

CleanBC Industrial Incentive Program

Pulp and Paper Sector Guidance

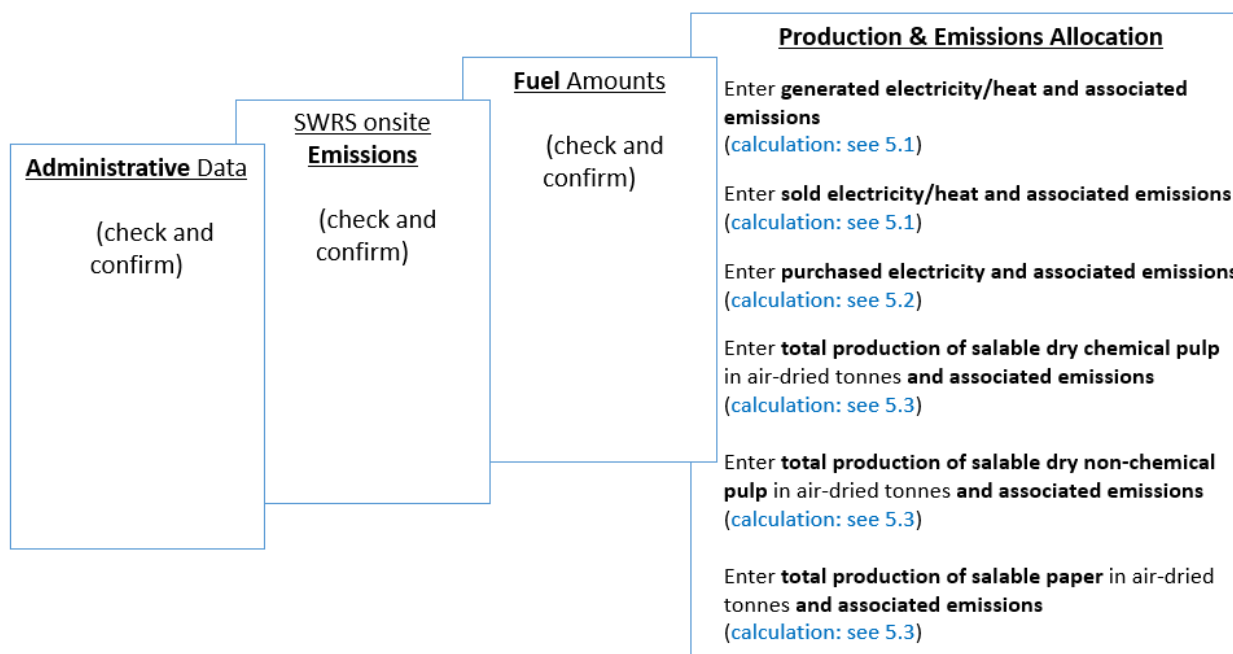
1. Applicable NAICS codes:

- NAICS – 322111: Mechanical Pulp Mills
- NAICS – 322112: Chemical Pulp Mills
- NAICS – 322121: Paper (except newsprint) Mills
- NAICS – 322122: Newsprint Mills
- NAICS – 322130: Paperboard Mills

Sub-Sector	CIIP Product
Chemical pulp mills	Pulp and Paper: Chemical pulp
Mechanical pulp mills	Pulp and Paper: Non-chemical pulp
Paper (except newsprint) mills	Pulp and Paper: Paper
Newsprint mills	

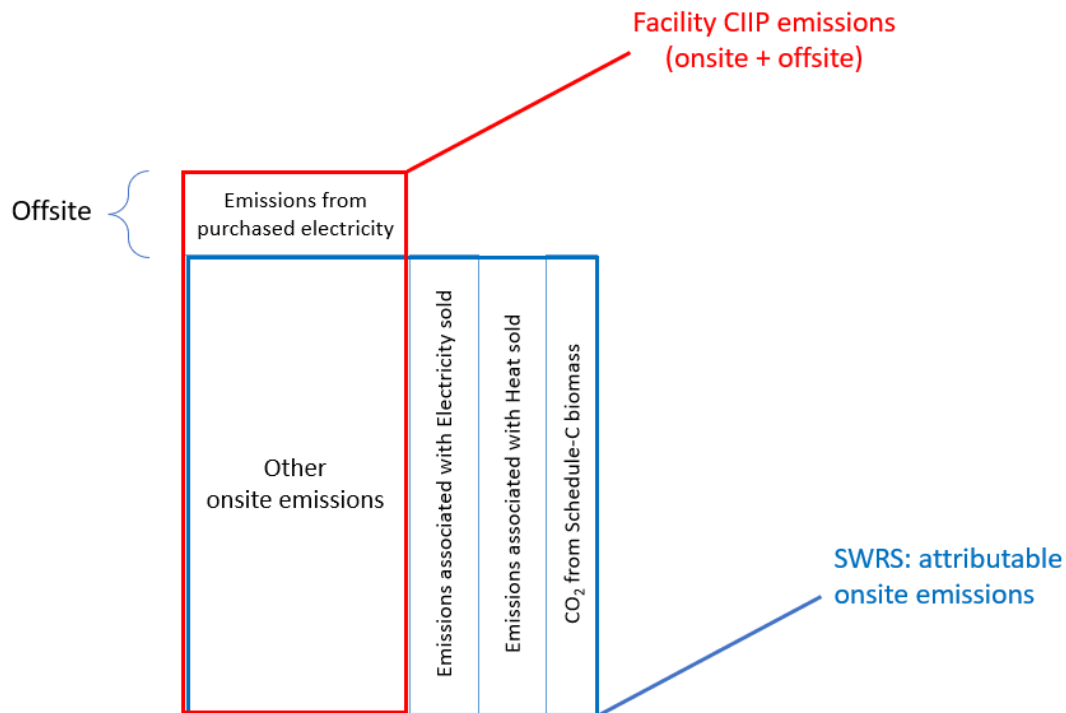
2. Quick Summary – Main Steps in CIIP application

