactive with placing geosynthetic caps, either as a temporary cap, or sequencing fill activities and permanently capping sideslopes as soon as possible.

Once the waste is covered in the landfill, then what? The next step is ensuring that odor is not released, and horizontal collectors or shallow vertical wells may be warranted. At the very least, once the GCCS is designed, it should be sufficiently sized to collect the project volume of landfill gas to be generated, collection wells should be properly spaced, and your systems design must be flexible enough to redirect flow in the event a portion of the system fails or is shutdown.

Properly sizing your GCCS for both current and future anticipated LFG collected will help ensure that costly upgrades can be avoided in the future. As a best practice, designing your

system to accommodate anticipated landfill gas generation will provide an added level of confidence that your system will be properly sized.

Finally, size the collection system to accommodate any future expansions of the landfill or make sure the landfill design makes it upgradeable. If there is any reason to expect fouling of the landfill gas pipes, up-sizing your system may be the best answer to ensure sufficient capacity remains in your landfill gas collection system far into the future.

Now that this shiny new GCCS is installed, we want to make sure it works, right? That is where field staff comes in to ensure that sufficient vacuum is applied to the entire field. Whether operating a landfill-gas-to-energy plant or tuning a wellfield, everyone involved must ensure that sufficient vacuum levels are applied to each landfill gas well or odor will likely be present to some degree. There are many reasons for a GCCS to fail in this regard and frequently investigations are necessary to determine the reason a portion of the GCCS is not operating properly.

At times, especially when excavating waste for GCCS installation, the potential for odor increases, and many facilities utilize odor neutralizers to mask/trap odor compounds prior to leaving the site. Odor neutralizers can be either solid or liquid, however liquid odor neutralizers are generally spray-applied along the perimeter of the work to contain the work area.

Other techniques are sometimes used to disperse the odor. For example, when working in a trench for GCCS installation, high-powered fans may provide sufficient air movement to eliminate or reduce odor from the surrounding area. For any method to be used successfully, the odor must be in a limited area and the facility should sufficiently consider any health risks and worker safety prior to implementation.

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Landfill Design and Operational Changes Curtail Odor Sources

Posted By [Daryl R. O'Dell and Matthew Beebe](#) On April 13, 2015 @ 8:49 am In [Landfill Disposal](#), [MSW Management Weekly](#) | [No Comments](#)

As authors Daryl R. O'Dell and Matthew Beebe describe in Part 3 of this concluding series, odor-causing compounds in high concentrations—whether insufficiently controlled through landfill design or standard operations procedures—might require modifications to existing landfill design elements, installation of gas treatment systems, and changes to standard operating procedures in order to control extensive onsite odor generation. Of benefit to landfill managers and operators, our author cites advanced solutions for managing odor-generating materials in the concluding segment of this series. Public-health and worker-safety concerns continue to drive this discussion.

And Then There Was Odor (Part 3), by Daryl R. O'Dell and Matthew Beebe

Odor. There, we said it! The four-letter word that can anger an entire community with a shift of the wind. This word haunts the dreams of many landfill managers.

When Landfill Gas Collection Is Not Enough

In most cases, sound engineering landfill design and good operational practices will successfully manage on-site and off-site odor, but when odorous compounds are present in high concentrations, a landfill gas treatment system may be warranted. The purchase, installation, and operation of such a system is a large expense, so landfill operators and landfill gas system design engineers must carefully consider a variety of factors before determining the best system for a particular application. Landfill gas treatment is not a "one size fits all" proposition.

Since H₂S is one of the primary odorous compounds of concern, we will focus on this compound for purposes of this discussion. The two largest contributing factors when determining which system is the best for an application are the H₂S loading and the long term trend for H₂S generation based on modeling and waste compositions. Other considerations are the required outlet gas concentration based on permit conditions or equipment needs, short and long term budgeting, personnel, and disposal of waste byproduct produced from treatment.

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Several technologies are available to remove H₂S from extracted landfill gas. These landfill design technologies include solid scavenger, liquid reduction-oxidation, absorbers, filters, and biological systems.

Solid scavenger systems are the best choice when a facility has a low H₂S loading.

Solid scavenger systems pass raw landfill gas saturated with water over a media bed where adsorption and biofiltration processes remove H₂S from the gas stream. These systems are generally most cost effective for applications producing less than 150 pounds of H₂S per day. The most common type of solid scavenger system is an "iron sponge," which converts H₂S to iron sulfide. These systems have been in use in various industries for over 100 years. No operators are needed and the systems typically have lower installation costs. In larger scale systems, media cost may be prohibitive.

Spent media from a solid scavenger system is generally nonhazardous and can typically be disposed of in the landfill. The media fixes the extracted sulfur in a solid state and does not

allow it to be released back into the landfill once it is disposed of. These systems can be expanded or contracted by adding or removing vessels as treatment needs change.

The media changeout can be completed by local contractors; however media changeout can be messy and temporarily odoriferous. Also be aware that iron oxide can react with air and ignite, so additional care should be taken during change outs. Liquid reduction-oxidation (liquid-redox) systems are most cost effective for applications producing more than 150 pounds of hydrogen sulfide per day.

These systems pass raw landfill gas through a catalyst solution in which H₂S is converted to elemental sulfur and treated landfill gas exits the scrubber vessel. The catalyst is then regenerated using air and returned to the scrubber vessel. Sulfur is separated from the catalyst and removed from the system.

Liquid-redox systems have several benefits for LFG applications, including lower operating costs at higher H₂S removal rates, no media change-outs, and high efficiency (99% H₂S removal). But these benefits come with high initial installation cost, sulfur disposal cost, and operational cost for electricity, chemicals, and operators.

A high H₂S loading in the landfill gas does not necessarily mean that a liquid-redox system is required. If a facility expects a high H₂S loading in the short term, but the load will decrease due to in-situ treatment by reducing the intake of hydrogen sulfide producing waste and capping to limit stormwater entering the landfill, it may be more cost effective to use a solid scavenger system. This would require either sizing a larger system or more frequent media change outs, but as the system loading decreases, the economy of the system will increase.

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Other Systems

Other systems used to control H₂S include biological treatment, caustic scrubbers, and activated carbon. Activated carbon will also remove other volatile organic compounds because it is not a selective treatment system. The biological systems use thiobacillus bacteria, which are anaerobic, acidophilic (acid loving) bacteria that oxidize H₂S.

There are many systems available and each should be considered as you determine which one will serve your facility best. Carefully consider such aspects as treatable flow, H₂S concentrations, installation and operations costs, and regulatory considerations before purchasing a system.

Passing the Smell Test

Readers of this article who design landfill and landfill gas control systems, or who deal with landfill operations in their day-to-day working lives have probably borne witness issues related to odor. Many of these situations require changes to landfill operations or landfill gas management systems when it becomes clear that initial landfill design did not consider the full spectrum of potential future considerations. We have seen that the investment required to control odor in advance is relatively small compared to installing expensive treatment systems after the fact. While it can be difficult to anticipate the full future effect of an initial design, proper planning will aid in avoiding rework or repair, saving money, and ultimately providing the best service to the community.

Ultimately, when odor-producing compounds begin emanating from a waste facility, additional effort and engineered controls must be implemented. While multiple approaches to successful odor management can be used, a proactive approach to odor control will provide greater peace of mind than a reactive approach. And, while none of us can claim to be clairvoyant, a few bad experiences coupled with known industry and regulatory trends show us that applying good knowledge and experience will pay off in the end.

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Landfill Design and Technologies' Link in Municipal Solid Waste Management

Posted By [Ron Mills and Brian Tippetts](#) On March 2, 2015 @ 9:52 pm In [Landfill Management](#) | [No Comments](#)

In Part 1 of a two-part article, authors Ron Mills and Brian Tippetts examine the municipal solid wastestream under the scope of current waste definitions, economic factors, and regulatory concepts of resource recovery. With pertinent questions presented along the way, the authors explain the role that landfill design, technology, and operations will play in the course of municipal solid waste management.

Why Landfills Will Lead the Way (Part 1) By Ron Mills and Brian Tippetts

Characterizing municipal solid waste (MSW) as a "resource" rather than "trash" is a viewpoint many waste management professionals are embracing. This change in thinking presents enormous future opportunities, especially in terms of more sustainable reuse of raw materials and financial benefits for the industry in general and landfills in particular. It will create economic advantages through the development of facilities designed for large-scale recovery and reuse of materials from MSW using proven technologies. Recovered materials could then be used either as feedstock by manufacturing facilities located adjacent to the landfill or for the production of "green" energy for use onsite by a variety of commercial operations. The growth of these "green" resource management parks at regional landfills would present critically important economic development opportunities for nearby communities, including a significant level of job creation.

Most MSW management professionals now agree that the waste disposal industry in North America will undergo significant change within the next several years. Change being defined as the way MSW is managed as a resource having economic value compared with managing MSW as a material of no value, requiring disposal in engineered facilities. This emerging industrywide shift will directly affect the way MSW will be managed and ultimately handled (either as a pure disposal "cost center" or as a resource-based "profit center").

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Any substantive debate about whether the MSW industry will experience a paradigm shift from a model of primarily "waste disposal" to one of predominately "resource management" appears to be over, having now moved on to questions like "What sort of timeline will this change require to achieve transition. Ten years? Fifteen? Thirty? More? Less?" and to even more compelling questions like "Shift to what resource management model? Primarily energy recovery? Commodity recovery from material generators including residential curbside programs? Commodity recovery from a stream of discarded, unsorted materials using mechanical equipment and technological innovation? All of the above and more?" and, finally, to such questions as "Can commodities from MSW be harvested so as to generate profitable financial returns on investment?" or even "Can recovery of commodities as a for-profit venture create economic growth and employment opportunities?"

We believe it is inevitable that this paradigm shift in the way our MSW stream is managed will not only occur, but will likely occur more rapidly than many are now thinking. This will result in more economic and environmental sustainability opportunities than most are currently considering. However, some are convinced this transition will only be realized over stiff resistance from proponents of landfill technology and other engineered "disposal" systems who advocate landfilling as the primary management model well into the future. Is this collision of industry ideology just as inevitable as the industry transition itself?

We do not believe that will be the case. In fact, we believe landfilling as well as mass-burn technologies and other contemporary disposal methods can and will play a significant role in the transition of the industry into a more efficient, more profitable, and more environmentally sustainable system with significant economic development potential for host communities. To substantiate this concept, let's consider what we'll term "The Reality," "The Vision," and "The Opportunity" associated with a transitioning industry, especially when led by the landfill disposal systems now in place throughout North America.

The Reality (of Municipal Solid Waste)

Landfilling of MSW has represented the preferred disposal alternative of the modern era. Especially since 1992, when America's Subtitle D of the federal Resource Conservation and Recovery Act requiring stringent engineering controls for landfill design, construction and operation became effective, landfilling in the United States has been regarded as a highly reliable, environmentally protective, safe, and sanitary method for managing MSW. Similar actions also took place throughout the Canadian provinces.

Partly in response to the requirements of the federal and provincial regulations, the number of smaller, active landfills in the United States and Canada declined substantially during the past 20 years, while the number of larger, regional landfills owned and operated primarily by large private sector companies has grown significantly. In particular, growth in disposal capacity at regional sites has occurred not only to meet the needs of the surrounding population, but more often in locations that are critical to their service areas from a logistical standpoint. Thus, transporting MSW is made more economical through the use of major transportation networks in close proximity to major urban centers. This same logistical advantage holds true for virtually all mass-burn waste-to-energy facilities serving large urban centers.

Simultaneous to the consolidation and transition of smaller landfill operations to larger capacity, strategically located regional facilities was the overall decline in MSW generation rates throughout North America. Data compiled by the United States Environmental Protection Agency show that annual production of MSW has steadily declined from a high of 4.74 pounds produced per person per day in 2000 to less than 4.40 pounds produced per person per day in 2012. While public education campaigns and waste minimization programs have certainly contributed to this decline, marketplace changes also have played a significant role. With the growth of the Internet and e-mail use, for example, the need for paper in routine communication has declined substantially. Likewise, more economical shipping and transportation systems developed over the past two decades have caused a reduction in the volume and weight of packaging material in use by business interests. Additionally, waste diversion programs have proliferated between 1990, when about 75% of America's MSW was landfilled, and the present day, when almost half of all MSW generated is diverted into recycling systems (about 27% overall with 19% being from industrial/commercial sources and 8% from residential sources, including curbside programs) and composting systems (about 8%), as well as waste-to-energy facilities (about 12%).

During the past 15 to 20 years, these changes have conspired to produce declining demand for landfill disposal. Having peaked in the 1990s, landfilling today accounts for approximately 53% of all municipal solid waste produced per year in the United States. However, the majority of the MSW not being landfilled today must be transported long distances to be reused, repurposed, or recycled. Thus, the economics discussed above related to the strategic locations of landfills are largely being ignored as a logistical consideration in managing diverted recyclables and moving them efficiently and profitably to market. Achieving higher rates of overall diversion in the future will require stronger consideration of this logistical component as we move to a more environmentally and economically sustainable model for using resources.

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The Challenges of Capturing Recycling's Benefits from Mixed Municipal Solid Waste

Posted By [Ron Mills and Brian Tippetts](#) On March 9, 2015 @ 6:39 pm In [Landfill Management](#) | [No Comments](#)

In this second piece of a two-part article, authors Ron Mills and Brian Tippetts examine potentially profitable recycling benefits if such materials can be economically harvested from a mixed municipal solid wastestream. The economics of current market demand, transportation logistics and profitable sorting operations are realistic considerations in diverting recyclables from landfill disposal. Efficient recovery and many other factors are examined in the business of materials recovery and ultimately recycling benefits as reuse-market commodities.

