CleanBC Industrial Incentive Program
Wood Products Sector Guidance
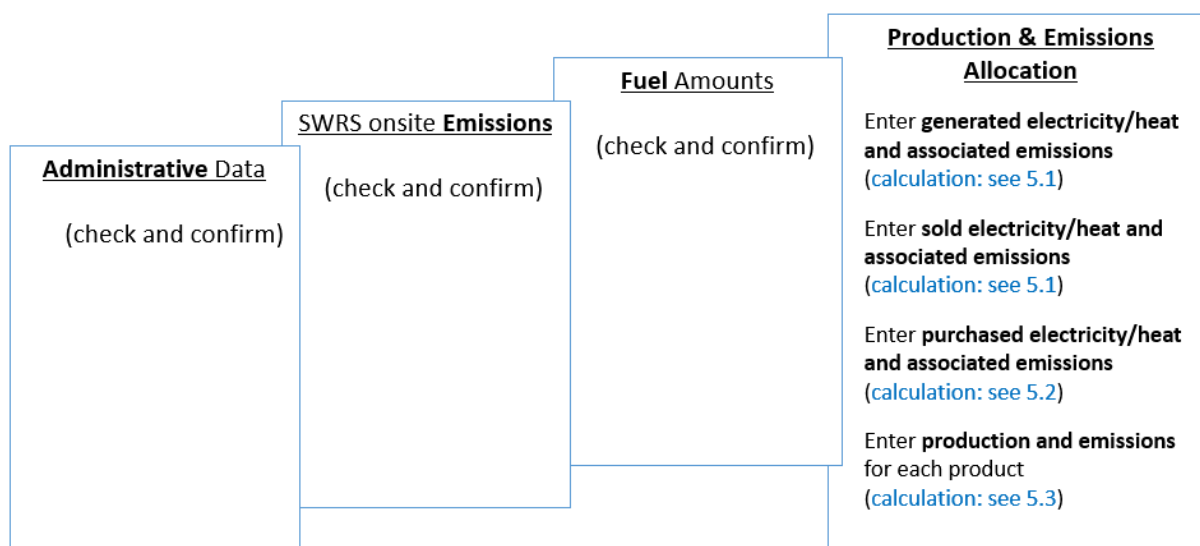
1. **Applicable NAICS codes:**

   - **NAICS – 321111: Sawmills (except Shingle and Shake Mills)**
   - **NAICS – 321112: Shingle and Shake Mills**
   - **NAICS – 321212: Softwood veneer and plywood mills**
   - **NAICS – 321216: Particle board and fibreboard mills**
   - **NAICS – 321999: All other miscellaneous wood product manufacturing**

| Sub-Sector	CIIP Product
Sawmills Veneer and plywood mills Particle board and fibreboard mills	Wood products: Lumber
	Wood products: Plywood
	Wood products: Veneer
	Wood products: Medium density fibreboard
	Wood products: Wood pellets
	Wood products: Wood chips

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)

Administrative Data

(check and confirm)

SWRS onsite **Emissions**

(check and confirm)

Fuel Amounts

(check and confirm)

Production & Emissions Allocation

Enter **generated electricity/heat and associated emissions** (calculation: see 5.1)

Enter **sold electricity/heat and associated emissions** (calculation: see 5.1)

Enter **purchased electricity/heat and associated emissions** (calculation: see 5.2)

Enter **production and emissions** for each product (calculation: see 5.3)

