GX Steel Guidelines

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GX Steel Guidelines

1 Purpose of GX Steel Guidelines

In order to achieve carbon neutrality, it is important for the steel industry itself to undergo a GX (Green Transformation) through the conversion of steel manufacturing processes and the conversion of raw materials and fuels, which can achieve significant reductions in GHG (Greenhouse Gas) emissions. These guidelines are formulated with the aim of establishing rules for the calculation, disclosure, and provision of information on CFP for GX Steel[1], which refers to "steel products that achieve a significant reduction in environmental impact through additional direct emission reduction actions on a company-by-company basis (Scope 1), and that experience a significant price increase compared to general products when the costs associated with these actions are included." Note that additional direct emissions reductions at the corporate level are calculated as "Reduced Emissions of Product (REPs)."

The set of rules defined in these guidelines constitutes an institutional framework applicable during the transition period leading to the achievement of carbon neutrality by 2050 in the steel industry.

These guidelines establish common and specific rules for the following two methods of supplying GX Steel.

① A method where the organization[2] assigns its REPs to target products using mass balance and supplies it to customers along with reduction certificates (GX Mass Balance)

② A method of allocating product emissions within the scope of the organization's REPs and supplying low-CFP products to customers (GX Allocation)

The sections related to ① GX Mass Balance and ② GX Allocation in these guidelines are as shown in Figure 1.

[1] Green Transition/Transformation Steel (GX Steel)

[2] In the guidelines, an “organization” is in principle defined as a single company. Where multiple steelworks exist within an organization, it is required that manufacturing activities be subject to unified decision-making (See Section 6.2.1.1 regarding the organizational boundary of emission reduction projects.) Companies that satisfy all of the following conditions may, provided that double counting is appropriately prevented, be treated as a single organization:
• Business relationship: they engage only in business related to steelworks and do not conduct external sales or other businesses.
• Mutual supply: they mutually supply energy and utilities and manage them as an integrated whole.
• Contribution to production: they are positioned as key processes in the steelmaking production chain.

