

May 12, 2016

Clerk of the Board  
Air Resources Board  
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(Submitted electronically via <http://www.arb.ca.gov/lispub/comm/bclist.php>)

RE: Proposed Short-Lived Climate Pollutant Reduction Strategy

Dear Chair Mary D. Nichols and Members of the State Board,

Sierra Energy appreciates the opportunity to provide comments regarding the Proposed Short-Lived Climate Pollutant Reduction Strategy (“SLCP Strategy”) and the Draft Environmental Analysis Prepared for the Proposed Strategy (“Draft EA”). Sierra Energy is engaged in multiple business activities that reduce short-lived climate pollutants (“SLCP”) and has been actively involved at all stages of this Air Resources Board (“ARB”) rulemaking. We appreciate that our input has been considered and integrated, and we are strongly supportive of SLCP Strategy. We support the analysis and conclusions of the Draft EA, and would also like to recognize the diligent work of ARB staff in this rulemaking.

### Summary of Recommendations

Consistent with the SLCP Strategy’s call for “strong market support and broad collaboration among State agencies, industry, and other stakeholders,”<sup>1</sup> we would like to identify two short-term and feasible State actions that would better enable industry to reduce SLCP emissions from waste streams and existing landfills. In particular, we recommend that:

- Beneficial uses of waste streams that reduce SLCP emissions (such as the production of low carbon fuels from post-recycled Municipal Solid Waste) be specifically recognized under the categorization scheme that CalRecycle is developing pursuant to AB 901; and,
- All state agencies begin to consistently utilize 20-year global warming potential values (“GWPs”) to measure the performance of projects receiving funding from the greenhouse gas reduction fund (“GGRF”).

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<sup>1</sup> See SLCP Strategy, at p. 7: “Strong market support and broad collaboration among State agencies, industry, and other stakeholders will be necessary to reduce landfill and manure methane emissions by putting organic waste streams to beneficial use.”

## Sierra Energy's Expertise

Sierra Energy and Sierra Northern Railway are both companies within the Sierra Industrial Group. Sierra Energy is a waste gasification and renewable energy company founded in Davis, California in 2004. Sierra Northern Railway was formed in August 2003 through the merger of two Northern California shortline railroads: the Sierra Railroad Company and the Yolo Shortline Railroad. As a result, Sierra Energy has relevant experience and capabilities that range from the conversion of methane-emitting municipal solid waste ("MSW"), to the reduction of black carbon from locomotives.

Sierra Energy's FastOx Gasifier is a robust and flexible technology, capable of processing post-recycled municipal solid waste ("MSW"), hazardous waste, medical waste, construction and demolition waste, and other waste streams. The application of Sierra Energy's waste gasification technology reduces the air, soil and water pollution created by landfills; and produces clean, low carbon energy for transportation and power.

Sierra Energy is currently installing a modular, community-scale waste gasification system at U.S. Army Garrison Fort Hunter Liggett in Monterey County. Sierra Energy's technology was selected by the US Department of Defense's ("DoD") Environmental Security Technology Certification Program to help increase DoD energy security, reduce waste and energy costs, drastically reduce greenhouse gas emissions, and help meet the U.S. Army's net-zero initiatives. The project has also received grant support from the California Energy Commission to convert the resulting syngas into Fischer-Tropsch diesel fuel for transportation applications.

Sierra Northern Railway has been at the forefront of reducing black carbon emissions from locomotives. Shortline railroads are typically exempted from state regulations by federal preemption. Nonetheless, Sierra Northern Railway has worked with local air districts on a number of projects to retrofit locomotives and reduce emissions including SLCPs.

