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New York Independent System Operator
10 Krey Boulevard
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Re: NYISO Carbon Pricing Draft Recommendations

Covanta is pleased to offer comments on the New York Independent System Operator's (NYISO's) Carbon Pricing Draft Recommendations (the "Proposal") and continued development of a carbon pricing mechanism ("carbon adder") for the wholesale power market in New York State. Covanta operates six waste-to-energy ("WTE") facilities in New York State that manage municipal solid waste ("MSW") while also generating renewable energy. WTE facilities provide important waste management services to municipalities seeking to avoid or minimize use of landfills, in line with the state's solid waste management hierarchy.

As currently drafted, New York's WTE facilities will be subject to the program. We estimate that the inclusion in the program of stack fossil CO_2 emissions from WTE facilities will cost the six facilities Covanta operates $19 - $28 million a year, even without considering any effects of a lower carbon intensity grid driven by the program or continued development of other renewables in the state. This will likely result in WTE facilities closing and jeopardizing their role as critical waste management capacity across the state, and the GHG emissions mitigation they provide. In addition, landfills, the more carbon intensive technology, are exempt from the program.

The inclusion of WTE into the carbon adder would also significantly expand the reach of the NYISO's program beyond electricity generation and clearly into the waste management sector, impacting a part of the state's economy never intended. Such an inclusion creates a vexing problem of *intrastate* leakage, as the policy is likely to result in meaningful increases in emissions from landfills, let alone the increased carbon resulting from transportation impacts.

Unlike the issue of interstate leakage, the problem generated by the inclusion of WTE facilities in the adder is eminently solvable, by excluding WTE facilities from the program, consistent with NYISO's treatment of the remainder of the waste management sector (e.g. landfills).

New York's WTE facilities are a critical part of the state's solid waste management infrastructure, providing 11,000 tons / day of waste management capacity in the state. WTE manages roughly 23% of the states total MSW remaining after recycling. Some of areas of the state are even more reliant on WTE. DSNY relies on WTE for approximately 33% of its waste management capacity.[1] On Long Island, roughly 75% of MSW generated is managed by WTE, saving over 160,000 truck trips annually through NYC and recovering 90,000 tons of metal recovered for recycling annually. New York City relies on WTE to help advance its goal to be zero landfill by 2030.

New York's WTE facilities bring other important benefits. The electricity generated at the state's WTE facilities is included in the state's 2014 25% renewable baseline.[a] The Niagara Falls facility provides steam to six companies, which together with Covanta Niagara, employ 600 people. Availability of steam from WTE, and WTE's role in more sustainable waste management, was a factor in Greenpac's recent $500 M investment in a brand new 100% recycled paperboard mill. Overall, the WTE facilities and related infrastructure that Covanta operates employ over 390 New Yorkers with a payroll of $53 M. In just the past five years, WTE facility owners and operators have invested over $130 M in the state.

New York's WTE facilities, and others like them around the world, are widely recognized as a source of GHG mitigation. In fact, WTE facilities are the only major source of electrical generation that are net carbon negative: the stack GHG emissions of fossil CO_2 are more than offset by the GHG emissions avoided by keeping wastes out of landfill. Landfills are a major source of the greenhouse gas methane. Methane is a potent short-lived climate pollutant that is more than 30 times stronger than CO_2 over 100 years, and 80 times stronger over 20 years, when all of its impacts are considered. [2] U.S. EPA scientists, in a prominent peer reviewed paper, concluded WTE facilities reduce GHG emissions relative to even those landfills equipped with energy recovery systems.[3]

This GHG benefit of WTE is widely recognized, including by the U.S. EPA;[4,5] Columbia University scientists,[6] U.S. EPA scientists;[7] the Intergovernmental Panel on Climate Change ("IPCC");[8] the World Economic Forum;[9] the European Union;[10,11] CalRecycle;[12] California Air Resources Board;[13] and the Joint Institute for Strategic Energy Analysis (NREL).[14] WTE facilities generate carbon offsets credits under both the Clean Development Mechanism (CDM) of the Kyoto Protocol and voluntary carbon offset markets.[15,16]

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[a] 25% renewable baseline of 35,756 GWh of electricity from NYISO 2015 Power Trends report. Data for the Power Trends report is from the 2015 Gold Book, which includes refuse in its renewables totals.