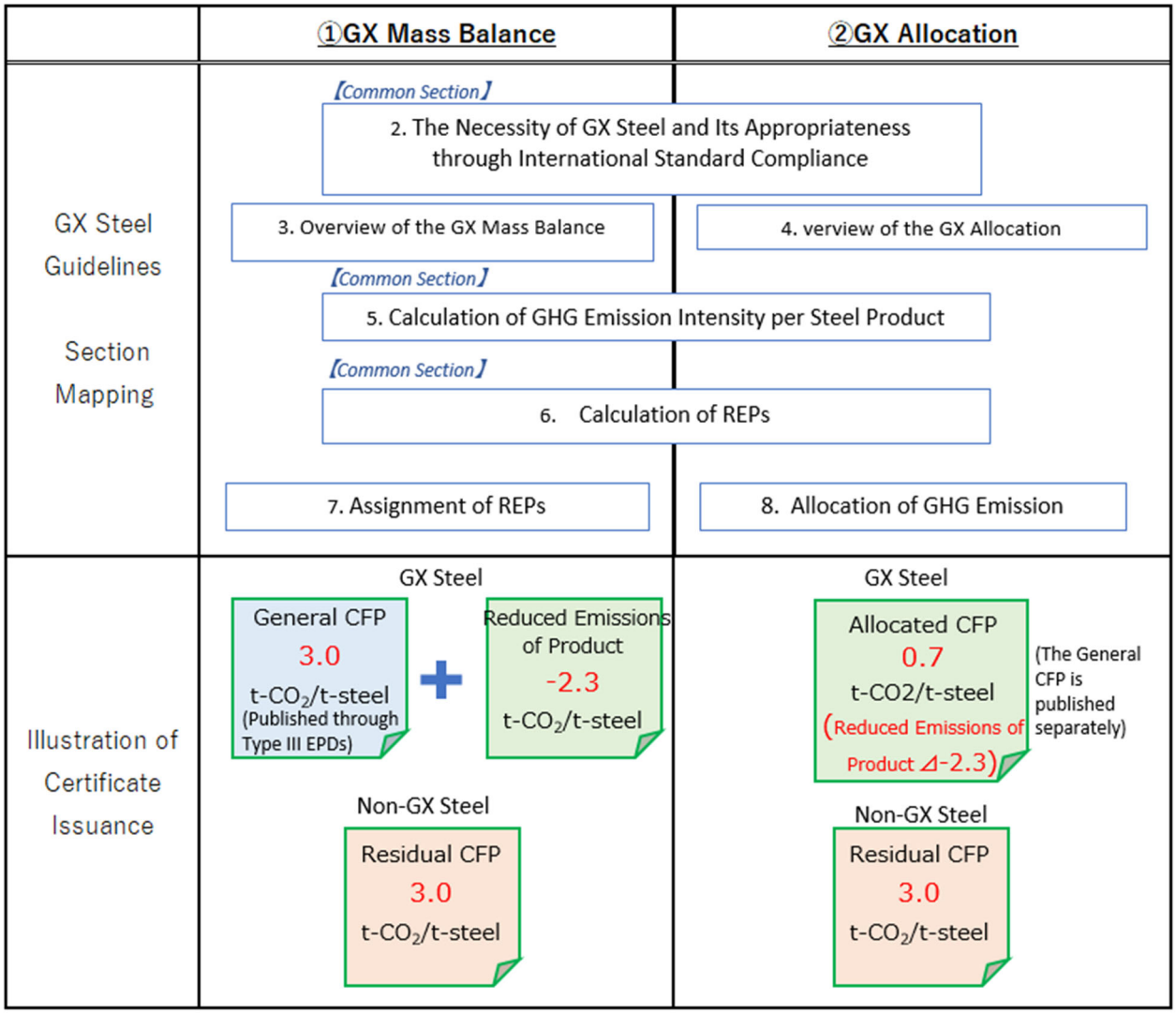

Figure 1: Sections of these guidelines describing
① GX Mass Balance and ② GX Allocation

The following applies to each CFP in Figure 1.

- General CFP is the standard CFP calculated according to the calculation method in Chapter 2 of the "Guidelines for Calculating Product Carbon Footprint for Steel Products." General CFP is also the CFP calculated based on ISO 14067:2018 and PCR (Product Category Rule) derived from it, and is equivalent to the GHG emission intensity per steel product described in Chapter 5 of these guidelines. It is typically published in EPDs, etc.
- Allocated CFP is a CFP calculated using the GX Allocation, representing the CFP of GX steel that reflects GX value.
- Residual CFP is the CFP for steel that does not reflect GX value when calculating steel CFP using the GX Allocation. This serves as the baseline CFP for evaluating a product's reduction effect.

Under the GX Allocation, both Allocated CFP and Residual CFP are calculated for products with identical specifications. Disclosing or publishing these two types of CFP appropriately prevents double counting of

emissions (and REPs).

2 The Necessity of GX Steel and its Appropriateness through International Standard Compliance

2.1 The Need for GX Steel

JISF supports Japan's ambitious goal of achieving carbon neutrality by 2050 and, as the Japanese steel industry, is committed to contributing to this objective. Now customers are increasingly seeking low-carbon and decarbonized solutions across the entire supply chain, requiring steel companies to respond to these demands.

However, decarbonizing steel production processes requires massive capital investment, conversion, and increased operating costs, making it economically less viable. Furthermore, much of the required technology is still in the early stages of long-term development. Consequently, it is technically challenging globally to immediately supply steel products with significantly reduced or zero GHG intensity at this time. Even so, demand for steel products with substantially reduced GHG intensity is growing among a wide range of customers both domestically and internationally. This means that even during the steel industry's long and difficult decarbonization transition period, it is necessary to respond to customer needs early and accurately, and to maintain a continuous investment cycle for developing and implementing decarbonization technologies.

JISF promotes activities to establish the recognition that large-scale GHG reductions, including process transformation, are paramount for achieving carbon neutrality as a shared societal principle. Concurrently, JISF has developed the GX Mass Balance (see Chapters 3 and 7 of these Guidelines) for assigning REPs to products and supplies GX Steel to customers requiring it. Many steel companies are already selling GX Steel using this GX Mass Balance. Furthermore, the JISF has developed the GX Allocation (see Chapters 4 and 8 of these guidelines) and is advancing efforts to expand the GX Steel market. Both methods provide a mechanism whereby customers of steel products who bear the reduction premium can leverage the GX value through purchasing GX Steel. Supplying GX Steel translates emission reductions into economic value, making it a crucial business solution during the transition period.

