

***Solid Waste Industry Group  
Solid Waste Industry for Climate Solutions***

***California State Association of Counties  
County Sanitation Districts of Los Angeles County  
League of California Cities  
Monterey Regional Waste Management District  
Orange County Waste and Recycling  
Republic Services, Inc.  
Rural Counties' Environmental Services JPA  
Waste Connections  
Waste Management***

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Via Internet: [http://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=draft-update-sp-ws&comm\\_period=1](http://www.arb.ca.gov/lispub/comm2/bcsubform.php?listname=draft-update-sp-ws&comm_period=1)

**Subject: Additional Comments - Waste Management Sector Plan for the 2013 Scoping Plan Update**

Dear Ms. Nichols and Ms. Mortensen:

Thank you for the opportunity to provide additional comments on the proposed Scoping Plan elements related to the Waste Management Sector that has been prepared by CalRecycle and the California Air Resources Board (ARB). The Solid Waste Industry Group (SWIG) and the Solid Waste Industry for Climate Solutions (SWICS) – referred to herein as the Coalition – represent a cross section of local governments and private companies that have financed and built much of the solid waste management and diversion infrastructure in the state. Our goal is to work collaboratively with CalRecycle and ARB on the 2013 Scoping Plan Update (SPU) to achieve a practical, feasible, and financially sustainable framework for greater waste diversion and additional greenhouse gas (GHG) reductions from the Waste Management Sector.

The Coalition previously submitted comments on July 12, 2013, voicing our concerns with elements in the draft Scoping Plan related to the Waste Management Sector. Several Coalition members were in attendance at the CalRecycle September 17, 2013, Waste Sector public meeting held at the California Environmental Protection Agency (CalEPA) Headquarters and the more recent overall ARB workshop held on October 17, 2013, also at CalEPA Headquarters.

On October 8, 2013, several members of the Coalition met with CalRecycle and ARB staff to discuss our earlier comments and our concern that the issues raised by us had not been addressed in subsequent versions of the Waste Sector White Papers. We appreciated the opportunity to receive further clarification from staff.

We now understand that the Waste Sector White Papers will not result in any specific measures or mandates in the SPU. Rather, the Waste Sector White Papers will be an appendix to the SPU. We also understand that the White Papers are “works-in-progress” and will not be revised. However, staff did indicate that they will consider proposed modifications to the Waste Management Sector Implementation Plan. The Coalition has attached to this letter, as Attachment A, our recommended changes to the Implementation Plan.

We are providing these additional comments to ensure that our comments are part of the administrative record and to help inform both CalRecycle and the ARB as the SPU process moves forward.

We are also providing the ARB and CalRecycle with an updated analysis of landfill methane recovery studies. In our July 12, 2013, comment letter, we voiced our concerns about the data used to draw conclusions about CalRecycle’s and the ARB’s estimates of GHG emissions from landfills. After the submission of that letter, SWICS completed its own analysis of methane collection efficiencies, incorporating relevant data from the CalRecycle analysis and recent data from California landfills. This information is provided as Attachment B to this letter.

For the reasons described above, we reiterate our concerns and provide additional information pertaining to the importance of addressing these issues.

**1. Landfills are an essential public service with little ability to control the amount of waste they must accept.**

It is important to recognize that landfills only accept those materials that are not feasible to reuse, recover or recycle – unless otherwise prohibited to dispose by law, such as hazardous waste. Recognition that landfills provide an essential public service appears to have been largely ignored in the Scoping Plan. There is some discussion of landfilling trends and increasing incentives for composting and recycling in the revised documents. However, this discussion fails to account for the essential public service aspect of landfills and the societal benefit of providing safe and secure disposal for the incoming waste stream. While landfills are the management mechanism of last resort and the public expects their waste to be able to go to a secure landfill -- if there is no other diversion alternative. There is a societal benefit for that waste to go to a landfill and not be illegally dumped). Landfills are designed, constructed and operated to insure protection of public health, safety and the environment, including minimizing

GHG emissions. Landfills only receive discards of society that are not physically or economically separated and reused or recycled.