Why Landfills Will Lead the Way (Part 2) By Ron Mills and Brian Tippetts

The Vision

Since 1990, recyclables processing, sorting, and recovery technologies have advanced to make recovery of recyclables from mixed municipal solid waste (MSW) more effective and efficient. These systems appear capable of achieving overall recycling rates well in excess of 50% of the mixed wastestream, but regardless of how efficiently recyclable materials can be harvested from MSW, the challenge remains how to economically and efficiently move this recovered material to a reuse market. The logistical costs involved in transporting large quantities of recyclables any appreciable distance will significantly affect the economics of the business model.

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One of the most important factors affecting the economical harvesting of recyclables from the MSW stream is the scale or quantity of material being processed. Ultimately, processing efficiency comes down to a per-unit cost. Therefore, the larger the quantity or scale of the recovery system, the more efficient and profitable the outcome. This means an economically sustainable, profitable recyclables collection system must be developed at a scale to support the lowest per-unit processing cost achievable. To satisfy the goal of acceptable operational scale, one solution is to locate the recyclables sorting and processing facility at the same point where the MSW generated from a given community or region is delivered for disposal. In other words, a regional landfill already serving a particular geographic area would serve as a logical candidate site to locate a recyclables sorting and processing facility, or materials recovery facility.

In addition to serving as host sites for recyclables recovery facilities, regional landfills themselves are an obvious source of MSW containing appreciable quantities of recyclable commodities. These sites clearly meet the critical scale point discussed above and do not involve the cost of transportation to a processing facility. The majority of these regional landfills also have the advantage of available acreage surrounding them. Therefore, locating recyclable recovery and processing facilities at these landfills minimizes overall transportation and logistical costs.

A critical factor in being able to achieve profitable operation of a recyclables recovery system is finding an ongoing market demand for the collected material. Facilities such as paper mills designed to process recovered paper and fiber come to mind and are active in the marketplace today. Similarly, reuse of some metals and plastics as feedstock for production of certain consumer products is currently practiced. But we also see the emerging development and increasing availability of manufacturing processes that produce organically based specialty chemicals and products for "high-end" technological sectors of the economy.

Many of these manufacturing processes are seeking sources of bioproducts or agri-products that can serve as feedstock, especially cellulosic organic materials that contain high quantities of sugars and carbohydrates used to produce a variety of organically based market products, such as adhesives, various polymers, and organic substitutes for rubber products. Discarded paper products currently constitute at least 25 to 30% of the total MSW stream generated in America and represent an attractive source of low-cost bioproduct as feedstock for these manufacturers.

We see such manufacturing interests as critical to the future viability and economic sustainability of recyclables collection and processing facilities operating at a scale to meet efficient production benchmarks to capture recycling benefits. In many cases, these manufacturing interests will be looking to locate their production facilities in close proximity to the source of their feedstock which is at the recyclables collection and processing facilities themselves which in many cases will be located at a regional landfill. This vision involves the creation of "green" resource management parks around and in proximity to regional landfills. Obviously, development of these parks also brings the prospect of economic development and job creation for each landfill's host community.

The Opportunity

We believe this vision representing a transformation in the MSW management industry from a profitable disposal-oriented practice to an even more profitable resource management practice is achievable within the next decade. The key to its success involves mutually beneficial partnerships between the involved private for-profit interests complemented by support from communities that will host and benefit from the job creation and economic development opportunities of green resource management parks. This visionary model provides a roadmap for development of a resource management system focused on both an environmentally sustainable benchmark for success and an economically sustainable standard to assure viability over the long term.

Our thinking pulls together the reality of where the MSW management industry stands today in terms of reliance on landfilling as a profitable business model, with the vision of using existing state-of-the-art landfills as the platform for achieving profitable, sustainable, large-scale recyclables recovery and reuse on a nationwide basis. In doing so, the transformed "disposal-to-resource-management" industry will provide substantial benefits in the form of more efficient and low-cost manufacturing of consumer goods and products in conjunction with economic growth and development in the manufacturing sector. All will occur within the context of an approach to MSW management that is based on principles of both environmental and economic sustainability.

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Carting Away Food Waste

Even changes such as slight alterations in pickup or separation of something dealt with on a daily basis as food waste can take some getting used to. BY PETER HILDEBRANDT

Food waste has long been something mixed in with the regular trash being put out on the street each week. But things are starting to change on a wider basis, away from that model.

In Canada, a much larger segment of the population than in the US has been more amenable to separating food waste and having pickups on a bit different schedule than the regular trash.

Cities like Portland, OR, and San Francisco, CA, have been on board with separate food waste collection for some time. Manufacturers mentioned here are ready for the changes whenever and wherever they may pop up.

City On Board With Food Waste As Separate Entity

Portland has over 1,000 businesses participating in food waste collection—something that's been going on a while now. A lack of space for composting has been the biggest factor hampering development of that program, says Arianne Sperry, coordinator of "Portland Recycles!" However, the city's food scrap program for residents rolled out in fall of 2011.

"I think we're starting to get to a point where we are sustainable for our operation," explains Sperry. "We had weekly garbage collection [and] weekly recycling of comingled paper, plastic, and metal containers—in Portland, we keep glass on the side."

The city also has had a roll cart program for yard waste. In the fall of 2011, garbage collection moved to every other week. Yard waste collection moved to every week, with the food waste added to that collection mix and taken to designated composting area. The city swapped the collection schedule of the garbage with that of the compost. This was really just a trading of containers, according to Sperry.

"The new food scrap program itself was very controversial at first," she says. "A lot of residents were used to having their garbage collected every week—that was just how things were always done. So, when we switched to every other week, there were concerns, because they'd never experienced that before. Folks are generally nervous about change, and in this case, it was something in your daily habits in your kitchen."

The city did pilot studies before program implementation. Most residents had concerns before it started. They had to try it for 6 months, says Sperry, and, once they tried it, they saw that the new program was no big deal. Those involved in the pilot survey found that they liked it.

"That was very interesting to us, and one of the things especially noteworthy for us was that Portland actually saw the amount of garbage that they collected drop by 37% during the first year of the program—as well as that we went to every other week garbage pickup," she explains. "Some of this was simply the drop in the weight of the food going from the garbage into the yard debris. They amount of yard debris collected almost tripled. But, in the end, people found having yard debris pickup every week to be a real benefit."

"While our program is voluntary, people have a strong incentive to participate, because if they want their food scraps collected every week, they need to remember to put those out with the yard waste now collected weekly," she continues. "We've seen other programs similar to ours going on much longer, but not [being] as successful as ours. People don't

have as strong of an incentive to make that change in their habits; it's hard to make changes because people don't like that."

There are no issues with food odors, as food scraps are still collected with the same frequency—now the food scraps are in with the yard debris, and they are collected weekly. "The businesses that are composting are leaders that want to be as green as possible," adds Sperry. "They've voluntarily negotiated with their haulers to have that service. Also, not all composting facilities are able to deal with food scraps—they have to receive a permit from our state with certain requirements involved, which they must meet. The haulers working for Portland purchase the carts involved in the program with specs from the city of Portland, which must be met by the particular manufacturer involved."

Beginning January 1, no food and compostable paper—including food-contaminated cardboard, paper napkins, and paper towels—is now allowed in the garbage, however Seattle Public Utilities will not begin full enforcement until July 1 of this year.

On a Resort Island With Highly Seasonal Population

Nantucket Island, MA, composts food waste in a digester, which is part of the Bedminster BioEnergy Technology. The system can be configured to produce either a bioenergy or compost material. In each case, the initial part of the process uses the patented Bedminster Digester to separate waste into biodegradable and non-biodegradable fractions.

Waste is received onto a tipping floor where any oversized items are removed before being transferred, unshredded, to the Bedminster Digester. The Digester can be sized to suit the material to be processed, but typically a digester drum with a capacity of 50,000 tons per annum would be 70 meters (230 feet) in length, 4.6 meters (15 feet) in diameter.

In two days, the Digester breaks down the biodegradable material by a combination of microbial and mechanical activity, to form a consistent biomass material less than 12 millimeters or 25 millimeters (1 inch) in size separated from the non-biodegradable fraction, which remains fundamentally whole. This is achieved by passing the output from the Digester over a trommel screen; in this case, the biodegradable fraction drops through the trommel and the unshredded material such as plastic bags, bottles, cans, and similar items pass over the screen.

The Overs are passed through magnetic and eddy current separators so that metals can be recovered for recycling, while the balance synthetic material, chiefly comprising plastic and non-biodegradable textiles, is baled and transported for further processing/recycling. The system's composting process takes advantage of separation achieved in the Digester drum where 95% of the biomass in the delivered waste is separated to achieve a homogenous product with low levels of contamination.

The now homogenized organic rich Unders are formed into windrows in an enclosed Maturation Hall. Material spends 21 days being aerated and consistently turned. Monitoring ensures that the material is turned at least three times at no less than two-day intervals attaining a minimum temperature of 140°F between turnings to ensure that the final compost is fully sanitized.

To create a clean, energy-rich biogas, the biomass is indirectly heated in the Pyrolyser in an oxygen-depleted atmosphere. This prevents the formation of harmful compounds such as dioxins and furans associated with conventional combustion. The biogas is passed through a gas cleaning stage prior to being stored in gas storage tanks.

The biogas is fed to gas turbines or gas engines that power the electrical generators to produce renewable electrical energy. It is subjected to such high temperatures within the turbines/engines that any traces of dioxins and furans are completely destroyed. Exhaust heat produced by the turbines/engines is reused in a heat recovery steam turbine to increase the overall electrical conversion efficiency. This results in an available net electrical output power of approximately 1.0–2.0 MW per 40,000 tons per annum of MSW input (dependent on waste input).

Helping Things Take Off With Food Waste Handling

Orbis originally involved themselves with the blue curbside recycling bins; that is where they got their start in this particular segment of their business. Now as a whole, they do a lot in returnable, reusable packaging—primarily plastic packaging—such as those found in industrial applications, those used at an automobile assembly plant. They will use the company's products, like a big bulk bin, to bring components into an assembly plant. Once those parts are placed in a car for assembly, the packaging is shipped back and used over and over again. This cuts down on corrugated waste, optimizes the amount that can fit on a trailer. So freight costs are minimized as well.

"A lot of what we do in our business is all about trying to save money, cut down on costs, reduce carbon footprints, and any other benefits," says John Sebranek, environmental marketing manager for Orbis.

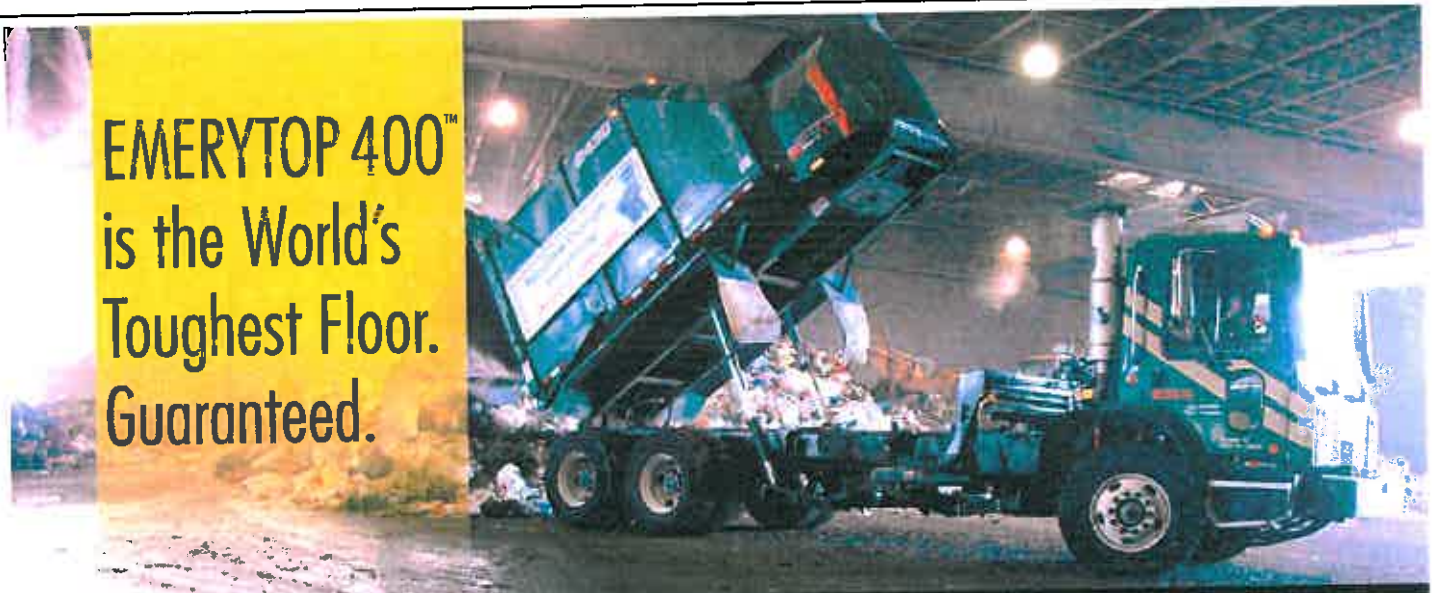
"The segment of the business I'm responsible for involves environmental products. We started with the blue bins for recycling products."

From there, they went into organic waste collection in Toronto, Ontario, some 12 years ago, developing the first major program in North America for food scrap collection. They developed a cart specifically designed for food waste, as well as a kitchen container. This was a complete program allowing residents to easily collect scraps in the kitchen.

Once such food refuse is collected easily in the kitchen and can be taken to the garage before being wheeled out in the curbside container. Orbis products are specifically designed for organics and handling such waste, such as latches to keep pests out. Rather than having a container that might have an extension bar that actually bisects the lid, theirs will fully enclose all of the waste as food waste and its leakage, as that tends to be more liquid in nature.

"Our products tend to have a bit thicker walls because of the density of food scraps," adds Sebranek. "They also must be more durable because of all the extra weight they are handling. All of this is done to have a container specifically designed for this purpose, as opposed to one that's simply built to handle general municipal solid waste. Over the past 12 years, this product and concept has really expanded in Canada. Forty-five percent of residents in Canada now have access to curbside food scrap handling—that's really where our key market is located. In the United States, the cities where this has caught on include Seattle, San Francisco, and Portland."