2.2 International Standards Compliant with These Guidelines

These guidelines define detailed methodologies to systematically substantiate claims related to GX Steel. Each methodology complies with international standards such as ISO and requires, as a principle, additionality (6.2.1.2) in GX-based emission reduction projects. This institutionally ensures the transparency and appropriateness of the GX value associated with GX Steel. The requirements for ensuring the transparency and appropriateness of GX Steel, along with the corresponding international standards, are shown in Table 1.

Requirements	Relevant Sections in This Guideline	Applicable International Standards
Calculation of CFP prior to implementation of the emission reduction project	5. Calculation of GHG Emission Intensity per Steel Product	・ISO 20915:2018 Life cycle inventory calculation methodology for steel products ・ISO 14067:2018 Greenhouse gases - Carbon footprint of products ・ISO 14040:2006 Environmental management - Life cycle assessment -Principles and framework ・ISO 14044:2006 Environmental management - Life cycle assessment -Requirements and guidelines ・ISO 21930:2017 Sustainability in buildings and civil engineering works
Calculation of REPs	6. Calculation of REPs	・ISO14064-1:2016 Greenhouse gases Part 1
Additionality of the emission reduction project	6. Calculation of REPs	・The GHG Protocol for Project Accounting
Requirements for GX mass balance	3. Overview of the GX Mass Balance 7. Assignment of REPs	・ISO 22095:2020 Chain of custody
Requirements for GX allocation	4. Overview of the GX Allocation	・ISO 14044:2006 Environmental management -Life cycle assessment -Requirements and guidelines ・ISO 14067:2018 Greenhouse gases - Carbon footprint of products
Prevention of double counting	6. Calculation of REPs 7. Assignment of REPs 8. Allocation of GHG Emission	・ISO14064-1:2016 Greenhouse gases Part 1 ・ISO 22095:2020 Chain of custody ・ISO 14067:2018 Greenhouse gases
third-party verification	5. Calculation of GHG Emission Intensity per Steel Product 6. Calculation of REPs 7. Assignment of REPs 8. Allocation of GHG Emission	・ISO 14021:2016 Environmental labels and declarations ・ISO 14025:2006 Environmental labels and declarations -Type III environmental declarations ・ISO 14026: Environmental labels and declarations - Principles, requirements and guidelines for communication of footprint information ・ISO 14064-3:2019 Greenhouse gases Part 3

Table 1 Requirements for GX Steel and Compliant International Standards

3 Overview of the GX Mass Balance

The GX Mass Balance utilizes the "mass balance model" defined in ISO 22095:2020. It pools the GHG emission reductions or CO_2 emission reductions achieved by an organization through additional projects within the organization (hereinafter referred to as "REPs"). These REPs are then assigned to target products, and the product is supplied along with the reduction certificate. Customers can use the reduction certificates together with GX Steel to claim reductions in upstream emissions at the organizational level (Scope 3 Category 1) and at the product level, equivalent to the purchased reduction certificates. Furthermore, they can pass this claim further down the value chain.

The GX Mass Balance consists of the following three steps:

- Step 1:
  Calculate the GHG emission intensity per unit of steel material for the GX target products before the emission reduction project implementation (General CFP) (Chapter 5).
- Step 2:
  Identify emission reduction projects within the organization and calculate the REPs for the target period (Chapter 6)
- Step 3:
  Supply steel products assigned with the REPs from Step 2 along with the reduction certificate (Chapter 7)

All steps shall be verified by a third party.

The REPs are limited to reductions achieved through emission reduction projects within the organization (6.2.1.1) implemented to reduce GHG emissions in the production process. Requirements include additionality (6.2.1.2) and the ability to appropriately identify the REPs realized through implementation (6.2.1.3). Its validity shall be verified by a third party.

As an international standard for mass balance model used in the GX Mass Balance, ISO 22095:2020 classifies five models, including mass balance model, as follows:[3]

- Identity Preservation Model: A model where materials or products originate from a single source and their specified characteristics are maintained throughout the supply chain.
- Segregation Model: A model where the specified characteristics of a material or product are maintained from the initial input to the final output.
- Control Blending Model: A model where a set of materials or products possessing specific characteristics are blended with materials or products lacking those characteristics according to defined criteria, resulting in a known proportion of the specific characteristics in the final product.
- Mass Balance Model: A model where materials or products possessing specific characteristics are blended with materials or products lacking those characteristics according to defined criteria.
- Book & Claim Model: A model where the flow of management records does not necessarily correlate with the physical flow of materials or products throughout the supply chain.