There was discussion at the public meeting about changing the economics of disposal. More specifically, the ARB staff discussed generating revenue from the Cap-and-Trade Program (C&T) to develop infrastructure for waste diversion programs. However, this discussion apparently presupposes the inclusion of landfills under C&T and ignores the essential public service provided by landfills. Landfills are not suitable candidates for C&T, no more than other essential public services such as wastewater treatment facilities. Furthermore, GHG emissions from landfills are well under control – as the evidence provided herein and attached demonstrates.

**2. The Scoping Plan and supporting documents overstate GHG emissions from landfills while ignoring the waste management and recycling sector reductions that have already been achieved.**

The Overview and Scoping Plan present a biased view of the Waste Management and Recycling Sector by ignoring the substantial reductions in GHG emissions that have historically occurred and are ongoing to this day. The documents claim a need and ability to further reduce GHG from landfills without recognition that the sector has already reduced emissions below 1990 levels *unlike any other sector*. The Overview and Scoping Plan seeks an additional 20 million to 30 million metric ton of carbon dioxide equivalent (MTCO<sub>2e</sub>) reductions from the Waste Management and Recycling sector that had only 9.42 million MTCO<sub>2e</sub> of emissions in 1990. To achieve this goal of emissions less than zero, the ARB and CalRecycle have shifted reporting boundaries and methods to come to an apparently inconsistent conclusion that a sector, to which no emission sinks have been credited, could have net zero (or net negative) emissions. In the process, the ARB and CalRecycle have missed or failed to recognize real and substantial emission reductions from the Waste Management and Recycling sector of 2.42 MTCO<sub>2e</sub> *compared with the 1990 baseline*. The Waste Management and Recycling sector in 2011 reported GHG emissions totaling 7 MTCO<sub>2e</sub>, *a more than 25 percent reduction from the 1990 baseline*. Furthermore, the ARB and CalRecycle expect to capture their 20-to-30 MTCO<sub>2e</sub> reduction from a source that – in addition to the 2.42 MTCO<sub>2e</sub> reduction from baseline that has already occurred -- will achieve another 1.5 MTCO<sub>2e</sub> in reductions through implementation of the Landfill Methane Rule (LMR). The Waste Management Sector is the only sector that can claim to have reduced emissions from the 1990 baseline, and *in fact reduced emissions by more than 40 percent* (after implementation of the LMR). Yet CalRecycle/ARB look to the sector to reduce emissions still further – by seeking to include lifecycle emission reduction that are outside the GHG emission boundaries of this sector.

Coalition members have provided comments on the *Measured and Modeled Methane Emissions at Closed MSW Landfills without Gas Collection* (2012) (Avoided Landfill Emissions Report) document used by CalRecycle/ARB to derive landfill emissions in the Scoping Plan. In addition, we are providing with this comment letter an analysis performed by SWICS, titled *California Landfill Methane Control Efficiency Based on Recent Direct Measurement Studies* (SWICS Analysis), as Attachment B. Our analysis is in response to the Avoided Landfill Emissions

Report, and answers a call in the Scoping Plan and the Avoided Landfill Emissions Report that additional analysis of landfill emissions is needed. The SWICS Analysis reevaluates landfill methane collection rates of California landfills based on direct landfill emission measurements in comparison to default estimated emissions from landfills.

The SWICS Analysis improves on the Avoided Landfill Emissions Report by including more California landfills, more California climates, consistent evaluation methodologies, and more inclusion of sites with comprehensive gas collection systems that could be expected to meet LMR requirements. These changes represent significant improvements from the Avoided Landfill Emissions Report that included a number of questionable assumptions including the following:

- A limited number of wet climate California landfills,
- Mixed and mismatched flux and first order decay (FOD) modeling methods, and
- Data from a landfill that must undergo significant modification (i.e., improvement) of its methane collection system to meet the requirements of LMR.