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

3. Facility Emissions for CIIP purposes
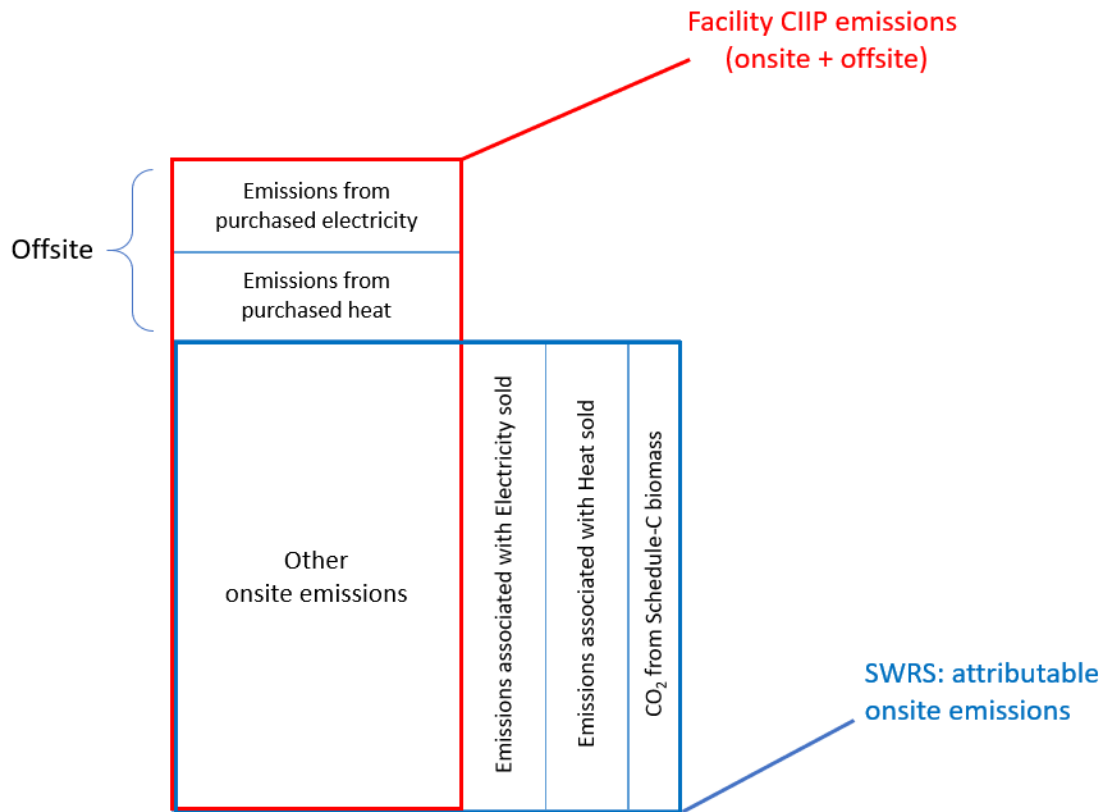
For the Facility emission total for CIIP purposes:

- Facility onsite emissions CO2 from Schedule C biomass are excluded,
- Facility emissions associated with sold electricity and/or heat are excluded,
- Facility offsite emissions from purchased electricity and/or heat are included.
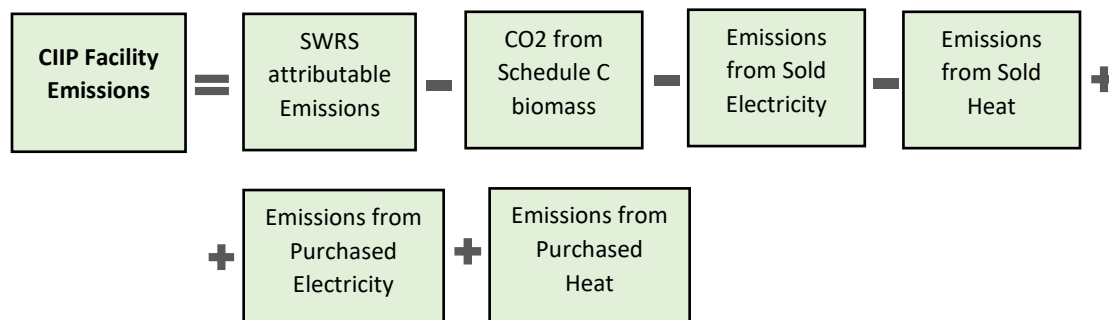
Or, equivalently,

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

APRIL 2023

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

CIIP facility emissions associated with sold or purchased electricity and/or heat are calculated as described in section 4.

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 though 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 'Generated Electricity', then 'Generated Heat', then 'Excluded Emissions: Sold electricity', then 'Excluded Emissions: Sold heat', then 'Offsite Emissions: Purchased Electricity', then 'Offsite Emissions: Purchased Heat', and finally the appropriate products, as applicable, from the 'Product or Service' dropdown menu.