Steel products manufactured by steelmakers with blast furnace processes (hereinafter referred to as "blast furnace steelmakers") are primarily high-grade steels with high functionality and quality tailored to customer needs, and the majority are steel products custom-made for each customer. Specifically, in response to each customer's functional and quality requirements, semi-finished steel products are supplied from upstream processes (pig iron making and steelmaking) to downstream processes (hot rolling, cold rolling, etc.). Special adjustments are made to the manufacturing methods within the downstream equipment to provide distinct high-value-added products. Conversely, customers understand that their functional and quality requirements are realized through consistent equipment and process adjustments spanning these upstream and downstream stages. They evaluate and assess products based on this premise, linking them to the functional and quality value of their own final products. Therefore, both the blast furnace steelmakers and the customer find it difficult to easily change the production process selection (i.e., the choice of the steelworks supplying the steel). In practice, it is impossible to simultaneously convert all upstream process equipment, which accounts for the majority of GHG emissions, for GX, so the transition must proceed sequentially at each location. Accordingly, such conversion needs to be implemented site by site. The location and timing for GX

[3] worldsteel defines mass balance as follows:
Mass balance: an approach in which the focus is on emission reductions which are made within an organisation (on one or multiple sites), with or without a physical connection. Physical connection means the production chain is connected to the emission reduction projects, regardless of whether the product is produced at a single site or across multiple sites.

investment in upstream processes are selected based on factors such as the timing of necessary large-scale overhauls for existing blast furnace facilities. Under these conditions, it becomes essential to manage the REPs from upstream emission reduction projects across the entire organization, recognize the GX value created by GX conversion, assign these REPs to steel products produced in downstream processes linked to customers requiring this value, and further provide GX steel while satisfying customer functional and quality requirements. Therefore, regardless of whether products are produced at a single site or multiple sites, assignment of REPs at the organizational unit level (calculating and accumulating REPs across sites and assigning them to steel products) is implemented, under the premise that the production chain is connected to emission reduction projects (physical connection).

4 Overview of the GX Allocation

The GX Allocation is structured as an approach based on the "allocation" methodology outlined in ISO 14067:2018 and ISO 14044:2006. This concept involves allocating steel emissions to reflect the relationship between products (GX Steel/non-GX Steel) and functions (high GX value/low GX value), within the range of the REPs and while maintaining total GHG emissions (emission intensity × production volume) unchanged. This meets customer needs for directly obtaining low CFP products, not in the form of reduction certificates.

The GX Allocation also consists of three steps, similar to the GX Mass Balance in Chapter 3.

- Step 1:
  Calculate the General CFP for the GX target products, including the effect of emission reduction projects (Chapter 5)
- Step 2:
  Identify emission reduction projects within the organization and calculate the REPs for the target period (Chapter 6)
- Step 3:
  Allocate emissions to the target products within the scope of the REPs from Step 2 (Chapter 8)

All steps shall be verified by a third party.

The General CFP calculation method is identical to the GX Mass Balance. However, since this method allocates the product's GHG emissions within the range of REPs, the emissions subject to allocation shall be values that are calculated from data obtained after the reduction project has commenced.

The approach to emission reduction projects related to REPs is the same as in Chapter 3, GX Mass Balance.

Furthermore, when allocating GHG emissions between GX Steel and non-GX Steel, the total emissions shall be set so that they do not exceed the sum of the REPs and actual emissions.

As a result of allocating steel emissions within the range of REPs using the GX Allocation, products with high GX values are allocated with a low CFP, while products with low GX values are allocated with a high

CFP.

The GX Allocation enables the identification of high GX value through Allocated CFP reflecting REPs. It responds to customer demand for low CFP steel with high GX value, contributes to forming an effective model for activating sustainability and GX transformation, and further promotes this transition.

