Date : 29-03-2019
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Department : HSEQ / OCC

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Comments on Ontario industrial emission standards proposed regulation

Air Liquide Canada inc. - Hamilton facility

Air Liquide Canada (ALC) is a subsidiary of Air Liquide Group, present in 80 countries with close to 50,000 employees. Air Liquide owns a Hydrogen (H2) production facility in Hamilton (Ontario) which has a capacity of about 5 tonnes (t) of H2 per day using Steam Methane Reforming thermal process (SMR).

ALC would like to comment on the following items of the proposed regulation on Emissions Performance Standard:

1. Alternatives to Sector Based Performance Standards
2. Emission Intensity and Trade exposure (EITE)

1. Alternatives to Sector Based Performance Standards

On March 6th 2019, Air Liquide participated in the MECP consultation / présentation with Chemical Sector stakeholders on Emission Performance Standards (EPS). A Hydrogen production Sector-Average standards of 10.9 t CO2e/t H2 produced was presented for *Refineries* and *Others*, consistent with the petroleum refining sector (See image below). Air Liquide understands that his Hamilton facility would fall under the ***Others*** category.

Proposed Federal Standards

Type of Standard	Facilities	Product produced or process parameter	Intensity units	Emissions Type		Covered under Federal OBPS (t CO2e/t unit of product)
				Non-Fixed	Fixed Process	
Sector Average	Refineries and Others	Hydrogen	Tonnes CO2e per tonne of hydrogen produced	Y	Y	~~8.75~~ 10.9
Facility Specific	Apotex Inc.	Vaccines	Tonnes CO2e per litre of vaccine produced	Y	N	0.267
	NOVA Chemicals (Canada) Ltd. - Corunna Site	Ethylene	Tonnes CO2e per tonne of ethylene produced	Y	N	0.652
		High Value Chemicals (HVC)	Tonnes CO2e per tonne of HVC produced	Y	N	0.652
	Sanofi Pasteur Limited	Vaccines	Tonnes CO2e per litre of vaccine produced	Y	N	0.267
	Terra International (Canada) Inc.	Ammonia	Tonnes CO2e per tonne ammonia produced	Y	N	1.72
	Terra International (Canada) Inc.	Nitric Acid	Tonnes CO2e per tonne of nitric acid produced	Y	N	0.313

ALC also noticed that this petroleum refining Sector standard is different from Appendix B (see below), of the regulation proposing a **Facility-Specific Emission Intensity** for the Chemical- Hydrogen Sector for facilities *separate from refining hydrogen producer*.

APPENDIX B

Table 1: Proposed Methods for Other Covered Sectors

Method	Sector	Sector Description
Facility-Specific Emission Intensity	Chemical - Ammonia	Subsector of the chemical sector. Produces ammonia.
	Chemical - Carbon black	Subsector of the chemical sector. Produces carbon black.
	Chemical - Citric acid	Subsector of the chemical sector. Produces citric acid.
	Chemical - Hydrogen	Subsector of the chemical sector. Produces hydrogen. Separate from refining hydrogen producers.
	Chemical - MPMD	Subsector of the chemical sector. Produces 2-Methylpentamethylenediamine (MPMD), a compound used in the production of plastics, adhesives, and as an additive in many other products.
	Chemical - Nylon	Subsector of the chemical sector. Produces nylon.
	Chemical - Petrochemical	Subsector of the chemical sector. Produces (poly)ethylene, styrene, lubricants and other products from petroleum feedstocks.
	Chemical - Vaccine	Subsector of the chemical sector. Produces vaccines.
	Food - Sugar	Subsector of the food sector. Produces refined white sugar.
	Industrial, Food, and Fuel Ethanol	Produces ethanol for use in industrial, food, and fuel applications.
	Lime	Production of lime products.
	Metal - Tubes and Steel (From Scrap)	Production of tubes and steel products from scrap metal.
	Mineral - Glass	Produces glass containers such as jars.
	Mineral - Gypsum	Produces gypsum panels.
	Mineral - Mineral and Glass	Produces insulation products made of mineral wool or glass fibers

ALC would prefer a site-specific standard, since the facility is not a petroleum refining facility and the produced hydrogen is use in the Steel industry. ALC hydrogen facility is probably also smaller in size and capacity compared to the refining sector. Based on 2017 report, our Hamilton facility emitted 11,744 tCO2e and produced 766 t H2 for an intensity of 15.3 tCO2e / T H2 produced.

2. Emission intensity and trade exposure (EITE)

During the March 6th 2019 consultation meeting, the MECP let the stakeholders positively believe that all sectors would be considered as a **high level EITE**. ALC would appreciate confirmation of the EITE level chosen for the Hydrogen Sector and would the same EITE apply to Sector-specific and Site-specific standards. It may be advantageous for ALC to be classified as Medium/Low EITE depending on the emission standard applicable.

Majority of CO2 emissions from SMRs are related to fixed-process emissions and no low-costs abatement opportunities are available, specifically for a small facility such as Air Liquide's. ALC activities are also in a competitive market within Canada and has competitors across the border in the United States. Due to high competitiveness, compliance costs can be hard to pass on (same applies to fuel compliance costs for our transportation activities).