The firm is seeing more growth in food waste handling in the Northeast. A lot of that has to do with space limits, spurring some demand for the product. Massachusetts, Vermont, and Connecticut are putting in food scrap bins for large commercial food scrap generators so that



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restaurants and hotels, as well as hospitals, can handle this waste and convert it into compost.

"Food scraps are placed in piles or 'windrows,' and what ends up happening is that compost is turned over on a regular basis in order to process it," says Sebranek. "The other way to deal with the scraps is by using an anaerobic digester. Both are better options than simply taking the waste to a landfill since communities—or at least their directors and recycling coordinators—share so much information among themselves as far as best practices. So, as a result, this trend of dealing with food waste is really starting to catch on.

"Here in Canada, the fact is that much of the population of the country is centered right here in Ontario, and not spread out like in the US; it caught on in Toronto and in the other municipalities right around there, making a big difference in why it's taking off," he continues.

More and more regulations are occurring, however, to keep food out of the landfill. The other trend really making a difference, according to Sebranek, is the concept of zero waste, an issue many of the cities are now undertaking. Even if an area has a pretty aggressive waste diversion initiative, you can't really do that without adding food scraps to the mix, because between the yard and food waste, it's anywhere from 25–30% of overall waste.

"That's going to be the next area when municipalities max out their ability to divert aluminum, paper, plastic, and other items," he says. "Food scraps are the last area that is left. One way municipalities in Canada deal with this new change is by allowing residents to use compostable bags; that makes a big difference as there are compostable bags designed to fit our kitchen container. I think this development increases the participation rate by residents as trash and food waste removal doesn't seem quite so nasty."

They're using their green bin (curbside container) and kitchen collector (container the residents use for food scraps). "We're working on making it as easy as possible for residents to participate in the program, and to make it easy for them to scrape their food waste into the container and minimize the odor emanating from a food waste container," adds Sebranek. "How can we make it as easy as possible for them to use that wastebasket, making it as simple as possible so that you are not even thinking about it on a daily basis? Smooth, easy-to-clean surfaces are important.

"Raccoons are a big problem, too.

Toronto has the largest population of raccoons in North America, and now they've become urbanized. They're smart, and they teach their offspring."

What Goes Around Comes Back Around for Food Scraps/Compost

In San Antonio, one westside neighborhood has become part of a sanitation experiment to go organic. At a resident's home, today's breakfast is tomorrow's plant fertilizer. "This is carne guisada," she says, collecting the remaining food to be disposed in a special bin. She is one of 30,000 residents taking part in the city's organic recycling program—already recycling aluminum, plastics, and paper, and, for a year now, there's a third bin she places weekly on her curbside: for leftovers. "I've enjoyed it, and it's good for us," she says.

David McCary, director of San Antonio's Solid Waste Management, says, "You can now recycle your pizza boxes that may be soiled, as well as look at coffee grinds, fruits, vegetables, mixed fruits—all of those types of materials can now be recycled."

Food scraps and yard trimmings make up over 1/3 what San Antonians throw away. That trash puts an added strain on the landfill. So, the city is piloting a program to collect organic waste and convert it to compost material. "It's cheaper to process it than throw it away at the landfill," adds McCary.

The city expects to recycle 60% of its garbage by 2020. This circle of recycling waste has motivated some to be more aware of the food waste recycling process. The resident mentioned above indirectly composts her scraps as they actually make it back into her yard and garden through San Antonio's returning of the compost to neighbors, free of charge.

If successful, the program will be unloaded citywide. It is projected to cost households another \$3 per month in garbage collection.

Recycling has also reached a milestone in San Francisco, with food scraps collected through an urban compost program reaching 1 million tons, according to the city's collection service, Recology. It took 15 years to get to the 1-million-ton mark, measuring the food scraps taken to one of two compost facilities.

"We started the program in 1996, and the tonnage that we've been separating for compost has been increasingly pretty regu-

larly each year," says Recology CEO Mike Sangiacomo.

San Francisco recently composted its millionth ton of food.

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Officials with Recology and the Department of the Environment made the announcement, appropriately, at a restaurant in the popular Fisherman's Wharf—Scoma's—which was held as a model for recycling. "The employees have really kind of rallied around this; they want to do it," says chef and buyer Kelly Bennett. "However, even with the colored bins—green for compost, blue for mixed recycling, and small black for landfill—people make mistakes. I do end up walking around and watching the trash cans once in a while."

"I'm predicting we'll hit our second million in five years," adds Sangiacomo.

Alexa Kielty, Residential Zero Waste and Special Projects Assistant for San Francisco's Environment Department, believes composting is one of the best things we can do for the environment. "We're able to increase the soil fertility, also [reduce] methane production, and really create healthy food systems."

Cleaning Up the Carts—Instantaneously

AquaTools Inc. is one of few companies involved with cart cleaning of organics, and Eco-Feed Inc., Honolulu, HI, was among the first firms they dealt with. Eco-Feed works with

wet food waste; organics have become very popular with their systems.

AquaTools's Tip Too and CartBlaster—the company's original device—pressure wash the carts. "Our focus is on container cleaning," says Steve Buchan, company president. "We have more cart sanitation systems than anyone else in the country. What used to be only a stepchild is now a very important part of our business. We have several thousand of our units out across the country now."

The CartBlaster II has a relatively small 2-power nozzle, which can be configured to 4 on a large-pressure washer. The system has oversized casing gears resulting in smoother motion and the ability to withstand greater pressure. Innovative self-lubricating plastic construction on the gears is more durable than brass. The spray nozzle works on a variety of containers as the spray pattern, while the equipment completely covers the inside of the container. A widescreen particle filter keeps debris from entering during cleaning operations with help from a bleedoff valve. Water at temperatures up to 190°F can be used at 4–10 gallons of water per minute. Forces of 1,500–2,000 psi are involved in the operations. The cart cleaning typically takes just 1 minute.

In the Tip-Too model, loading bars keep in position all types of carts. Cleaning happens in some 30 seconds. Errant spray also is kept to a minimum. The devices used for the process are quite complex, according to Buchan; they need regular maintenance. "You can sell the product, but then it also needs to be kept up and cared for," he says.

"Container cleaning in Europe and Canada is far ahead of the US. I work with companies here in this country every day that are trying to develop trucks, trying to go mobile. When I first got into this business, things were simply about cleaning carts. Now everything is about developing this or that product or system.

"In my opinion, no one in the US has developed a truck that is reliable or efficient," he continues. "I've met people wanting to import trucks into the States; it's very complex. The standards are very different than they are in Europe as far as potential for wastewater issues. It's not so much with the technology, as in infrastructure. But in the end, any cart size used by any city or municipality will work with our system." **MSW**

Peter Hildebrandt writes on landfill management and technology.

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Anaerobic Digester Economics

In recent years, a variety of solid waste agencies have been approached by developers offering dry AD systems to process and treat organics. BY MARC ROGOFF



Zero Waste Energy

This article provides a general overview of several economic feasibility studies conducted by SCS Engineers. In these, the agency's organic wastestream will be processed, and a biogas will be converted to revenue producing product (combined heat or power, compressed natural gas, and high-quality compost). SCS has collected available data and information on operating anaerobic digestion (AD) facilities with a similar design technology proposed for

application at these agencies with the objective of strategic planning of AD facility.

Anaerobic Digestion Technology

There are nearly 240 AD facilities around the world with operating capacities greater than 2,500 tons per year. These plants process not only the organic fraction of the municipal solid waste (MSW) wastestream, but also organic waste from food industries and animal manure. Europe leads in the number of AD plants and total installed capacity prin-

cipally due to the European Union Directive that requires member states to reduce the amount of landfilled organics by 65% by 2020. As shown in Exhibit 1, there are more than 120 plants processing the organic

Exhibit 1. European Countries With AD Facilities

Country	No. of Plants	Country Capacity (tons per year)
Germany	55	1,250,000
Spain	23	1,800,000
Switzerland	13	130,000
France	6	400,000
Netherlands	5	300,000
Belgium	5	200,000
Italy	5	160,000
Austria	4	70,000
Sweden	3	35,000
Portugal	3	100,000
United Kingdom	2	1,000,000
Denmark	2	40,000
Poland	1	20,000
Total	127	5,505,000

Levis, J. W., et al. "Assessment of the State of Food Waste Treatment in the US and Canada." *Waste Management*, 2010 August/September 30 (8-9), 1486-94.



Jeff Liebowitz, Monterey Regional Waste Management District 2013

Exhibit 2. Last of four digesters installed in place

fraction of MSW in Europe of about 4.6 million tons per year. The principal technologies used around the world are provided by BTA, Cites, Dranco, Kompogas, Linde, RosRoca, Valorga, and Viessmann.

Currently, there are only three commercially operating AD facilities in North America, with two being in the US. The first is on the campus of the University of Wisconsin-Oshkosh, and the second adjacent to the landfill operated by the Monterey Regional Waste Management District in Marina, CA. The Oshkosh facility currently processes about 6,000 tons of yard and food wastes per year; the Monterey AD facility is currently sized to process about 3,000 tons per year.

In Canada, there is an AD facility digesting source-separated organics, which has been commercially operating in Toronto for a number of years, processing about 90,000 tons per year. A second AD facility is currently under construction by the city and should be operating within a year. Similar AD facilities have been authorized by Quebec City and Montreal, with additional facilities funded in the Province of Quebec.

Smartfarm Anaerobic Digesting System

A number of clients wanted to assess the

economic feasibility of the dry anaerobic digestion technology. Zero Waste Energy LLC is a San Jose, CA-based company that

Exhibit 3. General Assumptions for Pro Forma Model		
Variable	Value	Comments
Base year	2014	Costs estimates were made in current 2013 dollars and escalated based on the inflation factor identified below.
Inflation Rate—Annual Escalation (for energy, labor, and waste collection)	3%	Based on recent Federal Reserve Board guidance
Waste Received (tons per year)	5,000	Approximately 3,500 TPY per year are available from Tribe facilities; an additional 1,500 TPY of similar organic materials were assumed to be attracted from the Albuquerque market region
Retail Rate of Tribe Electric Power	\$0.085/kWh	Billing records provided by the Tribe
Electric Production	270 kWh/ton	Estimated from information provided by AD developers
Financing Cost	Interest Rate: 3.35% Term (Years): 40	US Department of Agriculture
Tipping Fee	\$30/ton	1,500 tons per year based on SCS preliminary market survey
Sale of Digestate	\$0.00	Regional markets to be developed with maturation of project
Annual Operating Costs (\$)	5% of Capital	Estimated from information provided by AD developers
Annual Capital Repair and Replacement	1% of Initial Capital	Estimated from information provided by AD developers

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holds the exclusive US license to construct and operate the German “SmartFerm” AD technology developed by Eggersmann Group of Germany. This “proprietary” SmartFerm technology is widely utilized in Europe and is currently being used in a pilot AD facility in Marina, and one under construction for the city of San Jose.

The unique characteristic of the SmartFerm system is that it is modular (Exhibit 2). Individual digester units are linked together above an underground “percolate tank,” which recirculates liquid from the digesters above. The AD process inside the modules creates methane gas, which is trapped inside a chamber that inflates above the digester. An engine generator consumes the methane gas as fuel to produce electricity.

The Marina AD facility became operational officially on March 8, 2014, when the first bay of the digester was filled. Since that time, all of the digesters have been filled, emptied, and refilled. During the AD process, biogas has been released filling the storage reservoir, which is located above the digesters. On April 2, 2014, the engine generator became fully operational, producing the full 100 kW of electricity. Accord-

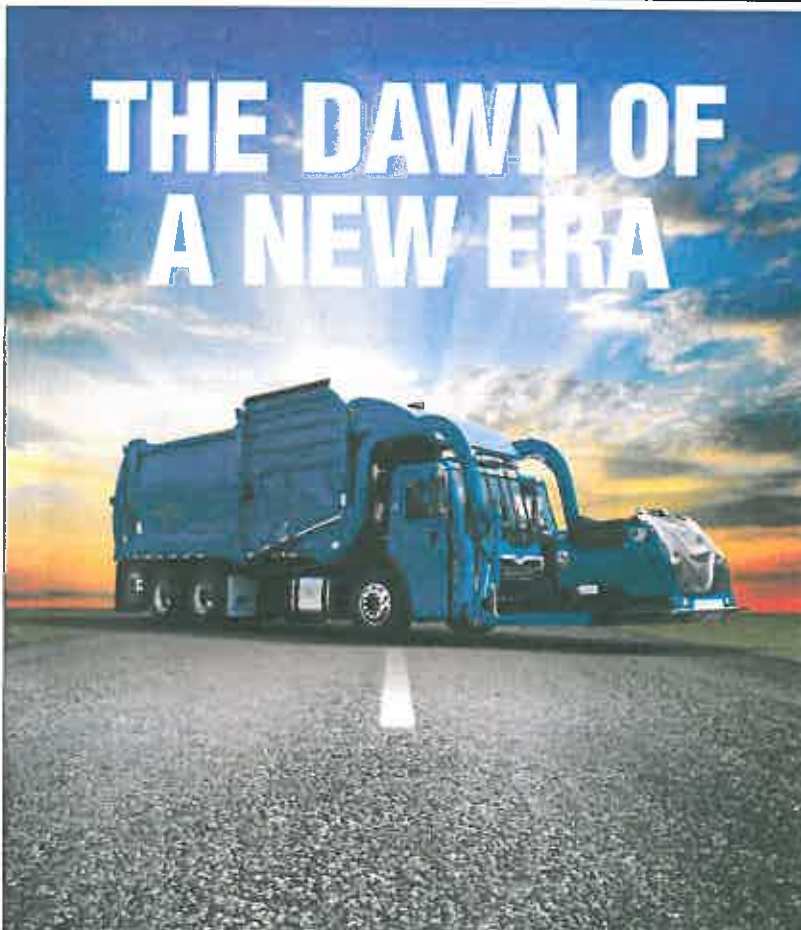
Exhibit 4. Pro Forma Model Summary

Items	2014	2015	2016
Revenues:			
• Electrical Production	114,750	201,215	363,416
• Avoided Solid Waste Collection and Disposal	131,440	230,481	416,274
• Digestate/Compost	0	0	0
• Tipping Fees	52,500	92,059	166,269
Total Operating Revenues	298,690	523,755	945,959
Operating Expenses:			
• Operating Costs	132,000	232,340	419,631
• Digestate Disposal	0	0	0
• Repair and Replacement	26,500	46,468	83,926
Total Operating Costs	159,000	278,807	503,557
Financing Expenses:			
• AD Facility Loan Interest	88,775	60,539	3,929
Net Cash Flow	\$50,915	\$184,408	\$438,473

ing to district officials, work continues to optimize the raw material mix and loading and unloading of the digesters to minimize odors, to achieve the best operational mix for the pilot facility.