5 Calculation of GHG Emission Intensity per Steel Product (General CFP) (Common to GX Mass Balance and GX Allocation)

5.1 Applicable Methodology

GHG emission intensity by steel products are calculated in accordance with Chapter 2 of the "Guidelines for Calculating Product Carbon Footprint by Product for Steel Products" These values calculate cradle-to-gate GHG emission intensity excluding the recycling effect of scrap. Steel GHG emission intensity should be calculated and reported in CO_2 equivalents (CO_2e units) according to recognized standards such as the following:

- ISO 20915:2018
- ISO 14067:2018
- ISO 14040:2006
- ISO 14044:2006
- ISO 21930:2017
- Product Life Cycle Accounting and Reporting Standard (GHG Protocol)

The results of the calculation should be declared through a report verified by a third party, such as a Type III EPD compliant with ISO 14025:2006, a method following ISO 14026:2017, or an independently verified self-declared environmental claim under ISO 14021:2016. They may also be communicated in various formats, such as Carbon Footprint of Products (CFP), Environmental Product Declaration (EPD), or Life Cycle Inventory (LCI).

5.2 Requirements

5.2.1 Data

Data quality requirements shall comply with the methodology selected in 5.1 Applied Methodology. If the methodology does not include provisions for electricity, data corresponding to the electricity actually purchased and consumed from suppliers or through a Power Purchase Agreement (PPA) shall be used.

5.2.2 Time Range of Calculation

In accordance with ISO 20915:2018, primary data should ideally be from within the last five years of the calculation year, and secondary data should ideally be from within the last ten years. If older data is used, it shall be explicitly stated that the data is still valid and usable.

5.2.3 Boundary for Calculation

Boundary for calculation shall be defined in such a way that it reflects the product-specific manufacturing processes, with reference to Section 2.4.4 of the "Guidelines for Calculating Product Carbon Footprint by Product for Steel Products". Note that when multiple facilities manufacture the same product or product group, these may be aggregated and calculated as the boundary.

5.2.4 Breakdown of GHG Emission Intensity

The types of GHG included in the GHG emission intensity calculation results for each steel product shall be clearly identified.

5.3 Third-Party Verification

The calculation results for GHG emission intensity shall be verified by a third party regarding the reliability of the data used and the appropriateness of the calculation based on ISO 14064-3:2019 or other relevant standards.

When using a published EPD, no additional verification is required for the General CFP, as the EPD has been verified according to the relevant EPD standard.

The results shall be declared through a report verified by a third party, such as a Type III EPD compliant with ISO 14025:2006, a method following ISO 14026:2017, or an independently verified self-declared environmental claim under ISO 14021:2016. If another method is used, this shall be declared, and its validity shall be proven.

6 Calculation of REPs (Common to GX Mass Balance and GX Allocation)

The REPs referred to in these guidelines are the GHG emission reduction (total amount in t-CO_2e) achieved through emission reduction projects implemented within the organization that are additional and have their REPs appropriately calculated. When calculating, both GHG emission reductions and increases resulting from the implementation of the reduction project shall be included in the calculation of the REPs.

6.1 Applicable Methodology

The REPs from emission reduction projects shall be calculated in accordance with the methodology of ISO 14064-1:2018.

The REPs from the emission reduction project are calculated by comparing the baseline state before the project's implementation to the improvement in GHG emissions achieved over a specified period after implementation.

Actual emissions (ISO 14064-1:2018) should be used as the baseline state.

6.2 Requirements

6.2.1 Reduction Project Requirements

All requirements listed in 6.2.1.1 to 6.2.1.3 below shall be satisfied.

6.2.1.1 The Emission Reduction Project Shall Involve Process Conversion or Raw Material/Fuel Conversion within the Organization.

Emission reduction projects shall be implemented within the organization. That is, the emission reduction projects shall correspond to the organization's GX transformation (steel manufacturing process conversion or raw material/fuel conversion).

Furthermore, the project shall be planned by the organization itself with additional costs borne by the organization, and be responsibly executed under a consistent domestic framework. However, provided all requirements for an "organization" as defined in Chapter 1 (Footnote 2) of these guidelines are met, this emission reduction project may include activities of subsidiaries and affiliates over which the organization exercises a certain degree of control. In such cases, double counting of REPs with the relevant company shall be avoided.

Furthermore, if the organization manufactures products other than steel products, reductions achieved in non-steel operations shall not be counted.

6.2.1.2 The Emission Reduction Projects shall involve additionality

A project with additionality refers to a project that would not be viable without the objective of GHG emissions reductions and additional economic benefits. Emission reduction projects corresponding to any of the following cases shall be regarded as lacking additionality.

- Implementation or modification of standard operations within the organization, or continuation of routine work (e.g., maintenance inspections, maintenance operations, etc.)
- Emissions reductions achieved through operational improvements
- Changes in production volume or product range

Examples of illustrative tests for additionality are presented in the GHG Protocol for Project Accounting standard (see Annex). The project can be assessed to be additional from a legal/regulatory/institutional, technology, investment, common/practice or timing aspect.

