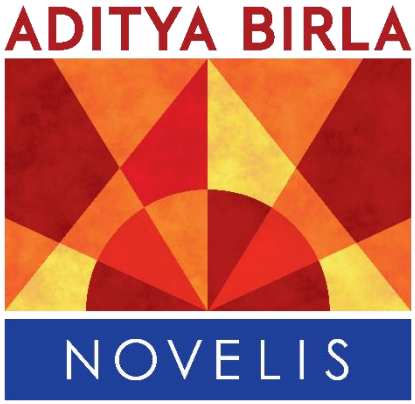


Novelis Environmental Reporting Directive

Revision Date: 10 June 2026
Version 5

Contents

1 Overview

1.1 Purpose

This Environmental Reporting Directive (hereinafter “Directive”) was designed to facilitate accurate and consistent recording and reporting of the environmental footprint at all operating plants across the four regions Novelis Incorporated (Inc.) operates in, as well as Novelis Inc.’s global research and technology center located in Kennesaw, Georgia (hereinafter all referred to as “Sites” or individually as “Site”). This reference has been prepared to aid with this process. For reporting of environmental events, please refer to the Environment, Health and Safety (EHS) Incident Management Performance Standard.

The Environmental Reporting Directive sets out the approach of Novelis Inc. and its affiliated entities across the regions (hereinafter together or individually referred to as “Novelis”) to the quantification, reporting and analysis of its environmental footprint, including its Greenhouse Gas (GHG) inventory, in accordance with the GHG Protocol[1]. For GHGs, there are numerous, multifaceted drivers for companies to compile and disclose their emissions. The most applicable for serving business goals are:

- **Management of GHG risks and identifying reduction opportunities.** Compiling a comprehensive GHG inventory improves a company’s understanding of its emissions profile and any potential GHG liability or “exposure.”
- **Public reporting and participation in voluntary GHG programs.** As concerns over climate change grow, customers, non-governmental organizations (NGOs), investors and other stakeholders are increasingly calling for greater corporate disclosure of GHG information. Companies can improve their standing with customers and with the public by being recognized for participating in voluntary GHG programs.
- **Participation in mandatory reporting programs.** Some governments require GHG emitters to report their emissions annually.
- **Participation in GHG markets.** The broad participation and best practices incorporated into the GHG Protocol Corporate Standard are likely to inform the accounting requirements of emerging programs.
- **Recognition for early voluntary action.** A credible inventory may help ensure that a company’s early, voluntary emissions reductions are recognized in future regulatory programs.

[1] The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, World Resources Institute and World Business Council for Sustainable Development, March 2004

1.2 Roles and responsibilities

The chart below defines the roles and responsibilities for implementation of the Directive.

	Site Managers	Global EHS Managers	Regional EHS Managers	EHS Site Staff	Global Sustain-ability Staff	Supervisory Staff (shopfloor)
Ensure that an action plan is developed and executed to bring the site into full compliance with the Novelis Environmental Metrics Reporting and Management Directive	AR	I	I	C	I	I
Ensure environmental data is entered into the EtQ* system per this Directive	A	C	C	R	I	I
Ensure that environmental metrics data reported in the Sustainability Dashboard PowerBI tool is utilized in the management review process	A	C	C	R	C	I
Ensure that this Directive remains up to date	I	C	C	I	AR	I

*ETQ is the Novelis Enterprise Quality Management System for all environmental data

R	***Responsible***	*The person(s) who completes the task; e.g., responsible for action/implementation.*
A	***Accountable***	*The person who is ultimately answerable for the activity or decision.*
C	***Consulted***	*The individual(s) to be consulted prior to the final decision or action.*
I	***Informed***	*The individual(s) to be informed after a decision or action is taken.*

1.3 Scope

1.3.1 Organizational boundaries

For corporate reporting, two approaches can be used to consolidate GHG emissions:

- **Equity share approach:** a company accounts for GHG emissions from operations according to its share of equity in the operation.
- **Control approach:** a company accounts for 100% of the GHG emissions from operations over which it has control. There are two types of control boundaries:
  1. For an operational control boundary, the company accounts for 100% of the GHG emissions from operations over which it has operational control. For example, a company has operational control over an operation if it, or one of its subsidiaries, has the full authority to introduce and implement its operating policies at the operation.
  2. A financial control boundary requires the reporting company to account for 100% of the GHG emissions from operations over which it can direct the financial and operating policies. For example, a company would report on where it bears the majority of risk and benefit from an operation's financial performance.

From fiscal year (FY[2]) 2016 to FY2022, Novelis used an operational control approach (with the portion of the operations accounted for based on the volume of product sold by Novelis). Appendix A provides an outline of how Novelis incorporated its joint venture (JV) facilities under this operational boundary approach.

Starting in FY2023, Novelis set an equity share boundary for compiling its GHG inventory. Under this approach, Novelis allocates emissions based on the ownership ratio as defined in the respective JV agreements. The equity share approach is also applied to Novelis' energy, waste and water data. All environmental and carbon data from previous years, including the FY2016 baseline, were updated to align with the equity share approach.

[2] A FY covers the period from April 1-March 31.

Novelis' equity share and corresponding ownership ratio in each of the JVs is as follows:

- Ulsan (South Korea): prior to FY2019, equity share was 99%. It has been 50% since FY2019.
- Yeongju (South Korea): 99% equity share
- Alunorf (Germany): 50% equity share
- Logan (USA): energy consumption, waste and water are allocated based on equipment run time hours per joint venture owner.
- AluInfra (Switzerland): 50% equity share but Novelis accounts for 0% of energy consumption. AluInfra provides wastewater and other utility services to the JV partners located on site in Sierre, Switzerland, with the associated energy consumption being insignificant.

For a full list of the sites captured in Novelis' GHG inventory, see Appendix B. For reporting purposes, Novelis considers that any site indicator that contributes less than 3% to the overall key performance indicator (KPI) total of the applicable Novelis region to be non-material and that site's indicator may be exempt from reporting. In the case of GHG emissions, the 3% threshold applies to the relevant emissions scope of the applicable region.

1.3.2 Operational boundaries

For identifying and defining GHG emissions, Novelis uses the three scopes as set out in the GHG Protocol. The definition of each scope is set out below:

- **Scope 1: Direct GHG emissions/energy use:** Direct GHG emissions and energy use generated from sources that are owned or controlled by the reporting company. For example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.

- **Scope 2: Electricity indirect GHG emissions/energy use:** Scope 2 captures GHG emissions and energy use from the generation of purchased electricity, heat or steam consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

- **Scope 3: Other indirect GHG emissions:** Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the reporting company that occur from sources not owned or controlled by the company. Some examples of Scope 3 activities are extraction and production of purchased materials, transportation and distribution, and use of sold products and services.

For further detail on Scope 1, 2 and 3 emissions, see section 2.2.

1.4 Tracking emissions over time

1.4.1 Reporting periods

Novelis reports all sustainability data in fiscal year (FY) format. The Novelis fiscal year begins on April 1 and ends on March 31 of the following year. Novelis has established FY2020 (i.e. April 1, 2019 – March 31, 2020) as the baseline year for waste and water.

1.4.2 Recalculating baseline emissions

According to the GHG Protocol, companies should develop a base year emissions recalculation policy and clearly articulate the basis and context for any recalculations. Base year emissions should be retroactively recalculated to reflect changes in the company that would otherwise compromise the consistency and relevance

of the reported GHG emissions information. Novelis will adjust the base year sustainability metrics in the following circumstances:

- **Structural change adjustments:** Adjustments triggered by structural changes to Novelis, including acquisitions, divestments and mergers (both increases and decreases of any size). A change in operational control would also trigger a change. The Novelis EHS team is responsible for tracking structural changes for data collection. This is done to ensure that the company can track progress against all long-term objectives and targets in a meaningful way. This structural change assessment is performed on a continuous basis, with physical changes to the structure in this Directive and associated recalculation of the baseline year performed once per year.
- **Methodology changes:** Novelis will adjust the baseline year emissions if changes in calculation methodologies or emission factors (i.e., due to annual updates) occur. This could be triggered by, for example, legislative reporting changes. Discovery of errors will also trigger an adjustment of the baseline year.

Base year emissions and any historic data are not recalculated for organic growth or decline. The rationale for this is that organic growth or decline results in changes of emissions to the atmosphere and therefore needs to be counted as an increase or decrease in the company's emissions profile over time.

2 Greenhouse Gas Accounting

2.1 Identifying GHG emission sources

GHG emissions typically occur from the following source categories:

- Stationary combustion: combustion of fuels in stationary equipment such as boilers, furnaces, burners, turbines, heaters, incinerators, engines, flares, etc.
- Mobile combustion: combustion of fuels in transportation devices such as automobiles, trucks, buses, trains, airplanes, boats, ships, barges, vessels, etc.
- Process emissions: emissions from physical or chemical processes (e.g., Perfluorocarbon (PFC), aluminum smelting, etc.).
- Fugitive emissions: intentional and unintentional releases (e.g., equipment leaks from joints, seals, packing and gaskets; as well as fugitive emissions from coal piles, wastewater treatment, pit cooling towers, gas processing facilities, etc.).

2.2 Accounting approach by emissions scope

2.2.1 Scope 1: Direct GHG emissions

Novelis follows the accounting approach recommended by the GHG Protocol for Scopes 1, 2 and 3. Aligned with the definition of Scope 1, Novelis accounts for emissions from combustion in owned or controlled boilers, furnaces and vehicles; and emissions from chemical production in owned or controlled process equipment. Any CO_2e emissions from the combustion of biomass shall not be included in Scope 1 but reported separately. GHG emissions not covered by the Kyoto Protocol (e.g., CFCs, NOx) shall not be included in Scope 1 but may be reported separately.

2.2.2 Scope 2: Electricity indirect GHG emissions

Scope 2 only accounts for the portion of the direct emissions from generating electricity that is consumed by the company. A company that purchases electricity and transports it in a transmission and distribution (T&D) system that it owns or controls reports the emissions associated with T&D losses under Scope 2. However, if the reporting company owns or controls the T&D system but generates (rather than purchases) the electricity transmitted through its wires, the emissions associated with T&D losses are not reported under Scope 2, as they

would already be accounted for under Scope 1. Emissions associated with the extraction and production of fuels consumed in the generation of purchased electricity may be reported in Scope 3 under the category “extraction, production, and transportation of fuels consumed in the generation of electricity.” These emissions occur upstream of the generation of electricity.

There are two options for calculating and reporting Scope 2 emissions:

1. Market-based approach: Companies shall obtain source/supplier-specific emission factors for the electricity purchased.
2. Location-based approach: Uses regional or grid emission factors. There are two types of electricity emission factors: emission factor at generation (EFG) and emission factor at consumption (EFC). EFG is calculated from CO_2e emissions from generation, divided by the amount of electricity generated. EFC is calculated from CO_2e emissions from generation, divided by the amount of electricity consumed. EFG and EFC are related as EFC * electricity consumed = EFG * (electricity consumed + T&D losses). The GHG protocol requires the use of EFG to calculate Scope 2 emissions. End consumers of the purchased electricity do not report indirect emissions associated with T&D losses in Scope 2 because they do not own or control the T&D operation where the electricity is consumed (T&D loss). The consumer’s Scope 2 emissions are calculated as consumed electricity * EFG.

From FY2017 to FY2022, Novelis used a hybrid approach to report Scope 2 emissions. With some sites applying a market-based approach where their suppliers were able to provide a supplier-specific emission factor, with others using a location-based approach. For FY23, Novelis reported location-based emissions only. From FY24, Novelis moved to dual reporting, where both a location-based and market-based Scope 2 value are reported.

2.2.3 Scope 3: Other indirect GHG emissions

Scope 3 is a category that allows for the treatment of all other indirect emissions, as they are a consequence of the activities of the reporting company but occur from sources it does not own or control. Scope 3 emissions are divided into upstream and downstream emissions. Upstream emissions are indirect and are related to the purchase of acquired goods and services. Downstream emissions are also indirect and are generated as a result of goods and services sold. Table 1 provides a list of the 15 upstream and downstream categories of emissions included in Scope 3.

Table 1: Scope 3 Categories

Scope 3 Category	Emissions Type
1. Purchased goods and services 2. Capital goods 3. Fuel- and energy-related activities 4. Upstream transportation and distribution 5. Waste generated in operations 6. Business travel 7. Employee commuting 8. Upstream leased assets	Upstream Scope 3 emissions
9. Downstream transportation and distribution 10. Processing of sold products 11. Use of sold products 12. End-of-life treatment of sold products 13. Downstream leased assets 14. Franchises 15. Investments	Downstream Scope 3 emissions

Measuring and reporting Scope 3 emissions is optional, but it provides an opportunity for companies to be innovative in GHG management. Since companies have discretion over which categories they choose to report, Scope 3 may not lend itself well to comparisons across companies. Usually, it is valuable to focus on one or two major GHG-generating activities. It is important to determine which Scope 3 categories are relevant. Only some types of upstream or downstream emissions categories might be relevant to the company. They may be relevant for several reasons, for example, they are large (or believed to be large) relative to the company's Scope 1 and Scope 2 emissions; they contribute to the company's GHG risk exposure; they are deemed critical by key stakeholders (e.g., feedback from customers, suppliers, investors or society); or they could be significantly reduced by efficiency projects that could be undertaken or influenced by the company.

Developing a Scope 3 inventory encourages the quantification and reporting of emissions from various partners across the value chain. For many companies, the primary goal of developing a Scope 3 inventory is to encourage supplier GHG measurement and reduction and to report on supplier performance.

2.3 Carbon dioxide equivalent

Emissions data is reported in units of carbon dioxide equivalent, CO_2e. CO_2e emissions are inclusive of carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4). The other GHGs of sulfur hexafluoride (SF_6), perfluorocarbons (PFCs) and nitrogen trifluoride (NF_3) are not emitted by Novelis' facilities. Carbon dioxide equivalent emissions utilize Global Warming Potentials (GWPs) defined by the Intergovernmental Panel on Climate Change's (IPCC's) Fifth Assessment Report (AR5 – 100 year). Carbon dioxide equivalent emissions are calculated by multiplying actual fuel use by the relevant emission factor, taking into account the equivalent GWP.

2.4 GHG emissions accounting at Novelis

The Novelis supply chain includes the purchase of primary aluminum, sheet ingot, post-industrial and post-consumer scrap, and various hardeners and alloys. These represent the raw materials to Novelis' recycling and rolling operations. Novelis also purchases hot and cold coils for finishing.

For Scope 3, Novelis accounts for the following categories, as indicated in Figure 1.

