

CleanBC Industrial Incentive Program

Sugar Refining Sector Guidance

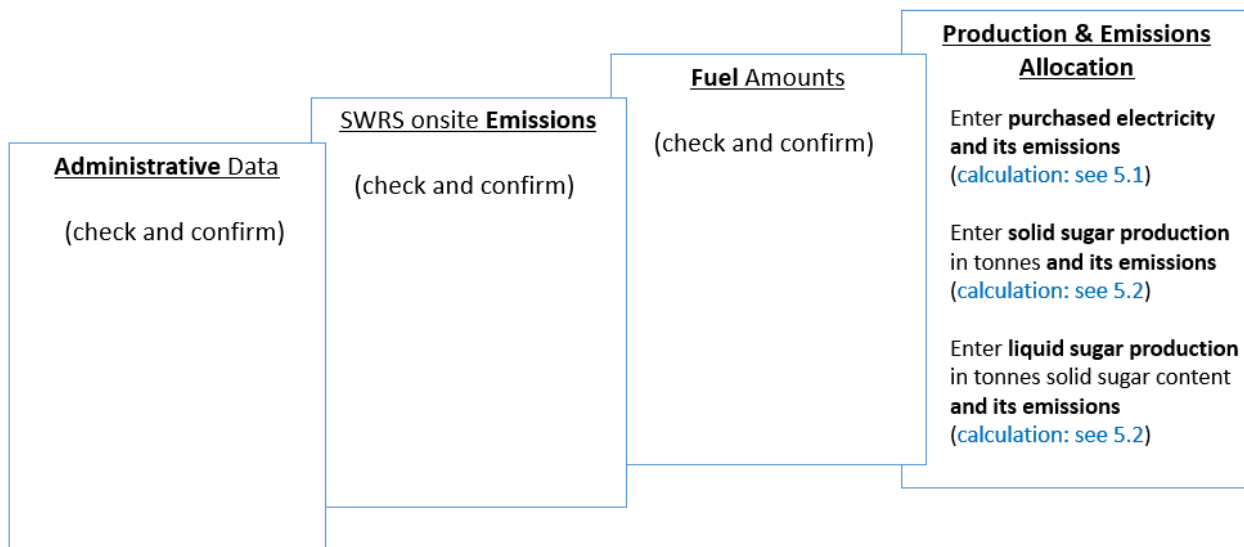
1. Applicable NAICS codes:

- **NAICS – 311310: Sugar Manufacturing**

Sub-Sector	CIIP Product
Sugar Refining	Solid sugar
	Liquid sugar

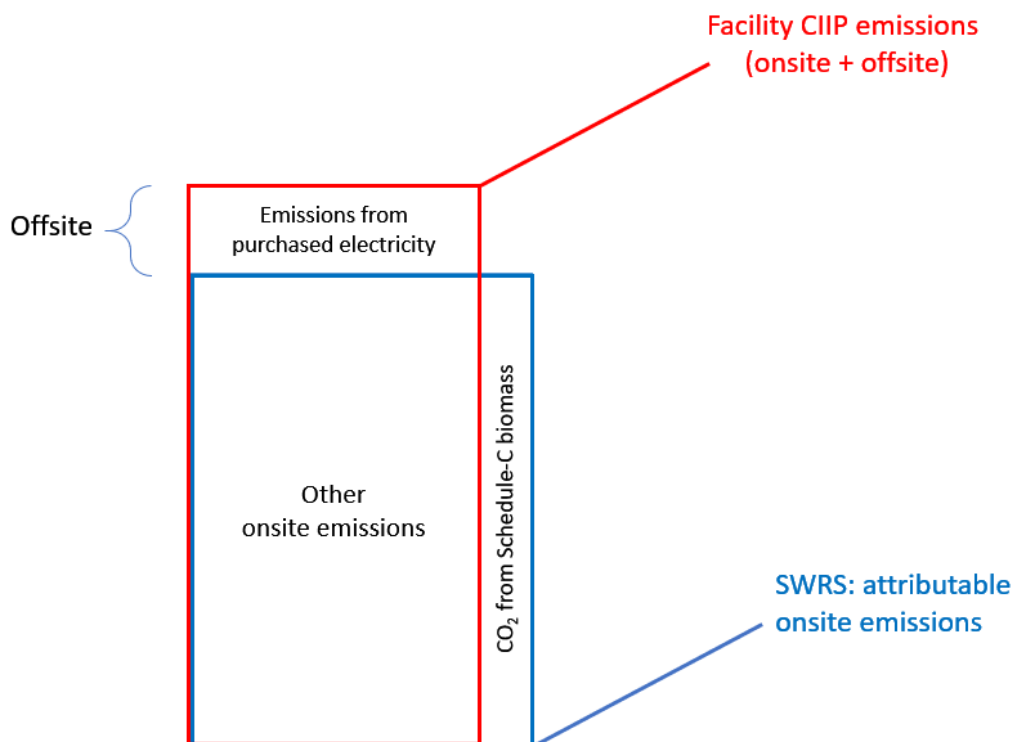
2. Quick Summary – Main Steps in CIIP application