6.2.1.3 The REPs shall be calculated accurately

The REPs achieved by the emission reduction project are calculated as the improvement in GHG emissions over a specified period after project implementation, using the state prior to project implementation as the baseline. The equivalence of the functions and boundaries being compared (pre- and post-implementation) and the appropriate calculation of each shall be verified by a third party.

6.2.2 Time range of Emission Reduction Projects

6.2.2.1 Verification Period

The verification period refers to the period during which the emission reduction project can continue to exist, i.e., the period during which it can generate REPs. The requirements in sections 6.2.1.1 to 6.2.1.3 are prerequisites for the continuation of the emission reduction project. Confirmation of the project's continued operation shall be performed each time the REPs are verified, and the project shall be terminated immediately if it becomes clear that any of these requirements are not being met.

6.2.2.2 Calculation Period

The calculation period refers to the data period used to calculate the actual reduction volume of the emission reduction project. The calculation period is arbitrary and can be set to 3 months, 6 months, 1 year, etc., but it should be set to a maximum of 1 year.

6.2.3 Information Disclosure Regarding Emission Reduction Projects

The following items regarding the emission reduction project shall be published and disclosed on the organization's website, etc.

- The project names of emission reduction projects subject to calculation of REPs under the GX Mass Balance and GX Allocation
- The implementation location and specific reduction technology method for each individual emission reduction project
- Confirmation that each individual emission reduction project meets the additionality requirements specified in Section 6.2.1.2
- The REPs achieved during the calculation period for each individual emission reduction project

6.3 Handling of external certificates

Under these guidelines, emission reductions achieved through the use of non-fossil certificates derived from renewable energy or certificates from suppliers of input materials (including raw materials, energy, and intermediate/semi-finished steel products) shall not be included in the organization's REPs. This is because such certificates, even if they meet the additionality requirements of 6.2.1.2, do not satisfy the requirements for emission reduction projects within the organization as specified in 6.2.1.1.

6.4 Data

The calculation of REPs from emission reduction projects shall use actual data from the organization, and the functions and boundaries shall be equivalent before and after project implementation. Furthermore, data quality requirements shall comply with the specified methodology.

6.5 Calculation of REPs

Calculate GHG emissions before and after the emission reduction project application in accordance with

the methodology of ISO 14064-1:2018. Calculate the REPs during the calculation period specified in 6.2.2.2 from the difference between these emissions. At this time, the types of GHG included in the REPs calculation result shall be clearly identified. Furthermore, if there is uncertainty in the calculation, a conservative approach shall be taken to ensure the REPs are not overestimated.

6.6 Management of Multiple Emission Reduction Projects

When multiple emission reduction projects are implemented within the same period, their effects can be accumulated. However, the REPs shall be calculated to avoid double-counting the effects of multiple emission reduction projects.

6.7 Conditions for Applying REPs

The REPs shall not be applied to products manufactured in processes that have no physical connection to the manufacturing process where the REPs were implemented. For example, the REPs generated by a project on an H-beam manufacturing line shall not be transferred to a separate process, such as a cold rolling process, and applied to steel grades (e.g., cold-rolled steel sheets) that do not pass through the process targeted by that project.

6.8 Third-Party Verification

The results of the calculated REPs shall be verified by a third party regarding the reliability of the data used and the appropriateness of the calculation based on ISO 14064-3:2019 or other relevant standards.

7 Assignment of REPs (GX Mass Balance)

Chapter 7 describes the method for assigning the calculated REPs to specific products. Note that the procedures and requirements framework in this method, as outlined in Chapter 5 (Calculation of GHG Emission Intensity per Steel Product (General CFP)) and Chapter 6 (Calculation of REPs) of this guideline, is common to the GX Allocation.

7.1 Applicable Methodologies

Combine the methodologies specified in ISO 22095:2020, Section 5.4.2 (mass balance model) and Section 5.5 (book & claim model), with the definitions in Chapter 3 of these guidelines. Treat the REPs as equivalent to the "specific characteristic" defined in ISO 22095:2020, Section 3.2.5, and make such REPs the subject of assignment.