These benefits are demonstrated through lifecycle analysis. As noted in the April 30th Straw Proposal, carbon charges would be assessed based not on lifecycle analysis, but on "point-of-production carbon emissions." However, several forms of generation, including biomass, biogas/landfill gas and digesters with point-of-production carbon emissions, are proposed to not be assessed carbon charges. The NYISO has noted that exclusion of these technologies is "equivalent to using lifecycle emissions for these resources."

While the intent of the policy is to harmonize carbon policy in the state, the current proposal is strictly focused on the CES without any acknowledgement of other state policy. WTE is recognized as renewable under NY Energy Law, preferred to landfilling under the state's solid waste management hierarchy,[17] and excluded from a carbon standard under Part 251. New York's WTE facilities are excluded from RGGI, not because of their size, but because they are not fossil-fuel fired electric generating units (EGUs).[18] WTE's generation is included in the state's 2014 25% renewable baseline.[19] New York State's solid waste management plan prefers energy recovery over landfilling consistent with the waste hierarchy and concluded that WTE offers GHG benefits relative to landfilling.[20] Many of New York's neighbors, with which New York shares grid interconnections, already define WTE as renewable including Connecticut, Massachusetts, New Jersey, and Pennsylvania.

Federally, WTE facilities are regulated under stationary combustion and not electricity generation for purposes of GHG reporting under 40 C.F.R. § 98. WTE facilities are also not subject to 40 C.F.R. § 75. In addition, since WTE facilities are not defined as electric generating units, they are excluded from the CAIR NO_x Ozone Season Trading Program[21] and we do not report data through the U.S. EPA's Clean Air Markets Division (CAMD) database. Owing to our GHG benefits, WTE was recognized as a compliance option for reducing GHG emissions from electricity generation in the final version of the U.S. EPA's Clean Power Plan promulgated in 2015.[22,23]

Other parts of the state's solid waste management infrastructure are *not* covered by the Proposal, even those that have GHG emissions and generate electricity. If WTE facilities are included, this will establish an uneven playing field, creating a significant perverse economic incentive that will incentivize the least preferred method of solid waste management. Specifically, despite the fact that landfills are a major source of GHG emissions, the current proposal imposes absolutely no compliance burden on electricity derived from waste.

The inclusion of WTE facilities in the carbon adder will not result in reductions in GHG emissions from the state or the waste management sector. The $13 - $22 M annual impact imposed on WTE facilities while landfills face no such financial impact will put extreme financial burdens on facilities. With no ability to raise power prices, this cost will have to be passed through as higher tip fees for waste management. However, waste management is a highly competitive market as well. Rates and pricing are largely set by landfilling, which continues to be the dominant fate of New York's and the nation's waste. Communities and

generators will be forced to pay higher costs for the state's preferred method of waste management or perhaps save money and turn to landfilling. Should the latter occur, GHG emissions from managing the state's waste will increase as a direct result of NYISO's program. This is unquestionably a leakage issue: not one of leakage out of the state, but leakage of emissions from a covered entity (WTE) to an uncovered entity (landfilling).

Notwithstanding the GHG benefits of WTE relative to landfilling, WTE's inclusion in the program will not reduce the GHG emissions from the stacks of WTE facilities themselves that survive the economic impact of the program. Put in terms of fixed and variable costs often used in power market modeling, we have significantly higher fixed costs than other generation ($/kW-yr), but *negative* variable costs ($/MWh). The WTE facilities are must run: their primary objective is to serve a solid waste management function. When we bid into the day-ahead market, we typically do so with a price of $0 / MWh – in other words, we take the price at which the market settles. Assessing the marginal CO_2 emission rates for 2015-2016 against our facilities' average stack CO_2 emissions per MWh exported over the same time period, our hourly cost of compliance will exceed the LBMP plus the LBMPC 22.5% of the time.

Based on data from 2015-2016, we'll lose money on energy 22.5% of the time across our plants we operate in New York State. However, we will continue to process waste to meet our obligations to our customers. We will be forced to either take negative effective pricing during those hours, or, for facilities that are able to do so, we will be incentivized to dump steam – we will continue to process waste and not export electricity to the grid. Such an outcome from the current policy design is clearly untenable.