NOTE: For the purposes of CIIP it is assumed that:
- All energy generated on-site but not sold is used for production;
- All sold energy was generated on-site.

Allocating CIIP Facility emissions

CIIP facility emissions, calculated as shown in section 3 using the calculator, must be allocated between the applicable wood products.

- If only one wood product is reported, its product emissions are equal to CIIP facility emissions;
- If more than one wood product is reported, CIIP facility emissions are allocated, using the calculator, between the reported wood products:

$$E_{Facility}^{CIIP} = E_{lumber} + E_{plywood} + E_{veneer} + E_{MDF} + E_{pellets} + E_{chips}$$

In the CIIP application enter the following information:

Select '**Generated Electricity**'
- Enter total generated electricity (in GWh). Enter 0 if not applicable.
- Calculate and enter the emissions associated with generated electricity, using the calculator (see section **5.1** below for details)

Select '**Generated Heat**'
- Enter total generated heat (in GJ). Enter 0 if not applicable.

- Calculate and enter the emissions associated with generated heat, using the calculator (see section **5.1** below for details)

Select '**Excluded Emissions: Sold electricity'**
- Enter sold electricity (in GWh). Enter 0 if not applicable.
- Calculate and enter the emissions associated with sold electricity, using the calculator (see section **5.1** below for details)

Select '**Excluded Emissions: Sold heat**
- Enter sold heat (in GJ). Enter 0 if not applicable.
- Calculate and enter the emissions associated with sold heat, using the calculator (see section **5.1** below for details)

Select '**Offsite Emissions: Purchased Electricity'**
- Enter purchased electricity (in GWh). Enter 0 if not applicable.
- Calculate and enter the emissions associated with purchased electricity, using the calculator (see section **5.2** below for details).

Select '**Offsite Emissions: Purchased Heat'**
- Enter purchased heat (in GJ). Enter 0 if not applicable.
- Calculate and enter the emissions associated with purchased heat, using the calculator (see section **5.2** below for details)

Select a wood product (repeat this step for all applicable wood products – '**Wood products: Lumber', 'Wood products: Medium density fibreboard', 'Wood products: Plywood', 'Wood products: Veneer', 'Wood products: Wood chips', 'Wood products: Wood pellets'.**

- Enter annual production of each applicable salable wood product (in cubic metres for lumber, plywood, veneer, MDF and wood chips; and in tonnes for wood pellets)
  - Wood chips are considered to also include hog fuel that is sold as a product.

  Salable product means product produced with the intention of being sold. This includes all salable product produced during the reporting year, regardless of whether it is sold during the year or added to inventory. It does not include salable product sold from a previous year's production. Production must not include any waste products.

- Calculate and enter the emissions associated with each selected wood product, using the calculator (see section **5.3** below 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 wood products reporting operations are:

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

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 generated and with sold electricity and heat

In the case of combined heat and power (CHP) generation (co-generation), 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: In the case of pure electricity generation (not a combined heat and power unit) there is no partitioning between generated electricity and heat; use the calculator but enter '0' for heat generated and heat sold.

NOTE: CIIP applicants must demonstrate that the total amount of sold energy does not exceed that which is allowable under a fully executed purchase agreement. Records evidencing such agreements must be kept in accordance with GGERR.

In the calculator, in the blue cells enter:

- Emissions attributable to all self-generated energy (electricity and heat). This will likely correspond to the total emissions entered in SWRS under the 'Electricity Generation' activity
- Total amount of electricity generated, and electricity sold, in GWh (column F). The calculator will automatically convert these to units of GJ and display the results in column G
- Total amount of heat generated, and heat sold, in GJ (column G)

- Electricity and heat generation efficiencies. Use default generation efficiency values unless actual efficiency values for specific CHP units are available and sufficient justification is provided to the ministry.

