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Ms. Mary Nichols
California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, California 95812

Subject: Comments on Draft Proposed First Update to Scoping Plan

Dear Chairwoman Nichols:

Covanta provides these comments on the CARB Draft Proposed First Update to the Scoping Plan ("Draft Update"), released February 10, 2014.

Covanta is a national leader in developing, owning and operating facilities that convert municipal solid waste ("MSW") into renewable energy (energy-from-waste or "EfW" facilities). EfW facilities provide important waste management services to municipalities seeking to avoid or minimize use of landfills, while using MSW as a fuel source for generating renewable energy. Covanta owns and/or operates 40 EfW facilities in North America, two of which are located in California, and also owns and/or operates other renewable energy facilities, including six biomass-to-energy facilities in California. In addition, Covanta operates an electronic recycling facility and recently announced a new partnership in Connecticut to provide organics recycling (anaerobic digestion) to municipalities and businesses.

Covanta supports CARB's focus on waste management as a key mechanism to achieve meaningful greenhouse gas ("GHG") emissions reductions. The achievement of the European Union ("EU") is a testament to what can be achieved through more sustainable waste management: the waste sector achieved the largest relative GHG emissions reduction (34%) of any sector in the EU.[1] The European Environment Agency attributes considerable reductions in waste management GHG emissions to increased levels of recycling and EfW.[2]

The EU has achieved this success through a concerted long-term drive toward more sustainable waste management, including formalizing the waste management hierarchy, which gives preference to recycling and energy recovery over waste disposal in landfills.[3] In addition, the EU has issued a series of directives pertaining to waste management, including an aggressive mandate to reduce the landfilling of biodegradable wastes in deference to expanded recycling and energy recovery.[4]

Covanta supports AB 341's 75% recycling goal and agrees that it will reap significant GHG emissions both within and outside of the state. However, EfW can serve as an important compliment, recovering energy from those wastes remaining after recycling and further reducing GHGs. As discussed above, the EU has found strong success in incorporating EfW into its sustainable waste management system. Closer to home, a 2012 CalRecycle concluded that the state's EfW facilities provide a net GHG reduction relative to landfills. In addition, the climate benefits of EfW are also recognized by U.S. EPA scientists,[5] the Intergovernmental Panel on Climate Change (IPCC)[6], the Clean Development Mechanism (CDM) of the Kyoto Protocol,[7] the World Economic Forum,[8,9] and scientists from the National Renewable Energy Laboratory ("NREL").[10]

To facilitate appropriate policies, it is paramount that the potency of methane be appropriately characterized. Therefore, we fully support CARB's decision to incorporate the global warming potentials (GWPs) from the IPCC 5th Assessment Report. CARB has taken an important step to incorporate the latest science and recognize the full potency of methane. According to the 5th Assessment Report, methane now represents over 40% of the total net drivers of climate change.[11] The latest data on methane's contribution to radiative forcing, a measure of the uptake of energy, and hence global warming of the earth's climate system, is over 75% higher than previously reported.

However, CARB should reference the GWPs from the 5th Assessment Report which include climate-carbon feedbacks. The IPCC concluded that "it is likely that including the climate-carbon feedback for non-CO_2 gases as well as for CO_2 provides a better estimate of the metric value than including it only for CO_2." With the inclusion of climate-carbon feedbacks, the IPCC has updated the 100 year GWP to 34. Over a 20-year timeframe, identified in the Draft Update as a better reflection of what can be achieved in the near term by mitigation, methane is *86 times* as potent as CO_2.[12]

Applied globally, the EU's model of sustainable waste management could achieve a GHG reduction of 1 billion metric tonnes of carbon equivalents (3.7 billion metric tonnes of CO_2e) per year by mid-century.[13] Targeted policies in California directed at reducing methane emissions from waste management could achieve meaningful reductions and serve as an example for other states.

Thank you for the opportunity to comment on the Draft Plan, and we look forward to continuing to work with CARB to reduce GHG emissions through the advancement of more sustainable solid waste management in California.

Sincerely,

Michael E. Van Brunt, P.E.
Covanta Energy

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[1] European Environment Agency, *Greenhouse gas emission trends and projections in Europe 2009: Tracking progress towards Kyoto targets* http://www.eea.europa.eu/publications/eea_report_2009_9

[2] European Environmental Agency (2008) Better management of municipal waste will reduce greenhouse gas emissions. http://www.eea.europa.eu/publications/briefing_2008_1

[3] European Union, EU (2008) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives. *Official Journal of the European Union*. L312, **51**, 3-30

[4] EU (European Union) (1999) Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste. *Official Journal of the European Communities*. L182, 42, 1–19.

[5] Kaplan, P.O, J. DeCarolis, and S. Thorneloe, 2009, Is it better to burn or bury waste for clean electricity generation? *Environ. Sci. Technology* 43 (6) pp1711-1717. Available at: http://pubs.acs.org/doi/abs/10.1021/es802395e

[6] EfW identified as a "key mitigation measure" in IPCC, "Climate Change 2007: Synthesis Report. Contribution of Work Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change" [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp. Available at: http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm

[7] Clean Development Mechanism Executive Board: "Approved baseline and monitoring methodology AM0025: Avoided emissions from organic waste through alternative waste treatment processes." Available at: http://www.cdm.unfcc.int/methodologies/DB/3STKBX3UY84WXOQWIO9W7J1B40FMD

[8] World Economic Forum. *Green Investing: Towards a Clean Energy Infrastructure.* January 2009. Available at: http://www.weforum.org/pdf/climate/Green.pdf

[9] World Economic Forum. *Policy Mechanisms to Bridge the Financing Gap*, January 2010. Available at: http://www.weforum.org/reports/green-investing-2010-policy-mechanisms-bridge-financing-gap

[10] Funk, K., J. Milford, T. Simpkins. 2013. *Waste Not, Want Not: Analyzing the Economic and Environmental Viability of Waste-to-Energy (WTE) Technology for Site-Specific Optimization of Renewable Energy Options.* NREL/TP-6A50-52829. http://www.nrel.gov/docs/fy13osti/52829.pdf

[11] See Figure SPM.5 of IPCC WGI. 2013. *Working Group I Contribution to the IPCC Fifth Assessment Report Climate Change 2013: The Physical Science Basis Summary for Policymakers*. http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf

[12] See Table 8-7 of *IPCC WGI Fifth Assessment Report, Chapter 8: Anthropogenic and Natural Radiative Forcing*. http://www.climatechange2013.org/images/report/WG1AR5_Chapter08_FINAL.pdf

[13] Bahor, B., M. Van Brunt, J. Stovall, K. Blue. "Integrated waste management as a climate change stabilization wedge" *Waste Management & Research.* 2009: **27**: 839-849. http://www.seas.columbia.edu/earth/wtert/sofos/wmr_nov09_p839.pdf