- Category 1: Purchased goods and services
- Category 4: Upstream transportation and distribution

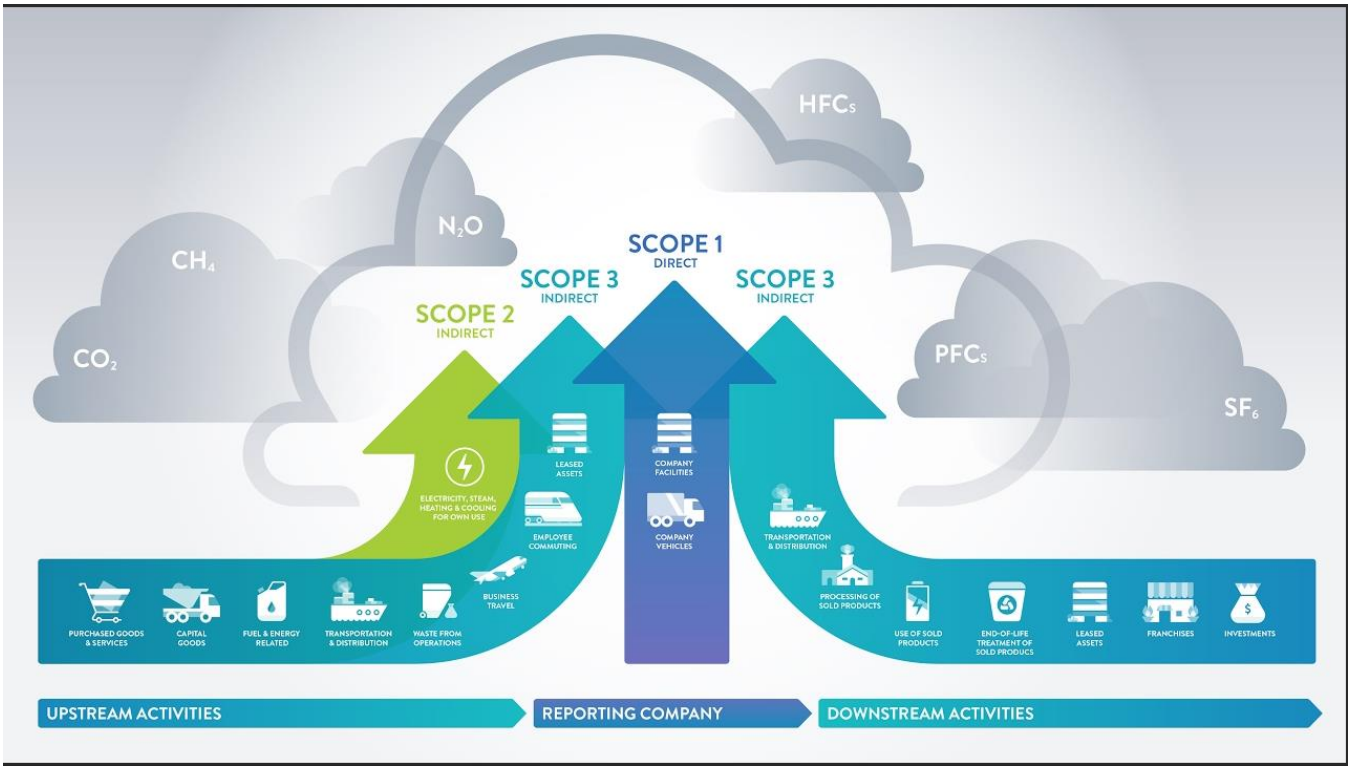


Figure 1: GHG Protocol Scope 1, 2 and 3 categories

2.5 Calculation approach

2.5.1 Scope 1 and 2

The calculations undertaken to account for Novelis' Scope 1 and 2 emissions are outlined below. Table 2 describes the Scope 1 calculations, with Table 3 providing an outline for Scope 2 calculations. Appendix D provides a more granular breakdown of the relevant equations for each energy source.

Table 2: Calculations performed to account for Novelis' Scope 1 emissions

Values	Description	Reference
$CO_2e_{site}=CO_2e_{direct\ energy\ site}+CO_2e_{indirect\ energy\ site}$ **(Eq. 1)**		
CO_2e_{site} site = total plant (remelt/cast, hot rolling, cold rolling, finishing)		
$CO_2e_{direct\ energy\ site}$	Calculated as the sum of all direct energy sources, multiplied by the appropriate fuel carbon coefficient.	Equation 2
$CO_2e_{indirect\ energy\ site}$	Calculated as the sum of all indirect energy sources, multiplied by site-level carbon emission factor based on electricity source.	Equation 4
$CO_2e_{direct\ energy\ site}=\sum[x_{fuel}\ *\left(\frac{CO2e}{x}\right)_{fuel\ carbon\ coefficient}]$ **(Eq. 2)**		
$x_{fuel\ natural\ gas}=m^3_{natural\ gas}\ *\left(\frac{kWh}{m^3}\right)_{natural\ gas\ upper\ calorific\ value}$ **(Eq. 3)**		

x_{fuel} fuel = natural gas, fuel oil, liquefied propane gas, diesel, kerosene	Fuel consumption	
$x_{fuel\ natural\ gas}$ fuel = natural gas	Fuel consumption for natural gas is calculated by multiplying natural gas consumption in terms of m^3 by the natural gas upper calorific value provided by the relevant supplier. Consumption (m^3) and natural gas upper calorific value is submitted monthly by site and by process unit.	Equation 2
$x_{fuel\ non-natural\ gas}$ fuel = fuel oil, liquefied propane gas, diesel, kerosene	Fuel consumption is submitted monthly by site and by process unit.	
$\left(\frac{CO2e}{x}\right)_{fuel\ carbon\ coefficient}$	Fuel carbon coefficient is defined by fuel type.	

Table 3: Calculations performed to account for Novelis' Scope 2 emissions

Values	Description	Reference
$CO_{2e\ indirect\ energy}{}_{site} = \sum[x_{\ indirect\ energy} * \left(\frac{CO2e}{x}\right)_{energy\ source\ carbon\ coefficient}]$ ***(Eq. 4)***		
$x_{\ indirect\ energy}$ indirect energy = electricity, steam, and heating/cooling	Energy consumption is submitted monthly by site and by process unit.	
$\left(\frac{CO2e}{x}\right)_{indirect\ energy\ carbon\ coefficient}{}_{electricity}$	Location-based (grid average) or market-based carbon factor.	

Using the data and calculations for Scope 1 and 2 emissions, Novelis can calculate the emissions associated with the production of its finished goods. Table 4 sets out the methodology for doing this.

Table 4: Calculations performed for calculating the production emissions of Novelis' products (i.e., flat rolled products, plates and slabs)

Values	Description	Reference
$CO_2e_{unit} = \sum[CO_2e_{process\ unit} + CO_2e_{non-process}]$ ***(Eq.5)***		
CO_2e_{unit}	Calculated based on direct and indirect energy consumption.	Equation 6
$CO_2e_{process\ unit}$ process unit = remelt/cast, hot rolling, cold rolling, finishing		
$CO_2e_{non-process}$	Calculated as difference between total plant and the sum of process units and includes plant-wide energy consumptions not attributed to a single process unit (e.g., overhead lighting, air conditioning/heating, forklift trucks).	Equation 7
$CO_2e_{process\ unit} =$ ***(Eq.6)***		
$CO_2e_{non-process} =$ ***(Eq.7)***		
$CO_2e_{product}$	Calculated as the total sum of the CO_2e emissions deriving from each process unit of the	Equation 8

	site, multiplied by the ratio of machine hours allocated to the specific product, added to the CO_2e emissions not deriving from the process, multiplied by the ratio of machine hours allocated to the specific product.	

$$CO_2e_{product} = \sum((CO_2e_{site_{process\ unit}} * (\frac{machine\ hours_{site_{process\ unit_{product}}}}{machine\ hours_{site_{process\ unit}}})) + (CO_2e_{site_{non-process}} * (\frac{machine\ hours_{site_{product}}}{machine\ hours_{site}})))$$

(Eq.8)

2.5.2 Scope 3

2.5.2.1 Category 1: Purchased goods and services

As outlined in section 2.4, Novelis accounts for the emissions under Scope 3, category 1 “purchased goods and services.” This category includes all upstream (i.e., cradle to gate) emissions associated with the production of products purchased or acquired by the reporting company in the reporting year. Cradle-to-gate emissions may include:

- Extraction of raw materials
- Agricultural activities
- Manufacturing, production and processing
- Generation of electricity consumed by upstream activities
- Land use and land-use change
- Transportation of materials and products between suppliers
- Any other activities prior to acquisition by the reporting company

For Novelis’ supply chain, approximately 80% of emissions originate from the purchase of raw materials (i.e., primary aluminum). For this reason, the purchase of goods and services is the key focus area for Scope 3 accounting. Novelis also accounts for category 4 of Scope 3, transportation and distribution emissions, due to an internal focus on decarbonization of the supply chain through Novelis’ logistics capabilities.

At Novelis, purchased goods and services cover the sourcing of primary aluminum, which includes prime, sheet ingot, hotbed and cold coils. From FY2025 forward, Novelis will request supplier-specific carbon intensity data (covering Scope 1, 2 and 3 emissions / cradle-to-gate) from primary aluminum suppliers for the quantities purchased. Any supplier-specific data received will be subject to a data quality review by Global Sustainability and Global Procurement in accordance with Novelis’ Primary Aluminum Carbon Intensity Data Quality Policy (available in Appendix I). Data requests will be made annually, with the following timeline applied for FY2025 reporting:

Due-by date	Tasks
Week commencing 6 January 2026	• Global Procurement issues formal data requests to suppliers for Calendar Year (CY) 2024 carbon intensity data using Supplier Data Request form. • The data request will capture Novelis’ data quality rules and guidelines.
By 14 February 2026	• Deadline for suppliers to respond with their data and documentation. • Anything received after this date will not be used in FY2026 reporting.

By 28 February 2026	• Upon receipt of supplier documentation: Global Sustainability reviews against the Data Quality Policy and determines if the data provided is acceptable/not acceptable/more follow-up required. • Close out any follow-up. Anything not deemed "acceptable" by this date will not be used in FY2025 reporting.
By 14 March 2026	• Global Procurement incorporates the accepted supplier-specific data into the Scope 3 category 1 carbon database PowerBI tool.

For any purchased Prime and Sheet Ingot without supplier-specific data, Novelis combines publicly available information for the process steps, covering bauxite mining and electrolysis, as well as the smelting and casting of primary ingots. The publicly available data sources Novelis uses are:

1. For Bauxite-Prime: the CO_2e footprint is based on International Aluminum Institute (IAI) Life Cycle Inventory data. The most current data is as of calendar year 2024. The current footprint is 3.78 tCO_2e/t prime.
2. For Smelting-Casting: Novelis uses smelter-specific data (energy mix, emissions) provided by CRU (www.crugroup.com).

Novelis' CO_2e footprint is calculated by combining the two factors above and applying these to the Prime supplier consumption mix. The supplier mix is considered at the site level. For example, for Prime processed in a Norwegian smelter powered by hydropower, the CO_2e footprint from bauxite to refining would be 3.78 tCO_2e/t (2024 IAI) prime plus 2.32 tCO_2e/t from operations taking place for smelting and casting, hence leading to 6.10 tCO_2e/t of prime used. The details of this calculation can be found in Figure 2.

Figure 2: Prime CO_2e footprint calculations

2024 t CO2e/t	Electricity – Indirect	Perfluorocarbon (PFC) – Direct	Process (CO2) – Direct	Ancillary Materials – Indirect	Thermal Energy – Direct/Indirect	Transport – Indirect	Total		Smelter Specific		Total Prime
Mining	0.02				0.05		0.07				
Refining	0.2			0.4	1.5	0.3	2.4				
Anode Production	0.0		0.1	0.8	0.1		1.0				
Electrolysis				0.1		0.2	0.3				
Casting				0.0		0.0	0.0				
Total Raw Material	0.23	0.0	0.1	1.3	1.65	0.5	3.78				
Scope 1+2 Smelter									2.32		
Total raw material plus Smelter 1 and 2											6.10
SOURCE:	International Aluminium Institute: Greenhouse Gas Emissions Intensity – Primary Aluminium, 2024 factors.								CRU		

For data provided by CRU (CRU data), two updates per year take place in which Novelis considers each individual asset. Quarterly updates take place to review exchange rates, interest rates, freight, oil and raw material prices. If data from smelters is not available (e.g., it is not in CRU), then the regional average from CRU is taken and applied. For CRU data, Novelis uses previous year emission factors for the current year. For example:

- For FY2022 carbon emissions, the CRU calendar year 2020 emission factors were applied.
- For FY2023, CRU calendar year 2021 emission factors were used (except for the Alumar and Venalum smelters for which the CRU 2022 database was used as they restarted production in 2022 and are therefore not covered within the 2021 database).
- For FY2024, the CRU 2022 calendar year emission factors were used.
- For FY2025, the CRU 2023 calendar year emission factors were used.

- For FY2026, the CRU 2024 calendar year emission factors will be used.

Novelis will download the CRU emission factors annually in January. Therefore, for FY2026 reporting, Novelis will download and use the CRU data that was available in January 2026.

If a supplier is only able to provide its Scope 1 and 2 (gate-to-gate) data and it meets the requirements of the Data Quality Policy, this can be used in combination with the IAI Bauxite-Prime carbon data in place of the missing supplier Scope 3 (cradle) emissions.

Table 5 contains the calculations undertaken to account for Scope 3 emissions for purchased goods and services at Novelis.

Table 5: Calculations performed to account for Novelis' Scope 3 emissions (primary aluminum)

Values	Description	Reference
$CO_2e_{prime} = CO_2e_{bauxite} + CO_2e_{alumina} + CO_2e_{anode} + CO_2e_{smelting} + CO_2e_{casting}$ ***(Eq.8)***		
CO_2e_{unit} unit = bauxite, alumina, anode, casting	IAI global average	Source 1
$CO_2e_{smelting}$	CRU emission factor	Equation 9
$CO_2e_{smelting}$ = CRU emission factor based on smelter source mapping ***(Eq.9)***		

Source	Publisher	Document
1	International Aluminum Institute (IAI)	Greenhouse Gas Emissions – Aluminium Sector
2	CRU Emission Analysis Tool	
3	International Energy Agency (IEA)	CO_2 Emissions from Fuel Combustion *(purchased dataset)*
4	Intergovernmental Panel on Climate Change (IPCC)	IPCC, 1996

Prime carbon intensity = $\left(\frac{CO_2e_{prime}}{Tonnes\ purchased}\right)$ ***(Eq.10)***

Value	Description	Reference
CO_2e_{prime}	Carbon footprint of prime	Equation 8
$Tonnes\ purchased$	Tonnage of prime purchased	Procurement data
$CO_2e_{A\&H,coil,toller\ prime} = \left(\frac{CO_2e_{prime}}{Tonnes\ purchased}\right) * \text{Quantity}_{A\&H,coil,toller\ prime}$ ***(Eq.11)***		
$CO_2e_{A\&H,coil,toller\ prime}$	Carbon footprint of alloys and hardeners, purchased cold coils and hot band	Equation 11
$\left(\frac{CO_2e_{prime}}{Tonnes\ purchased}\right)$	Carbon intensity of prime purchased	Equation 10
$\text{Quantity}_{A\&H,coil,toller\ prime}$	Quantity of alloys and hardeners, cold coil, hot band and tolled prime consumed	Bill of materials data

Values	Description	Reference
$CO_2e_{SI} = CO_2e_{bauxite} + CO_2e_{alumina} + CO_2e_{anode} + CO_2e_{smelting} + CO_2e_{casting}$ ***(Eq.12)***		

CO_2e_{unit} unit = bauxite, alumina, anode, casting	IAI global average	Source 1
$CO_2e_{smelting}$	CRU emission factor	Equation 9

As indicated above, alloys and hardeners are treated as Prime, with the prime emission factors for each region applied to the alloys and hardeners. It is captured in this way within Novelis' carbon baseline and FY2031 carbon target.

