CleanBC Industrial Incentive Program

Sugar Refining Sector Guidance

This guidance applies to reporting operations with primary NAICS codes as follows:

- NAICS – 311310: Sugar Manufacturing

Sub-Sector: Sugar Refining

CIIP Product:

- Sugar - solid sugar
- Sugar - liquid sugar (i.e. solid sugar content in liquid sugar)

In addition to this guidance document, the Ministry provides a spreadsheet with the appropriate calculation formulas built in, to assist in calculating inputs for the CleanBC Industrial Incentive Program (CIIP) application process (available via e-mail and webpage).

Quantification and Reporting of Emissions and Related Information

Unless explicitly stated otherwise in the CIIP guidance, quantification and reporting of greenhouse gas emissions and related information under CIIP must comply with the Greenhouse Gas Industrial Reporting and Control Act (GGIRCA) and the Greenhouse Gas Emission Reporting Regulation (GGERR), including with the referenced in GGERR Western Climate Initiative (WCI) quantification methodologies.

The WCI methodologies typically applicable to sugar refining reporting operations include, but may not be limited to, the following:

- WCI.020 General Stationary Combustion
- WCI.040 Electricity Generation
- WCI.280 Mobile Equipment at Facilities

In addition to the information required in the GGERR, applicants to CIIP must also report the GHG emissions associated with purchased grid electricity.

Purchased electricity is reported under the ‘Production’ tab in the CIIP application. From the ‘Product or Service’ dropdown menu, select ‘Purchased Electricity’. Enter the amount of electricity purchased (in gigawatt hours) and the emissions associated with the purchased electricity.
Grid electricity emissions are quantified by multiplying the published electricity emission intensity factor for grid-connected entities $EIF_{Electr.}^{Grid}$ for the applicable reporting year by the amount of purchased grid electricity $Q_{Purchased}^{Electr.}$ in GWh:

$$E_{Electr.}^{Grid} = EIF_{Electr.}^{Grid} \cdot Q_{Purchased}^{Electr.}$$

Therefore, the emissions total for CIIP purposes is:

$$E_{CIIP} = E_{onsite} + E_{Electr.}^{Grid}$$

where $E_{onsite}$ is the reporting operation’s emissions total as required to be reported under GGIRCA and submitted in the Single Window Reporting System.

**Quantification of Production**

Applicants to the CIIP must report the amount of:

- Solid Sugar production, in tonnes. All forms of solid sugar including granulated, cubes, brown, demerara, fine sugar and other types of sugar in solid state, must be included and reported under this category. Both white and coloured (brown and demerara) sugar are to be quantified in tonnes, i.e. there is no adjustment factor to convert coloured sugar into an equivalent quantity of white sugar;

- Liquid Sugar production, in tonnes solid sugar content in liquid sugar. All forms of liquid sugar including invert, sucrose, syrup (re-melt RMG), molasses or other type of sugar in liquid state dissolved in water, must be included and reported under this category. Tonnes solid sugar content in liquid sugar means the amount of solid sugar used for making liquid sugar, not including the added water.

The solid and liquid sugar production amounts above must include all solid and liquid sugar produced during the reporting year, regardless of whether it is sold during the year or added to inventory. It does not include solid or liquid sugar sold from a previous year’s production.

Production must not include any waste products.

**Emission Allocation between Products**

Applicants to CIIP must allocate GHG emissions between the following products:

- Solid Sugar
- Liquid sugar, as solid sugar content in liquid sugar
The total emissions $E^{CHIP}$ must be split between the above products as follows:

$$E_L = \frac{0.018 \cdot P_L + (\frac{P_L}{P_S}) \cdot E^{CHIP}}{1 + (\frac{P_L}{P_S})}$$

$$E_S = E^{CHIP} - E_L$$

where:

$E_S$ are the emissions allocated to solid sugar (tCO2e)

$E_L$ are the emissions allocated to liquid sugar (tCO2e)

$P_S$ is Solid Sugar production (tonnes)

$P_L$ is Liquid Sugar production (tonnes solid sugar content in liquid sugar)

The applicant must allocate all emissions from generated electricity and/or heat to the products produced at the facility and/or to sold electricity.

All emissions from purchased electricity and/or heat must be allocated to the facility’s products

**Emission Intensity**

For the purposes of CIIP:

- The Emission Intensity of solid sugar $EI_S$ will be calculated as:

$$EI_S = \frac{E_S}{P_S}$$

- The Emission Intensity of liquid sugar $EI_L$ will be calculated as:

$$EI_L = \frac{E_L}{P_L}$$