At this time the calculator will automatically allocate and display:

- The emissions associated with generated electricity
- The emissions associated with generated heat

(The sum of these two will equal the emissions attributable to all self-generated energy)

- The emissions associated with sold electricity
- The emissions associated with sold heat

An example:

Input		Electricity in GWh	Amount	Units
Emissions attributable to all self-generated energy	E_{EL+H}		20,000.00	tCO_2e
Total electricity generated	P_{EL}	800.00	2,880,000	GJ
Electricity generation efficiency	e_{EL}		0.35	Default = 0.35
Total heat (steam) generated	P_H		14,040,000	GJ
Heat generation efficiency	e_H		0.80	Default = 0.80
Total electricity sold	P_{EL_SOLD}	200.00	720,000	GJ
Total heat sold	$P_{H\ SOLD}$		1,000,000	GJ

Emissions attributable to all self-generated electricity	E_{EL}		6,384.04	tCO_2e
Emissions attributable to all self-generated heat (steam)	E_H		13,615.96	tCO_2e

Emissions associated with sold electricity	E_{EL_SOLD}		**1,596.01**	tCO_2e
Emissions associated with sold heat	E_{H_SOLD}		**969.80**	tCO_2e

The calculator allocates these emissions according to the following methodology:

$$E_{EL} = \left[\frac{P_{EL}}{\left(\frac{e_{EL}}{e_H}\right) P_H + P_{EL}} \right] * E_{EL+H}$$

$$E_H = E_{EL+H} - E_{EL}$$

Where:

E_{EL} are the emissions allocated to all self-generated electricity (tCO2e)

E_H are the emissions allocated to all self-generated heat (steam) (tCO2e)

E_{EL+H} (input) are the emissions allocated to all self-generated energy (tCO2e)

P_{EL} (input) is total generated electricity (GJ; 1 GWh = 3600 GJ)

P_H (input) is total generated heat (steam) (GJ)

e_{EL} (input) is efficiency of electricity generation (default value = 0.35)

e_H (input) is efficiency of heat (steam) generation (default value = 0.80)

And

$$E_{EL\_sold} = \left(\frac{P_{EL\_sold}}{P_{EL}}\right) * E_{EL}$$

$$E_{H\_sold} = \left(\frac{P_{H\_sold}}{P_H}\right) * E_H$$

where:

E_{EL_sold} are the emissions associated with sold electricity (tCO2e)

E_{H_sold} are the emissions associated with sold heat (tCO2e)

P_{EL_sold} (input) is sold electricity (GJ; 1 GWh = 3600 GJ)

P_{H_sold} (input) is sold heat (steam) (GJ)

5.2 Calculating emissions associated with purchased grid electricity and purchased heat

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 and Heat, subsection 'Purchased Electricity', select the applicable electrical grid (Integrated or Fort Nelson) from the pulldown menu in cell E33. This will cause the appropriate electricity intensity factor in tCO2e/GWh to be displayed in cell G33.

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 G35, 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	$EIF_{EI.Grid}$	11.5	tCO$_2$e/GWh
Amount of electricity purchased		_PURCHASED	300.00	GWh
Emissions from Purchased Electricity		_PURCHASED	3,450.00	tCO$_2$e

Choose grid from dropdown menu

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

In the calculator, in the subsection on Purchased Heat, in the blue cell, enter the amount of purchased heat (in GJ).

Emissions associated with purchased heat are then automatically calculated and displayed in cell G44, in tonnes CO2e. For example:

Purchased Heat

		Amount	Units
Emissions Intensity Factor of Purchased heat	$EIF_{BC\ Heat}$	0.063	tCO$_2$e/GJ
Amount of heat purchased	$Q_{H\_PURCHASED}$	100,000.00	GJ
Emissions from Purchased Heat	$E_{BC\ Heat}$	6,300.00	tCO$_2$e

Enter the amount of emissions from purchased heat in the CIIP application.

The calculator then provides a summary of total consumed electricity and heat and their associated emissions. For example:

Total electricity consumed :	900.00	GWh
Total emissions for that electricity :	16,818.03	tCO2e
Total heat consumed :	13,140,000.00	GJ
Total emissions for that heat :	18,946.16	tCO2e

Summary :

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

If

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

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

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

Then

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

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

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

If

0.063 is the BC-specific heat emission factor, in tCO2e/GJ;

$Q_{Purchased}^{Heat}$ (input) is the quantity of purchased heat, in GJ;

$E_{Purchased}^{Heat}$ are the emissions associated with purchased heat, in tCO2e.