## Analysis Supporting Sierra Energy's Recommendations

The SLCP Strategy outlines the following actions to reduce methane emissions from landfills in California:

- Require Organics Diversion from Landfills
- Align Financial Incentives with Organics Diversion
- Collaborate to Overcome Barriers
- Foster Recovery Programs and Markets
- Improve Understanding of Landfill Emissions

Sierra Energy agrees that all of these actions are necessary and appropriate to reduce methane emissions from landfills. However, due to the nature of the regulatory process, ARB and other agencies will typically be delayed in executing these actions due to the need to comply with the California Environmental Quality Act ("CEQA"), the Administrative Procedures Act ("APA"), and other legal requirements. As stated in the SLCP Strategy, "All regulatory measures developed pursuant to the SLCP Reduction

Strategy would undergo a complete, public rulemaking process including workshops, and economic and environmental evaluations.”<sup>2</sup>

We appreciate and respect the need for compliance with the regulatory process. However, given the threats and costs posed by the climate change and particularly SLCPs, it makes good policy sense for ARB and other agencies to look for viable immediate opportunities to reduce SLCP emissions. We are aware of two such opportunities in the landfill sector where the SLCP Strategy could be quickly deployed.

***Beneficial uses of waste streams that reduce SLCP emissions (such as the production of low carbon fuels from post-recycled Municipal Solid Waste) should be specifically recognized under the categorization scheme that CalRecycle is developing pursuant to AB 901.***

Sierra Energy has broken ground on the construction of a FastOx Gasifier unit on the US Army Garrison site in Monterey County. Once completed, this unit will consume MSW and produce liquid transportation fuel in the form of high performance, low emission diesel fuel as well as zero tailpipe emission transportation fuel in the form of hydrogen. To enable the continued expansion of very low carbon fuel production facilities, it is essential that California coordinate its policy structure to incentivize facilities that provide co-benefits. One of the co-benefits that Sierra Energy facilities will provide is the reduction of SLCP emissions, particularly methane.

In order to facilitate diversion activities, AB 901 expands the reporting and record-keeping obligations relating to landfilled and diverted material. AB 901 was approved by the Governor on October 15, 2015, and is currently the subject of a CalRecycle Rulemaking. Under the law, disposal facility operators are required to submit information on disposal tonnages; and exporters, brokers, and transporters are required to submit periodic information on the types, quantities, and destinations of materials that are disposed of, sold, or transferred.<sup>3</sup>

The AB 901 rulemaking provides an optimal opportunity to streamline implementation of the SLCP Strategy. As is clear throughout the SLCP Strategy, CalRecycle will be a crucial agency in the achievement of the state’s methane emission reduction goals. By establishing a categorization system under AB 901 that recognizes SLCP emission reduction as a beneficial use, CalRecycle will enable the state to better track and optimize the nature, final destination, and SLCP emission profile of waste streams. This visibility will support the development of waste to fuel projects, and the achievement of California’s waste diversion and methane reduction goals.

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<sup>2</sup> SLCP Strategy at p. 12.

<sup>3</sup> Cal. Pub. Resources Code §41821.5.

***All state agencies should begin to consistently utilize 20-year global warming potential values (“GWPs”) to measure the performance of projects receiving funding from the greenhouse gas reduction fund (“GGRF”).***

In 2012, the California Legislature passed and Governor Edmund G. Brown Jr. signed into law three bills—AB 1532, Senate Bill (SB) 535,<sup>4</sup> and SB 1018<sup>5</sup>—that provide the framework for the appropriation and expenditure of Cap-and-Trade revenues from carbon allowance auctions. These bills also established the Greenhouse Gas Reduction Fund (GGRF), where the State’s portion of revenues from auctions is deposited. These statutes require that the GGRF allocations be used to facilitate the achievement of GHG emission reductions and, where applicable and to the extent feasible, to further the additional goals of AB 32, the California Global Warming Solutions Act of 2006.<sup>6</sup>

A critical aspect of any grant program is the metric utilized to measure success. It is therefore appropriate to consider by what metric of GHG reduction grants provided from the GGRF should be measured. This analysis should be informed by specific statutes as well as by policy directives of the Executive Branch. Governor Brown has identified SLCP emissions as one of the five pillars necessary to achieve GHG emission reductions of 40% below 1990 levels by 2030.<sup>7</sup> The Legislature approved and Governor Brown signed SB 605, a statute requiring ARB to develop a plan to reduce SLCP emissions.