2.5.2.2 Category 4: Upstream transportation and distribution

Under category 4, upstream transportation and distribution, Novelis accounts for all outbound logistics as well as transportation and distribution between sites (including scrap material transportation) that Novelis pays for.

For North America and Asia, this is calculated based on weighted average distance between Novelis site and destination (outbound logistics) or between Novelis sites (transportation and distribution), which is derived based on transaction level shipment data in metric tonnes (Novelis site to destination or Novelis site to another Novelis site and mode of transport, including the following options: truck, ocean vessel, barge, air, coaster and rail) obtained from Novelis' procurement teams.

For South America and Europe, this is calculated based on weighted average distance between Novelis site and destination (outbound logistics) or between Novelis sites (transportation and distribution), which is derived based on shipment data aggregated by mode of transport and route in metric tons (Novelis site to destination or Novelis site to another Novelis site and mode of transport, including the following options: truck, ocean vessel, barge, air, coaster and rail) obtained from Novelis' procurement teams.

The relevant equations applied can be found in Appendix D.4.

2.6 Roll-up of GHG emissions data to corporate level

There are two basic approaches for gathering data on GHG emissions from a corporation's facilities:

- Centralized: individual sites report activity/fuel use data (such as quantity of fuel used) to the corporate level, where GHG emissions are calculated
- Decentralized: individual sites collect activity/fuel use data, directly calculate their GHG emissions using approved methods, and report this data to the corporate level

Novelis uses a centralized approach for rolling up GHG emissions through its EtQ environmental management software system and reports it through the Sustainability Dashboard PowerBI.

3 Environmental Impacts and Greenhouse Gas Reporting

The accuracy of sustainability data is contingent upon a common definition of terms related to environmental impacts. Appendix B contains a list of definitions applied by Novelis in its reporting. That list covers air emissions, material flows, transportation, waste, water and energy sources.

3.1 Sustainability Dashboard PowerBI

In predetermined intervals throughout the fiscal year, sites submit their sustainability data through Novelis' environmental management software, EtQ, using the sustainability module. This is combined with data from the historical Performance Data Management (PDM) warehouse (utilized prior to FY2020); Microsoft Excel data uploads from Financial Planning and Analysis (FP&A), Procurement, EHS and Novelis North America Recycling. PowerBI models and visualizes the data within a sustainability dashboard. As part of the management review process, the PowerBI reports are reviewed at different levels within Novelis.

Applying the calculations outlined in section 2.5 and the relevant emissions factors, the Sustainability Dashboard PowerBI automatically converts the energy and Prime data into calculated emissions and provides standard performance graphs for specific environmental impacts and GHG emissions (normalized to a production metric).

It is expected that each site reviews trends in the sustainability metrics on a frequent basis to identify abnormalities and ensure root cause analysis and permanent corrective actions are implemented. The PowerBI reports are issued to the sites monthly for energy and quarterly for other sustainability data. Reports available through the Sustainability Dashboard PowerBI include:

Greenhouse gas emissions and recycled content

- Annual and year-to-date greenhouse gas emissions – can report to global, regional and site level, broken down by Scope 1, 2 and 3
- Total carbon intensity (tonnes carbon dioxide equivalent (tCO_2e) per tonne FRP shipped) – can report to global and regional level
- Carbon intensity of aluminum for each end product market – can report to global and regional level
- Recycled content percentage – available at global, regional level and sub-segment level

Waste to landfill

- Total volume of routine hazardous and non-hazardous waste to landfill (kg) – can report to global, regional and site level
- Internal reporting intensity – waste to landfill/normalized tonne (kg/tonne) – can report to site level
- External reporting intensity – waste to landfill/tonne flat rolled product (FRP) sales (kg/tonne) – can report to global and regional level

Water efficiency

- Total volume of water input (cubic meters (m3)) – can report to global, regional and site level
- Internal reporting intensity – water input/normalized tonne (m3/tonne) – can report to site level
- External reporting intensity – water input/tonne FRP sales (m3/tonne) – can report to global and regional level

Energy efficiency

- Total energy consumed (energy in Gigajoules (GJ) or MWh) – can report to global, regional and site level
- Internal Reporting Intensities – energy/normalized tonne (GJ or MWh/tonne), energy/shipped tonne (GJ or MWh/tonne), cost/unit energy (USD $/MWh) – can report to regional, site and process level
- External Reporting Intensity – energy/tonne FRP sales (GJ or MWh/tonne) – can report to global and regional level
- Remelt energy efficiency (MWh/cast tonne) – can report to global, regional and site level
- Rolling energy efficiency (MWh/FRP tonne) – can report to global, regional and site level

Intensity measures are used for external reporting of the carbon, waste, water and energy sustainability metrics. The divisor for the intensity metric is the volume of FRP sales (as provided by the Novelis corporate finance department). FRP sales are defined as tonnes of rolled products shipped by Novelis facilities to a third party. FRP sales do not include intersegment rolled products and non-rolled products.

Table 6 provides a summary of the reporting frequencies of each metric category.

Table 6: Reporting frequencies and deadlines of environmental metrics

Metric Category	Reporting Frequency	Reporting Deadline
Energy (natural gas for casting centers)	Monthly	5 working days after the end of the month
Energy (all other data)	Monthly	9 days after the end of the month
Material Flow	Monthly	9 days after the end of the month
Water (input)	Monthly	12 days after the end of the month
Waste	Monthly	12 days after the end of the month
Waste to landfill (detail)	Annually	28 days after the end of the year
Transportation	Quarterly	12 days after the end of the quarter
Air Emissions	Annually	28 days after the end of the year
Water (discharge/recycling)	Annually	28 days after the end of the year

3.2 Data sources

3.2.1 Activity data

- Scope 1:
  - Direct emissions from fuel sources (natural gas, LPG, heavy fuel oil - residual fuel oil no. 6, kerosene and diesel): Calculated based on monthly energy consumption data collected from third-party invoices or meters.

- Scope 2:
  - Purchased electricity: calculated based on monthly use data collected from third-party invoices with some direct metering.

  - Purchased steam: calculated based on monthly energy consumption data collected from meters.

- Scope 3:
  - Purchased metal (prime and sheet ingot):
    - Novelis uses the 100:0 method, also known as the “cut-off” approach, to calculate emissions from purchased metals. Our scrap material purchased carries zero burden based on this approach.
    - Calculated based on metal receipts (weight) that have been validated against internal purchase orders based on delivery date, supplier advanced shipping notices and the recycled content of the metal purchased

  - Upstream transportation and distribution: calculated based on shipment data (ship-from and deliver-to locations and mode of transport, including the following options: air, barge, coaster, truck, ocean vessel and rail obtained from Novelis’ procurement teams).

3.2.2 Emission factor sources

Novelis uses the following emission factor sources for its emission calculations:

- Scope 1:
  - Direct emissions from fuel sources (natural gas, liquified propane gas (LPG), heavy fuel oil - residual fuel oil no. 6, kerosene and diesel):
    - For all gaseous fuels (i.e., natural gas), the International Energy Agency’s (IEA’s) estimation for conversion between Btu Lower Heating Value (LHV) and Btu Higher Heating Value (HHV) is 90%. In all instances of natural gas combustion, a HHV was provided by the gas supplier or assumed and applied by Novelis.
    - Emission factors:

- United States (U.S.) Environmental Protection Agency (EPA) 2025 GHG Emission Factors Hub, Emission Factors for Greenhouse Gas Inventories, tables 1 and 2 (June 2025).
- IPCC 2007 AR5 for CH4 and N_2O for global warming potential CO_2 equivalent factors.

- Fugitives (refrigerants): Refrigerants are considered insignificant in Novelis' overall footprint and are therefore not captured. Through high-level estimation, the total is less than 1% of Scope 1 and Scope 2 emissions.

- Scope 2:
  - Location-based electricity emission factors:
    - U.S.: U.S. EPA Emissions & Generated Resource Integrated Database (eGRID) 2023 (January 2025).
    - Canada: Government of Canada's National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada Part 3 - Annex 13: Emission Factors, Table A13-7 (2025). Year of data used: 2022.
    - China: Ministry of Ecology and Environment of the People's Republic of China, 2023 Electricity Carbon Dioxide Emission Factors, Jiangsu Province (December 2025) for CO_2 emission factors only. CH4 and N_2O emission factors were taken from the International Energy Agency (IEA) 2025 year of data used 2022 (September 2025).
    - Brazil: Brazilian Government Ministry of Science, Technology and Innovation, year of data used 2024 (published monthly, with the full 2024 year of data finalized and published in 2025), Average Factor – Corporate Inventories, for CO_2 emission factors only. CH4 and N_2O emission factors were taken from the International Energy Agency (IEA) 2025 year of data used 2022 (September 2025).
    - South Korea: National and Regional Greenhouse Gas, 2024 Approved Country Greenhouse Gas Emission Factors Electricity Emission Factors, year of data used 2024 (March 2025).
    - United Kingdom: Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, UK Government GHG Conversion Factors for Company Reporting 2025, version 1.0. (June 2025).
    - All other countries: IEA Emissions Factors 2025 year of data used 2022 (September 2025).

  - Market-based electricity emission factors:
    - Utility-specific, market-based emission factors for the most recent reporting year were provided by the utility provider. Novelis surveys the utility providers supplying electricity to its facilities each year to request the utility-specific emission factors.
    - Residual mix carbon factors for Europe: Association of Issuing Bodies (AIB), Residual Mixes and European Attribute Mix of 2023, version 1.0 (May 2024).
    - Grid-average emission factors (same as location-based).

  - Purchased steam:
    - Emission factors assume natural gas fuel and a boiler efficiency of 80% to convert the quantity of hot water reported in kWh to tonne of CO_2e (Source: EPA, Combined Heat and Power, last updated February 2026[3]).

[3] https://www.epa.gov/energy/combined-heat-and-power

- Scope 3:
  - Purchased metal (prime and sheet ingot):
    - Supplier-specific carbon intensity data (covering Scope 1, 2 and 3 emissions / cradle-to-gate) such as LCAs, EPDs and Product Carbon Footprints that meet the requirements of Novelis' Primary Aluminium Carbon Intensity Data Quality Policy (available in 2.5.2.1).
    - For FY26, primary aluminum data is based on CRU's 2024 emission factors for region-specific smelters and International Aluminum Institute (IAI) 2024 emissions factors for smelter Scope 3 as outlined in section 2.5.2.1.

  - Upstream transportation and distribution emission factors:
    - Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, UK Government GHG Conversion Factors for Company Reporting 2025, version 1.0 (June 2025), tab "Freighting Goods."

3.2.3 Scope 2 market-based emission factor hierarchy

In line with the GHG Protocol, Novelis uses the following order of preference for Scope 2 market-based emissions:

1. Energy attribute certificates (e.g. Renewable Energy Certificates, Guarantees of Origin)
2. Contracts for electricity (e.g. PPAs)
3. Supplier/utility-specific emission rates based on the electricity tariff of each site.
4. Residual mix factors based on the remaining energy production mix after purchases from energy attribute certificates, contracts and supplier/utility specific factors have been removed.
5. Grid-average emission factors (same as the location-based factors) such as eGRID or the IEA national electricity emission factors (sources outlined in the previous section) applied to the sites located in countries where a residual mix is not available.

For emission factors available on an annual basis, the latest emission factors available on 1 May of the reporting year were selected and applied for the entire Fiscal Year. For emission factors available on a monthly basis, these were applied to the corresponding month in the fiscal year.

Emission factors are reviewed by the Global Sustainability and Global EHS teams annually for reliability, completeness, consistency and appropriateness.

The inventory of calculations and emissions factors used in the Novelis Sustainability Dashboard PowerBI can be found in section 2.5.

3.3 Data quality

3.3.1 Overview

It is important to understand the data quality related to some of the environmental performance indicators. It is expected that the highest quality data possible is provided for all reports within Novelis. Where actual data is not available through calculations or direct measurements, estimates are acceptable. Options for gathering data include:

- **Calculated Data:** Any data based on measured values that have been modified to reflect calculations by process engineers
- **Estimated Data:** Any secondary data or theoretical calculation

- **Measured Data:** Any primary data that reflects actual measurements (direct sampling) performed during the subject time period

Data is collected and reported by each site on a monthly, quarterly or annual basis as indicated in Table 6. Depending on the site, there may be one or more people responsible for data collection (i.e., environmental manager, energy manager, transportation manager). Where data is significantly different from prior quarters, the sites are required to insert comments explaining the variance. Once data is entered and saved in EtQ by the site, changes need to be made by users with “manager” level access.

The site has nine days after the end of the month to enter energy data and between nine and 12 days to enter all other data collected and reported on a monthly and quarterly basis. Once all data is submitted, the Novelis data validator reviews the data to assure it is complete and accurate. If inconsistencies are identified, the site is notified, and a validation process is initiated. Once the data is deemed accurate by the data validator, the data validator sets EtQ report to “complete.” A quarterly performance report is developed and distributed to the regional sustainability leads.

3.3.2 Data collection process – quality assurance

Each site is required to validate its data. Sites have access to emissions data for their site through EtQ and the Sustainability Dashboard PowerBI reporting tool. Once the site deems it accurate, the data is saved by the site in EtQ. Data quality rules in EtQ help to flag any potential data errors. The data quality rules include:

1. Prevention of duplicate reports: triggered if a new EtQ report is created with an identical reporting category and date/time with a pre-existing report.
2. Data validation function: triggered if data for the reporting month differs by more than an assigned percentage (+/-) on the previous month.

A further data validation is performed monthly by the Global EHS, Engineering, Maintenance & Reliability (EMRA), and Sustainability teams. The Sustainability Dashboard PowerBI has several standard reports that facilitate this validation. In addition, the data validator performs a query of all data reported each month/quarter and reviews it for variation against historical data (i.e., prior quarter and same quarter from prior year). Uncertainties identified by the data validator are reported back to the site, which is then responsible for correcting errors or providing explanations for the variations.

A periodic audit is performed at each site as part of the EHS audit process to assure the representative responsible for reporting metrics is providing accurate data and fully understands the Novelis environmental metrics reporting requirements.