Pro Forma Model General Pro Forma Model Assumptions

In order of the proposed project revenues, costs savings, and expenses, a number of assumptions were made, shown in Exhibit 3.



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Exhibit 5. NPV and IRR Values, Proposed AD Project

Scenario	NPV	IRR
Base Case	\$986,995	5%
Reduced Energy Output	(\$11,871)	3%
Increased Facility Size (10,000 tons per year)	\$1,660,387	5%

Economic Analysis Results

Revenues and expenses were projected over a 40-year operating period, and the net cash flow was calculated. The projected revenues and expenses for the 1st, 20th, and 40th (final year of the loan) years are shown in Exhibit 4.

A series of additional Pro Forma Model scenarios were constructed to assist in comparing the possible changes in NPV and IRR values (Exhibit 5). As shown, the Base Case and two additional Pro Forma Model scenarios provide positive NPV and a IRR greater than the cost of borrowing (3.35%); cash flows are predicted to be positive during the entire length of the proposed project.

Briefly, the internal rate of return on an investment or project is the “annualized effective compounded return rate” or discount rate that makes the net present value of all cash flows (both positive and negative) from a particular investment equal to zero. In more specific terms, the IRR of an investment is the interest rate at which the net present value of costs (negative cash flows) of the investment equals the net present value of the benefits (positive cash flows) of the investment.

Internal rates of return are commonly used by communities and companies to evaluate the desirability of investments or projects. The higher a project’s internal rate of return, the more desirable it is to undertake the project. Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first. These data provide important financial metrics to gauge this proposed project against others being considered. **MSW**

Marc Rogoff is project director with SCS Engineers in Tampa, FL.

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Energy From Waste

While the US is nowhere near Europe in the employment of WTE operations, those that are active are providing more than 2,554 MW of gross electric generating capacity.

BY CAROL BRZOZOWSKI

While waste to energy is the third-most-preferred municipal solid waste approach behind source reduction/reuse and recycling/composting, some 29 million tons of MSW—12% of total generated—were combusted for energy recovery in 2011, according to “Municipal Solid Waste in the US: Facts and Figures.” The Energy Recovery Council—a national trade organization representing the WTE industry and communities owning WTE facilities—in its 2014 report indicates that there are 84 WTE facilities in the US, of which four are inactive but may return to active service at a later date; one is under construction.

EPA depicts WTE as the conversion of non-recyclable waste materials into useable heat, electricity, or fuel through a variety of processes, including combustion, gasification, pyrolyzation, anaerobic digestion (AD), and landfill gas (LFG) recovery. After energy is recovered, about 10% of the volume remains ash and is typically landfilled. Mixed combined ash is used as alternative daily cover in landfills instead of soil.

Most WTE facilities combust special, non-hazardous wastes such as off-specification household products and goods that can't be recycled. All types of waste—except radioactive wastes—can be combusted in a properly designed WTE, according to the Waste-to-Energy Research and Technology Council (WTERT), founded in 2002 by the Earth Engineering Center of Columbia University.

Under sponsorship of the InterAmerican Development Bank, Columbia University's Earth Engineering Center created a 228-page guidebook (<http://bit.ly/1q8m1Y0>) discussing various waste management technologies. Nickolas J. Themelis, Director of the Earth Engineering Center and chair of the Global WTERT Council, says while the US is not as “environmentally conscious” as Europe, there are various levels of commitment state-to-state. He adds that there are basically two major approaches to WTE conversion in the US: the moving grate, which entails a mass burn approach, and RDF, which entails pre-shredding—with a third being a rotary kiln.

In grate combustion WTE, MSW bags and other wastes are discharged from collection vehicles into the waste bunker in a fully enclosed building, typically large enough to hold more than a week's feedstock. An overhead claw crane loads the solids into the feed hopper of the WTE furnace, and a ram feeder at the bottom of the hopper pushes the wastes onto the moving grate, which can be inclined or horizontal, and air-cooled or water-cooled. The mechanical motion of the grate and the gravity force in the usual case of an inclined grate slowly moves the bed of solids through the combustion chamber.

The high-temperature oxidation in the combustion chamber reduces objects as large as a big suitcase to ash that's discharged at the end of the moving grate. The heat contained in the combustion gases is transferred through the water-cooled furnace water wall and superheater tubes to the high-pressure steam that drives the turbine generator. The low-pressure steam from the generator exhaust can be used for district heating.

Combustion has been tested and proven with over 600 plants worldwide, says Themelis. However, capital costs in building such plants are

high, and the industry should search for ways to make them more productive, thus decreasing capital charge per ton of MSW processed. There are emerging technologies in China and northern Europe that seem less costly. A few technologies are showing potential for increased use.

The circulating fluidized bed process converts a bed of solids into a fluid by introducing a gas flow through the bottom of the bed. It is strong in China, where 40 plants have been constructed in the last 14 years. It is useful where there is a lot of food waste in the MSW.

Covanta's CLEERGAS (Covanta Low Emission Energy Recovery Gasification) technology is also on a fast track, says Themelis. “From a theoretical point of view, it can cut down the capital costs,” he says. “You produce a gas which you burn more efficiently in a second chamber, and you need less excess air.”

CLEERGAS converts unprocessed, post-recycled MSW into a synthesis gas (syngas), which is then processed for very low-emissions energy recovery. How it works: MSW, which does not have to be pre-processed, is subjected to high temperatures and reduced air on the gasification platform where it undergoes a chemical reaction creating a synthesis gas. The syngas is combusted and processed through an established energy recovery system, followed by a state-of-the-art emissions control system.

According to Covanta, the CLEERGAS advanced control system is proven in a commercial operating environment to yield predictable and stable syngas from variable MSW fed into the gasifier. It has been processing 350 tons per day (tpd) of post-recycled MSW and has demonstrated “superior reliability” at more than 95% availability. The CLEERGAS process is designed to require less air than waste combustion for higher energy recovery efficiency, reduced boiler fouling and corrosion, and minimal formation of pollutants. A standard 300-tpd CLEERGAS modular plant will produce 6–8 MW of clean, renewable energy.

Themelis says it's quite possible for different technologies to work side-by-side as long as a municipality can effectively separate the wastes into recyclables, compostables, and combustibles. The capital investment and ROI are major driving factors in WTE endeavors. One approach to affordability may be putting a tax on landfills like some European countries. “That provides a tremendous incentive,” says Themelis. “Europe has the carbon credit. When you take something from landfill to waste-to-energy, according to our estimates, you save from one ton, to a half ton of carbon dioxide, depending on the efficiency of collecting landfill gas. That would add to the value of waste-to-energy. Anything that produces energy at less carbon dioxide is more desirable and valuable.”

European countries are also phasing out landfilling. “China offers a \$30 credit per megawatt-hour of electricity generated by WTE plants. It practically doubled the value of electricity and the revenue the WTE plants get from electricity,” he says. “There has to be some kind of government policy to make WTE more competitive in the US.”

WTERT is studying the beneficial use of ash, he adds. “In the US, the ash—bottom ash and fly ash—is mixed and used beneficially as daily cover in landfilling, where every day, according to EPA regulation, you have to put six inches of soil on top of the waste disposed during

the day. The problem is: Where do you find that soil? People have gone to other things—like using ash, which is good as a daily cover. In Europe, they don't have much landfilling, so they're trying to use the bottom ash beneficially for construction."

Bruce Labno, recently retired senior consultant for Golder Associates who continues to consult, cites three factors in a WTE project's success. The first and second are tied into solid waste planning from the beginning: having the right materials and the transport of those materials. "You've got to get the right material, and you've got to get that right material to the right spot to be able to be processed," he says.

The third factor is if a specific technology can perform as needed to create the desired end product. "Generally, it's turned into a biofuel or biogas, or both," says Labno. "If you can get into a commodity at the end, it has to be further processed and transported. The 'game' is in how many times do you have to touch the material to be able to get it to what you're ultimately going to be selling to make money for the company."

The low-hanging fruit is the organic fraction: food waste and fats, oils, and greases (FOG). "That requires a solid waste management system in place to be able to isolate those types of materials so something can be removed and moved to another location for processing," he says.

For example, there can be 200+ different food waste technologies in Europe for AD. The technology needs to be appropriate to an MSW system—its size and cost of the desired process for the end product.

Labno's not a "fan" of gasification. "I have not seen it work effectively yet, and that's only because of my limited experience with it," he says. "Gasification can be expensive; it can be energy-intensive in itself. The chemistry depends on temperature pressure, what system you've got, and what you want to do with that. Usually, there's something more

cost-effective to do with the material than to gasify it to get whatever you want, such as electricity."

That leads to the end point of taking the end product to market, and how much fluctuation an operation can handle. "What is the capability of maintaining a good return on investment over a period of time?" he asks. "And by that, I mean selling the commodity."

In his Midwest location, electricity is less expensive than elsewhere in the country. "There are other factors, such as higher densities of population and warmer climates where solid waste doesn't run into cold things," he adds. "You get into all of these extenuating circumstances that come to bear on whether or not a given process would work."

Working with clients, he learns their desires and if they're willing to share some of the costs. "We can then share with them some of the liabilities and the hidden costs they might be missing." In his experience, 1 in 50 clients have a project that "potentially has a 50-50 chance of maybe, kind of, sort of making it."

Labno says that facilities colocating with other facilities with different feedstocks have a good chance at success. "The big dog in the business is Covanta, and they've done well. Each major city has had a facility that's been up and down, and around and through. The city of Ames, Iowa, is still managing theirs, and they were the first ones in the US."

WERT studies show the cost to a community to develop and build a WTE facility depends on several factors, but generally averages \$650 per annual ton. Since WTE plants have an overall availability of 330 24-hour days per year, on a daily basis the capital cost is about \$200,000 per daily ton of capacity. A WTE plant processing typical MSW will generate a net of 500–600 kWh per ton for use by the local utility. At the price of \$0.06 per kilowatt-hour, the revenues per ton of MSW would be

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\$30–\$36, according to WTER. And, WTER estimates that, in addition to capital charges, a 1,000-tpd plant would require 60 personnel, in addition to the costs of services, materials, supplies, and ash disposal. Many European Union plants cogenerate electricity (500 kWh/ton) and district heating (1,000 kWh/ton).

There are numerous economic benefits to WTE: the value of the electrical energy generated, the tipping fee paid by municipalities using the WTE facility, the value of the ferrous and non-ferrous scrap collected, the value of cogenerated heat used by adjacent industrial plants or for district heating, and the renewable energy carbon credits.

There are environmental benefits as well. Since WTE plants conserve fossil fuels by generating electricity, 1 ton of MSW combusted reduces oil use by 1 barrel (35 gallons) or 0.25 tons of high-heating value coal.

WTE facilities are primarily regulated under the federal Clean Air Act and the Resource Conservation and Recovery Act. WTE plants do not have the aqueous emissions that may be experienced in landfills and reduce the space required for landfilling by about 90%, says WTER. There are economies of scale to be considered in constructing a WTE plant, with larger plants resulting in lower costs per ton of processed MSW. In the US, most WTE facilities range 500–3,000 tpd.

Shovels are breaking ground in Canada for new WTE projects. In Vancouver (BC), creating waste from energy has been a priority for many years. In Richmond (near Vancouver), Harvest Power has owned and operated one of the largest permitted food scrap and yard debris composting facilities in North America using Covered Aerated Static Pile composting and odor control technologies with specially designed biofilters to produce hundreds of thousands of cubic yards of high-value compost-based products annually.

Harvest Power also produces renewable energy at the Richmond site through its Superpowered system. AD uses naturally occurring microorganisms to break down organic materials and produce biogas, a mixture of methane and carbon dioxide. The biogas is then combusted to produce renewable electricity, cleaned to pipeline natural gas standards, or further processed into compressed natural gas (CNG) fuel; Harvest Power does the former in Vancouver.

High Solids Anaerobic Digestion (HSAD) harnessing energy from municipal food scraps and yard debris had never been done in Canada on a commercial scale. In 2013, some 40,000 tons of organic waste materials were processed. Metro Vancouver had started removing organic waste out of the wastestream six years ago, notes Greg Moore, chairperson of Metro Vancouver. “Harvest Power had been accepting yard waste for many years, and we slowly added in kitchen scraps or organics waste to it,” he says. “Metro Vancouver came out with additional policies to ensure we were getting as much as we could of that feedstock out of the solid waste system. We had demonstrated to the marketplace that we were going to follow through with policies, but we needed the private sector to come forward with solutions on how to deal with the organic waste, because weren’t going to deal with it.”

Harvest Power made a \$19 million investment into the facility, he adds. “This anaerobic digester is the first of its kind in North America. They generate heat and electricity from it, sell it out into the marketplace, and the residuals are put back into the compost.”

Metro Vancouver creates regional policies around waste management. Individual municipalities are responsible for curbside collection. “Most of us have contracts with Harvest Power,” says Moore. “We have to pay them a \$45-a-ton tipping fee for our kitchen scraps and organics waste, but it’s a much lower rate than municipal solid waste at \$108 a ton, because they are able to sell some products off of it, which decreases the overall cost for us.”