- 2.1 Complete and submit a facility emission report in the Single Window Reporting System (SWRS)
- 2.2 Complete and submit a CIIP application (it is pre-filled with SWRS data where applicable)



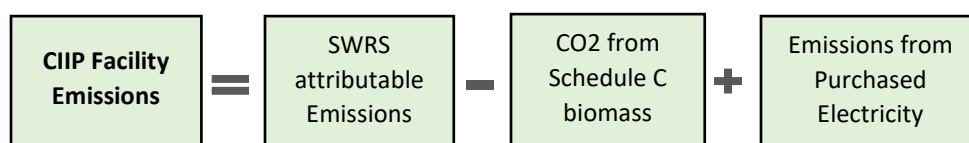
(calculation) steps are detailed in section **5. Calculation Methodologies** below.

3. Facility Emissions for CIIP purposes



For the Facility emission total for CIIP purposes:

- Facility onsite emissions CO₂ from Schedule C biomass are excluded, and
- Facility offsite emissions from purchased electricity are included.



Or, equivalently,

$$E_{Facility}^{CIIP} = E_{Attr.}^{SWRS} - E_{CO2bioC}^{SWRS} + E_{Purchased}^{Electr.}$$

Facility onsite emissions are pre-filled in the CIIP application with data submitted through the SWRS system.

Facility offsite emissions associated with purchased electricity must be calculated from electricity amount purchased. Both amounts and emissions are entered in the *Production and Emissions Allocation* section of the CIIP application.

4. Completing a CIIP Application

The CIIP application has four sections. Where possible, the *Administrative*, *SWRS Onsite Emissions* and *Fuels* sections are pre-populated with data reported through the SWRS system. Applicants must review, confirm, and, if applicable, update this information and also enter production and emissions allocation information in the *Production and Emissions Allocation* section.

Administrative Data

Most information in the administrative section will be pre-populated from SWRS.

- Review pre-populated data for accuracy
- Enter the BC Corporate Registry number as it appears on orgbook.gov.bc.ca

NOTE: The BC Corporate Registry number and the operator's legal name on the CIIP application must match the entry on OrgBook. The incentive payment will be issued to the legal business name as it appears on the CIIP application.

- Please ensure all mailing addresses follow the [Canada Post address format](#)
- Enter at least one application contact. The Primary Application Contact field will be pre-populated based on the user who starts an application; please confirm or edit as applicable. This will be the primary contact CAS will use for all application-related correspondence: questions, application status changes, review results, etc. A Secondary Application Contact can be added, if applicable. Please note that automated system messages such as application status updates will only be sent to the primary contact.
- Choose the primary NAICS code that the facility operates under from the available list. The NAICS codes in the pre-populated list reflect the sectors eligible to apply for CIIP. You will not be able to enter a NAICS code that is not on the list. The production information required to be entered in the *Production and Emissions Allocation* section will depend on the NAICS code selection

If you believe your facility's sector is eligible but your NAICS code is not on the list, please contact the CIIP team at GHGRegulator@gov.bc.ca.