3.3.3 Data collection system security

All data in EtQ is backed up daily to prevent data loss in the event of IT failures. EtQ is maintained on an internal Novelis server and is accessible only through the internal intranet. Access to EtQ is controlled by an access control software whereby reader, writer, manager and super user rights are controlled depending on reporting responsibility. These access rights are controlled by the Novelis EtQ data coordinator. Once data is entered into EtQ and saved as final data by the site, the data should be deemed accurate by the data validator and then locked (set EtQ report to “complete”). The rights to unlock data are controlled by the EtQ managers. Based on EtQ’s access control features, the data reported is considered secure and well controlled.

3.3.4 Internal auditing

Auditing of the environmental metrics reporting system is performed periodically at all sites. At a minimum, the audit covers the review of the site’s knowledge of the reporting definitions, as well as the data collection process

and calculation method to assure data is accurately and consistently reported. Calibration of key measurement devices and meters are also checked if the site considers them of significance.

The audits are performed in accordance with the Novelis EHS Auditing Directive, which is a controlled document (i.e., it undergoes periodic revisions). Auditors are trained to ensure competency. Findings from the audit must be corrected using the Novelis audit database, EtQ audit module, or the site's ISO 14001 certified corrective action process (depending on the type of audit).

In FY2026, we conducted an informal audit exercise of North American energy and fuel consumption data, as well as prime and sheet ingot purchase data. This covered FY2026 Quarters 1-3.

3.3.5 Corrective action

Any findings identified at the site level are identified as corrective actions and managed in accordance with the Novelis corrective action database in EtQ or the site's corrective action process as defined in their ISO 14001 Management System.

3.4 External environmental sustainability indicators and targets

3.4.1 Energy

Novelis measures and records the energy use for Scope 1 (direct energy sources), Scope 2 (indirect energy sources) and Scope 3 (transportation energy only). For external energy reporting, only Scope 1 and Scope 2 energy use is considered. Refer to Appendices C.2, C.3 and D for information on the collection, calculation and reporting of energy data. Energy is reported as an intensity metric with the units of MWh energy per tonne of FRP sales.

The Alunorf facility generates hot water that is used by the local community, and the Koblenz site supplies a nearby malt factory with hot water that is heated with the waste heat from the casthouse. The energy content of this water is not reflected as a reduction of overall energy usage.

The Pieve solar farm self-generates kWh that is injected into the local electricity grid. The energy is not reflected as a reduction of overall energy use.

3.4.2 GHGs

Novelis measures the quantity of emissions of GHGs from Scope 1 (direct energy sources), Scope 2 (indirect energy sources, PFC emissions) and Scope 3 (transportation of Novelis products and purchases of primary aluminum). Refer to section 2.5 and Appendix D for information on the collection, calculation, and reporting of GHG emissions resulting from energy and transportation. GHG emissions are reported as absolute tonnes of CO_2e, and tonnes CO2e per tonne FRP shipped.

3.4.2.1 GHG list

Novelis reports emissions for CO_2e (fuels combustion, VOC destruction), CH_4 (fuels combustion) and N_2O (fuel combustion). PFCs have historically been emitted by the Novelis South American aluminum smelters in Ouro Preto and Aratu (both closed).

Since Novelis is not in the business of gas transport, CH_4 emissions from natural gas leaks are nonexistent. Novelis has performed an assessment of the significance of global warming impacts associated with refrigerant systems (HFCs/CO_2), fire suppression systems (CO_2/FM200), and emissions associated with VOC release and destruction and have found them to be insignificant sources.

3.4.2.2 Emissions source identification procedure

Novelis has identified stationary and mobile combustion sources, indirect emissions, emissions from process-specific operations and fugitive emissions. Reconnaissance and visual inspections have been done at all Novelis operating sites to identify all emission sources at the sites. A review of energy use records and invoices was also completed to assure completeness of the initial source inventory.

The responsibility for maintaining and identifying emissions is the responsibility of each Novelis site. Additionally, GHG metrics reporting is audited as part of the Novelis EHS Comprehensive Audit Program. This audit program facilitates the identification of new sources of emissions to assure the source inventory is maintained properly.

Under Novelis' 3x30 vision, Novelis has established a target of reducing emissions to less than 3 tonnes of CO_2e per tonne of FRP shipped by the end of calendary year 2030.

3.4.3 Water use

Novelis has developed external sustainability targets for water use intensity, published in its annual Sustainability Report. Water use is defined as the volume of water intake at a facility. As described above, to obtain water use intensity, water intake is divided by the tonnes of FRP sales. Refer to Appendices C.8 and C.9 for information on the collection and reporting of water data. Water is reported as an intensity metric with the units of cubic meters of water intake per ton of FRP sales. For external reporting, Novelis considers Scope 1 sources only and does not consider water use from Scope 2 and Scope 3 sources.

Novelis has established a target of reducing water use by 10% per ton of FRP sales by FY2026 against the FY2020 baseline.

3.4.4 Waste to landfill

Novelis has developed external sustainability targets for waste to landfill, published in its annual Sustainability Report. Novelis does not consider waste as landfilled if that waste is land applied in such a way that it is considered a raw material for the application (i.e., road base subgrade material, ingredient to concrete). Novelis records all waste sent to landfill. Waste that is not considered reoccurring, but a one-time waste (i.e., remediation waste and large construction project waste) is not reported externally toward goal attainment. Volumes of these waste types are recorded in EtQ. Refer to Appendix C.7 for information on the collection and reporting of waste data. Waste to landfill is reported as absolute in units of kg. For external reporting, Novelis considers Scope 1 sources only and does not consider waste to landfill from Scope 2 and Scope 3 sources. Novelis does estimate and include landfill waste generated from the off-site recycling of dross. In the case of recycling waste streams where residues might end up in a landfill (e.g., ashes after incineration), sites should work with their recyclers to determine what proportion of waste is being disposed of in landfills. If less than 5% is sent to landfill then no action is necessary; if more than 5% is sent to landfill, the site should work with the vendor to estimate the quantity.

Novelis has established a target of reducing waste to landfill by 20% per ton of FRP sales by FY2026 against the FY2020 baseline.

Appendix A FY2016 – FY2022 Operational control boundary application to joint ventures

From FY2016 to FY2022, Novelis accounted for its global emissions under an operational control boundary, capturing all operations under which Novelis had the full authority to introduce and implement its operating policies. Novelis incorporated its joint venture facilities as follows:

- Novelis reported 50% of the Alunorf joint venture in Germany, where it has 50% of site output.
- Novelis reported 55% of the Logan joint venture in the USA, where it owns 40% of outstanding common shares, but receives 55% of site output due to equipment investments (it should be noted that for Logan, the percentage of output depends on current year output levels and may vary with time). For FY2007 through FY2010, Logan's output was reported at 64%. For FY2011 and beyond, Logan's output was reported as 55%. In addition, Logan did not report energy and waste associated with the Novelis JV partner wholly owned recycling center located on the facility.
- In South Korea, Novelis holds a 99% equity interest in the Yeongju site and reports 100% of operational data.
- In FY2019, Novelis entered a joint venture at its Ulsan site in South Korea. Novelis reports the percentage of site output, which varies by year. Prior to FY2019, Novelis held a 99% equity position in the Ulsan site and reported 100% of the operational data.
- In the Aluminum Company of Malaysia Berhad (Alcom), Novelis held a 59% equity interest and marketed 100% of the site's output. As such, Novelis reported 100% of Alcom operational data. Novelis sold its share in this company in FY2017 and only reports the data for historical purposes.

When calculating the contribution of a specific environmental sustainability indicator for a joint venture facility, Novelis multiplied the percentage contribution factor indicated above by the value of the specific indicator for that site.

Leased sites, where Novelis held no equity, were excluded.

Appendix B Site Reporting Matrix

For reporting purposes, Novelis considers that any site indicator (e.g., fuels, waste and water consumption) that contributes less than 3% to the overall key performance indicator (KPI) total of the applicable Novelis region to be non-material and that site's indicator may be exempt from reporting. In the case of GHG emissions, the 3% threshold applies to the relevant emissions Scope of the applicable region. The following site reporting matrix lists the active Novelis sites, the sites which are in scope of Novelis' external environmental and GHG targets, and any site indicators that are not reported due to immateriality. Before a site indicator is considered immaterial, it must be communicated with Global Sustainability and Global EHS, which are responsible for screening and deciding if a site indicator can be considered immaterial.

Key: x = site reports data for this indicator; o = indicator relevant to the site but does not report against it due to immateriality; blank = indicator not relevant to site (does not report).

ACTIVE SITE LIST	Site Type	In scope of targets	GHG and Energy						Waste	Water
			Natural gas	Kerosene	Diesel	LPG	Electricity	Hot water / steam		
ASHVILLE	MFG[4]	x	x		x	x	x		x	x
ANANINDEUA (BELEM)	Collection									
BAURU	Collection									
BEREA	MFG	x	x		x		x		x	x
BRESSO	MFG	x	x	o	x		x		x	X
BRASÍLIA	Collection									
BUCKHEAD	Office									
CAMPINAS	Collection									
CHANGZHOU	MFG	x	x		x		x	x	x	x
CURITIBA	Collection									
DAVENPORT (CASTING)	MFG	x	x		x		x		x	x
DAVENPORT (FINISHING)	MFG	x	x			x	x		x	x
D.C. ITALY	Distribution	x	x				x			
DUBAI	Office									
FAIRMONT	MFG	x	x		x	x	x		x	x
GÖTTINGEN	MFG	x	x	x	x		x		x	x

[4] MFG = Manufacturing

ACTIVE SITE LIST	Site Type	In scope of targets	GHG and Energy						Waste	Water
			Natural gas	Kerosene	Diesel	LPG	Electricity	Hot water / steam		
GREENSBORO	MFG	x	x		x	x	x		x	x
GUTHRIE	MFG	x	x		x	x	x		x	x
JOÃO PESSOA	Collection									
JUIZ DE FORA	Collection									
KENNESAW	R&D	x	x		o	o	x		o	o
KINGSTON	MFG	x	x		x	x	x		x	x
KOBLENZ	MFG	x	x		x		x		x	x
KUSNACHT	Office									
LATCHFORD	MFG	x	x		x		x		x	x
LINCOLNSHIRE	MFG	x	x		x	x	x		x	x
LOGAN ALUMINUM	MFG	x	x		x	x	x		x	x
NACHTERSTEDT Recycling	Recycling	x	x	o	x		x		x	x
NACHTERSTEDT Rolling	MFG	x	x	o	x		x			x
ALUNORF	MFG	x	x		x		x		x	x
NOVELIS PAE	MFG									
DETROIT (NOVI)	R&D									
OHLE	MFG	x	x				x		x	x
OSWEGO	MFG	x	x		x	x	x	x	x	X
PARNAMIRIM (NATAL)	Collection									
PIEVE	MFG	x	x		x		x		x	X
PINDAMANHONGABA	Collection									
PINDAMANHONGABA	MFG	x	x		x	x	x		x	X
RECIFE	Collection									
RICHMOND[5]	MFG	x	x		x	x	x		x	x
SALVADOR	Collection									

[5] The Richmond and Terre Haute sites closed during FY26. Any activity (consumption/generation) under the relevant indicators up until closure will be captured in FY26 reporting.

ACTIVE SITE LIST	Site Type	In scope of targets	GHG and Energy						Waste	Water
			Natural gas	Kerosene	Diesel	LPG	Electricity	Hot water / steam		
SANTO ANDRE	MFG	x	x			x	x		x	X
SÃO GONÇALO (RIO DE JANEIRO)	Collection									
SAO PAULO	Collection									
SAO PAULO	Office									
SEOUL	Office									
SERTÃOZINHO	Office									
SIERRE	MFG	x	x		x		x		x	X
SHANGHAI	Office									
SPOKANE	R&D									
STUTTGART	Office									
TERRE HAUTE[5]	MFG	x	x	x	x	x	x		x	X
UHRICHSVILLE	MFG	x	x	x	x	x	x		x	x
ULSAN	MFG	x	x		x		x		x	X
VOERDE	MFG	x	x		x		x		x	x
WARREN	MFG	x	x				x		x	x
YEONGJU	MFG	x	x		x		x		x	x
YEONGJU Recycling	Recycling	x	x		x		x			
ZHENJIANG	MFG	x	x		x		x		x	x

Appendix C Definitions and metric calculations

The common set of terms and definitions that Novelis aligns with in its GHG accounting and reporting is set out below.

C.1 Air emissions (Annual)

Each operating site must quantify air emissions on an annual basis. R&D sites and offices are not required to report air emissions. Data must be reported in April for the preceding fiscal year. Unless specified otherwise, air emissions should be reported as stack or point source emissions. Fugitive emissions should not be included in the estimate unless specifically identified in this Directive. Please note that actual stack testing data is the preferred source for quantifying air emissions. If they are not available, internationally recognized emissions factors such as US EPA AP-42 (or other internally recognized factor) should be used to estimate air emissions. Appendix E, Appendix F and Appendix G also have some process-specific emission factors that can be used in the estimation process.

Note: All air emissions are reported for the previous fiscal year. Sites may be required by local legislation to also report on a calendar year basis; these reports can be used instead of fiscal year reporting to keep consistency of reports.

C.1.1 Particulate matter

Include the total quantity of organic or inorganic particulate matter, mist or dust air emissions for the entire site. Only include sources of stack emissions; do not include fugitive emissions that escape from processes and are emitted through building openings. Data based on stack test results are preferred; estimates are acceptable if measured data is not available. The most significant source of particulate matter is scrap melting furnaces, flux boxes, holders, shredders, dross coolers, dryers and de-coaters. This variable must be reported in metric tonnes.

C.1.2 Hydrogen chloride (HCl)

Report the total quantity of hydrogen chloride air emissions from all site processes onsite. Typically, HCl emissions are associated with furnace and flux box operations where chlorine or other reactive fluxing is performed. In addition, HCl is generated during scrap de-lacquering operations. Report stack emissions only, not fugitive emissions that fail to be captured by the ventilation system and escape into the building. Appendix E contains some critical emissions factors that can be used for estimating HCl emissions. Please note that site-specific emission factors are preferred and should be used in lieu of the factors contained in Appendix E when available. This variable must be reported as HCl in metric tonnes.

C.1.3 NOx

Include the total quantity of NOx air emissions for the entire site. Only include sources of stack emissions; do not include fugitive emissions that escape from processes and are emitted through building openings. Data based on stack test results are preferred; estimates are acceptable if measured data is not available. The most significant source of NOx is various natural gas or fuel oil combustion sources (i.e., building heaters, melting/holding furnaces, soaking pits, gas fired annealing furnaces, etc.). Appendix F contains a Novelis-approved method for estimating NOx emissions from combustion sources. This variable must be reported as NO_2 in metric tonnes.

