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Rebecca Tan, Policy Advisor
Ontario Ministry of Environment and Climate Change
Climate Change and Environmental Policy Division
Air Policy Instruments and Programs Design Branch
77 Wellesley Street West, Floor 10, Ferguson Block
Toronto, ON
M7A2T5

Re: Low Carbon Transportation Fuels in Ontario: Amendments to Ethanol in Gasoline and Greener Diesel – Renewable Fuel Content Requirements for Petroleum Diesel Fuel Regulations (EBR Registry Number: 013-1929)

Dear Ms. Tan,

On behalf of Ontario's more than 3,000 environment and cleantech firms, the Ontario Environment Industry Association (ONEIA) is writing to provide our comments on the Ministry of Environment and Climate Change's (MOECC) Environmental Bill of Registry posting of November 29, 2017 in regards to proposed amendments to the Ethanol in Gasoline regulation and Greener Diesel – Renewable Fuel Content Requirements for Petroleum Diesel Fuel under the Environmental Protection Act.

Ontario is home to Canada's largest group of environment and cleantech companies. Industry-endorsed statistics from the federal government show that Ontario's environment sector employs more than 65,000 people across a range of sub-sectors. This includes firms working in such diverse areas as materials collection and transfer, resource recovery, composting and recycling solutions, alternative energy systems, environmental consulting, brownfield remediation and water treatment – to name just a few. These companies contribute more than \$8-billion to the provincial economy, with approximately \$1-billion of this amount coming from export earnings.

Members of ONEIA are committed to engaging with the Province as it develops policies and regulations that are consistent with our principles of sound science, sound environment and a sound economy. To that end, we convened a working group of members drawn from across the resource recovery services sector to review the Province's previous discussions on a renewable fuel standard (RFS) and the subsequent amendments that have been proposed. .

In its review, ONEIA is surprised that the MOECC is focused on only amending the two pieces of legislation regarding ethanol, biodiesel and the use of "biocrude". The use of biocrude has not been discussed in the past during any of the discussion papers that the MOECC has undertaken. ONEIA would

request that MOECC reassess the various renewable fuels that are currently available in the marketplace or could be readily brought into it with measures to facilitate their deployment (e.g. renewable natural gas). As we have noted in previous submissions, ONEIA would request that the MOECC look to broaden the RFS to include all forms of transportation fuels, in particular the use of renewable natural gas (RNG). To peruse in detail our previous submissions, we would direct you and your team to the following URLs:

- **ONEIA's response to the proposed Ontario renewable fuel standard for gasoline EBR Registry Number: 012-7923:**
<http://oneia.ca/resources/Pictures/ONEIA%20Response%20to%20RFS%2003122017.pdf>
- **ONEIA advice to MOECC re: Renewable Content Requirements for Natural Gas:**
[http://www.oneia.ca/resources/Pictures/June%2019%202017%20Gerrit%20Ledderhof%20\(2\).pdf](http://www.oneia.ca/resources/Pictures/June%2019%202017%20Gerrit%20Ledderhof%20(2).pdf).

Response to EBR Questions

As requested in the EBR posting, ONEIA is providing specific responses to the various questions that were asked.

Blending Requirements

a. In setting requirements, what factors should be considered (e.g. technology investment and planning cycles)?

ONEIA believe that any adjustments to the requirements should be treated similar to other low carbon fuels in terms of their carbon intensity and supporting the province in meeting its goals for lower GHG emissions. We also believe that the minimum requirements should be dictated by available technology. In the case of technology investment and planning cycles, MOECC should investigate the technology readiness levels of the various forms of low carbon fuels and not focus entirely on ethanol, biodiesel and "biocrude".

b. How can the adoption of emerging clean fuel technologies be encouraged? Are there further measures to support compliance flexibility?

ONEIA recommends harmonizing the various regulations in this area including the ethanol and biodiesel mandates. The RFS should allow for a level playing field that sees the province achieve its targets. ONEIA believes that the province should set short, medium and long term targets in regards to transportation fuels and assess the related scalability of the various low carbon fuels, in addition to encouraging technology development to support its efforts. The province should also work with other jurisdictions to complement Ontario policies. As previously noted, we believe that MOECC should broaden the focus to include landfill gas, biogas from food waste and other organics and wastewater treatment plant biogas as well as hydrogen and power to gas technologies.

Lifecycle GHG Emissions

a. What should be considered in assessing lifecycle GHG performance and recognizing and assigning environmental performance values of

biofuels?