SWRS Onsite Emissions

This section is pre-filled with data from the facility's SWRS report. Please review and confirm. If the information needs updating, this likely means that the SWRS report has to be updated first.

Fuels

This section is pre-filled with data from the facility's SWRS report. Please review and confirm. If the information needs updating, this likely means that the SWRS report has to be updated first.

Production & Emissions Allocation

NOTE: The ministry provides a calculator spreadsheet with the appropriate calculation formulas built in, to assist in calculations at this step of the CIIP application process (available [at this link](#)).

NOTE: To enter data as required in this section, first select 'Offsite Emissions: Purchased Electricity', then 'Solid sugar', then 'Liquid sugar', as applicable, from the 'Product or Service' dropdown menu.

NOTE: Solid and liquid sugar production includes all solid and liquid sugar produced during the reporting year, regardless of whether sold during the year or added to inventory. It does not include solid and liquid sugar sold from a previous year's production. Production must not include any waste products.

Allocating CIIP Facility emissions

CIIP facility emissions, calculated as shown in section 3 using the calculator, must be allocated between the 'Solid sugar' and 'Liquid sugar' products.

- If only one of the above products is reported, its product emissions are equal to CIIP facility emissions;
- If both products are reported, CIIP facility emissions are allocated, using the calculator, between the two reported products:

$$E_{Facility}^{CIIP} = E_{Solid_sugar} + E_{Liquid_sugar}$$

In the CIIP application enter the following information:

Select 'Offsite Emissions: Purchased Electricity'

- Enter purchased electricity used for purposes other than blending (in GWh). Enter 0 if not applicable.
- Calculate and enter the emissions associated with that purchased electricity, using the calculator (see section 5.1 below for details).

Select 'Solid sugar'

- Calculate and enter the total amount of solid sugar, in tonnes, using the calculator (see section 5.2 for details)

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.

- Calculate and enter the emissions associated with solid sugar, using the calculator (see section 5.2 for details)

Select 'Liquid sugar'

- Calculate and enter the total amount of liquid sugar, in tonnes solid sugar content, using the calculator (see section 5.2 for details)

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.

- Calculate and enter the emissions associated with liquid sugar, using the calculator (see section 5.2 for details)

Summary

Review your application for accuracy, review the terms and conditions, and submit the application.

The system will automatically perform some checks for consistency. If inconsistencies are found, the application will show a warning message, highlighting the issue requiring attention. To address any highlighted inconsistencies, you must go back to the relevant application section/tab and either correct the reported values or provide an explanation by entering a comment in the relevant section.

Additionally, the system may detect errors in your application, such as missing data. These errors must be corrected in order to submit an application. In certain exceptional cases when the issue cannot be addressed through the application system, you will have the ability to override the error message by providing an explanation and then submit the application.

Any unresolved warnings or errors may delay the processing of your application.

5. Calculation Methodologies

Unless explicitly stated otherwise in 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 are:

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

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A CIIP applicant must first submit an emission report in SWRS (SWRS report) complying with GGIRCA and GGERR and using the WCI methodologies. A CIIP application is then pre-filled where possible with applicable information from the SWRS report.

5.1 Calculating emissions associated with purchased grid electricity

The ministry provides a calculator spreadsheet with the appropriate calculation formulas built in, to assist in calculations at this step of the CIIP application process (available [at this link](#)).

In the calculator, in the section on Purchased Electricity, select the applicable electrical grid (Integrated or Fort Nelson) from the pulldown menu in cell E11. This will cause the appropriate electricity intensity factor in tCO₂e/GWh to be displayed in cell G11.

In the blue cell, enter the amount of purchased electricity (in GWh).

Emissions associated with purchased grid electricity are then automatically calculated and displayed in cell G13, in tonnes CO₂e. For example:

Purchased Electricity

INPUT each variable listed below:

Purchased Electricity

	Electrical Grid:	Amount	Units
Emissions Intensity Factor of Grid	Integrated Grid	EIF _{El.Grid} 11.5	tCO ₂ e/GWh
Amount of electricity purchased		300.00	GWh
Emissions from Purchased Electricity		3,450.00	tCO ₂ e

Enter the amount of emissions from purchased grid electricity in the CIIP application.