C.1.4 SO_2

Include the total quantity of SO_2 air emissions for the entire site. Only include sources of stack emissions;.do not include fugitive emissions that escape from processes and are emitted through building openings. The most significant source of SO_2 would be through the combustion of petroleum-based fuels such as heavy oil (#6/Bunker C). Data based on historical stack test results are preferred; estimates are acceptable if measured data is not available. This variable must be reported in metric tonnes. Appendix F contains a Novelis-approved method for estimating SO_2 emissions from combustion sources.

C.1.5 VOC

Include the total quantity of VOC air emissions for the entire site. VOC is any pollutant that can contribute to ozone formation in the lower atmosphere. It is typically measured via EPA Method 25A for U.S. facilities or EN12619 in Europe. Only include sources of stack emissions. Do not include fugitive emissions that escape from processes and are emitted through building openings. Data based on stack test results are preferred; estimates are acceptable if measured data is not available. Typically, sources of VOC are cold rolling operations, melting furnaces that process oily/coated scrap and scrap decoating operations. Appendix G contains a Novelis-approved method for estimating cold mill VOC emissions. This variable must be reported in terms of propane (equivalent to 1/3 of carbon equivalents) in metric tonnes.

C.1.6 Methyl ethyl ketone (MEK)

Report the total quantity of MEK air emissions from all site processes onsite. This should only include stack emissions – not fugitive emissions that fail to be captured by the ventilation system and escape into the building or are lost through volatilization from open containers. The major source of MEK is coating/painting processes onsite. This variable must be reported in metric tonnes.

C.1.7 Toluene

Report the total quantity of toluene air emissions from all site processes onsite. Report stack emissions only – not fugitive emissions that fail to be captured by the ventilation system and escape into the building or are lost through volatilization from open containers. The major source of toluene emissions is any coating/paint processes onsite. This variable must be reported in metric tonnes.

C.2 Direct energy sources (monthly)

C.2.1 Direct energy sources – natural gas

C.2.1.1 Natural gas

Report the total amount of natural gas consumed (cubic meters) by the site for the reporting period. This data should come from invoice/accounting records or a billing-quality meter, where possible. A short time lag between the records and reporting month is acceptable if this is consistently applied across the Fiscal Year to avoid any double counting or under accounting of consumption. For example, if the invoice does not represent the calendar month but another date range, such as from the 25th of the previous month to the 25th of the reporting month, this is acceptable. The invoiced amount of consumption should be reported, regardless of the date range on the bill. This should be applied consistently across the Fiscal Year.

C.2.1.2 Natural gas upper calorific value

Report the upper calorific value of the natural gas delivered as kWh/nm3. This data should come from invoice/accounting records or a billing-quality meter, where possible. If the monthly invoice is not yet received, consider the average of the last three months.

C.2.1.3 Liquified propane gas (LPG)

Report the total amount of liquified propane gas consumed (lit) by the site for the reporting period. This data should come from invoice/accounting records or a billing-quality meter, where possible. It should be noted that billing corresponds to when a bulk storage tank was filled, not when the fuel was used. Liquified petroleum gas (also called liquified propane gas)is mainly propane C3H8, butane C4H10 or a mix of both. The conversion from kg to liters should use: propane = 1,98 lit/kg, butane = 1,74 lit/kg, mix of butane and propane = 1,86 lit/kg.

C.2.2 Direct energy sources – petroleum

C.2.2.1 Heavy fuel oil (Number 4 or 6)

Report the total amount of heavy fuel oil consumed (kilograms) by the site for the reporting period. This data should come from invoice/accounting records or a billing-quality meter. It should be noted that billing corresponds to when a bulk storage tank was filled, not when the fuel was used. Fuel oil is a fraction of long hydrocarbon chains, particularly alkanes, cycloalkanes, and aromatics obtained from petroleum distillation classified in six grades of fuel oil (numbered 1 through 6). Number 4 fuel oil is a commercial heating oil for burner installations not equipped with preheaters. It may be obtained from the heavy gas oil cut. Number 6 fuel oil is a high-viscosity, residual oil requiring preheating to 104 - 127 °C. Residual means the material remaining after the more valuable cuts of crude oil have boiled off. The residue may contain various undesirable impurities including 2% water and 0.5% mineral soil. This fuel may be known as Bunker C Oil. The conversion from lit to kg should be 0,98 kg/lit.

C.2.2.2 Diesel and number 2 fuel oil

Report the total amount of diesel (gasoil) and Number 2 fuel oil consumed (liters) by the site for the reporting period. This data should come from invoice/accounting records or a billing-quality meter. It should be noted that billing corresponds to when a bulk storage tank was filled, not when the fuel was used. Diesel (gasoil) and Number 2 fuel oil are distillate home heating oil or for trucks and cars typically obtained from the light gas oil cut. Gas oil refers to the process of distillation. Any combustion of waste oil should be added as diesel and Number 2 fuel oil.

C.2.2.3 Kerosene

Report the total amount of kerosene consumed (liters) by the site for the reporting period. This data should come from invoice/accounting records or a billing-quality meter. It should be noted that billing corresponds to when a bulk storage tank was filled, not when the fuel was used. Kerosene is a light oil (density 0.8 g/cm3) obtained from the fractional distillation of petroleum between 150 °C and 275 °C, resulting in a mixture of carbon chains that typically contain between six and 16 carbon atoms per molecule. The kerosene used as rolling oil should not be considered here; neither should the consumption of kerosene for coating line/lacquering solvents or decoating processes. Currently only Göttingen reports lacquering emissions. Only kerosene for heating should be considered here. The rolling oil recovered for heating should also be considered here. Carbon emissions from organic materials should not be reported for decoating purposes.

Note: The GHG emissions associated with direct energy consumption are calculated by using standard factors such as the fuel's calorific value, with the exception of natural gas. Sites enter the specific natural gas upper calorific value for their site.

C.3 Indirect energy sources (monthly)

C.3.1 Indirect energy sources – input

C.3.1.1 Electricity in from Novelis

Report the total electricity in kWh supplied from Novelis generating station to facility. This data should come from invoice/accounting records or a billing-quality meter (historical data).

C.3.1.2 Electricity in from third party

Report the total electricity in kWh supplied from third party electricity provider to the facility. This value can be calculated from supply data and converted to kWh. A short time lag between the records and reporting month is acceptable if this is consistently applied across the Fiscal Year to avoid any double counting or under accounting of consumption. For example, if the invoice does not represent the calendar month but another date range, such as from the 25th of the previous month to the 25th of the reporting month, this is acceptable. The invoiced amount of

consumption should be reported, regardless of the date range on the bill. This should be applied consistently across the Fiscal Year.

C.3.1.3 Hot water in from third party

Report the total hot water in kWh equivalents supplied from third party to the facility. This value can be calculated from supply data and converted to kWh.

C.3.1.4 Steam in from third party

Report the total steam in tonnes supplied from third party to the facility.

C.3.2 Indirect energy sources – output

C.3.2.1 Electricity out to third parties

Report the total electricity in kWh supplied to third parties from Novelis generating capacity. This data should come from invoice/accounting records or a billing-quality meter.

C.3.2.2 Hot water out to third parties

Report the total hot water in kWh equivalents supplied to third parties from onsite generating capacity. This value can be calculated from supply data and converted to kWh.

C.4 Process categories

Energy use and material flows are reported on a process level basis. The table below contains a list of processes, definition of the processes, and list of equipment contained within the processes.

REMELT & DIRECT CHILL (DC) CASTING	REMELT & CONTINUOUS CASTING (CC)	RECYCLING	HOT ROLLING	COLD ROLLING (sheet)	FINISHING & PACKING (sheet & foil)	COATING & METAL TREATMENT (sheet & foil)	FOIL ROLLING
Transform liquid metal or solid metal in various forms in a slab	Transform solid metal in various forms in a coil	Transform scrap in various forms to clean scrap	Transform a slab out of DC caster to a hot rolled coil	Transform a hot rolled coil to a cold rolled coil at final gauge	Transform a cold rolled coil at final gauge to the customer's dimension requirements	Transform the cold rolled metal at final gauge to the customer's surface requirement	Transform a hot rolled coil to a cold rolled coil at final gauge <300µ
sow dryer	sow dryer	roto-grinder		cold rolling mill	slitters (with or without lubrication/waxing)	coating/painting line/powder line	breakdown mills
melter	melter	De-baler	scalper		tension leveler	lithographic line	intermediate mills
holder	holder	shredder	soaking pits		separator	continuous annealing and continuous annealing heat treatment (CASH) lines	foil mills
sidewell melter if connected to a DC caster or supplying a DC caster with liquid metal	sidewell melter if connected to a DC caster or supplying a CC caster with liquid metal	shear	pusher furnaces		cut to length CNC mill	laminating line	doubling machine
induction furnace if connected to a DC caster or supplying a DC caster with liquid metal	induction furnace if connected to a DC caster or supplying a CC caster with liquid metal	belt de-coater	reversing / breakdown mill		laser	level clean line	
DC caster	CC caster		finishing/tandem mill			extrusion/coating line	
dross press/ processing/tumbler	dross press/ processing/ tumbler		cropping shears		packing	batch annealing (cold rolling)	
baghouse	baghouse		cladding		unwinders/DR series machines	metaliser	

REMELT & DIRECT CHILL (DC) CASTING	REMELT & CONTINUOUS CASTING (CC)	RECYCLING	HOT ROLLING	COLD ROLLING (sheet)	FINISHING & PACKING (sheet & foil)	COATING & METAL TREATMENT (sheet & foil)	FOIL ROLLING
sawing			Hot mill waste/ emulsion treatment		alu core line	roll forming/bright mill/embosser	
					Presses	printing	
support equipment	support equipment	support equipment	support equipment	support equipment	support equipment	support equipment	support equipment

In addition to reporting energy use by the process categories above, facilities shall also report total site energy use by source. Total site energy use includes the above processes, plus production support energy use (i.e., – general production, other support equipment, central maintenance, roll-grinding shop, shipping, stores, truck maintenance, warehousing, and material handling and transfer).

C.5 Material flows (monthly)

Material Flows are reported on a process level basis. Materials flows are reported by process using the categories provided below:

REMELT & DC CASTING	REMELT & CC CASTING	RECYCLING	HOT ROLLING	COLD ROLLING (sheet)	FINISHING & PACKING (sheet & foil)	COATING & METAL TREATMENT (sheet & foil)	FOIL ROLLING
Good tonnes out of DC caster	good tonnes out of CC caster	good tonnes out of the recycling operation	good tonnes out of the hot mill	good tonnes out of the cold mills at final gauge	good tonnes out of final operation	good tonnes out of final operation	good tonnes out of the foil mills at final gauge
input solid tonnes in melter and induction furnace	input solid tonnes in melters			cold rolling passed tonnes		treatment passed squared meters	cold rolling passed tonnes

Material flows shall also be reported for:

- Tonnes “ready to ship” (defined as the quantity of material that comes off the end of production (finishing and packaging) and is ready to move to the next site)

Material Flows are calculated by the Sustainability Dashboard PowerBI using the following formula: Normalized Tonnes = Remelt & DC Casting + Remelt & CC Casting + Recycling + Hot Rolling + Cold Rolling (sheet or foil) + Finishing and Packing + Coating and Metal Treatment + Foil Rolling (normalized tonnes defined as the sum of all material quantities that leave each process operation).

In addition to the above material flow reporting, sites reporting energy under 3x30 metrics shall report monthly the amount of aluminum molten received from third party sources (if applicable). Reporting units for molten metal received is metric tonnes.

C.6 Transportation (quarterly)

C.6.1 Weighted average distance

The data should reflect the calculated weighted average distance in kilometers, per mode of transport, between Novelis site and destination (outbound logistics) or between Novelis sites (transportation and distribution).

$$\textit{Weighted average distance} = \Sigma(D_i * M_i) / T_i$$

D_i = Distance traveled in transport leg (km)
M_i = Mass of transported goods in transport leg (tonnes)
T_i = Total mass of transported goods (tonnes)

C.6.1.1 Air Cargo
C.6.1.2 Barge
C.6.1.3 Coaster
C.6.1.4 Train
C.6.1.5 Ferry
C.6.1.6 Heavy Truck (28 Tonnes)
C.6.1.7 Heavy Truck (18 Tonnes)
C.6.1.8 Ocean Vessel

C.6.2 Total Tonnes Shipped

Include total tonnes of outbound goods shipped and transported between sites (including scrap), per mode of transport. The sum of production shipped via all modes of transport should equal the tonnes shipped from the facility.

C.6.2.1 Air Cargo
C.6.2.2 Barge
C.6.2.3 Coaster
C.6.2.4 Diesel Train
C.6.2.5 Ferry
C.6.2.6 Heavy Truck (28 Tonnes)
C.6.2.7 Heavy Truck (18 Tonnes)
C.6.2.8 Ocean Vessel

C.7 Waste (monthly)

Depending on your local jurisdiction's solid waste definitions, some materials are reported in different manners from site to site. In particular, there are significant differences in how used oils, oily waste, dross and scrap metals are classified in the local regulations. In some regions, these materials are not defined as waste. However, Novelis' external sustainability reporting requires that all waste be appropriately accounted for, even if a waste does not meet a local jurisdiction's solid waste definition. Appendix H provides a reference for waste classifications for each region. For items listed in the Table as "Not a Waste," refer to the footnote for proper EtQ reporting requirements. Note: Waste generated from large construction projects or remediation projects are to be included in the EtQ entries and must be noted in the EtQ comments field of the appropriate waste.

A short time lag between the records and reporting month is acceptable if this is consistently applied across the Fiscal Year to avoid any double counting or under accounting of waste. For example, if the invoice does not represent the calendar month but another date range, such as from the 25th of the previous month to the 25th of the reporting month, this is acceptable. The recorded amount of waste should be reported, regardless of the date range on the bill. This should be applied consistently across the Fiscal Year.

C.7.1 Hazardous

C.7.1.1 Hazardous waste incinerated

List the total quantity (kilograms) of all hazardous waste (as defined by your local government jurisdiction) incinerated by the site. You should include the quantity of all hazardous waste incinerated onsite or offsite. Incineration is defined as the destruction of waste that has a low

BTU content. A low-BTU-content waste is defined as a waste that requires additional fuel to effectively destroy. This is not a self-sustaining process. This estimate should be all inclusive. Therefore, the estimate of Total Hazardous Waste Incinerated should include the quantity of any incinerated Specific Material (Section C.7.3) that is classified as hazardous waste by local government regulations.

C.7.1.2 Hazardous waste recycled or re-used

List the quantity (kilograms) of all hazardous waste (as defined by your local government jurisdiction) recycled or re-used by the site. You should include the quantity of all hazardous waste recycled or re-used onsite or offsite. Re-use can be considered a waste that is put to use for the same purpose for which it was conceived, which may require checking, cleaning or repairing operations to prepare the waste for re-use. Please note that the processing of high-BTU-content materials that allow for a self-sustaining process is an alternative fuel and should be included in this figure as a recycling activity. This estimate should be all inclusive. Therefore, the estimate of Total Hazardous Waste Recycled should include the quantity of any recycled Specific Material (Section C.7.3) that is classified as hazardous waste by local government regulations.