ONEIA supports a system that lowers the carbon intensities of all transportation fuels regardless of the various subsectors that exist within the transportation sector. The government needs to ensure that its strategy is consistent with the Climate Action Plan including emissions reduction targets and RNG needs. The province needs to ensure that future policy tools do not create unintended consequences with offset protocols. It should include a holistic approach to the lifecycle from the feedstocks for the fuels to the use of the fuels.

Other

a. What other considerations should be given in operationalizing the proposal in the Ethanol in Gasoline and Greener Diesel regulations?

As outlined earlier, ONEIA believes that MOECC needs to assess all types of fuels that can support its efforts in regards to lower GHG emissions in the transportation sector in Ontario. We believe that by only focusing on ethanol, biodiesel and "biocrude", the Ministry is taking too narrow an approach and should look at the market in a more holistic manner.

b. Do you have any input not captured in the questions above?

ONEIA believes that Ontario needs an open, transparent system that provides a pathway to generation and sale of environmental attributes for all types of renewable fuels. We believe that the province should work with other jurisdictions on the development of this program. ONEIA has also suggested in the past that MOECC needs to address the modernization of approvals to support this transition to lower carbon transportation fuels. It should also ensure that it engages with other areas of the MOECC (i.e. organics disposal bans) so unintended consequences do not impact participation in this program.

Complementary Program Support

a. What design considerations are recommended for a possible Blenders Support Program to encourage the long-term use of biocrude and other high biofuel blends?

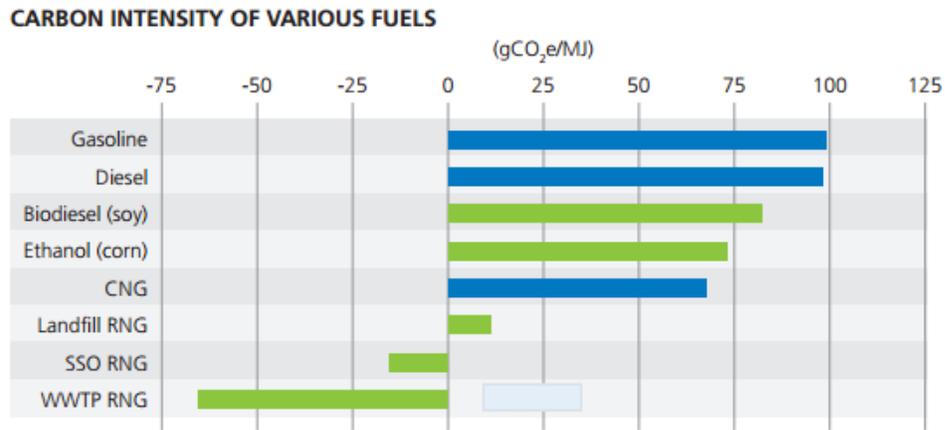
ONEIA believes that the MOECC needs to have further consultation in this area as the use of biocrude has not been discussed previously and the term is not well defined. MOECC has also mentioned "high biofuel blends", a term that does not have a widely agreed-upon definition and thus does not allow for proper response by ONEIA or others in the industry.

b. What other renewable fuels program opportunities exist for further GHG reductions from fuels in the transportation sector?

ONEIA believes that MOECC needs to address a number of other renewable fuel types that exist in Ontario to allow for further GHG reductions from fuels in the transportation sector. The primary one that is not being addressed in a meaningful way is RNG including hydrogen and RNG from power to gas facilities.

Renewable Natural Gas

The technology to convert methane from landfills, biogas and wastewater treatment facilities to electricity or natural gas has been around for decades. Compared to other fuels, the carbon intensity of these energy sources is considerably lower than traditional sources of transportation fuels. As an example, in the use of RNG as a transportation fuel, the chart below shows the carbon intensities of various fuels:



Data Source: Carbon Intensity Lookup Table for Diesel and Fuels that Substitute for Diesel, California Air Resources Board, 2012

This biogenic source of energy is used extensively in the United States. In Ontario, only a handful of companies and municipalities are converting methane to electricity but there is significant potential is great to expand the use of this technology for the development of alternative low carbon fuels.

In the last decade, landfill companies, primarily in the United States, have been increasingly switching from generating electricity to developing pipeline quality gas, specifically as a direct substitute, or offsetting the use of natural gas or electricity at industrial facilities (e.g. automotive, pulp and paper and cement manufacturers). Today, landfill operators are moving towards supplying competitive markets with RNG via pipelines as large GHG emitters and other obligated parties are seeking to receive as much RNG as possible. ONEIA supports the development of an RNG system that is market driven and allows private entities generating RNG to sell the associated attributes for the highest return available in the marketplace.