Another energy initiative is in the works for Metro Vancouver. Its current WTE mass-burn facility handles about 1/4 the region’s garbage, generates enough electricity to power 16,000 homes, and recovers about 8,000 tons of metals annually. It has been in service since 1988.

Metro Vancouver earns about \$6 million annually from the sale of electricity, and \$1.4 million from the sale of recycled metal to a company that produces reinforcing steel. “We have some history with waste-to-energy, and have seen the results of it,” says Moore. “Today it is our lowest cost residual management source. Landfills are the most expensive.”

Because the landfill is reaching the end of its lifespan in 2015, Metro Vancouver had to revamp its solid waste management plan for a new WTE facility. “We hired international experts on solid residual management to look at every possibility, from landfill to MRFs, to waste-to-energy, and combinations of that,” he adds. “Our board came to the decision that the best way to deal with our residuals was to reduce the amount of garbage that people were creating in the first place, and then recycle as much as out of the system as we could.”

Some 10 of the 22 technologies that submitted to Metro Vancouver’s Request for Quotation phase in 2013 met the entity’s criteria of commercial, energy, and environmental viability. Of those 10 technologies: six are incinerators, one is a cement kiln incinerator, and three are gasification. Metro Vancouver is now seeking sites for the facility and will select three technologies to bid on the final contract, with expectations of breaking ground in 2015, Moore says.

Brandon Moffatt, senior VP of energy for Harvest Power, says his company’s AD technology not only deals with organic wastestreams of food and green waste, but also FOG, biosolids, and, in some cases, construction and demolition material. It’s embraced in markets looking to capture GHG reductions or reduce the transportation costs around the wastestream, he says. “In the Northeast, as well as on the West Coast, the organic fraction of the wastestream makes up a considerable portion of that. You’re seeing municipalities and states looking at policies that would separate out the organic fraction from the MSW stream and look to process that material in close proximity to where it’s generated to allow for methane capture and ultimately renewable energy production.”

In addition to the Vancouver facility, Harvest Power also has two facilities: in London (Ontario, Canada) and in Orlando (FL). “You have to have the right economics to allow for the projects,” says Moffatt. “A policy needs to be in place to stimulate the diversion of the organics out of the wastestream, and then there has to be a processing fee that people will pay us to handle that material. We focus on the East and West Coasts, because they pay higher processing fees. There also has to be an incentive for the utilities to take on the type of energy we produce.”

There are opportunities for various technologies to work side-by-side, he points out. “We’re seeing more diversion. Municipalities are looking for residents to separate the materials in the MSW stream.”

The end goal on the East Coast is producing renewable energy as well as lowering the costs of hauling the heavy organic waste, says Moffatt. “On the West Coast, it’s more about greenhouse gas [GHG] mitigation. Organic diversion is one way to reduce methane and produce energy, which is a much better situation for the environment.”

Enerkem’s thermochemical process converts MSW into biofuels and chemicals through a four-step process that consists of feedstock preparation, gasification, cleaning and conditioning of syngas, and catalytic synthesis. The company’s primary focus is the commercial production of cellulosic ethanol, which first requires the production of methanol as a chemical building block. Enerkem can sell its methanol as an end product or use it as a key intermediate to produce other renewable chemicals. The process is designed to use relatively low temperatures and pressures,

reducing energy requirements and costs. Its first commercial project is the Enerkem Alberta Biofuels Facility in Edmonton (Alberta, Canada).

According to the company, the plant is the world's first major collaboration between a metropolitan center and a waste-to-biofuels producer to turn municipal waste into methanol and ethanol. It's part of a waste-to-biofuels initiative in partnership with the city of Edmonton and Alberta Innovates Energy and Environment Solutions. Edmonton is supplying MSW that has been pre-treated and converted into RDF, and Enerkem is running the plant. "That RDF gets fed to our gasification system, and then thermochemically converted into methanol, and eventually ethanol," says Tim Cesarek, senior VP of Enerkem.

The facility's commissioning plan was completed during the summer, with biomethanol production taking place during startup. A module converting the biomethanol into advanced ethanol will be added in the end of 2015. "Eventually, the plant will take in 100,000 bone-dry tons of refused derived fuel and convert that into 10 million gallons, or roughly 38 million liters of ethanol," he says. "One ton of refuse derived fuel produces 100 gallons of ethanol. It's the same kind of ethanol that ultimately gets blended into our fuel stream in North America. Our ethanol qualifies for a cellulosic RIN [renewable identification number] as the next generation form of ethanol. That will be blended into the fuel stream as an oxygenate."

The realization, 25 years ago, that the landfill was full and the city was unable to site another, triggered an effort among city officials to pursue waste diversion and recycling activities, says Christian Felske, general supervisor with waste management services for Edmonton.

Cesarek adds, "Their next best alternative was to export the waste outside of the city to the closest landfill, which was orders of magni-

tude further away than their existing landfill, resulting in an increase in disposal costs."

As a result, Edmonton embarked upon a strategy to divert MSW streams away from the landfill. "They started down the path of a curbside program that included single stream recyclables and then garbage," he says. "The garbage goes through an integrated processing and transfer facility where the organic material is separated off and composted."

The two measures took the city up to 60% of waste diversion for Edmonton's residential wastestream. "About 12 years ago, we looked at different technologies for the residual 40%," says Felske. "The goal of this project is to take the non-recyclable and non-compostable wastestream and convert it to a higher-value product."

City officials considered more than 100 different types of technologies to process the residual stream not being recycled or composted into something useful. Ranking those technologies, with the assistance of consultants, they chose to work with Enerkem. For the next 25 years, Enerkem will produce ethanol from RDF. A refiner will take the ethanol to a blending facility to be blended with gasoline, and then it will go to a filling station or retail station. Use of the technology will raise Edmonton's diversion rate to 90% in 2016, says Felske.

GHG reduction is a major project benefit, Cesarek says. "Our ethanol has 60% less greenhouse gas emissions than gasoline. It is a very clean process, in that we have a tremendous amount of flexibility in how we manage our gases downstream." Another benefit is "the growth of the circular economy," he says. "There are a number of multiple commodities that, ultimately, can be separated from the wastestream and resold, but there are some that either become too contaminated, or may not have a market. We have the ability to take products that ultimately are

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non-recyclable or have exhausted the recycle stream and convert them to another end use, whether that be transportation fuel or a chemical.”

Such chemicals find their way into products used for packaging items. “What’s driving our municipalities to look at our facility broader than the relationship we have with the city of Edmonton is very similar dynamics where landfill lives are at their end, incineration lives are at their end, or they’re finding that our approach can lower their overall disposal costs because of the added value of the end product we produce,” says Cesarek.

Edmonton is also developing a project for its organic wastestream using AD technology to produce a biogas, which will be converted to power and heat onsite. Construction is to begin in the summer; the facility expects to be fully operational in the second quarter of 2017.

Granger Energy Services provides a number of MSW-related services, including solid waste and recyclables hauling, landfill operation, and recycling. Additionally, Granger Energy Services is involved in renewable energy from LFG. The company has 13 electric plants and 4 direct use projects in Michigan and other parts of the country, with other projects under development. “The energy side of our business focuses on direct use, medium BTU-type projects where we deliver gas directly to our customers for their use, or conversion to electric. Sometimes it’s both,” says Granger COO Joel Zylstra, adding that the company has standardized with Caterpillar engines.

L&S Sweeteners in Leola, PA, will deliver the electricity that’s not used to the utility grid. The LFG feeding the process comes from a combined 21-mile gas pipeline from Republic Services’ Conestoga Landfill in Morgantown, PA, and Chester County Solid Waste Authority’s Lanchester Landfill in Narvon, PA. The LFG collection operation provides energy to 7 businesses, with the 2 plants producing 10,000 standard cubic feet of methane per minute.

The gas extracted from the landfills is sent to a compressor station for processing and used as a fuel source for electric power generation provided by two Caterpillar G3520C generator sets at the Honey Brook Generating & Gas Compressor Station, operated by Granger Energy Services. They have the capacity to produce 3.2 MW of electricity. There are also two others at the Zook Generating Station to supply onsite electric power to L&S Sweeteners, and parent company Zook Molasses.

Zylstra says by having the generation equipment onsite, the project also enables the company to have waste heat directly available

onsite. “We typically use turbines or reciprocating engines, both of which produce large amounts of heat. More of the energy value from the gas comes out as heat than it does electricity. The majority of the energy is there to be captured, so with the installation of heat recovery steam generators, they can tap into the waste heat stream and produce the stream they need, and then not have to purchase any gas to produce steam.”

That offers efficiencies from the gas stream that’s only feeding the engine generator. “That’s where we’re at with our projects—how can we tap into and utilize the waste heat from combustion and commercialize that,” he adds.

Granger’s online numbers electrically are above 98%, he states. “How we configure our systems is if we have to go down for maintenance in that small amount of time, the grid will continue to feed them automatically. From a reliability standpoint, it doesn’t affect the customer typically because our online times are so high.”

Location is important in a project, explains Zylstra. “If you’re going to tap into the waste heat stream, proximity to the heat use is going to be fundamentally successful. It’s not going to be cost-effective to have an electric project, and then have a waste heat user that’s miles away. It has to be at that customer’s location, or whoever is in need of the heat.”

Consumption is another critical factor. “If the customer has a need for a little bit of heat, but not a lot, it’s going to be economically difficult to justify the cost of installing the heat recovery steam generators in producing that just because it costs millions of dollars,” says Zylstra. While there is value in doing something because it’s environmentally friendly, “at the end of the day, it has to make financial sense to get involved with a project like this right out of the gate,” he says.

In southern California, CR&R Environmental Services expects to complete in the first quarter of 2015 the first phase of an AD facility in Perris. CR&R Environmental Services provides recycling and waste collection services to more than 2.5 million people and 50,000 businesses in Orange, Riverside, Los Angeles, San Bernardino, and Imperial counties. The project’s first phase will convert more than 80,000 tons per year of municipal organic wastes into Renewable Natural Gas (RNG). Three additional phases will convert more than 320,000 tons of organic wastes into RNG and generate the energy equivalent of 4 million diesel gallons, making it one of the largest projects of its kind in the US at full buildout, says John McDowell, sales engineer for Eisenmann,

which has installed the HSAD system.

The German company is an international supplier for environmental, renewable energy, and manufacturing systems. “Based on research, we felt they were the most robust and applicable to our application,” says Mike Silva, civil engineer and project manager for CR&R.

CR&R collects curbside green waste and food scraps from its southern California MSW customers. The source-separated material will undergo a proprietary sorting process to provide conditioned organic material to feed the anaerobic digester, which converts the material into biogas. The gas is upgraded to produce RNG for use in CR&R’s natural gas collection vehicles. The first phase will generate enough RNG to fuel about 70 collection vehicles. Subsequent phases will enable CR&R to inject RNG into the Southern California Gas Company pipeline.

The HSAD system features a continuously fed, horizontal plug flow design for maximum biogas production, a high degree of consistency, and full automation. The gas cleanup system is supplied by Greenlane Biogas of New Zealand. The system will use water scrubbing and other advanced technologies to clean raw biogas to required specifications for vehicle fuel or pipeline injection.

Silva says he’s confident that the company can get the biogas cleaned to the stringent California pipeline standards, and in doing so, be the first in the state to accomplish it.

Not only will CR&R be producing its own fuel for its fleet, but it will also generate revenue streams from the co-products: solid and liquid fertilizers. “Grant funds allow the state to seed projects that will ensure the success of California’s ambitious organic waste diversion goals,” notes Paul Relis, senior VP of CR&R.

The operation’s first phase received \$5 million in grants—\$4.5 was from the California Energy Commission and \$500,000 from the South Coast Air Quality Management District. Future phases depend on the outcome of state grants for which CR&R has applied from the California Energy Commission and CalRecycle. J.R. Miller & Associates has provided the architecture and engineering services, and W.M. Lyles the construction management services.

McDowell says CR&R’s feedstock is the primary driver for the project’s projected success, adding that feedstock and energy prices can “vary quite a bit” from region to region. More value can be derived at the backend by combining technologies, such as AD to produce fuel and composting equipment to create nutrient-rich soil amendments, he says.

In 2008, Atlas Disposal Industries—which

provides waste and recycling services in Sacramento, CA—began buying CNG for its collection services. “The fleet was aging and we had an opportunity to replace trucks,” says Andrea Stephenson, general manager of Atlas ReFuel, a wholly owned company of Atlas Disposal that serves as a fueling station.

CNG technology was attractive to the operation on several levels. “The major one is that gas is significantly less expensive than diesel,” she adds. “The technology had been advancing to the degree where we had a certain level of confidence in it.”

At the same time, Sacramento County had put out RFPs for an innovative WTE project on an old transfer station site, she says. Atlas Disposal partnered with CleanWorld technology for an AD facility for the Sacramento site and completed the project in 2012.

BioCNG LLC, an affiliate of Cornerstone Environmental Group, helped develop a BioCNG system for CleanWorld’s Sacramento BioDigester at the site. The facility converts 25 tons of food waste per day, which is collected by Atlas Disposal Industries from various sites, into renewable natural gas, electricity and heat, fertilizer, and high-quality soil amendments. The BioCNG system uses about 100 scfm of gas from a food waste digester, which yields up to 450 DGE per day in fuel.

Atlas Disposal uses the BioCNG to fuel the company’s clean-fuel fleet and area vehicles through its first AD-based renewable natural gas fueling station. “We don’t own a landfill, so we don’t have an economic interest in putting any material in a landfill,” says Stephenson. “In addition, we would like very much to have the residential franchise. We thought this would be a good opportunity to differentiate ourselves.”

It was a risk, she says. “In the beginning, people thought we were crazy. But the technology is very viable and is commercially proven.”