- 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)



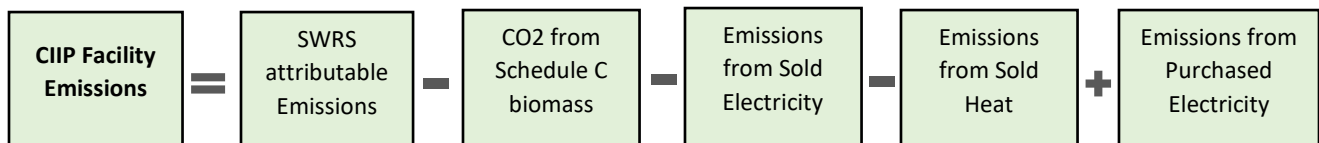
(calculation) steps are detailed in section **5. Calculation Methodologies** below.

3. Facility Emissions for CIIP purposes



For the Facility emission total for CIIP purposes:

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



Or, equivalently,

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

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

Facility emissions associated with sold electricity and/or heat must be calculated from total and sold electricity/heat amounts and emissions. 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](#)).

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 'Purchased Electricity', and finally the appropriate products ('Pulp and Paper: Chemical pulp' and/or 'Pulp and Paper: Non-chemical pulp' and/or 'Pulp and Paper: Paper'), 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 and all purchased electricity 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 'Pulp and Paper: Chemical pulp', 'Pulp and Paper: Non-chemical pulp', and 'Pulp and Paper: Paper' products.

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

$$E_{Facility}^{CIIP} = E_{Chem.Pulp} + E_{Non-chem.Pulp} + E_{Paper}$$

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:
 - multiply the amount of purchased electricity by the published [grid electricity emission intensity](#) for the year, or
 - if preferred, using the calculator (see section 5.2 below for details)

Select **'Pulp and Paper: Chemical pulp'**

- Enter amount of salable dry chemical pulp in air-dried tonnes (ADT). Enter 0 if not applicable.

The term “salable” means products produced with the intention of either being sold as a product or as an input to another production process. 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.

Salable dry product must not include any waste products.

- Calculate and enter the emissions associated with chemical pulp, using the calculator (see section 5.3 below for details)

Select **'Pulp and Paper: Non-chemical pulp'**

- Enter amount of salable dry non-chemical pulp in air-dried tonnes (ADT). Enter 0 if not applicable.
- Calculate and enter the emissions associated with non-chemical pulp, using the calculator (see section 5.3 below for details)

Select **'Pulp and Paper: Paper'**

- Enter amount of salable paper in air-dried tonnes (ADT). Enter 0 if not applicable.
- Calculate and enter the emissions associated with paper, 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 pulp and paper reporting operations are:

- WCI.020 General Stationary Combustion
- WCI.040 Electricity Generation
- WCI.210 Pulp and Paper Manufacturing
- 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}		100,000.00	tCO ₂ e
Total electricity generated	P_{EL}	2,600.00	9,360,000	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	$P_{EL\ SOLD}$	1,300.00	4,680,000	GJ
Total heat sold	$P_{H\ SOLD}$		3,000,000	GJ

Emissions attributable to all self-generated electricity	E_{EL}		60,377.36	tCO ₂ e
Emissions attributable to all self-generated heat (steam)	E_H		39,622.64	tCO ₂ e

Emissions associated with sold electricity	$E_{EL\ SOLD}$		30,188.68	tCO ₂ e
Emissions associated with sold heat	$E_{H\ SOLD}$		8,466.38	tCO ₂ e

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 (tCO ₂ e)
E_H	are the emissions allocated to all self-generated heat (steam) (tCO ₂ e)
E_{EL+H}	(input) are the emissions allocated to all self-generated energy (tCO ₂ e)
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 (tCO ₂ e)
E_{H_sold}	are the emissions associated with sold heat (tCO ₂ e)
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

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 '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 (for information purposes only)

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		EL_PURCHASED	300.00	GWh
Emissions from Purchased Electricity		EL_PURCHASED	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

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

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

5.3 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 'Production', in the blue cells:

- Enter amount of salable dry chemical pulp, in air-dried tonnes (ADT)
- Enter amount of salable dry non-chemical pulp, in air-dried tonnes (ADT)
- Enter amount of salable paper, in air-dried tonnes (ADT)

For example:

Do not leave blank - enter zero if needed

Pulp and Paper: Chemical pulp	45,000	air-dried tonnes salable dry chemical pulp
Pulp and Paper: Non-chemical pulp	200,000	air-dried tonnes salable dry non-chemical pulp
Pulp and Paper: Paper	100,000	air-dried tonnes salable paper

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

- Enter SWRS attributable onsite emissions, including from Schedule C biomass (tonnes CO₂e)
- Enter CO₂ 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 D102.