As an example, Waste Connections (WC) built and operates a large-scale biogas facility at its Lachenaie Landfill in Quebec. This facility converts landfill gas to pipeline quality gas, which supplements its landfill gas to electricity facility. The company recently closed its landfill gas to electricity operation and redirected all the landfill gas generation to its RNG facility. WC intends to develop a similar facility at its Ridge Landfill near Chatham, ON. Walker Industries, for its part, is taking a similar approach at its Niagara Landfill.

Renewable Natural Gas as a Transportation Fuel

As example of the advantages of migrating to RNG as a transportation fuel, in 2014 Ontario used approximately 5 billion liters of diesel for road motor vehicles. Based on organics, biosolids and landfill gas production, Ontario could transition up to one-third of its entire diesel fuel use to compressed RNG and therefore, provide a low carbon fuel source, supporting the mitigation of short-lived climate pollutants. MOECC has discussed a program

that would look to achieve 2% usage of RNG by 2020 and 10% by 2030. However, to achieve these objectives, regulatory approvals and the development of the required infrastructure will need to be significantly accelerated. These proposed timelines do not align with the federal and provincial climate change goals. Sources and their RNG generation potential are detailed in the table below based on a Canadian Biogas Association study from 2013:

Source	Generation Potential of Millions m3 RNG	Generation Potential of Millions of Liters of Diesel Fuel Equiv.
Wastewater WWTP	119	123
IC&I Food Waste	122	126
Animal Manure	637	657
Residential SSO	72	74
Landfill Gas	654	675
Subtotal	1,604	1,655

The use of natural gas as a transportation fuel has been growing exponentially. It is predominantly used with "return to base" fleets such as waste collection and municipal transit vehicles. The waste services industry began using liquid natural gas (LNG), predominantly in California, over two decades ago. The switch to compressed natural gas (CNG) began in the mid to late 2000s. Today, Waste Management (WM), Republic and WC have the largest CNG powered waste and recycling collection fleets in North America, respectively. In Ontario, WM, PWS and Eterra Environmental have CNG powered collection vehicles operating in Ottawa, Waterloo and the Regions of Peel and Simcoe County. It should be noted that municipal governments are increasingly adding the use of CNG as a prerequisite to outsourcing their residential connection contracts. This has resulted in an effective means to driving the use of CNG.

There are numerous environmental benefits to converting from diesel to CNG. For every vehicle that is converted to natural gas, use of diesel fuel is reduced by an average of 8,000 gallons per year. This reduces greenhouse gas emissions by over 22 metric tons per year, per truck. Vehicles powered by CNG result in: nearly zero particulate emissions; a 50% reduction in smog-producing nitrogen oxide emissions compared to the cleanest diesel trucks; cut greenhouse gas emissions by over 20 percent; and are far quieter than diesel trucks.

While the conversion of CNG to compressed C-RNG is not a new phenomenon, its uptake is starting to take root. WM, in partnership with Linde, is converting landfill gas into LNG at WM's Livermore Landfill in northern California and transporting the LNG to southern California to fuel its LNG powered fleet. In St. Landry's Parish, LA, WC is fueling its CNG powered vehicles with landfill gas directly from the St. Landry Landfill. In Surrey, BC, the City is completing the development of a bio-digester that will process the organics collected in the city and generate pipeline quality gas. The generation of RNG from waste-based sources will continue to originate primarily from landfills, due to their large and consistent flow volumes.

However, biogas and wastewater treatment plant (WWTP) facilities also show significant potential for RNG generation.

SUMMARY

ONEIA is appreciative of the opportunity to provide its comments and suggestions and stands ready to work with MOECC in the development of an RFS and amendments to any existing regulations in this area.

Should you have any questions about the information contained herein, please do not hesitate to contact the co-chairs of our working group, Brandon Moffatt and/or Randy Cluff or feel free to contact the ONEIA office directly at 416-531-7884.

Yours truly,

A handwritten signature in black ink that reads "Alex Gill". The signature is written in a cursive, flowing style.

Alex Gill
Executive Director, ONEIA

c.c. Heather Pearson, Director, Air Policy Instruments and Programs Design Branch, Ontario Ministry of Environment and Climate Change

Wendy Ren, Director, Resource Recovery Branch, Ontario Ministry of Environment and Climate Change

Fatima Abdulrasul, Senior Policy Coordinator, Air Policy Instruments and Programs Design Branch, Ontario Ministry of Environment and Climate Change

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Arthur Potts, Parliamentary Assistant to the Minister of the Environment and Climate Change, Ontario Ministry of Environment and Climate Change