Atlas ReFuel draws three types of gas products. First, fossil-based “blue gas” comes from the PG&E pipeline. Second, nominated “green gas” is landfill/organics-based gas cleaned up from an out-of-state landfill that’s of pipeline quality, so it can go through the PG&E pipeline, Stephenson says. “The third, and most important, one is the renewable natural gas that comes from the CleanWorld system. That gas goes directly from their digester system into the BioCNG system, and then it goes uncompressed into some storage containers that I have onsite. The system is designed to pull that gas—as soon as it hits a certain pressure, it will pull the RNG first as priority.”

CleanWorld provides a thermophilic HSAD technology in a small footprint with a three-

stage design using food waste for production of clean, renewable energy for a number of industries, including waste management. CleanWorld’s AD systems operate at thermophilic temperatures of 122–140°F, designed to result in faster processing, reducing the size of the digester required and destroying pathogens in the waste so residual materials are safe for use as compost and organic soil amendments. The modular system is designed to be operational in four to six months and features remote monitoring capabilities.

Operations well-suited for the technology

are those with a high volume of high solids food waste and organic waste, says CleanWorld Vice President of Marketing Tracy Saville. “They know that they want to have a closed-loop project. We generate our own electricity for the operations of the entire facility. We’re looking to site our facilities in locations where the food waste and organic waste is close to the source of the facility.”

Innovations in the technology are based on work by Professor Ruihong Zhang, UC Davis. “She’s done some simple but important innovations in AD that makes it scalable

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and cost-effective for food waste, and one of those is this high-rate, high-solid capability,” notes Saville, who also point out that end users desire a sustained high-temperature solution to maximize the production of methanogens, microorganisms that produce methane.

Organic Waste Systems constructs and operates AD plants designed for organic fraction of MSW, offering biological WTE conversion, says Norma McDonald, North American sales manager.

The first digester was installed in 1992 in Belgium and has been fully operational since. The company is in the permitting phase for a large commercial project in California. McDonald says that in the company’s European installations, the technology is placed alongside of thermal conversion technology to get the most beneficial use of MSW.

In the 1990s, Wolf Material Handling Systems designed, engineered, and supplied a complete fuel handling system, a 4,300-tpd MSW/RDF process/power generation plant in Michigan still operational today. The system entails MSW receiving horizontal and inclined apron conveyors to primary shredders, a conveyor system from primary shredders to primary trommel screens, ferrous metal separation/densification, conveyor systems to secondary shredders, secondary trommel screens to storage, and a truck loadout for ferrous metal and residue. It also includes RDF horizontal and inclined reclaim apron conveyors, transfer conveyors from fuel barn to boiler house, diverter gates and transfer conveyors to three metering bins, three metering bins with feed chutes to three boilers, and an ash handling system from boilers to truck loadout.

“We had never done anything to this scope and magnitude, and, at that particular point in time, the metering bins we designed to feed the RDF into the boilers were the largest ever built,” says Steve Nelson, the company’s general manager.

Wolf Material Handling Systems, a division of Hoffman, designs and manufactures industrial bulk material handling systems and equipment for a number of industries, including resource recovery. Since then, some improvements have been made to the system, including the installation of low-speed shredders. “The advantage to that is you don’t have the explosive hazard that you had before,” says Nelson. “That’s been a great innovation in the technology of preparing the material.”

Front-end material recovery has also been improved. “This particular plant had ferrous and non-ferrous separation as an integral part of it, the extent of which was unusual at the time,” he says. “Now we’re doing it to a much greater extent, and we’re able to extract a lot of those materials from the stream before we process it to become RDF. We see a lot of operations that want us to design systems that separate the ferrous and non-ferrous metals from the ash stream before they take it to the landfill.”

The company is noting a rise in the number of operations utilizing mass burn technology. “They take the waste, dump it out, and run it through a stoker and a boiler,” he says.

The desire to recover waste that might have been missed has become more significant. “We’ve also looked at processes and systems that go into the landfill, trying to reclaim the metals and usable materials out of that after it has been sitting there and composting for a while,” he adds.

According to Energy Industry Lead, Matt Clark at RRC Power & Energy LLC, Maple Grove, MN, the company has executed multiple projects for Wasatch Integrated Waste Management District (WIWMD) at their Energy Recovery Facility (ERF). The ERF generates renewable energy through the combustion of MSW. The waste burns at a temperature high enough to convert water into steam, which is used by Hill Air Force Base to heat base facilities, among other uses.

Electricity is generated from the steam;

enough to power site operations with a portion sold to PacifiCorp. WIWMD is investing in capital improvement projects in preparation for another 20 years of operation. RRC is executing preliminary engineering tasks to establish options for additional energy production and engineering services for the implementation of a MSW processing and recovery system prior to the WTE plant. The initial effort was to establish the facility condition and requirements for another 20 years. In parallel and in conjunction with Chevron Energy Systems, RRC executed preliminary engineering tasks to establish options for additional energy production. RRC is providing engineering services for a specific combustion system modification.

Wolf Material Handling Systems has seen a significant increase in requests to develop systems to do in-feed, the front-end handling of material for gas fires and gasification processes. “They go on to either producing gas or liquid fuels. A lot of those are very unique because everybody has a process that does something a little bit different,” says Nelson. “Some of them want the wet organics in there, and the other ones want them out. There are technologies that are out there that allow you to do that where they couldn’t five or 10 years ago.”

He observes more operations treating trash as fuel sources. “I know a lot of waste processors that, instead of going directly to a landfill, are setting up tipping floors where they are doing some recovery of curbside waste before they process it and take it to the landfill, whether that’s due to regulation, or due to an opportunity to realize extra revenue.”

The system Wolf Material Handling Systems designed and installed for the Detroit client 20 years ago now generates about 68 MW from MSW delivered from Detroit and the surrounding area. It’s owned by Detroit Renewable Power, the city’s energy-from-waste facility, a subsidiary of Detroit Renewable Energy.

Harlan W. Martin of Martin Machinery says the green energy industry has been a growing field for more than 30 years. “In the past, units were often shipped as skid-mounted units with the radiators and the switchgear shipped loose. The typical site had the unit and the switchgear installed inside a building. The radiators were mounted outside of the building. The paralleling switchgear, which electrically locks the generator unit to the electrical utility, was often in a separate temperate controlled room. This required an electrical and plumbing contractor to install the total system. Then, the vendor would then come to the site to do a commissioning startup.”

Martin Machinery’s Electric Power Generator systems are driven by internal combustion engines designed to burn waste gases and typically configured as systems in the past, he says. “They have varied in size from 40 to 1,300 kilowatts. These units are designed to parallel to the electric utility. This allows for the benefit of the stability of the utility and allows selling power back to the utility.”

Felske offers advice to municipalities considering WTE technologies based on his own experience. “We did some very intensive waste characterization studies looking at our waste—what is in it—and we looked at technologies out there which work with similar wastestreams,” he explains. “The landscape of technology is changing rapidly. There are always new companies, new technologies. Look around, see what works, what doesn’t, and what has operational experience.”

And, he believes it’s worth the effort. “There are a lot of resources in waste; there is energy in waste. There are products from waste, and the further we get along with these types of technologies, the better it will be for tomorrow.” **MSW**

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Biomass plant closures affect farmers

Issue Date: April 22, 2015

By Christine Souza



Chris Lange, standing by a toppled citrus tree at his farm in Woodlake, says he needs a chipper company to come to remove downed trees. The chippers take the wood waste to a biomass energy plant, but plants have been closing due to changes in the energy market, leaving Lange and other farmers with fewer options for disposing of orchard waste. Photo/Cecilia Parsons



A downed citrus grove awaits removal in Tulare County. The closure of biomass energy plants has reduced demand for the wood waste generated by orchard and timber operations in California.

Photo/Cecilia Parsons

With utilities choosing not to renew contracts with biomass power plants and plants closing as a result, fewer facilities remain to process orchard waste and other biomass—leaving growers looking for solutions.

Tulare County farmer Chris Lange has about 80 acres of uprooted citrus and olive trees that he needs to have cleared and chipped. Lange said he is waiting on a chipping company, which has not yet received approval from biomass plants to bring the orchard waste in to be processed into electricity.

"We have been waiting for the chipper to come and it is just not happening," Lange said. "I understand that the contracts for the chippers by the cogeneration plants are not being renewed. We (in the San Joaquin Valley) have more permanent crops being pushed out than ever, and this leaves everybody hanging."

The root of the problem, according to Executive Director Julee Malinowski Ball of the California Biomass Energy Alliance, is 25- and 30-year contracts between biomass plants and utility companies that were established in the 1980s. Those contracts are now expiring and not being renewed, forcing biomass plants to close.

"The contracts were set for the first 10 years at a very high, fixed price to get the facilities built, and then the price would fall off into a market price. No one ever anticipated that the market price would be as low as it is because of the price of natural gas," Malinowski Ball said. "Utilities will continue in some instances—but not all—to recontract, but they can't recontract at a price that is so above market right now."

Karen Norene Mills, California Farm Bureau Federation associate counsel and Public Utilities Department director, said there is "widespread acknowledgement and support for the extensive benefits attributable to biomass generation facilities," but that the ongoing challenge is how to monetize the benefits.

The development of biomass energy in California was stimulated by the Biomass Development Program, which provided long-term support, funding or seed money, according to the California Energy Commission. The commission cited expiration of government price support to the biomass sector as the main reason for a reduction in biomass power generation in California, which peaked at 800 megawatts in the early 1990s.

About two-dozen direct-combustion biomass facilities currently operate in the state, with many of those subject to closure as contracts with utility companies expire.

Consultant Matt Barnes of Grid Subject Matter Experts said a number of plants "have shut down or will be shut down in the next few years when contracts expire, because they just can't get a high enough rate from the market to justify continuing to operate."

The California Biomass Energy Alliance points to environmental benefits of biomass such as reducing carbon emissions, diverting waste from landfills and reducing the demand for fossil fuels as reasons for maintaining the plants' viability. According to the alliance, California biomass plants dispose of an estimated 8 million tons of waste per year and cut carbon dioxide emissions by 1.5 million to 3.5 million tons annually. Together, the plants produce 565 MW of electricity, enough to power more than 420,000 homes.

"We have lower energy prices, we have expiring contracts and we have an industry that is not only a renewable generating facility providing benefits to avoid fossil power generation, it is providing a whole host of other environmental and economic benefits," Malinowski Ball said. "There needs to be a cost-share mechanism developed to help the plants survive."

Steve Brink, California Forestry Association vice president of public resources, said electricity produced from natural gas costs 2-6 cents per kilowatt, whereas biomass power costs about 10 cents per kilowatt.

"With no direction from state government to pay the known environmental benefit, what would you expect the utility to do?" Brink said. "The state has not provided any direction of where this (biomass) needs to go. There's 1 million, bone-dry tons just in the Northern California forests on both public and private lands that is piled up and burned, now that there's no place to take it."

With orchard growers pulling out and replacing older trees with young trees in an effort to conserve water during the drought, and with fewer biomass plants operating, "the problem is now amplified," Brink said.

"As the contracts or power purchase agreements expire on plants on the valley floor—which almost 100 percent get their feedstock from crop agriculture—crop agriculture is not going to have anywhere to take it (orchard waste)," he said. "This is going to become a major problem for crop agricultural waste in the San Joaquin Valley particularly."

Because there are specific restrictions on agricultural burning, farmers have fewer options for managing waste in many of the state's air districts.

Timber operators, who are not located in the Central Valley and are not under the strict state air quality requirements related to agricultural burning, are allowed to pile and burn forest waste. However, Brink said, "The research is well established on the benefits of controlling combustion of wood in a boiler vs. out in the open and piled and burned."

Kern County farmer Greg Wegis said if this issue is not resolved, San Joaquin Valley farmers would likely be spending several hundred dollars more per acre to have orchards cleared.

"We have our orchards removed for \$100 to \$200 an acre now, and if the cogeneration plants close it could cost us \$900 per acre plus removal, which could cost another \$900 an acre if we have to go to landfills," Wegis said, "or we may have to figure out how to incorporate wood chips into our soils onsite if plants close. This is all an extra expense to growers."

Tulare County citrus farmer Lange said removing his old trees is the first step needed before he can plant new trees.

"We've got young trees in a nursery that we anticipated planting this spring and we're just sitting around waiting," he said, adding that the tree removal is only one step in the replanting process. "When you have the trees chipped and then the chips hauled off, then we still have to rip the soil, do leveling, put in new irrigation, add berms and then plant."

(Christine Souza is an assistant editor of Ag Alert. She may be contacted at csouza@cfbf.com.)

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WHITE PAPER

FREE REPORT



Toward Zero Waste: Opportunities and Challenges

FORESTERMEDIA

The Zero Waste International Alliance offers this definition: “Zero waste is a goal that is ethical, economical, efficient, and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water, or air that are a threat to planetary, human, animal, or plant health.”

In the summer of 2014, *MSW Management* magazine published an article titled, “Counting Down to Zero.” The idea was to go to the experts in the waste industry and see how they define “zero waste” and ask: “What is it really? Is it achievable? And is it relevant?”

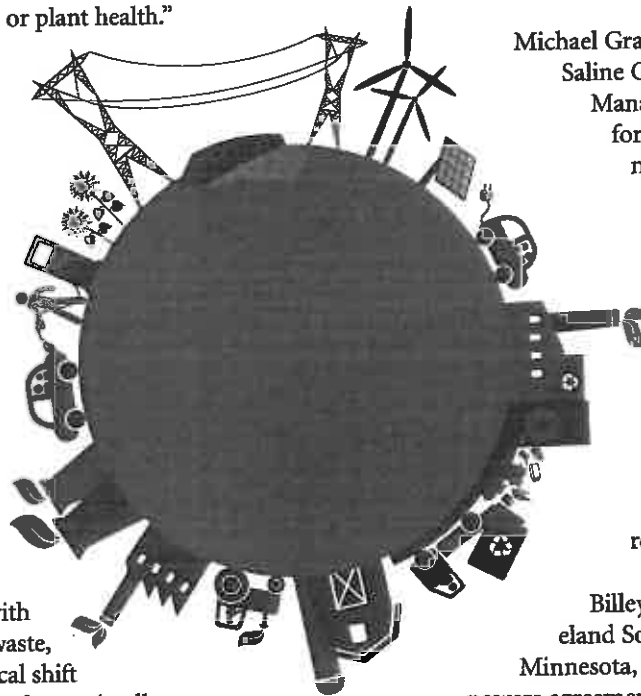
The answers depend on the particular solid waste manager with whom one speaks, and the location of the operation. State and local regulations are part of the mix, as are regional practices. “Zero waste sets a clear direction for reducing waste to the highest degree possible, consistent with the global movement towards zero waste, while also encouraging a philosophical shift towards considering the elimination of waste in all design and planning decisions throughout the organization,” says Sharon Howland, waste and recycling manager for the town of Cochrane in Alberta, Canada.