Then

$$E_{Purchased}^{Heat} = 0.063 * Q_{Purchased}^{Heat}$$

5.3 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 'CIIP Facility Emissions', in the blue cells:

- Enter SWRS attributable onsite emissions, including from Schedule C biomass (tonnes CO2e)
- Enter CO_2 emissions from combustion of Schedule-C biomass, in tCO2e

Using this emissions information and the previously calculated emissions associated with sold and purchased electricity and heat, the calculator determines the CIIP facility emissions in cell D15.

For example:

Do not leave blank - enter zero if needed

CIIP Facility Emissions

	Emission Sources	Emissions	Units
	Onsite attributable emissions from SWRS report	90,000.00	tCO$_2$e
--	CO_2 emissions from combustion of Schedule-C biomass	49,000.00	tCO$_2$e
--	Emissions associated with sold electricity	3,232.32	tCO$_2$e
--	Emissions associated with sold heat	2,455.11	tCO$_2$e
+	Emissions associated with purchased electricity	2,910.00	tCO$_2$e
+	Emissions associated with purchased heat	6,300.00	tCO$_2$e
	CIIP Facility Emissions	**44,522.57**	**tCO$_2$e**

5.3.1 *Process Units: Share of electricity, heat, and other emissions*

In the calculator, in the section 'Production and Emissions Allocation', subsection 'Processing Units', in the blue cells, for each processing unit:

- Enter process, subprocess and processing unit name
- Enter electricity (in GWh) and heat (in GJ) consumed by that unit, from internal accounting

   NOTE: The sum of consumed electricity and heat from all units must equal the totals in the summary provided on the 'Calculator A' tab; cells E19 and E20 on this tab show the electricity and heat remaining to be allocated to a unit and should read "−" and be highlighted green when data entry for all units is complete. Initially the cells are highlighted yellow and display the total amounts available for allocation; if more than the total is allocated, the cells display "error" and are highlighted red.

- Calculate and enter the sum of general stationary combustion (GSC) and Mobile combustion (MC) emissions applicable to that unit, from internal accounting, out of the total GSC+MC

  NOTE: The sum of GSC and MC emissions from all units must equal the total GSC+MC emissions from the SWRS report; cell E21 here shows the GSC+MC emissions remaining to be allocated to a unit and should read "–" and be highlighted green when data entry for all units is complete. Initially the cell is highlighted yellow and displays the total GSC+MC emissions available for allocation; if more than the total is allocated, the cell displays "error" and is highlighted red.

Using this emissions information and the previously entered quantities and calculated emissions associated with generated, sold and purchased electricity and heat, the calculator then determines the share of electricity and heat emissions for that unit.

For example:

Blue cells require an input.** Non-input cells are locked.

		Legend
	-	Consumed electricity remaining for allocation (GWh)
	-	Consumed heat remaining for allocation (GJ)
	-	GSC + Mobile Combustion emissions remaining for allocation (tCO2e)

enter data for individual process units here

Process							
Sub-Process							
Unit Name	unit 1	unit 2	unit 3	unit 4			
Electricity Consumed (GWh)	100.00	200.00	150.00	170.00			
Heat (Steam) Consumed (GJ)	500,000.00	300,000.00	250,000.00	350,000.00			
Share of total General Stationary Combustion + Mobile Combustion emissions (tCO2e)	2,000.00	5,000.00	4,000.00	5,000.00			
Share of total Electricity emissions (tCO2e)	2,554.72	5,109.45	3,832.09	4,343.03	-	
Share of total Heat emissions (tCO2e)	4,529.74	2,717.85	2,264.87	3,170.82	-	

5.3.2   *Production by processing unit*

In the calculator, in the subsection 'Production by processing unit', in the blue cells, <u>for each processing unit</u>:

- Enter all product amounts applicable to that unit, in cubic metres

NOTE: Product amounts in different volume units or in mass[1] units have to be converted to cubic metres first. Use the calculator's conversion tool.