Next, in the calculator, in the subsection 'SWRS emissions by category (excl. CO₂ from Schedule-C biomass)', in the blue cells:

- Enter General Stationary Combustion emissions (excluding energy generation), in tCO₂e
- Enter Mobile Combustion emissions, in tCO₂e
- Enter Industrial Process emissions, in tCO₂e
- Enter Waste emissions, in tCO₂e

Make sure that the 'Check if sum of categories equals total' amount in cell D113 is the same as the amount in cell D107.

For example:

CIIP Facility Emissions

Emission Sources	Emissions	Units
Onsite attributable emissions from SWRS report	700,000.00	tCO ₂ e
-- CO ₂ emissions from combustion of Schedule-C biomass	600,000.00	tCO ₂ e
-- Emissions associated with sold electricity	11,794.69	tCO ₂ e
-- Emissions associated with sold heat	3,185.29	tCO ₂ e
+ Emissions associated with purchased electricity	6,900.00	tCO ₂ e
CIIP Facility Emissions	91,920.02	tCO₂e

SWRS emissions by category (excl. CO₂ from Schedule-C biomass)

Emission Category	Emissions	Units
Total from above	100,000.00	tCO₂e
Emissions attributable to all self-generated energy	50,000.00	tCO ₂ e
General Stationary Combustion (excl. energy generation)	20,000.00	tCO ₂ e
Mobile Combustion	12,000.00	tCO ₂ e
Industrial Process	10,000.00	tCO ₂ e
Waste	8,000.00	tCO ₂ e
Check if sum of categories equals total:	100,000.00	tCO₂e

Next, In the calculator, in the subsection 'Product share of electricity, heat, and emissions by category', in the blue cells, for each product:

- Enter electricity (in GWh) and heat (in GJ) consumed in the production of that product, from internal accounting

NOTE: The sum of consumed electricity and heat for all products must equal the totals in the summary provided in cells F36 and F39, respectively. Cells D117 and D118 show the electricity and heat remaining to be allocated to a product and should read "--" and be highlighted **green** when data entry for all products 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 share of general stationary combustion (GSC) emissions applicable to that product, from internal accounting, out of the total GSC emissions
- Calculate and enter the share of mobile combustion (MC) emissions applicable to that product, from internal accounting, out of the total MC emissions
- Calculate and enter the share of industrial process (IP) emissions applicable to that product, from internal accounting, out of the total IP emissions
- Calculate and enter the share of waste emissions applicable to that product, from internal accounting, out of the total waste emissions

NOTE: The sum of GSC, MC, IP, and Waste emissions from all products must equal the total GSC, MC, IP, and Waste emissions from the SWRS report as entered in cells D109:D112. Cells D119:D122 show the GSC, MC, IP, Waste emissions remaining to be allocated to a product and should read “–” and be highlighted **green** when data entry for all products is complete. Initially the cells are highlighted **yellow** and display the total GSC, MC, IP, Waste emissions available for allocation; if more than the total is allocated, a 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 and the share of all other emissions by category, for all products.

For example:

Product share of electricity, heat, and emissions by category

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

-	Consumed electricity remaining for allocation (GWh)
-	Consumed heat remaining for allocation (GJ)
-	General Stationary Combustion emissions remaining for allocation (tCO ₂ e)
-	Mobile Combustion emissions remaining for allocation (tCO ₂ e)
-	Industrial Process emissions remaining for allocation (tCO ₂ e)
-	Waste emissions remaining for allocation (tCO ₂ e)

Product name :	Chemical pulp	Non-chemical pulp	Paper
Electricity Consumed (GWh)	200.00	170.00	400.00
Heat (Steam) Consumed (GJ)	100,000.00	300,000.00	400,000.00
Share of General Stationary Combustion emissions (tCO ₂ e)	8,000.00	4,000.00	8,000.00
Share of Mobile Combustion emissions (tCO ₂ e)	2,000.00	4,000.00	6,000.00
Share of Industrial Process emissions (tCO ₂ e)	8,000.00	2,000.00	-
Share of Waste emissions (tCO ₂ e)	3,000.00	3,000.00	2,000.00
Share of Electricity emissions (tCO ₂ e)	7,578.92	6,442.08	15,157.84
Share of Heat emissions (tCO ₂ e)	1,592.65	4,777.94	6,370.59

Emissions Allocation to Products

Total Emissions allocated to Chemical pulp :	30,171.57	tCO ₂ e
Total Emissions allocated to Non-chemical pulp :	24,220.02	tCO ₂ e
Total Emissions allocated to Paper :	37,528.43	tCO ₂ e

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