Her town can achieve zero waste by focusing on reducing its environmental footprint by minimizing the amount of waste that must be landfilled through waste reduction, reuse, recycling, redesign, composting, and other actions, she says.

“The Town of Cochrane Zero Waste Framework, in harmony with the Cochrane Sustainability Plan, will allow us to achieve our zero waste goals through continuous planning and flexible and responsive program implementation,” says Howland.

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Los Angeles is one region that places itself in the zero waste camp, looking to implement it by 2025. In 2006, the Los Angeles City Council adopted Recovering Energy, Natural Resources and Economic Benefit from Waste for L.A., also known as the RENEW LA Plan, which states: “The goal of Zero Waste... is to reduce, reuse, recycle, or convert the resources now going to disposal so as to achieve an overall diversion level of 90% or more by 2025, and to dispose of only inert residual.” Los Angeles Sanitation’s (LASANs) Solid Waste Integrated Resources Plan (SWIRP) is the city’s roadmap to implementing zero waste by 2025.



Michael Grappe, executive director of the Saline County Regional Solid Waste Management in Benton, AR, says for his district that zero waste means “nothing goes into the landfill; everything is reused or recycled.”

“We also believe that we should not waste our energy resources but conserve them through educational programs, thus achieving zero waste in energy,” he adds. “The same is true about our natural resources.”

Billee Rabbe, director of Prairieland Solid Waste Management in Minnesota, which operates under a joint powers agreement with Faribault and Martin counties, says, “Zero waste, to me, means we try to look at another way of utilizing the waste in the counties, making it easy for people to get rid of what they don’t want and trying to think through the process of how can it be best recycled or reutilized in the world today.”

At her operation, the focus is on refuse-derived fuel (RDF), which is shipped to Xcel Energy’s facility in Mancato, MN, to create electricity.

There are other solid waste managers who regard zero waste from another point of view.

Jeff Schneider, deputy director of public works for the city of Red Wing, MN, says he views zero waste as “an idealized goal that is not realistically achievable at this point in time.

“The people who have this goal have this idyllic sense that processes can be changed and products can be recovered from the waste 100%,” he adds. “It’s a great dream, and I think people should have dreams, but I live in reality and I have to work and deal with reality. The fact is that some materials don’t have a market for recycling. Some materials have no redeemable value.”

Companies that generate materials are not going to willingly do product stewardship initiatives across the board, Schneider contends, “And sometimes the cost of recycling outweighs the good it does,” he says.

John Helmers, director of environmental resources for Olmsted County, MN, calls zero waste a “very laudable goal” that has yet to be achieved.

“Before we can have a society where we’re not producing anything that is of a waste nature and everything is being reclaimed in some fashion, we think we have a pretty efficient, affordable way of getting to that as close as we can right now with our integrated system,” he adds.

Perhaps one of the biggest critics of the term zero waste is Jim Warner, chief executive officer at the Lancaster County Solid Waste Management Authority in Pennsylvania.

“I know it’s a big term in the industry,” he says. “It’s not part of the vernacular or part of the goals here. As an operating waste authority, we try to achieve what our mission is, and that’s to recycle what we can and to minimize our use of the landfill.”

LCSWMA has an aggressive household hazardous waste program and uses waste energy, diverting 98% of waste from the landfill. “We focus on results,” says Warner. “We don’t get hung up on terms.”

And there are some solid waste managers who question the very definition of zero waste. Among them: Marc Bruner, chief administrative officer of the Solid Waste Authority of Palm Beach County in Florida.

“Zero waste is an interesting subject because as you read

about it and hear about it, it seems like there are different interpretations,” says Bruner. “I don’t know that there is one consensus in south Florida as to what zero waste means, but I’ve seen it mean a whole spectrum—all the way from the collection side to what is it that goes in the landfill.

“I have heard some members of the environmental community describe zero waste in the context of zero waste generation, that people are no longer throwing things away that go for disposal. I’ve heard it as zero waste going into a landfill. I’ve also heard it described in the context of zero waste going into a landfill that hasn’t been processed or had value recovered from it.”

Bruner also has heard zero waste described as recovered materials taken from a landfill and combusted.

South of Palm Beach County is Miami-Dade County, where Paul Mauriello serves as assistant director for waste operations and attended the first zero waste conference in Los Angeles several years ago.

“It was a hot topic,” recalls Mauriello. “What is it? Is it all possible? One of the things that is of most concern to us is that we own and have a long-term contract operator for our waste-to-energy plant. That’s the hub of our disposal system here for the county.

“We’re going to be doing waste energy for an extended period of time. The question was: Does that qualify? Some people said, ‘Of course it does. And some people adamantly said, no, that has no place in zero waste. I don’t know that that issue has ever been resolved.”

Mauriello agrees with his peers that there is a problem defining zero waste.

“Does it mean everything is divertible? Everything can be taken and made into something useful or repurposed somehow? Some of the problem we see with that is that once things get combined together, it’s very difficult to get them back apart again,” he says. “Unless you’re going to source separate materials in a very rigid way, it’s going to be very difficult to get to zero.”

But for those involved in Miami-Dade’s operation, “Zero waste is at the center of what we do,” notes Mauriello. “In all likelihood, we’ll continue to do that for the foreseeable future.

We've embarked recently on a master plan project to look at what the next 50 years holds for waste management here. That option of energy recovery may or may not be in the long-term mix, but it's something we're still interested in."

As far back as nearly a dozen years ago, there were doubts about the feasibility of actually achieving zero waste. Richard Mauck is a former president of the Solid Waste Association of North America (SWANA) International, as well as a long-time public administrator and consultant. Mauck seemed to place the chances of achieving zero waste at zero.

In an article for the March/April 2003 issue of *MSW Management*, Mauck said that changes in the solid waste field, as in other areas of our modern industrial society, are driven by economics and politics, neither of which is currently supportive of a zero-waste concept. Today's modern economies are based on manufacturing, production, consumption, and service that depend on the use of raw materials, the formation of waste materials, and products with short life spans. If zero waste is to be achieved, it must be included as a goal at all steps in the process, especially the first.

Economics drives the choice and manner in which raw materials are extracted and utilized and/or the use of recycled materials. Economics also dictates the reuse or discard of production, postproduction, and postconsumer waste materials. Economic support for zero waste can only be realized when the cost of raw materials and waste disposal greatly exceed the cost to retool and use recycled materials. This economic condition does not currently exist as the general supply of raw materials is perceived as reasonably unlimited, qualities and quantities of recycled materials are limited, and landfilling is the lowest-cost permitted waste disposal option.

The current progress toward zero waste has only been achieved through political mandates, new regulations, and taxation, which have increased landfill tipping fees, waste disposal costs, and percentages of recycled product procurement requirements. These changes created new economic conditions favoring the use of more recycled materials. Without further political influence, the economic conditions will reach equilibrium, and progress toward zero waste will go no further.

How far can product procurement requirements go on the road to zero waste? The problem is that many of the current manufactured products have physical limits to the possible

amount of postconsumption recycled-content material that can be used. Ultimately, products that can be completely consumed or that consist of essentially 100% recycled content will be required to achieve zero waste. Again, the motivation for change will be political mandates, new regulations, and taxation (in the form of advance disposal fees), which will increase the postconsumer recycled content; change production, manufacturing, and packaging processes; and potentially eliminate the product. The economic impact and resistance to change in this area might be insurmountable in terms of political resistance from raw materials producers, manufacturers, and the associated business community and consumer resistance to increased costs, quality changes, inconvenience, and loss of products.

With some current raw-material suppliers and manufacturers determined to keep the status quo, resist change, control the marketplace, manipulate consumer demand, and possess capital funds to ensure things stay this way, can change occur? Do the consumers have the will to demand and resist, in a united front, undesirable products and packaging? The issues are challenging ones.

Could our nation and the world develop the political will to change from our current petroleum-based economy to a renewable resource-based one? Only when petroleum reserves become scarce and economics favors renewable resources will zero waste truly be achievable. Perhaps then it will be said that garbage and solid wastes are relics of the past.

After questioning whether zero waste is achievable, there are the questions of practicality. Who shoulders the responsibility of converting the world to lead lives of zero waste? Is this a waste management challenge? Or is it a matter of public policy? Those questions were asked as recently as the June 2011 issue of *MSW Management*.

In that article, it is reported that SWANA is the organization that represents the mainstream of the public solid waste professionals in this country and abroad. It promotes professional management practices in the field of solid waste, and there is still a long way to go in this endeavor. As far as zero waste was concerned, SWANA has offered sustainable and zero waste sessions at its numerous conferences, but has never organized a sizable gathering on this topic until February 2011. SWANA devoted a full conference to the concept of zero waste at its "Thinking Outside the Blue Box: the Road to Zero Waste" in L.A.

Indeed, there are many issues to be worked out between the zero waste movement and the mainstream in the waste industry profession. But there is no doubt that many of SWANA's members are increasingly going to have to consider the ramifications of zero waste in their planning and management strategies. Where, for instance, do conversion technologies fit in zero waste management strategies? What are the financial ramifications to a solid waste system with diminished waste? Will local governments be able to implement zero waste programs using 20th century bureaucratic models, or will they have to develop something new? Will the zero waste movement continue to evolve and expand, or will it alienate potential supporters, shrink, and become a subset to some other ruling paradigm? There is even the topic never to be mentioned—the Voldemort element inevitable to any competing organizational movement—which group, zero waste or SWANA, will gain hegemony over the professional corps of public solid waste servants? In his public presentations, Eric Lombardi—who has been one of the handful of people at the heart of the zero waste movement for the past 20 years, and in 2011 was the director of Boulder, CO's Eco-Cycle Inc.: a nonprofit plus 10 (the amount of profit) organization that had 60 employees processing 57,000 tons a year through its materials recovery facility—makes a point to say that zero waste is “an intense, high-quality, all-encompassing policy for dealing with social issues and not an integrated solid waste management strategy.”

There is a moral imperative among zero wasters that separates them from mainstream solid waste professionals. The mainstream primarily focuses on the delivery of solid waste services, whereas the zero waste proponents desire to transform cultures by moving them from consumerism to sustainability.

Many people make the mistake of describing the zero waste movement as simply recycling in a new suit when, at its heart, it is about the totality of the world's resources and their allocation. We are at a critical time, they believe, because the world cannot sustain humanity's sheer numbers and consumption. Richard Anthony, along with Lombardi, has helped to spearhead the national strategy for zero waste and states this in a more personal manner: “We don't want to apologize for polluting water, air and/or wasting resources for our children.”

In 2008, the Global Footprint Network announced its belief that human consumption of resources as calculated through their studies of resource consumption in 201 countries that humans are consuming a third more of the earth's capacity

than the planet is capable of sustaining. We, in other words, are running a resource deficit that cannot be sustained. It would be, however, a mistake to believe that the folks at SWANA do not believe that they, too, are helping to move toward sustainability, but it is also true that they are primarily focused on end-use services, which is a critical difference between the two camps.

Perhaps there is no place better to find more heat than light between these two camps than on the topic of waste to energy (WTE). In nearly every description of zero waste in this country, one will find that zero waste prohibits incineration even if it were to create energy. The definition of zero waste created by the Zero Waste International Alliance (www.zwia.org) states the following:

Zero waste is a goal that is ethical, economical, efficient, and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use.

Zero waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them.

Implementing zero waste will eliminate all discharges to land, water, or air that are a threat to planetary, human, animal, or plant health.

Many of the zero wasters are technologically suspicious and remember watching reports of large corporations dumping toxics illegally into the environment. The first generation of WTE facilities did have their problems, proponents of WTE facilities argue, but the ones operating now are safe. Much of the science seems to support this.

The burning of resources one time to produce energy falls short of the higher goal of zero waste, which is to “conserve and recover all resources.” Proponents of WTE facilities point out several things. WTE and recycling are compatible. Jurisdictions that operate WTE facilities in this country, on the whole, recycle more than communities that do not. Studies performed by Jonathan Kiser in the 1990s and by Eileen Bereyni in 2009 support a consistent fact that jurisdictions with WTE “have an aggregate recycling rate at least five percentage points above the national average.”

One director of applied research at SWANA says, “WTE reduces greenhouse gas [emissions] significantly by avoiding the combustion of fossil fuels, recycling additional metals not targeted in curbside programs, and avoiding landfill gas emissions.” Many of the people who oppose WTE are, in fact, proponents of other conversion technologies, such as composting, anaerobic digestion, and gasification.

Rick Brandes, a former United States Environmental Protection Agency (USEPA) official, who then became a consultant, laments that the US expends “energy to create commodities, and then throws over 60% of it into a landfill” each year. The US, he says, is “very far away from a zero waste system” and “landfills the most MSW in the world...despite the conservation and waste elimination goals of the Resource Conservation and Recovery Act” (RCRA) of 1976. Considering the sheer volume of our nation’s trash, Brandes suggests that we should give more emphasis to diverting this volume away from the landfills to something that “provides a significant and positive carbon savings; provides partially renewable energy that can qualify for state renewable standards portfolios...without the need for extensive new transmission lines, more quickly reduces landfilling to the lowest possible level and extends the lives of existing landfills by 80% to 90%, and replaces energy from fossil fuels thereby contributes to the reduction of environmental impacts from mining.”