The SWICS Analysis finds that avoided landfill emissions are 0.056-0.144 MTCO<sub>2</sub>e per ton, significantly lower than prior estimates in the Avoided Landfill Emissions Report (0.41-0.59 MTCO<sub>2</sub>e/ton).

The Waste Management Sector should be credited with its accomplishments in GHG emission reductions, and the ARB should accurately account for the sector's direct emissions.

**3. The suggestion to impose a cap on landfill GHG emissions after reductions have been achieved through both voluntary and regulatory actions will unfairly disadvantage landfills in the GHG allowance market.**

With the adoption of the early action measure to reduce landfill methane emissions, landfills can do little more to reduce emissions, so would have no choice but to close or buy allowances. And, even when the landfills close, the methane emissions will continue to be generated from the existing waste in place, and the newly generated waste may continue to create GHG emissions based on whatever technology is chosen to manage the waste. It is simply inappropriate to keep burdening this sector with more mandated emission reductions considering the significant reductions achieved to date and the stringent regulations to which landfills are now subject.

The draft Scoping Plan suggests that the ARB staff “propose a comprehensive approach for the most appropriate treatment of the Waste Sector under the C&T program based upon analysis of emission reduction opportunities.” The Overview states that 2020-2035 is the timeframe for new direct regulations or C&T requirements, while the Implementation Plan states that the review will be done in 2014. The timeline for the discussion is unclear, and it is unclear that industry will have any input into the process. Most important, there has been no discussion of why any source that has achieved significant reductions prior to AB 32 (see discussion above) and has

complied with an Early Action Measure (LMR) would be a candidate for C&T. The Solid Waste and Recycling industry has accomplished steady and significant GHG reduction since the 1970s – far more reductions than any other sector. C&T should be reserved for source categories that are well above their 1990 levels and have not been subject to significant command and control regulations. Future actions directed at lowering GHG emissions from the waste sector should focus on successful implementation of the Mandatory Commercial Organics Recycling Law (MCOR) and similar policies to divert organics. We would appreciate the opportunity to work cooperatively with the ARB and CalRecycle with such efforts.

**4. CalRecycle and the ARB appear to be using inconsistent comparisons of direct emissions to lifecycle emissions and reporting boundaries that result in critical flaws in the Scoping Plan and its conclusions.**

The emission calculation boundaries used to establish emission reductions proposed in the Scoping Plan are critically and technically flawed. The Scoping Plan calculates lifecycle emission reductions that are compared to annual GHG emission inventory values. This comparison does not demonstrate that the emission reductions associated with the Waste Management Sector are real, achievable or verifiable. Reductions in the Waste Management and Recycling Sector should be compared with the 1990 baseline emissions, which is the baseline for all reductions required by AB32. The inconsistent boundaries and timeframes used by the ARB to calculate emissions make it impossible to compare of direct emissions calculated for the 1990 baseline and lifecycle emission estimated in the Scoping Plan.

A fundamental concept of GHG accounting is that emission reductions must be “real”, “measurable” and “verifiable”, and not a result of a change in the calculation methodology or reporting boundaries. The ARB and CalRecycle have already defined the boundaries of GHG inventories in establishing the 1990 annual baseline GHG emissions. By moving the boundaries from the baseline calculation to the current emissions estimates stated in the Scoping Plan, the ARB and CalRecycle have artificially and inappropriately projected the waste management sector’s ability to reduce emissions. Because the ARB employs inconsistent baselines and boundaries, the projected emissions reductions will not be real, measurable or verifiable. In fact, many of the GHG reductions included in the ARB’s and CalRecycle lifecycle assessment will occur in other sectors (e.g., energy, transportation, manufacturing) – not in the Waste Management Sector. This will invariably lead to double counting of emission reductions.