For example:

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[1] Wood pellets amount in mass units (tonnes) is converted to volume units in cubic metres by using a reference bulk density of 0.641 tonnes/m³ (PFI 2020).

*If needed, first convert wood pellets mass (tonnes) to volume in cubic metres (m3) :	641	tonnes	1,000.00 m3
*If needed, first convert from mfbm (thousand board feet) to cubic metres (m3) :	500	mfbm	1,179.87 m3
*If needed, first convert from msf (thousand sq. feet) at 1/8" thickness to cubic metres (m3) :	500	msf at 1/8"	147.48 m3
at 3/8" thickness to cubic metres (m3) :	500	msf at 3/8"	442.45 m3
at 3/4" thickness to cubic metres (m3) :	500	msf at 1/4"	884.90 m3

Product*	enter amount of each product associated with each process unit listed above. If a product is not associated with a						
Lumber (m3)	25,000.00						
Plywood (m3)	100,000.00						
Veneer (m3)	10,000.00			5,000.00			
MDF (m3)				20,000.00			
Wood Pellets (m3)			10,000.00				
Wood chips (m3)		150,000.00					
Total production per unit :	135,000.00	150,000.00	10,000.00	25,000.00	Add products	Add products	Add products	Add

The calculator automatically fills out the attribution share of each product within a processing unit based on their fraction of the production for that unit and also automatically calculates the share of attributed emissions by emission category:

attribution share by product for each unit

Lumber (m3)	0.19	-	-	-			
Plywood (m3)	0.74	-	-	-			
Veneer (m3)	0.07	-	-	0.20			
MDF (m3)	-	-	-	0.80			
Wood Pellets (m3)	-	-	1.00	-			
Wood chips (m3)	-	1.00	-	-			
Check	1.00	1.00	1.00	1.00	-	-	-

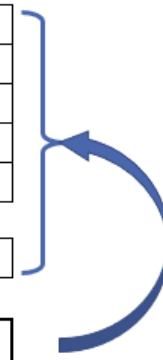| Product	Share of GSC+Mobile Emissions (t CO2e)	Share of Electricity emissions (t CO2e)	Share of Heat emissions (t CO2e)	
Lumber (m3)	370.37	473.10	838.84	tCO_2e
Plywood (m3)	1,481.48	1,892.39	3,355.36	tCO_2e
Veneer (m3)	1,148.15	1,057.85	969.70	tCO_2e
MDF (m3)	4,000.00	3,474.43	2,536.66	tCO_2e
Pellets (m3)	4,000.00	3,832.09	2,264.87	tCO_2e
Wood chips (m3)	5,000.00	5,109.45	2,717.85	tCO_2e
TOTAL Emissions by category :	**16,000.00**	**15,839.29**	**12,683.28**	tCO_2e

If all data are entered correctly, the total attributed GSC and MC emissions should equal the total GSC+MC emissions from the SWRS report; the total attributed emissions from consumed electricity should equal the total in the summary provided on the 'Calculator A' tab in cell F47; and the total attributed emissions from consumed heat should equal the total in the summary provided on the 'Calculator A' tab in cell F50.

Finally, using all the above entered and calculated information, the calculator allocates the total CIIP emissions to each product by summing up, by product, the product amounts and emission shares from each processing unit.

For example:

	Production Total (m3)	Total Allocated Emissions	
Lumber	25,000.00	1,682.31	tCO$_2$e
Plywood	100,000.00	6,729.23	tCO$_2$e
Veneer	15,000.00	3,175.69	tCO$_2$e
MDF	20,000.00	10,011.08	tCO$_2$e
Wood chips	150,000.00	12,827.29	tCO$_2$e
Production Total (tonnes)			
Wood Pellets	6,410.00	10,096.96	tCO$_2$e
CIIP Facility Emissions :		44,522.57	tCO$_2$e

Note that the wood pellets production total has been automatically converted back to mass units (tonnes) as required for entry into the CIIP application.

Enter the product amounts (in cubic metres for lumber, plywood, veneer, MDF and wood chips; and in tonnes for wood pellets) and respective allocated emissions for each, in the CIIP application.