C.7.1.3 Hazardous waste landfilled (routine)

This figure must include the quantity (kilograms) of all relevant landfilled hazardous waste (as defined by your local government jurisdiction) that were generated from routine production and maintenance operations. Routine maintenance waste includes items such as pit/tank cleanings, furnace rebuilds and flooring repairs. This figure should include all hazardous industrial waste that is landfilled onsite and offsite. The estimate should be all inclusive. Therefore, the estimate of Total Hazardous Waste Landfilled should include the quantity of any landfilled Specific Material (Section C.7.3) that is classified as hazardous waste by local government regulations.

C.7.1.4 Hazardous waste landfilled (non-routine)

Please note that this figure must include the quantity (kilograms) of all relevant landfilled hazardous waste (as defined by your local government jurisdiction) that was not generated from routine production and maintenance operations. Non-routine production and maintenance waste includes “one-time” waste such as non-routine construction, demolition and remediation waste. This figure should include all hazardous industrial waste that is landfilled onsite and offsite. The estimate should be all inclusive. Therefore, the estimate of Total Hazardous Waste Landfilled should include the quantity of any landfilled Specific Material (Section C.7.3) that is classified as hazardous waste by local government regulations.

C.7.2 Non-hazardous

C.7.2.1 Non-hazardous waste incinerated

List the quantity (kilograms) of all non-hazardous waste (as defined by your local government jurisdiction) incinerated by the site. You should include the quantity of all waste incinerated onsite or offsite. Incineration is defined as the destruction of waste that has a low BTU content. A low-BTU-content waste is defined as a waste that requires additional fuel to effectively destroy. This is not a self-sustaining process. This estimate should be all inclusive. Therefore, the estimate of Total Non-Hazardous Waste Incinerated should include the quantity of any incinerated Specific Material (Section C.7.3) that is classified as non-hazardous waste by local government regulations.

C.7.2.2 Non-hazardous waste recycled or re-used

List the quantity (kilograms) of all non-hazardous waste (as defined by your local government jurisdiction) recycled or re-used by the site. You should include the quantity of all non-

hazardous waste recycled or re-used onsite or offsite. Re-use can be considered as waste that is put to use for the same purpose for which it was conceived, which may require checking, cleaning or repairing operations to prepare the waste for re-use. The processing of high-BTU-content materials that allow for a self-sustaining process is an alternative fuel and should be included in this figure (as a recycling activity). This estimate should be all inclusive. Therefore, the estimate of Total Non-Hazardous Waste Recycled should include the quantity of any recycled Specific Material (Section C.7.3) that is classified as non-hazardous waste by local government regulations (also report any materials defined in Appendix H as “Not a Waste” if indicated that reporting is required in the appropriate footnote).

C.7.2.3 Non-hazardous waste landfilled (routine)

This figure must include the quantity (kilograms) of all relevant landfilled non-hazardous waste (as defined by your local government jurisdiction) that was generated from routine production and maintenance operations. Routine maintenance waste includes items such as pit/tank cleanings, furnace rebuilds and flooring repairs. This figure should include all industrial waste and general trash items that are landfilled. This estimate should be all inclusive. Therefore, the estimate of Total Non-Hazardous Waste Landfilled should include the quantity of any landfilled Specific Material (Section C.7.3) that is classified as non-hazardous waste by local government regulations.

C.7.2.4 Non-hazardous waste landfilled (non-routine)

This figure must include the quantity (kilograms) of all relevant landfilled non-hazardous waste (as defined by your local government jurisdiction) that was generated from non-routine production and maintenance operations. Non-routine production and maintenance waste includes “one-time” waste such as non-routine construction, demolition and remediation wastes. This figure should include all non-hazardous industrial waste that is landfilled onsite and offsite. The estimate should be all inclusive. Therefore, the estimate of Total Non-Hazardous Waste Landfilled should include the quantity of any landfilled Specific Material (Section C.7.3) that is classified as non-hazardous waste by local government regulations.

C.7.3 Waste to landfill (annually)

On an annual basis, each site shall enter the volume (kilograms) of wastes sent to landfill by waste type (as applicable to that site). Sites shall not report landfill wastes associated with dross or saltcake processing and disposal. Sites shall not include non-routine production and maintenance wastes sent to landfill. Non-routine production and maintenance waste includes “one-time” waste such as non-routine construction, demolition and remediation wastes. For comingled wastes, sites shall select the type most representative of the comingled waste. Wastes sent to landfill shall be reported using the following waste types:

- Baghouse Dust (Cold Baghouse) – Dust generated from aluminum recycling cold end operations (debalers, air knives, shredders, etc.)
- Baghouse Dust (Hot Baghouse – no lime addition) – Dust generated from aluminum recycling hot end operations (decoaters, recycle furnaces, melter furnaces, holder furnaces). Shall include baghouses that do not add reactant for acid gas neutralization (lime/sodium bicarbonate)
- Baghouse Dust (Baghouse with lime addition) – Dust generated from aluminum recycling hot end operations (decoaters, recycle furnaces, melter furnaces, holder furnaces). Shall include baghouses that do add reactant for acid gas neutralization (lime/sodium bicarbonate)
- Hazardous Waste Baghouse Dust – Baghouse dust that is classified as hazardous waste
- Decoater Dust – Dust generated from a decoater cyclone
- Refractory Waste – Waste generated from disposal of used refractory materials

- Sludge (Can Coating Line) – Sludges generated from can coating line operations.
- Sludge (CASH Line) – Sludges generated from automotive processing lines
- Sludge (Waste Treatment – Other) – Sludges generated from general wastewater treatment operations or other types of sludges
- Filter Media (Cold Mill – Hot Mill) – Waste filter media and filter paper generated from cold mill and hot mill filtration operations
- Roll Grind Waste – Waste generated from roll grinding operations (swarf)
- General Trash – Garbage – General waste collected in bins, hoppers or roll-offs through-out plant operations
- Hazardous Waste – Miscellaneous – Miscellaneous hazardous wastes not fitting other waste types
- Wood Waste (including Pallets) – Wood waste sent to landfill
- Construction and Demolition Waste – Construction and demolition waste (C&D) is a term used to describe materials that are generated during the construction or demolition process. This may include concrete or asphalt flooring repairs, used office furniture, mixed scrap metals not recycled
- Organic Waste – Organic wastes from cafeterias
- Other (Describe in Comments) – Wastes not meeting the categories above; please describe the waste type in the comment field

C.7.4 Specific materials

C.7.3.1 Dross

Report the total quantity (kilograms) of dross generated by all primary and secondary aluminum processes, such as recycling furnaces, DC casting centers and flux boxes, and shipped offsite during the quarter. If any facilities recycle dross onsite during a quarter, the amount of dross recycled must be reported in the EtQ comment field (not as shipped). Dross is defined as the metallic oxide and saltslag that collects on the surface of molten metal during refining operations. This should include all gray (i.e., holder and round top melter dross) and black dross (i.e., side well furnace dross) of varying aluminum content. The generation of salt cake from dross and scrap recycling operations (rotary salt furnaces) should not be included in this figure.

C.7.3.2 Recycling baghouse dust

Report the quantity (kilograms) of baghouse dust waste generated. The amount of baghouse dust reported should equal the waste generated from the cyclones, spark arrestors, and filter baghouses associated with all melting furnaces, holding furnaces, filter boxes, shredders and de-coaters/delacquerers. This figure should include the total waste generated (including the dust collected from the process, as well as acid scrubbing reagents injected into the baghouse for acid gas control). Reporting of this specific waste is no longer required on a monthly basis for FY2023 and beyond; instead, the data is reported annually.

C.7.3.3 Hot mill used oil emulsion

Report the quantity (kilograms) of all hot mill (both reversing and tandem mill designs) used oil emulsion generated by the process. You should report the total quantity of used oil emulsion as generated (prior to any treatment) by the process. Do not report the quantity of the treated waste oil concentrate or used oil fuel produced from the treatment of the used emulsion. Please report the actual quantity of used oil emulsion generated by the actual process in its original form and concentration. Reporting of this specific waste is no longer required on a monthly basis for FY2023 and beyond; instead, the data is reported annually.

C.7.3.4 Cold mill used oil

Report the total quantity (kilograms) of cold mill used roll oil generated at the site. The quantity of oil reported should not include the amount of oil sent to a Vacuum Distillation Unit (VDU) process for recycling; only the amount of oil or VDU bottoms removed from the cold rolling process should be included. Reporting of this specific waste is no longer required on a monthly basis for FY2023 and beyond; instead, the data is reported annually.

C.7.3.5 Cold mill filter media

Report the total quantity (kilograms) of cold mill filter media. The definition of cold mill filter media includes the media itself, as well as any filter papers utilized in the process. This would include all types of cold mill oil filter media including diatomaceous earth (DE), fullers earth (FE) and ActiCel/wood pulp filter medias. The amount of the waste, such as roll grindings from the reconditioning of hot or cold mill rolls, should not be included in this figure. Reporting of this specific waste is no longer required on a monthly basis for FY2023 and beyond; instead, the data is reported annually.

C.7.3.6 Coating line related waste paint/solvent

Report the total quantity (kilograms) of the used paint waste, coating waste, and all clean up solvents used in all coating line processes. The amount of gloves and rags used and disposed of when using the waste paint/solvent should be included as well. Reporting of this specific waste is no longer required on a monthly basis for FY2023 and beyond; instead, the data is reported annually.

C.7.3.7 Salt cake

Report the total quantity (kilograms) of the salt cake generated from onsite operations. Salt cake is the slag generated during the recovery of aluminum in rotary furnaces. To maximize metal recovery, a salt flux is often added to aluminum scrap and dross in the recovery process, and the residue resulting from that aluminum recovery process is referred to as salt cake or salt slag.

C.7.3.8 Percent of dross landfilled

Report the calculated/estimated amount of dross that is landfilled as salt cake after off-site recycling of dross by a third-party company. For calculation of landfilled amounts, include any additional flux salts added during the recycling process. Facility should reach out to dross processor to estimate the volume of dross that is landfilled after recycling.

C.7.3.9 Percent of salt cake landfilled

Report the calculated/estimated amount of salt cake that is landfilled after off-site recycling by a third-party company. For calculation of landfilled amounts, include any additional flux salts added during the recycling process. Salt cake is produced at several Novelis sites by rotary furnaces. Facility should reach out to dross processor to estimate the volume of salt cake that is landfilled after recycling.

C.8 Water (monthly)

C.8.1 Water input (monthly)

C.8.1.1 Groundwater

Report the quantity (cubic meters) of water used from a source of water, such as an onsite groundwater well.

C.8.1.2 Surface water

Report the quantity (cubic meters) of water used from an untreated (with the exception of crude filtration) source of water, such as a river or lake.

C.8.1.3 Sea water

Report the quantity (cubic meters) of sea or ocean water used onsite.

C.8.1.4 Water from public – net

Report the quantity (cubic meters) of water used from a treated (including filtration and disinfection) source of water, such as a public/municipal water supply. A short time lag between the records and reporting month is acceptable if this is consistently applied across the Fiscal Year to avoid any double counting or under accounting of water use. For example, if the invoice does not represent the calendar month but another date range, such as from the 25th of the previous month to the 25th of the reporting month, this is acceptable. The invoiced amount of water use should be reported, regardless of the date range on the bill. This should be applied consistently across the Fiscal Year.

C.9 Water (annually)

C.9.1 Water discharge (annually)

Identify planned and unplanned water discharges by destination. Do not include stormwater discharges. If the facility does not have a meter to measure water discharges, this figure needs to be estimated by subtracting the approximate volume consumed on-site from the volume withdrawn (or other valid estimating means). Report the total volume of water discharged in cubic meters per year. Report by destination below. The following definitions do not include evaporation. Evaporation for Novelis facilities is typically the difference between total water input and total water discharge.

C.9.1.1 Groundwater

Water discharged beneath the earth’s surface.

C.9.1.2 Surface water

Water discharged to the atmosphere.

C.9.1.3 Water discharged to off-site treatment facilities

Water that is discharged to an offsite third-party facility for subsequent treatment. Include water that is discharged to a sewer system or trucked to an off-site wastewater treatment plant or remote plant.

C.9.2 Water/wastewater recycled/re-used (annually)

Recycled water is worked water that is treated before it is used in a task. Re-used water is worked water that is used in a task without treatment beforehand.

C.9.2.1 Recycled water used in the same process

Report water recycled back into the same or a higher use process. An example of recycled water used in the same process is cooling water cooled by a cooling tower prior to recirculation back into the cooling loop. Recycled cooling water volumes can be estimated by multiplying the average recirculation flow rate (i.e., from cooling tower pumps) by the hours of operations (less input water) or multiplying cooling water input volume by the cooling tower cycles of concentration. Report the total volume of water recycled in cubic meters per year.

C.9.2.2 Recycled/re-used water used in a different process

Report water recycled/re-used in a different process. An example includes reverse osmosis concentrate water re-used in an air pollution control scrubber. Gray water (i.e., collected rainwater and wastewater generated by processes such as washing dishes, doing laundry and bathing) is included. Report the total volume of water recycled in cubic meters per year.

C.10.1 Shipments

Novelis applies the following shipment definitions as outlined in Table 7.

	FRP			SI		
	Customer shipments ("effective") (FRP)	**Interregional shipments (FRP)**	**3P* tolling shipments (FRP)**	**3P (customer, "effective") SI shipments**	**Interregional shipments (SI)**	**3P tolling shipments (SI)**
FRP shipments (3P shipments)	x		x			
Total FRP Shipments ("FRP sales")	x	x	x			
Total FRP & SI shipments	x		x	x		
Total Shipments (FRP & SI) - total production volume	x	x	x	x	x	x

***3P: third-party**

Table 7: Novelis definitions for its shipments of flat rolled product and sheet ingot

Appendix D Default emission factors

D.1 Direct emissions from fuel consumption (Scope 1)

Default emission factors to be used where necessary in FY2026 are set out in Table 8 expressed in tonnes CO_2e/physical unit of fuel.