The 1990 baseline emissions were calculated as an annual GHG inventory inside California. As such, landfill emissions were calculated as methane emissions from the landfills themselves. Emissions associated with waste management, such as transportation and electricity use, were attributed to their respective sectors as part of the total fuel or power use in California. For example, the 1990 baseline includes carbon storage in landfilled wood as part of the forestry sector, where the carbon is removed from the atmosphere. In all cases, the emissions are calculated for an annual basis. In all cases except electricity, the emissions calculated for the 1990 baseline scenario include only sources in California. No indirect benefit of California’s recycling and composting is included in the baseline, except those benefits indirectly included as part of other sectors’ emissions.

The Emissions Reduction Factors (ERFs) in the Scoping Plan emission reduction calculations for composting and anaerobic digestion uses boundaries that are completely incompatible with the 1990 baseline boundaries. For example, the composting ERF of 0.66 to 0.95 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) per ton of material composted includes lifecycle emissions, which will not all occur before 2020 or even 2050, the target dates for GHG reduction goals. Furthermore, the Scoping Plan extends the boundaries of the analysis well outside of California. The composting ERF includes emission reductions from changes in carbon storage in soil and soil erosion that were not included in the 1990 baseline inventory. The ERF includes a factor for reduced fertilizer and herbicide use based on the assumption that less synthetic fertilizer or herbicide will be manufactured. However, if less fertilizer or herbicide were manufactured in California, the associated reduction emissions would be captured by other sectors in the inventory, and the ERF will double-count reductions. If the reduced fertilizer or herbicide production occurs outside of California, California would be claiming credit for emissions reductions that occur in other states and were not in the 1990 baseline.

The ERF also includes increased emissions from transportation that would be captured in the transportation sector GHG inventory. Problems also arise because the ERF fails to increase emissions for the forestry sector due to assumptions regarding the amount of wood removed from long-term sequestration for the forestry sector. All indirect benefits of composting and recycling were not accounted for in the 1990 baseline calculations, while they were included in the ERF to show GHG reductions in the Scoping Plan. By mixing boundaries and sectors, reductions *appear* in the Scoping Plan; but upon examination, these so-called reductions are not real, measurable or verifiable and should not be counted against the baseline.

Table 1, below, illustrates how the ARB and CalRecycle have substantially changed the boundaries and methods of the 1990 baseline inventory in the Scoping Plan. Table 1 assumes that compost would primarily be used inside California. If compost were used outside of California, emission reductions associated with carbon storage in soil and reduced soil erosion would not occur in California.

Table 1 – Composting Sources Sinks and Reservoirs

GHG Source	Status in Baseline	Status in Scoping Plan	Where Emission/Reduction Occurs
Waste Disposal (landfill gas generation)	Annual	Lifecycle	California Waste Sector
Carbon Stored in Wood	Annual	Not included	Worldwide Forestry Sector
Carbon Stored in Soil	Not included	Lifecycle	California Agricultural Sector
Emission Reduction Associated with Reduced Erosion	Not included	Lifecycle	California Agricultural Sector
Reduced Fertilizer Use	Annual	Lifecycle	Worldwide Manufacturing Sector
Reduced Herbicide Use	Annual	Lifecycle	Worldwide Manufacturing Sector
Material Transport	Annual	Annual	California Transportation Sector

The problem with regard to the emission calculation boundaries was raised by the waste sector and other sector representatives during the October 17<sup>th</sup> public meeting. The ARB's response that the Scoping Plan boundaries were used in the ERF and other documents and therefore are used in the Scoping Plan does not really address our concerns. The ARB did not address the inconsistency of those boundaries between analyses required by AB 32 in comparison with 1990 boundaries and emissions. This is a critical point, as the inconsistencies must be addressed before any GHG reductions can be verified as real.

The emission calculation boundaries are very difficult to determine in the CalRecycle and the ARB documents and never explicitly stated to allow comparison with the 1990 baseline. To understand the boundaries of the ERF, for example, readers are required to analyze a series of nested and misleading documents (e.g., the Scoping Plan references the Composting and Anaerobic Digestion (AD) document, which references the Mandatory Recycling Report, and the ERF is actually found in the Compost Method Report). None of these documents explicitly state boundaries or that the ERF was derived with the goal of being compatible with the 1990 baseline.