The calculator uses the following methodology to determine emissions associated with purchased grid electricity:

If

$EIF^{El.Grid}$ (selection) is the grid electricity emission factor for the selected grid and applicable year, in tCO₂e/GWh;

$Q_{Purchased}^{Electr.}$ (input) is the quantity of purchased grid electricity, in GWh;

$E_{Purchased}^{Electr.}$ are the emissions associated with purchased grid electricity, in tCO₂e.

Then

$$E_{Purchased}^{Electr.} = EIF^{El.Grid} * Q_{Purchased}^{Electr.}$$

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where $EIF^{El-Grid}$ data comes from the published [electricity emission intensity factor for grid-connected entities](#) for the selected grid for applicable year.

5.2 Reporting production and allocating emissions

The ministry provides a calculator spreadsheet with the appropriate calculation formulas built in, to assist in calculations at this step of the CIIP application process (available [at this link](#)).

In the calculator, in the section 'Production and Emissions Allocation', subsection 'Production', in the blue cells:

- Enter all the applicable amounts of the different solid sugar products, in tonnes
- Enter all the applicable amounts of the different liquid sugar products, in tonnes solid sugar content

The calculator then determines total solid sugar production and total liquid sugar production, in the respective units. For example:

Production

INPUT production information:

Do not leave blank - enter zero if needed

Products	Amount	Units
Solid Products		
Granulated	100,000.0	tonnes
Cubes	-	tonnes
Brown	-	tonnes
Demerara	-	tonnes
Golden Yellow	-	tonnes
Icing	-	tonnes
Plantation raw	-	tonnes
Liquid Products (tonnes solid sugar content)		
Invert	50,000.0	tonnes solid sugar content
Sucrose	-	tonnes solid sugar content
RGS (Rogers Golden Syrup)	-	tonnes solid sugar content
Remelt syrup and molasses	-	tonnes solid sugar content
Total Solid sugar production :	100,000.0	tonnes
Total Liquid sugar production :	50,000.0	tonnes solid sugar content

Next in the calculator, in the subsection 'CIIP Facility Emissions and Allocation', in the blue cells:

- Enter onsite attributable emissions from the SWRS report, in tCO₂e
- Enter onsite CO₂ emissions from combustion of Schedule-C biomass, in tCO₂e

Using this emissions information and the previously calculated emissions associated with purchased electricity, the calculator determines and displays the [CIIP Facility emissions](#) in cell D52.

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Finally, using all the above entered and calculated information, the calculator allocates the CIIP Facility emissions to solid sugar and to liquid sugar production.

For example:


CIIP Facility Emissions and Allocation

INPUT emissions where applicable:

Do not leave blank - enter zero if needed

Total attributable emissions from SWRS report	40,000.00	tCO ₂ e
CO ₂ emissions from combustion of Schedule-C biomass	100.00	tCO ₂ e
Emissions from purchased electricity	2,910.00	tCO ₂ e
CIIP Facility Emissions	42,810.00	tCO₂e

Emissions allocated to Solid sugar :	27,940.00	tCO₂e
Emissions allocated to Liquid sugar :	14,870.00	tCO₂e



Enter the total production amounts and respective allocated emissions for each, in the CIIP application.

The calculator uses the following methodology to determine emission allocation:

If

- P_S is total solid sugar production (tonnes)
- P_L is total liquid sugar production (tonnes solid sugar content)
- $E_{Facility}^{CIIP}$ are the total facility emissions for CIIP purposes (tCO₂e)
- E_S are the emissions allocated to solid sugar (tCO₂e)
- E_L are the emissions allocated to liquid sugar (tCO₂e)

Then

$$E_L = \frac{0.018 * P_L + \left(\frac{P_L}{P_S}\right) * E_{Facility}^{CIIP}}{1 + \left(\frac{P_L}{P_S}\right)}$$

$$E_S = E_{Facility}^{CIIP} - E_L$$