Relevant calculation for calculating GHG emissions:

$$\textit{Emissions of } CO_2e \textit{ (tonne)} = \sum (\textit{Fuel}_i \textit{ consumption} \times \textit{Fuel}_i \textit{ EF})$$

Where:

- *$Fuel_i$ consumption:* total fuel quantity purchased expressed in physical unit (kg or m3 or liters)
- *$Fuel_i$ EF:* CO_2e emission factor expressed in tCO_2e/physical unit of fuel

Type	Default Factor	Factor Units
Heavy Fuel Oil (Number 4 or 6)	3.16×10^{-3}	tCO_2e/kilogram
Diesel and Number 2 Fuel Oil	2.71×10^{-3}	tCO_2e/liter
Kerosene	2.69×10^{-3}	tCO_2e/liter
Natural Gas	1.92×10^{-3}	tCO_2e/cubic meter
Liquified Petroleum Gas (LPG)	1.51×10^{-3}	tCO_2e/liter

Table 8: Scope 1 default emission factors (Sourced from: United States (U.S.) Environmental Protection Agency (EPA) 2025 GHG Emission Factors Hub, Emission Factors for Greenhouse Gas Inventories, Table 1 (June 2025). Factors are aligned with IPCC AR5 reporting, which applies the following 100-year global warming potentials: $CH_4 = 28$, $N_2O = 265$)

Relevant equation for calculating energy consumption:

$$\textit{Energy Consumption (GJ)} = \sum (\textit{Fuel}_i \textit{ consumption} \times \textit{Fuel}_i \textit{ EF})$$

Where:

- *$Fuel_i$ consumption* = total fuel quantity purchased over the period expressed in physical unit (kg or m3 or liters)
- *$Fuel_i$ EF* = Energy emission factor expressed in GJ/physical unit of fuel

Default energy conversion factors expressed in GJ/physical unit of fuel are set out in *Table 9*.

Type	Default Factor	Factor Units
Heavy Fuel Oil (Number 4 or 6)	4.43×10^{-2}	GJ/kilogram
Diesel and Number 2 Fuel Oil	3.85×10^{-2}	GJ/liter
Kerosene	3.76×10^{-2}	GJ/liter
Natural Gas	Upper Calorific Value (variable)	KWh/cubic meter x 0.0036 GJ/KWh
Liquified Petroleum Gas (LPG)	2.56×10^{-2}	GJ/liter

Table 9: Default energy conversion factors (sourced from United States (U.S.) Environmental Protection Agency (EPA) 2025 GHG Emission Factors Hub, Emission Factors for Greenhouse Gas Inventories, Table 1 (June 2025))

Default unit conversion factors are set out in Table 10.

Category	Units for conversion	Factor
Energy	1 mmBtu to GJ	1.055
	1 mmBtu to MWh	0.2931
Volume	1 gallon to litres	3.785
	1 cubic foot to cubic meters	0.02832
Weight/mass	1 pound to kg	0.4536

Table 10: Default unit conversion factors for energy, volume and weight/mass. Source: Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, UK Government GHG Conversion Factors for Company Reporting 2025, version 1.0 (June 2025), tab "Conversions")

D.2 Indirect emissions from electricity generation (Scope 2 location-based)

Relevant equation for calculating GHG emissions:

$$\textit{Emissions of } CO_2e \textit{ (tonne)} = \sum PE * (EF / 1000)$$

Where:

- PE = Electricity Consumption (kWh)
- EF = Emission Factor (location-based) (tCO_2e/MWh)
- 1000 = Conversion Factor (1 MWh = 1000 kWh)

Relevant equation for calculating energy consumption:

$$\textit{Energy Consumption (GJ)} = \sum PE * (3.6 / 1000)$$

Where:

- PE = Electricity Consumption (kWh)
- 3.6 = Conversion Factor (3.6 MJ = 1 kWh)
- 1000 = Conversion Factor (1000 MJ = 1 GJ)

Figure 3 contains the emission factors applied for Scope 2 location-based (grid average) emissions in FY26.

Region	Country/ Subregion	FY26 Factors (tCO2e/ MWh)	Factor Reference
Asia	China	0.5856	Chinese Government
	South Korea	0.4172	Korean Government
Europe	Germany	0.3679	International Energy Agency
	Italy	0.3128	International Energy Agency
	Switzerland	0.0260	International Energy Agency
	United Kingdom	0.1770	UK Government
North America	Ontario	0.046	Canada National Inventory Report
	NPCC Upstate NY (Oswego)	0.1103	US eGRID
	RFC West (Ashville, Buckhannon, Fairmont, Lincolnshire, Terre Haute, Uhrichsville, Warren)	0.4164	US eGRID
	MROW (Davenport)	0.4212	US eGRID
	RFC East (Clayton)	0.2724	US eGRID
	SRVC (Richmond)	0.2710	US eGRID
	SERC South (Greensboro, Kennesaw)	0.3846	US eGRID
	SERC Tennessee Valley (Berea, Guthrie, Logan)	0.4105	US eGRID
South America	Brazil	0.0547	Brazilian Government

Figure 3: Scope 2 location-based emission factors for FY26.

D.3 Indirect emissions from purchased hot water (Scope 2)

Relevant equation for calculating GHG emissions from purchased hot water:

$$\textit{Emissions of } CO_2e \textit{ (tonne)} = \sum PE * EF$$

Where:

- PE = Hot water consumption (kWh)
- EF = Emission factor for hot water (tonne CO_2e/kWh) = 0.000227

Note:
PDM calculation assumes natural gas fuel and a boiler efficiency of 80% to convert the quantity of steam or hot water reported in kWh to tonne of CO_2e. The calculation applied to derive the emissions factor is:

$$\text{Emission factor} = ((0.0019\ tCO_2e/m^3\ \text{gas} / (0.038\ GJ/m^3\ \text{gas} * .80)) * 0.0036\ GJ/kWh)$$
$$= 0.000227\ \text{tonne}\ CO_2e\ \text{per kWh steam/hot water}$$

Sources:

- 0.0019 tCO2e/m3 gas: Scope 1 emission factor for natural gas, United States (U.S.) Environmental Protection Agency (EPA) 2025 GHG Emission Factors Hub, Emission Factors for Greenhouse Gas Inventories, Table 1 (June 2025) (see next section D.3)
- 0.038 GJ/m3 gas: United States (U.S.) Environmental Protection Agency (EPA) 2025 GHG Emission Factors Hub, Emission Factors for Greenhouse Gas Inventories, table 1 (June 2025)
- 80% boiler efficiency: EPA, Combined Heat and Power, last updated February, 2026 https://www.epa.gov/energy/combined-heat-and-power
- 0.0036 GJ/kWh: Conversion factor from kWh to GJ, Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, UK Government GHG Conversion Factors for Company Reporting 2025, version 1.0 (June 2025), tab “Conversions”

Relevant equation for calculating energy consumption of purchased hot water:

*Energy Consumption (GJ) = ∑ PE * (3.6 / 1000)*

Where:

PE = Hot Water Consumption (kWh)
3.6 = Conversion Factor (3.6 MJ = 1 kWh)
1000 = Conversion Factor (1000 MJ = 1 GJ)

Source:

- 3.6 MJ/kWh: Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, UK Government GHG Conversion Factors for Company Reporting 2025, version 1.0 (June 2025), tab "Conversions."

D.4 Indirect emissions from purchased steam (Scope 2)

Relevant equation for calculating GHG emissions from purchased steam:

*Emissions of CO_2e (tonne) = SC * EF*

Where:

- SC = Steam consumption (tonnes)
- EF = Emission factor for steam (tonne CO_2e/tonne) = 0.20

Note:
PDM calculation assumes natural gas fuel and a boiler efficiency of 80% to convert the quantity of steam or hot water reported in kWh to tonne of CO_2e. The calculation applied to derive the emissions factor is:

Emission factor = (((0.0024 tCO_2e/kg coal / 0.026 GJ/kg coal) * .80) * 0.0028 GJ/kg steam) * 1000
= 0.20 tonne CO_2e per tonne steam

Sources:

- 0.0024 tCO2e/kg coal: United States (U.S.) Environmental Protection Agency (EPA) 2025 GHG Emission Factors Hub, Emission Factors for Greenhouse Gas Inventories, Table 1 (June 2025), Coal and Coke – Mixed (Industrial Sector)
- 0.026 GJ/kg coal: United States (U.S.) Environmental Protection Agency (EPA) 2025 GHG Emission Factors Hub, Emission Factors for Greenhouse Gas Inventories, table 1 (June 2025), Coal and Coke – Mixed (Industrial Sector)
- 80% boiler efficiency: EPA, Combined Heat and Power, last updated February, 2026 https://www.epa.gov/energy/combined-heat-and-power
- 0.0028 GJ/kg steam: Specific molar enthalpy of steam (165 °C at 0.7 MPa), Thermodynamic and Transport Properties of Fluids (1995), SI Units, Fifth Edition, arranged by G. F. C. Rogers and Y. R. Mayhew
- 1000: Conversion factor (1000kg = 1 tonne)

Relevant equation for calculating energy consumption of purchased steam:

$$Energy\ Consumption\ (GJ) = SC * (CF * 1000)$$

Where:

SC = Steam consumption (tonnes)
CF = Conversion factor (GJ / kg steam) = 0.0028
1000 = Conversion factor (1000kg = 1 tonne)

Source:

- 0.0028 GJ / kg steam: Specific molar enthalpy of steam (165 °C at 0.7 MPa), Thermodynamic and Transport Properties of Fluids (1995), SI Units, Fifth Edition, arranged by G. F. C. Rogers and Y. R. Mayhew.

D.5 Emissions from offsite transport of product (Scope 3, category 4)

Relevant equation for calculating GHG emissions:

$$Emissions\ of\ CO_2e\ (tonne) = 10^{-6} \times \sum (D_i * M_i * EF_i)$$

Where:

- D_i = Weighted average distance traveled by mode of transport$_i$ (km)
- M_i = Total mass of transported product by mode of transport$_i$ (tonnes)
- EF_i = GHG emission factor for mode of transport$_i$ (g/t*km)
- 10^{-6} = *Conversion Factor (1,000,000 g = 1 tonne)*

Default factors used in the GHG calculation for FY26 are set out in Table 11.

Type	Default Factor	Factor Units
Air Cargo	899.4	gCO2e/tonne*kilometer
Coaster	13.2	gCO2e/tonne*kilometer
Train	27.8	gCO2e/tonne*kilometer
Heavy Truck (28 Tonnes)	78	gCO2e/tonne*kilometer
Heavy Truck (18 Tonnes)	78	gCO2e/tonne*kilometer
Ocean Vessel	13.2	gCO2e/tonne*kilometer

Table 11: Transport emission factors (sourced from Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, UK Government GHG Conversion Factors for Company Reporting 2025, version 1.0 (June 2025), tab "Freighting Goods").

D.6 Historical prime emission factors

Novelis' historical prime factors were as follows:

- FY2025: the CO2e intensity of bauxite-prime was 3.82 tCO2e/t prime, based on the 2023 LCI data available from the IAI.

- FY2024: the CO2e intensity of bauxite-prime was 3.77 tCO2e/t prime, based on the 2022 LCI data available from the IAI.
- FY2023, the CO_2e intensity of bauxite-prime was 3.89t CO_2e/t prime, based on the 2021 LCI data available from the IAI.
- FY2020-2022: 3.99 tCO2e/t was used for Scope 3 of the smelters. This was in line with the IAI data for emissions based on the year of emissions.
- FY2016 (baseline year): the IAI factor of 4.35 t CO_2e/t was used for Scope 3 of the smelters.

Appendix E HCl emission factors

Process-specific HCl emissions factors generated from actual stack testing data should be used where possible. Local factors should be used where process-specific data is not available. If the site does not have any HCl emissions factors available, the below factors can be used.

E.1 Used beverage can (UBC) decoating processes

- Uncontrolled emissions from a UBC decoating process emit approximately 1.35 kg/tonne (2.7 lb/ton) of HCl
- Therefore, an estimate of HCl emissions can be calculated if you know your pollution control's HCl removal efficiency
- A well-designed acid gas dry or wet scrubbing baghouse should achieve approximately 85% removal. Therefore, overall UBC decoating HCl emissions can be estimated using the below equation:

HCl emissions (kg/year) = 1.35 kg/tonne x .85 x production rate (tonne/year)

E.2 Remelt molten metal fluxing

1) Chlorine gas fluxing

Based on past stack testing performed, approximately 8% of the chlorine gas utilized for fluxing operations is converted into HCl. Therefore, the below equation can be utilized for estimating HCl from chlorine gas fluxing in a typical holding furnace operation.

HCl emissions (kg/year) = chlorine used (kg/year) (.08)

2) Rotary flux injection utilizing magnesium chloride solid salt flux

Seventy-five percent of MgCl salt flux is elemental chlorine. Based on past stack testing, approximately 6% of this chlorine is converted into HCl when injected utilizing good furnace practices. Therefore, the HCl emissions for rotary salt injection systems can be estimated utilizing the below equation.

HCl emissions (kg/year) = total salt flux used (kg/year) x .75 x .06

3) In-line flux box emissions

The use of chlorine gas in flux boxes creates HCl. Based on past stack testing, typical flux box operations utilizing chlorine gas generate approximately .04 kg HCl per tonne of molten metal processed. Therefore, the equation below can be utilized to estimate HCl emissions from a flux box.

HCl emissions (kg/year) = .04 kg/tonne x production rate (tonne/year)

Appendix F NOx/SOx emissions estimation methodology for external combustion sources

Process-specific NO_x/SO_x emissions factors generated from actual stack testing data should be used where possible. Local factors should be used where process-specific data is not available. If the site does not have any NO_x/SO_x emissions factors available, the below U.S. Environmental Protection Agency (US EPA) factors can be used.

The US EPA has established emissions factors and emissions estimation methods for various types of external combustion sources utilizing a number of different types of fuel (fuel oil, natural gas, etc.).

Below is an internet link that can be referred to for guidance on how to estimate NOx and SO_2 emissions.

https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors

For information on NOx related to the combustion of natural gas in various types of furnace operations, please refer to the US EPA's AP-42: Compilation of Air Emissions Factors, fifth edition[6], chapter 1, section 1.4 and table 1.4 -1. For information on SO_x related to the combustion of natural gas in various types of furnace operations, please refer to Section 1.4 and Table 1.4 -2 in AP-42.

[6] https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors.

Appendix G Cold mill VOC emission estimation methodology

Process-specific VOC emissions factors generated from actual stack testing data should be used where possible. Local regional emissions factors should be used where process-specific data is not available. If the site does not have any VOC emission factors available, the below estimation method can be used.

The best method to estimate VOC emissions from cold rolling is to perform a cold mill oil mass balance.

If all oil inputs and outputs (with the exception of the air emissions) from the cold mill can be accounted for, it should be possible to estimate the quantity of VOC air emissions (difference between the inputs and outputs).

Typical oil inputs into the cold mill include:

- Purchased base oil (do not consider the amount of reclaimed oil from the VDU)
- Purchased additive oil

Typical outputs include:

- Used oil removed from the mill (not including used oil sent to the VDU and returned to process)
- VDU bottoms
- Cold mill filter media waste (typically contains approximately 35% oil)
- Residual oil on coils

Therefore, the quantity of VOC from cold rolling can be estimated using the below equation:

Cold mill VOCs (tonne/year) = inputs (tonne/year) – outputs (tonne/year)

- Or -

Cold mill VOCs (tonne/year) =
purchased base oil (tonne/year) + purchased additive (tonne/year) –
used oil removed from process (tonne/year) – VDU bottoms (tonne/year) –
(Cold mill filter media (tonne/year) x 0.35) – residual oil on coils (tonne/year)

Appendix H Waste and determination

	United States			Ontario, Canada			Italy		
	Non-Hazardous	Hazardous	Not a Waste	Non-Hazardous	Hazardous	Not a Waste	Non-Hazardous	Hazardous	Not a Waste
Dross			X[1]		X			X	
Recycle Baghouse Dust	X	X[2]		X					
Hot Mill Used Emulsion			X[1]	X					
Cold Mill Used Oil			X[1]	X				X	
Cold Mill Filter Media	X			X				X	
Coating Line Related Waste Paint/Solvent		X			X			X	
Scrap Metal			X[1]			X[3]			X[3]
Spent Pot Lining		X			X				

1 Not considered a waste if material is recycled or reclaimed in USA. For PDM, report all dross, cold mill used oil, and scrap metal that is recycled or reclaimed as “non-hazardous recycled.”