In consideration of the benefits these facilities bring to the state's waste and energy infrastructure and their ability to reduce GHG emissions, we ask that NYISO exclude WTE facilities from the carbon adder program. This approach would be consistent with many state policies, including RGGI, Part 251, the solid waste management hierarchy, and state energy law. Such an approach would also be consistent with the exclusion of other sources of electricity with point-of-production GHG emissions that have been excluded.

Sincerely,

Michael E. Van Brunt, P.E.

[1] Based on projection for 2018 from p120 of *OneNYC 2016 Progress Report*.

[2] 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." See p714 & Table 8-7 of Myhre, G. *et al.* (2013) *Anthropogenic and Natural Radiative Forcing. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., *et al.* (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf

[3] Kaplan, P.O., J. DeCarolis, S. Thorneloe, Is It Better to Burn or Bury Waste for Clean Electricity Generation? *Environ. Sci. Technol.* **2009**, 43, 1711-1717. http://pubs.acs.org/doi/abs/10.1021/es802395e

[4] U.S. EPA Webpage, Energy Recovery from the Combustion of Municipal Solid Waste (MSW), accessed September 19, 2016. https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw

[5] U.S. EPA Archived Webpage, Air Emissions from MSW Combustion Facilities, accessed September 19, 2016. https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/airem.html

[6] Matthews, E., N.J. Themelis (2007) Potential for Reducing Global Methane Emissions from Landfills, 2000-2030. *Sardinia 2007, Eleventh International Waste Management and Landfill Symposium* http://www.seas.columbia.edu/earth/wtert/sofos/Matthews_Themelis_Sardinia2007.pdf

[7] 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

[8] 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

[9] EfW identified as a key technology for a future low carbon energy system in World Economic Forum. *Green Investing: Towards a Clean Energy Infrastructure.* January 2009.

[10] EU policies promoting EfW as part of an integrated waste management strategy have been an overwhelming success, reducing GHG emissions over 72 million metric tonnes per year, see 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*

[11] European Environmental Agency (2008) Better management of municipal waste will reduce greenhouse gas emissions. Available at: http://www.eea.europa.eu/publications/briefing_2008_1/EN_Briefing_01-2008.pdf

[12] CalRecycle. 2012. CalRecycle Review of Waste-to-Energy and Avoided Landfill Methane Emissions. Available at: http://www.calrecycle.ca.gov/Actions/PublicNoticeDetail.aspx?id=735&aiid=689

[13] See Table 5 of California Air Resources Board (2014) *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, Appendix C – Focus Group Working Papers, Municipal Solid Waste Thermal Technologies*. https://www.arb.ca.gov/cc/waste/mswthermaltech.pdf

[14] Joint Institute for Strategic Energy Analysis (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*. http://www.nrel.gov/docs/fy13osti/52829.pdf

[15] Clean Development Mechanism: *Large-Scale Consolidated Methodology: Alternative waste treatment processes, ACM0022*. Available at: https://cdm.unfccc.int/methodologies/PAmethodologies/approved

[16] Verified Carbon Standard Project Database, http://www.vcsprojectdatabase.org/ See Project ID 290, Lee County Waste to Energy Facility 2007 Capital Expansion Project VCU, and Project ID 1036 Hillsborough County Waste to Energy (WtE) Facility 2009 Capital Expansion Unit 4.

[17] NYS DEC (2012) New York State Solid Waste Management Policy Guidance (DSH-SW-05-01) https://www.dec.ny.gov/docs/materials_minerals_pdf/sw0501pp.pdf

[18] Sources regulated under RGGI are limited to fossil-fuel fired units. See 6 NYCRR 242-1.4(a) and the definition of unit under 6 NYCRR 242-1.2(b)(78)

[19] 25% renewable baseline of 35,756 GWh of electricity from NYISO 2015 Power Trends report. Data for the Power Trends report is from the 2015 Gold Book, which includes refuse in its renewables totals.

[20] See p52 of NYS DEC (2010) *Beyond Waste: A Sustainable Materials Management Strategy for New York State* http://www.dec.ny.gov/docs/materials_minerals_pdf/frptbeyondwaste.pdf

[21] 6 NYCRR 243-1.2(b)(38)

[22] 40 CFR 60.5800

[23] 40 CFR 60.5845