Recycling lifecycle assessment GHG reductions are very difficult to quantify and assign to the solid waste and recycling sector for the following reasons:

- **Determining Additionality.** Meeting additionality requirements can be a difficult hurdle for existing recycling mills, recycled steel or aluminum plants, if they have been operational prior to the existence of GHG accounting protocols. Similar problems exist for recycling conducted pursuant to state or local mandates.
- **Measurement.** It is very difficult to apportion GHG reduction among all the parties associated with recycling including generators, collectors and processors to final remanufacturers. This is further complicated if any of these activities take place outside of California.
- **Double Counting.** California is including electricity generation under C&T and assigning that to the electricity sector; therefore, any reduction in GHG emissions from reduced energy use due to recycling should be credited to the electricity sector, not the solid waste and recycling sector. Likewise, any emissions associated with a sector under C&T would be double counted.

Finally, by using a lifecycle assessment based on the methane capture rate found in the Avoided Landfill Emissions Report, CalRecycle and the ARB are implying that methane capture rates at landfills will never improve. In utilizing a lifecycle emission factor for avoided landfill emissions, CalRecycle and the ARB imply that neither they nor local air districts will be imposing regulations to increase methane collection efficiency or that a landfill will increase methane collection voluntarily. In determining the avoided landfill emission ERF, CalRecycle and the ARB make assumptions about methane collection into the future for all waste placed, in perpetuity. This assumption is dubious because the data used to derive the avoided landfill emission value were obtained before the full LMR was phased-in throughout California.

Our coalition strongly recommends that no further or additional GHG controls for our sector should be considered until the full effect of the LMR is evaluated. The ARB previously estimated that the LMR would reduce landfill methane emissions by 1.5 million MTCO<sub>2</sub>e. It is important to remember, and accounting must reflect, that this reduction occurs *after* the field study cited in the Avoided Landfill Emissions Report and used to estimate long-term landfill methane emissions.

**2. Establishing a cap on landfill GHG emissions that is based on emission estimates that cannot be precisely quantified or verified on a site-by-site basis due to their inherently fugitive nature will lead to an unverifiable sector in the GHG reporting program and introduce an unquantifiable pool of emissions to the market.**

The CalRecycle and the ARB documents state that landfills will be considered as subject to C&T. It is a cavalier statement and lacks discussion of the challenges of establishing an inventory method as well as the discrepancies in the emissions estimates and uncertainty in agencies' calculations. There is no assurance that CalRecycle and the ARB have considered any challenges related to the market implications of subjecting a source to C&T regulations considering the characteristics of that source (i.e., landfills) includes the following:

- The source has a severely limited ability to *further* reduce emissions (see Comment 1);
- There is a very high uncertainty associated with the emissions from that source;
- The source has previously implemented and now operates under stringent Command and Control Regulations, and;
- The source has limited ability to precisely verify emissions sufficient to grant a property right in those emissions in the form of an allowance.

Individually, these are critical points, but collectively, they make it impossible to establish an accurate or meaningful cap on a source that has historically significantly reduced emissions and prospectively has stringent regulations to control GHG emissions even further.

The Coalition appreciates the opportunity to bring these concerns and recommendations to your attention. We are very interested in scheduling a meeting in the near future to specifically discuss Attachments A and B and our related concerns and recommendations. Please feel free to contact any one of the undersigned if you have any questions regarding this letter and attachments. A representative of our Coalition will be contacting you in the near future to schedule a meeting to discuss this matter.

Sincerely,

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**Attachments:**

Attachment A: SWICS/SWISP Recommendations for a Phased Implementation Plan

Attachment B: California Landfill Methane Control Efficiency Based on Recent Direct  
Measurement Studies and Referenced Attachments

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