2 At some new Novelis sites, recycle baghouse dust is handled as hazardous waste.

3 For EtQ, report all scrap metals that are recycled or reclaimed as “non-hazardous recycled.” Scrap metal includes site-generated scrap aluminum that is shipped off site for recycling.

	Germany			United Kingdom			Switzerland		
	Non-Hazardous	Hazardous	Not a Waste	Non-Hazardous	Hazardous	Not a Waste	Non-Hazardous	Hazardous	Not a Waste
Dross	**X**	**X[1]**			**X**		**X**	**X[1]**	
Recycle Baghouse Dust		**X**		**X[2]**	**X[2]**			**X**	
Hot Mill Used Emulsion		**X**			**X**			**X**	
Cold Mill Used Oil		**X**			**X**			**X**	
Cold Mill Filter Media		**X**			**X**			**X**	
Coating Line Related Waste Paint/Solvent	**X[3]**	**X[3]**		**X[3]**	**X[3]**			**X[3]**	
Scrap Metal	**X[4]**			**X[4]**			**X[4]**		
Spent Pot Lining	**X**	**X[5]**			**X**		**X**	**X[5]**	

1 Dross normally is classified as non-hazardous. But if the gas formation rate upon addition of water exceeds 1 L / (kg h) it is hazardous.
2 Baghouse dust may be non-hazardous or hazardous depending upon its composition (e.g., if lime injection is used, the waste is hazardous).
3 Organic solvents/solvent-based paints are hazardous. Water-based paints may be non-hazardous if they do not contain hazardous materials.
4 Scrap metal normally is classed as non-hazardous unless it is contaminated by other hazardous substances.
5 Spent pot lining normally is classed as non-hazardous unless it is contaminated by other hazardous substances.

	Brazil			South Korea			China		
	Non-Hazardous	Hazardous	Not a Waste	Non-Hazardous	Hazardous	Not a Waste	Non-Hazardous	Hazardous	Not a Waste
Dross	**X**			**X**			**-**	**-**	**-**
Recycle Baghouse Dust		**X**		**X**[1]			**-**	**-**	**-**
Hot Mill Used Emulsion		**X**				**X**[2]	**-**	**-**	**-**
Cold Mill Used Oil		**X**			**X**		**-**	**-**	**-**
Cold Mill Filter Media		**X**			**X**		**-**	**-**	**-**
Coating Line Related Waste Paint/Solvent		**X**			**X**			**X**	
Scrap Metal	**X**					**X**[3]			**X**[3]
Spent Pot Lining		**X**		**-**	**-**	**-**	**-**	**-**	**-**

1 If recycle baghouse dust exceeds limits for heavy metals (Pb, CN, Cd, Hg, Cr, Cu), PCBs, or oil (5% or higher) using specified analysis method, the waste is considered hazardous. It is hazardous waste at Ulsan and non-hazardous waste at Yeongju.
2 Hot mill coolant is not a waste, it is wastewater because oil density is 5% or less. If oil and water were segregated by an oil separator, the oil is considered hazardous waste under South Korean law.
3 For PDM, report all scrap metal in South Korea that is recycled or reclaimed as “non-hazardous recycled.” Scrap metal includes site-generated scrap aluminum that is shipped off site for recycling.

Supplier Carbon Intensity and Recycled Content Data Guidance

PURPOSE

Novelis currently uses industry data from publicly available sources to calculate Scope 3, category 1 emissions from purchased prime, sheet ingot (SI), hot band and cold coil. These materials are also assumed to be 100% primary aluminum. However, customers and regulations are moving toward supplier-specific requirements with third-party assurance to ensure better transparency of Scope 3 data. Additionally, Novelis wants to capture the benefit of the inclusion of scrap material in our Scope 3 category 1 emissions. Therefore, Novelis is transitioning from industry data to supplier-specific data for our scope 3 category 1 purchased goods and services emissions.

At Novelis, purchased goods and services cover the sourcing of primary aluminum. Therefore, when calculating CO_2e, Novelis combines publicly available information for the process steps, covering bauxite mining, electrolysis, as well as the primary smelting and casting of primary ingots. The publicly available data sources Novelis uses are:

1. For Bauxite-Prime: the CO_2e footprint is based on International Aluminum Institute (IAI) Life Cycle Inventory data. The most current data is as of calendar year 2024. The current footprint is 3.78 tCO_2e/t prime.

2. For Smelting-Casting: Novelis uses smelter-specific data (energy mix, emissions) provided by CRU (www.crugroup.com).

While IAI and CRU data will still be acceptable data sources for calculating supplier emissions, there are benefits associated with transitioning to supplier-specific data, including:

- Improved transparency of our Scope 3 data to our customers, investors and other value chain partners.
- Alignment to emerging regulations requiring supplier-specific data, e.g., CBAM.
- Increased accuracy of our carbon footprint, allowing us to better track and monitor progress against our carbon reduction goals.
- Increased accuracy and transparency for including recycled content materials in our primary aluminum purchases.

The following guidance document sets out Novelis' requirements for supplier-specific data, necessary supporting documentation and the necessary data validation steps. Supplier-specific data will only be accepted and used by Novelis if this guidance is met and satisfied. This guidance serves to ensure supplier data meets our standards of relevance, completeness, consistency, transparency and accuracy.

SECTION 1 – SUPPLIER-SPECIFIC CARBON INTENSITY DATA

Overview

The following sections outline the minimum requirements for using supplier-specific data, as well as decision criteria for how to incorporate supplier-specific data into Novelis' Scope 3, category 1 carbon footprint. The requirements are aligned to IAI, "Aluminum Carbon Footprint methodology" for calculating primary aluminum and precursor carbon footprints.

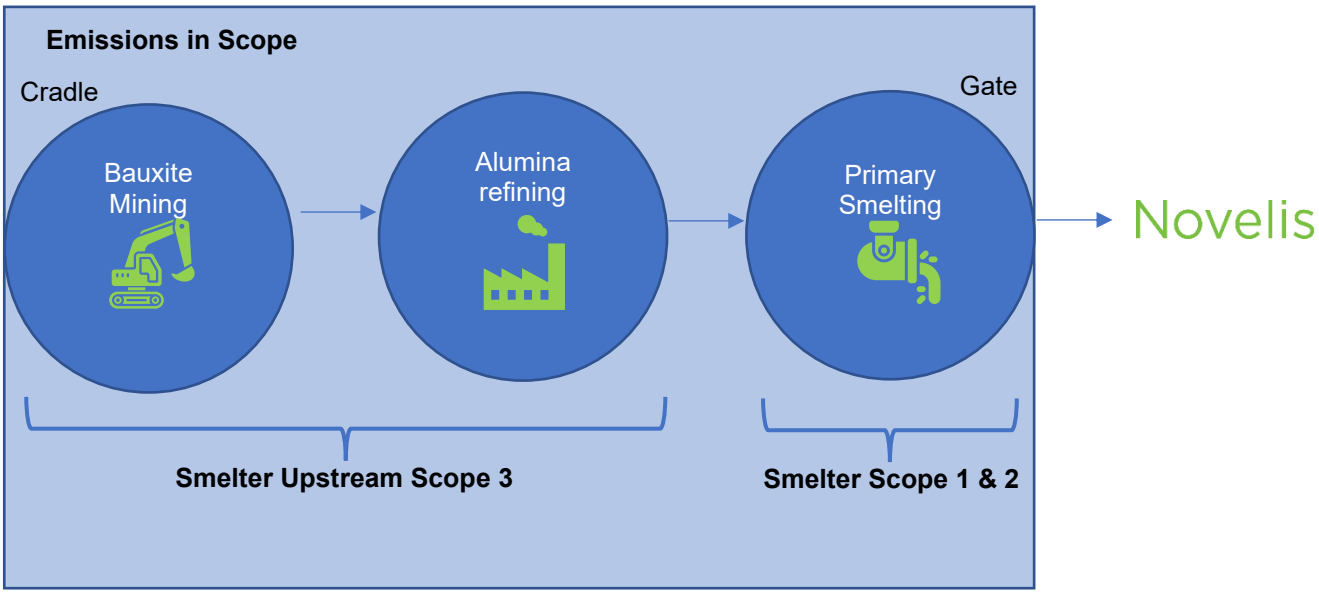
Scope

The focus of this guidance is prime, sheet ingot aluminum suppliers, hot band and cold coil.

System Boundary (Consistency)

Supplier-specific data shall apply a site-specific cradle-to-gate system boundary, capturing all unit processes that have the potential to make a significant impact to the product carbon footprint. From the supplier's perspective, this will ensure that each site's Scope 1, 2 and upstream Scope 3 emissions (that

form a material impact) are accounted for. The system boundary should also follow the guidance from IAI, Suppliers' Guide to IAI's Carbon Footprint methodology.



For Scope 2 market-based emissions, all contractual instruments must meet the Scope 2 Quality Criteria as defined by the GHG Protocol Scope 2 Guidance.

Time Period and Age of Data (Relevance)

At a minimum, the time period and age of supplier-specific data should cover a period that reflects the use of current technology, and where there has been no material change to the supplier's carbon footprint. The time period of the supplier-specific carbon intensity must cover one year of data. Valid Life Cycle Assessments (LCA) and Environmental Product Declarations (EPDs) not older than five years from the issue date are acceptable. For all other reported data, the time period of coverage shall be specified and be no greater than two years old from the end of the reported period and its use in reporting.

4 Third-party Review (Accuracy)

For primary aluminum suppliers reporting carbon intensity values of 7 t CO_2e / t Al (scope 1, 2, 3) or lower, third-party assurance is required. The assurance statement shall be provided with the reported data and shall have clear and specific references to the standards applied. Acceptable standards include ISO 14040, 14044, 14067 and the GHG Protocol Product Standard. Furthermore, if the Scope 2 market-based reporting approach is used, documentation is required for any Energy Attribute Certificates (EACs) claimed (e.g., Renewable Energy Certificates (RECs), Guarantees of Origin (GOs) etc.).

SECTION 2 – SUPPLIER-SPECIFIC RECYCLED CONTENT DATA

Overview

To ensure consistent, transparent, and auditable application of recycled content percentage (RC%) for external sheet ingot purchased by Novelis, the recycled fraction of input material directly influences the environmental profile of the final product, and inconsistent or undocumented RC% claims can lead to lack of comparability and reduced transparency. Establishing standardized RC% recognition requirements enables Novelis to rely on accurate, verifiable and comparable information from suppliers, strengthening the integrity of internal calculations and external reporting.

Scope

RC% refers to the percentage of recycled aluminum content contained in externally purchased prime, sheet ingot (SI), hot band and cold coil. This includes both pre- and post-consumer scrap, provided that adequate documentation is supplied.

Time Period and Age of Data (Relevance)

At a minimum, the time period and age of supplier-specific data should cover a period that reflects the use of current technology, and where there has been no material change to the supplier's carbon footprint. The time period of the supplier-specific carbon intensity must cover one year of data. Valid Life Cycle Assessments (LCA) and Environmental Product Declarations (EPDs) not older than five years from the issue date are acceptable. For all other reported data, the time period of coverage shall be specified and be no greater than two years old from the end of the reported period and its use in reporting.

Third-party Review (Accuracy)

For primary aluminum suppliers reporting recycled content percentage, third-party assurance is required. The assurance statement shall be provided with the reported data and shall have clear and specific references to the standards applied. Acceptable standards include ISO 14021, 14044 and 14067.

Criteria Not Met, Incomplete Data, and Unique Cases

If supplier data does not meet the above requirements for supplier specific carbon intensity and/or recycled content, secondary data[7] will be used for the supplier and/or the material is 100% primary aluminum from the supplier. However, sometimes supplier data will not meet all the above criteria but can still be used to improve the accuracy of Novelis' Scope 3 carbon footprint emissions sources and recycled content declarations. These cases will require additional case-by-case review by the Novelis Global Sustainability Team. In all cases, the data will be reviewed for relevance, completeness, consistency, transparency and accuracy. The table below provides guidance on how these situations should be handled.

In the below, if any portion of supplier data falls within the "Not acceptable" column, secondary data shall be used. If every portion of supplier data falls within the "Acceptable" column, then the supplier data shall be used. All other cases should follow the stated follow-up guidance.

[7] IAI data for bauxite – alumina, CRU data for smelting – casting

	Acceptable	Acceptable with conditions	Not acceptable	Follow-up Guidance
System Boundary (Consistency)	• Cradle-to-gate (Scopes 1-3) • Site-specific	• Supplier Scope 1 and 2 only • Study of a small number of smelters/sites	• Unclear system boundary / not stated • Organizational carbon footprint (global average data)	If gate-to-gate (S1-2) data is available and meets the data requirements of this policy, this can be used along with the IAI data in place of the missing cradle (S3) emissions.
Time Period and Age of Data (Relevance)	• Must cover one year of data • For LCAs and EPDs: not older than 5 years • All other sources: not older than 2 years	• Time period not stated • Age not stated	• Data without acceptable time period requirements • Data without acceptable age requirements	Request time period and/or age of information.
Data Sources (Completeness)	• LCAs • EPDs • Product carbon footprints with third party assurance	• Information from sustainability reports • No assurance	• No formal documentation (e.g., word of mouth, email) • Lack of clarity on data origin or calculation approach / methodology (e.g., standard applied) • Global scrap averages	If third party assurance not available, then request signed statement of accuracy.
Third party assurance (only for 7 t/t or lower) (Accuracy)	Assurance statement provided with specific reference to standard applied Energy Attribute Certificates where applicable	Assurance claimed, but assurance statement not provided or unclear standard references.	• No assurance statement provided upon request • No EACs provided upon request	Request and review assurance statement.
Standard Used (Transparency)	• ISO 14067 • ISO 14040 / 14044 • EN 15804+A2: 2019 • GHG Protocol Product Standard	Other recognized standard/s applied not recorded under acceptable	• No / unclear what standardapplied • No scrap allocation or mixing models	Review standard applied and confirm if acceptable.
Emission factor source	IPCC AR5 with 100-year GWP values • Scrap carries zero emission burdens	Unclear source / not stated	• Emission factor sources not aligned with IPCC AR5 • Scrap assigned emission credits from primary production	Review standard applied and confirm if acceptable.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