Looking at how the others in the international community of waste are doing with the intention of keeping as much out of the landfill as possible, Brandes turned to Columbia University’s Earth Engineering Center’s “Sustainable Waste Management Ladder,” which ranks countries waste management system by the amount that is landfilled. Climbing the ladder, Brandes says, one sees that the countries that landfill the least have done so by a combination of recycling and WTE.

Another argument falls in line with many non-zero wasters, but with a twist. Lombardi says WTEs are “extremely expensive...and are built large in an attempt to lower their operating costs and generate large revenues to pay back the big investment made to build them.” This line of reasoning suggests that WTEs must be fed larger and larger amounts of waste to sustain their costly habit. They are, in other words, waste strategies that are “too big to fail.”

Lombardi’s questioning of the financial concerns of WTEs is certainly not a complaint limited to those within the zero waste movement. Many members of SWANA can be heard

questioning the financial feasibility of WTE given competing inexpensive landfill costs in the US. A capital intensive and financially leveraged WTE must certainly maintain a level of trash to burn so as to pay the bills. Yet, there are examples of solid waste systems using WTE to generate electricity while improving both their financial outlook and diversion numbers.

In Oregon, Marion County’s Environmental Services is one such solid waste jurisdiction using a WTE, and it has the highest diversion rate (57%) in the state of Oregon—a state that prides itself on counting real tons and not abstractions based on assumptions calculated with a three-dimensional abacus plus bonus points. The county’s long-term objective has been to develop a solid waste “system that is environmentally sound, technologically feasible, cost-effective, locally controlled, and publicly acceptable—and that provides for an overall reduction in long-term per capita waste generation and toxicity.”

The county built its WTE facility in 1986 and has sent approximately 185,000 of its annual 500,000 tons of waste generated to the WTE to be converted to electricity and sold. “When we built the facility,” says Bill Worcester, director of solid waste for the county, “it did drive up the tipping fee from virtually nothing, to \$67 per ton, but the facility’s debt was paid off in October 2008; the tipping fee did not increase since we opened the WTE; competing landfills in the area now have similar tip fees; and our facility is paid for.”

The Marion County WTE did not become a smoking Leviathan, demanding to be fed ever more trash, sucking the life force from progressive programs; but, rather, a consistent consumer of set tons generating electricity and revenue while progressive recycling and other diversion tactics in the county grew between 1986 to present, becoming the recycling flagship of the state. The county believes it is “working along the path toward zero waste and searching new ways to continue to push that diversion percentage up,” says Worcester. Both strategies, WTE and zero waste, have the same common enemy: low landfill disposal costs. Cheap landfills diminish the chances of initiating progressive activities. Marion County bit the political and financial bullet when it built the WTE and dramatically raised the tipping fees. Zero waste programs compete with landfill tip fees, which are the same obstacle to making a WTE financially feasible.

This competition with cheap disposal rates, Lombardi says, is a failure of the market to adequately account for the full cost

of our discarding habits. Lombardi believes this is “dishonest economics”, because it does not take into full account the long-term costs of emissions, greenhouse gases, and “ecosystem destruction from virgin resource extraction, compared to using recycled feedstock.” Since the market has failed, Lombardi believes, the pricing of these services must be a social issue, because we need to look after what is best for society in the long run. This appears to be the same reasoning reached by the leaders in Marion County back in 1986 when they decided to build a WTE facility.

Will the zero waste camp and SWANA come to an agreement on the concept of WTE? They will not if both sides continue to see the other as monolithic in their positions. In the United Kingdom (UK), there are two zero waste organizations that are separated on exactly this issue. One is led by Mal Williams, who is a founding member of the Zero Waste International Alliance Planning Group and has worked with Lombardi and Anthony to promote zero waste ideals. Williams says, “... It is fair to say that [the zero waste movement in the UK] consisted of two distinct camps—one leading on anti-incineration and one rejecting that stance... [with] many people attending both camps.”

Williams supports the notion that thermal conversion technologies are viable strategies to achieve zero waste. Ralph Ryder, however—whose personal history includes seeing workers physically debilitated in 1974 from plumes emitted by a hazardous waste incinerator and being appalled by the lack of response by regulators and politicians to these problems—is the director of the Zero Waste Alliance in the UK and opposes WTE.

Just as in the UK, it seems reasonable to suspect that not all members of SWANA believe WTE is a viable strategy, and also probable that zero wasters are not monolithically against this technology. In 2008, the California Resource Recovery Association (CRRRA) awarded the actor Ed Begley Jr. its Recycler of the Year award for all the fine education he has done on resource conservation. In his acceptance speech to approximately 800 attendees, he talked about the future and the possibility of using trash to create electricity. This author, who was in attendance, estimated that a third of the attendees applauded in support of that statement. Was this a sign that, at least conceptually, proponents of zero waste are open to thermal conversion technologies?

The financial question for many solid waste practitioners when thinking about zero waste is: How does a jurisdiction fund a solid waste program when it receives nothing to bury? Zero wasters point to localities that have implemented such goals and appear to financially survive. The Del Norte Solid Waste Management Authority in the northern coastal area of California that buttresses Oregon has long been touted as one of the earliest jurisdictions to proclaim a goal of zero waste. The current tip fee in Del Norte is \$120 and change for MSW and construction debris. Del Norte had found itself with a landfill that it had to close, then having to transfer the trash 120 miles up Highway 1 and across the Pacific Coastal Range of mountains to Dry Creek Landfill in White City, OR. The cost of the transportation is high, thereby creating a financial incentive to divert material.

“Zero waste made political sense,” says the director of the Del Norte Authority, Kevin Hendrik, “because it was a financial plan.” The authority contracted out the hauling and transfer station operations to a local contractor, Hambro WSG, whose manager, Wes White, says diverts “2,250 tons of material from the total tonnage (20,750)” that crosses the scales over the course of a year. Once the materials cross the scales, Hambro WSG takes ownership of them and has implemented a financial incentive plan to encourage workers of the transfer station to divert material out of the trash, thus eliminating the need to haul the material to the landfill but still getting paid by the authority for each ton that passes over the scales.

The incentive is that the workers “receive a percentage of all sales of recyclables recovered after deduction of the direct expenses other than labor,” says White. The transfer station implemented an idea provided to them by a team of consultants, including Anthony, Neil Seldman, and Gary Liss, to have a price incentive to have customers separate their material at various stations at the transfer station and to have an eco-store, operated by the contractor, across the street from the transfer station to sell material back to the public for reuse. Del Norte’s situation fits nicely with a zero waste goal because of its high cost of disposal. Yet, as once can see from the numbers of tons diverted, there is much more to be done.

San Francisco’s zero waste program is well known, but its solid waste financial situation is not. It has a disposal contract based on 15 million tons of capacity or 65 years, whichever comes first, with Waste Management’s Altamont landfill in Livermore, CA. Once that volume of material is used up,

the city must negotiate a new disposal price, which it is currently doing, as it sends 1,800 tons of trash to the landfill each day. San Francisco has a financial incentive to conserve that cheaper capacity. The city is also a closed system because of a 1932 refuse collection and disposal ordinance giving a company monopoly status. This company, now called Recology (formerly NorCal, which in turn was formerly Sunset Scavenger and Golden Gate Disposal), provides the recycling and trash collection service and pays the city for the privilege. This money helps pay for the city's environmental staff that is used to initiate the zero waste programs.

Neither San Francisco nor Del Norte have reached zero waste or are even close to doing so, but both have significant financial incentives to implement such strategies. Can the same be said for the majority of solid waste systems in our country? Attendees of the zero waste conference heard calls from a diverse group of people, from zero waste advocates to a scrap dealer, for mandated upstream and downstream actions funded by producers of goods. Funding, in other words, that comes from someplace other than the tip fee. Would such mandates mean a change to RCRA as Brandes says? Or can it be performed by individual cities legislating actions directed at producers of goods as is currently being attempted by the city of San Francisco? The funding mechanism for a real zero waste program is outside the normal bureaucratic model of our body politic.

WTE and financial support of zero waste are issues and problems that can be agreed upon or not and still the members of SWANA and zero waste movement can work together on other matters. Lombardi's view that zero waste is something other than integrated solid waste, however, may be a gulf too far to bridge between these two camps. Robert Gedert, former executive director of the fortress of Zero Waste, CRRA, and now director of the city of Austin's Solid Waste Services Department, puts the issue clearly: "The integrated waste management model was an attempt to integrate recycling and composting into the pre-existing structure of waste collection, thus making recycling mainstream. Zero waste moves past that, focusing on upstream, midstream, and downstream waste generation. To really reach zero waste, it must be a collaborative role. Local government is the keystone to that collaboration. With local government fully involved in zero waste, the task is to bring all the stakeholders together in a unified mission, with each player a full partner. This is a radical shift for local government—solid waste departments must now view all waste haulers, all private recyclers, and all waste generators as partner at the table. This is also a radical shift

for waste haulers, who view local government as competition...we all need to drop the shields of territorial warfare and move toward cooperative efforts where each player has a major role toward zero waste."

How does a local government implement, manage, track, and coordinate among such work tasks as upstream activities of producer responsibility, economic development using recycled material, and downstream services of handling post-consumer material, while still knowing what all limbs of the body politic are doing and supposed to be doing?

When supporters of SWANA were asked about the notion that some of the zero wasters believed the integrated waste management model was not as relevant as it used to be, there was a sense that this was something they had seen before. A "new fad, same story" attitude came across in the interviews. But certainly, as the combination of pressures to cut governmental operational expenses because of decreasing government revenue and increasing concern over greenhouse gas emissions continue to build, government management will be looking for new ways to handle more services at less cost. Melding the works of a sustainability officer with an environmental planner and resource waste service provider may be the way of the future, or not. SWANA must be a part of this conversation—a conversation about the shape of public management of resource sustainability.

As the zero waste movement continues to take hold politically as it did in Austin, solid waste managers are going to have to respond in practical ways to political officials—in ways that speak to the challenges of zero waste and management of traditional downstream services and upstream realities. SWANA continues to examine planning and management in this manner, and, hopefully, it will build upon this success by developing policy guidelines and a definition for zero waste for its members.

Achieving the goal of zero waste may take the infusion of a younger generation. Paul Sgriccia, a principal engineer at Golder Associates and US leader in for the Waste Management industry, wrote about it in the January/February 2014 issue of *MSW Management* magazine.

He says that you could stand at the back of the room at any solid waste industry seminar, and you would likely see a room full of senior waste professionals. What you won't see is a large number of young professionals from the solid waste field in attendance. Where are the young engineers and scientists to carry the torch?

The 1970s ushered in a challenging and exciting time in the waste industry with the introduction of federal legislation, specifically, the Resource Conservation and Recovery Act (RCRA) of 1976. RCRA included Subtitle C and Subtitle D regulations that addressed hazardous waste and nonhazardous solid waste, respectively. Careers in the waste industry skyrocketed. In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund, which included requirements concerning closed and abandoned hazardous waste sites. All of these new regulations begat new technologies, which impacted waste facility siting, construction, operations, closure, and post-closure. Thus began a time of significant innovation in the waste industry. Today, these technologies have matured, and observers question whether the waste industry has settled into a comfortable state. On the contrary, we see new “upstream” waste practices by generators, new waste management innovations presented in the form of increased recycling and waste conversion, diversion from landfill disposal, organics collection and treatment management, landfill-gas-to-energy, public-education programs to reduce solid waste at the source, and more attention to manufacturing processes and product life cycles. Many in the industry embrace these new approaches to waste management and believe the next generation can build on these growing innovations. Can the solid waste industry offer challenging and rewarding careers to attract a workforce to lead it into the future? How do we attract and retain young scientists and engineers for the changing waste industry? Here are some ideas on how to make it happen.

First, build employee skill sets needed for the future. As the waste industry continues to evolve, needed core skills are being evaluated. When asked about sought-after employee skill sets, an executive in the waste industry responded, “The new waste industry needs chemical engineers who understand the garbage business.” This need for greater variety in experience addresses new technologies involved in waste conversion, anaerobic digestion of organic wastes, biomass conversion, and industrial processing required to separate recyclables. In addition to traditional skills in geotechnical and civil engineering, we see a growing need for skills in economics, waste planning, public education, and even social media to convey the “3Rs” theme.

Next, mentor, support, and grow your junior staff. Mentoring young talent in the work force will lead to continued growth

of new approaches to waste management. Take the time to engage your junior staff, and seek their opinions and concerns about current projects, their place in the growth of the company, and how they are doing in general. Find out what keeps them inspired, satisfied, and interested in future projects. Pay attention to the things that can lead to greater career satisfaction: flexible schedules, advancement opportunities, ability to telecommute, etc. Quality time devoted to young talent reaps tremendous rewards.

In 2011, SWANA initiated the Young Professionals event at WASTECON in Nashville. People under 35 were paired with senior professionals to network, share industry trends, and career development strategies.

Finally, design attractive career paths. Surveys show that the millennial generation (born between 1979 and 2001) is one of the most socially and environmentally conscious groups in our society. As an industry, we can benefit from that environmental consciousness by highlighting the diverse aspects of solid waste, recycling, energy-from-waste, and other green aspects of our work. By presenting an attractive career path in environmental stewardship, recycling, innovations in waste conversion technologies, and energy from organics management, it is possible to compete for the best in the talent marketplace.

Visibility at the academic level also builds interest in the field. As senior professionals, we have a responsibility to share insights about the future of the industry with students as early as high school and into college and university levels. Attending and presenting at career events, environmental competitions, and job fairs, along with providing scholarships and offering summer internships, demonstrates the attractive nature of the solid waste industry.

The waste industry of today is more dynamic and diverse than ever before. Senior waste professionals need to adapt and respond to these changes if they want to attract and retain top-notch young professionals in our industry. Mentor your junior staff. Find out what challenges and inspires them, and then support them as they face those challenges and forge a path to the future of the solid waste industry. That future is sure to include the quest for zero waste.