Within this context, the SLCP Strategy represents the State’s most comprehensive and contemporary analysis of SLCPs. In the development of the SLCP Strategy, ARB determined that the 20-year GWP of SLCPs is appropriate for the following reasons:

*“Overall, there is not one, single metric that describes the comparative climate effects of various short-lived and long-lived climate pollutants perfectly. The use of GWPs with a time horizon of 20 years better captures the importance of the SLCPs and gives a better perspective on the speed at which SLCP emission controls will impact the atmosphere relative to CO2 emission controls. Thus, the emission estimates presented later in this report are calculated using 20-year GWP. Table 4 illustrates the lifetime and 20-year GWP for each SLCP.”<sup>8</sup>*

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<sup>4</sup> De León, Kevin. Senate Bill No. 535, Chapter 830. California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund. September 30, 2012.

<sup>5</sup> Budget and Fiscal Review Committee. Senate Bill No. 1018, Chapter 39. June 27, 2012.

[http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201120120SB1018](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120SB1018)

<sup>6</sup> Nunez, Fabian. Assembly Bill No. 32, Chapter 488. California Global Warming Solutions Act of 2006. September 27, 2006.

[http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab\\_0001-0050/ab\\_32\\_bill\\_20060927\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf)

<sup>7</sup> See <http://www.arb.ca.gov/cc/pillars/pillars.htm> (last viewed May 6, 2016).

<sup>8</sup> SLCP Strategy at p. 35.

**Table 4: Global Warming Potential for SLCPs<sup>1</sup>**

Pollutant	Lifetime (years)	20-year GWP
Carbon dioxide	~100 <sup>2</sup>	1
Methane	12	72
F-Gases (Hydrofluorocarbons)	1.4 – 52	437 – 6350
Black carbon	Days to weeks	3,200

<sup>1</sup>All AR4 except black carbon which uses AR5 (the first report to define a GWP for black carbon)

<sup>2</sup>CO<sub>2</sub> has a variable atmospheric lifetime and cannot be readily approximated as a single number

Given these policy directives and ARB’s conclusions in the SLCP Strategy, it is appropriate to standardize the 20-year GWP metric for purposes of all GGRF funded grants as quickly as feasible.

As referenced in the SLCP Strategy, CalRecycle estimates that State support of at least \$100 million per year for five years will be necessary to leverage private sector financing and foster markets to reduce the SLCP of primary concern, methane.<sup>9</sup> Consistent with that request, Governor Brown’s proposed budget released in January 2016 contains a \$100 million appropriation to CalRecycle from the GGRF.<sup>10</sup>

However, pursuant to its Waste Diversion Grant and Loan Program, CalRecycle recently issued a quantification methodology for GHG reductions that utilized a 100-year GWP metric. CalRecycle received public comments on the methodology through April 22, 2016. Sierra Energy timely submitted a comment recommending that a 20-year metric be utilized in the methodology. Given ARB’s special role in assessing quantification methodologies for GGRF appropriations and the nexus between CalRecycle’s methane reductions projects and the SLCP Strategy, we would encourage collaboration between the agencies on this point and the adoption of a 20-year metric.

Conclusion

Thank you for your consideration of our input. In closing, we would like to emphasize our strong support for the SLCP Strategy and the analysis and conclusions of the Draft EA. As a California based company and a leader in the clean energy economy, we look forward to providing reductions in methane and other short-lived climate pollutants, and to reducing the impact of waste streams on California’s natural beauty and resources.

Sincerely,



Michael Hart

Cc: Scott Smithline

<sup>9</sup> SLCP Strategy at p. 74.

<sup>10</sup> See Governor’s January Budget, available at <http://www.ebudget.ca.gov/2016-17/pdf/GovernorsBudget/3890.pdf> at p. EP 65 (last viewed May 6, 2016).