REPs shall be accumulated and managed within the organization independently of the manufacturing process and assigned to target products. The product shall be supplied to the customer together with a reduction certificate stating the GHG emission intensity of the steel calculated in Chapter 5 of these guidelines and assigned REPs.

7.2 Requirements for Internal Management of REPs

7.2.1 Account Setup and Management

An account is a mechanism for appropriately managing the balance of verified REPs within an organization, as calculated in Chapter 6 of these guidelines and verified by a third party. Within the account, the organization shall appropriately manage the balance of verified REPs assigned to any steel product and the assignment period for verified REPs as specified in Section 7.2.2.

7.2.2 Assignment Period for REPs

The REPs managed within an account should ideally have an expiration date within three years from the final day of the calculation period specified in Section 6.2.2.2. If a longer expiration period is set, the organization shall explain this and justify its appropriateness.

7.2.3 Geographical Boundary

Since REPs are calculated and accumulated within the organization, they can be assigned to steel products across different sites within the same organization. However, when REPs are calculated, accumulated, and assigned across sites, the steel products to which REPs are assigned shall have a physical connection to the manufacturing process where the emission reduction project was implemented.

7.3 Method of Assigning REPs (Issuance of Reduction Certificates)

7.3.1 Assignment

The required REPs are assigned to any steel product from the REPs managed in the account, and a reduction certificate is issued. However, assignment and issuance of reduction certificates shall not exceed the total accumulated REPs in the account. Furthermore, the gas type corresponding to the assigned REPs shall be clearly specified.

7.3.2 Upper Limit of Assigned REPs per Product

REPs exceeding the GHG emission intensity of a steel product shall not be assigned to that product. Furthermore, since the emission reduction projects under 6.2.1 correspond to Scope 1 and 2 reductions, they shall not be assigned to the product's upstream Scope 3 equivalent portion.

7.3.3 Treatment of Steel Products Not Assigned REPs

If the calculation period for the GHG emission intensity per steel product begins after the start of the emission reduction project, the project's REPs are reflected in that emission intensity. Double counting between this steel product and steel products to which no REPs are assigned shall be appropriately prevented.

As a method to achieve this, steel companies may, for example, take the following actions:

- Inform stakeholders that the CFP for steel products to which REPs are not assigned shall not be applied to customer organizational-level (Scope3 Category1) or product-level emissions, and that a

correction value shall be added if applied.

- After updating the GHG emission intensity per steel product, terminate the treatment of those emission reduction projects as sources of REPs once their effects have been incorporated into the updated GHG emission intensity.

7.4 Third-party verification

Account management shall be verified by a third party to ensure the reliability of the data used and that calculations are appropriately performed based on ISO 14064-3:2019 or other relevant standards.

To ensure the reliability of environmental claims regarding GX Steel, organizations should use ISO 14068-1:2023 as the basis and should, as necessary, combine it with the following standards:

- ISO 14021:2016 (Standard for self-declared environmental claims)
- ISO 14026:2017 (Standard for communicating environmental information such as Environmental Product Declarations (EPDs))

7.5 Customer Use of Reduction Certificates

This section describes how customers can use reduction certificates based on these guidelines.

- Customers who purchase steel products with reduction certificates can use these certificates to claim reductions in upstream emissions at the organizational level (Scope 3 Category 1) and product level for those steel products. That is, when utilizing certificates at the steel product level, customers can also use the purchased certificates to claim CFP deductions for their own products[4]. For example, ISO 14068-1:2023 provides guidance on how customers can use this type of reduction certificate to claim carbon neutrality.
- Reduction certificates issued by steel companies when selling GX Steel are bundled with the specific steel product. Therefore, these certificates shall not be transferred to another steel product or circulated downstream independently.
- The REPs stated on the reduction certificate supplied by the steel company along with the steel product shall be managed by the customer as an attribute of GX Steel for that specific steel material. An example is shown below (Figure 2).
  - At this point, the customer shall not simply transfer the reduction certificate issued by the steel company to the next supply chain (hereinafter referred to as the "secondary customer"). That is, when the customer transfers the attributes to the secondary customer, the customer should appropriately manage the traceability between GX Steel and the customer’s product and present an attribute certificate created by the customer.
  - Similar methods can be used to pass attributes downstream in the value chain beyond secondary customers.
  - However, the total attributes transferred to secondary customers and beyond shall not exceed the total REPs recorded in the reduction certificates issued by the steel company.

[4] The concept described in 8.1.2 may also be applied.

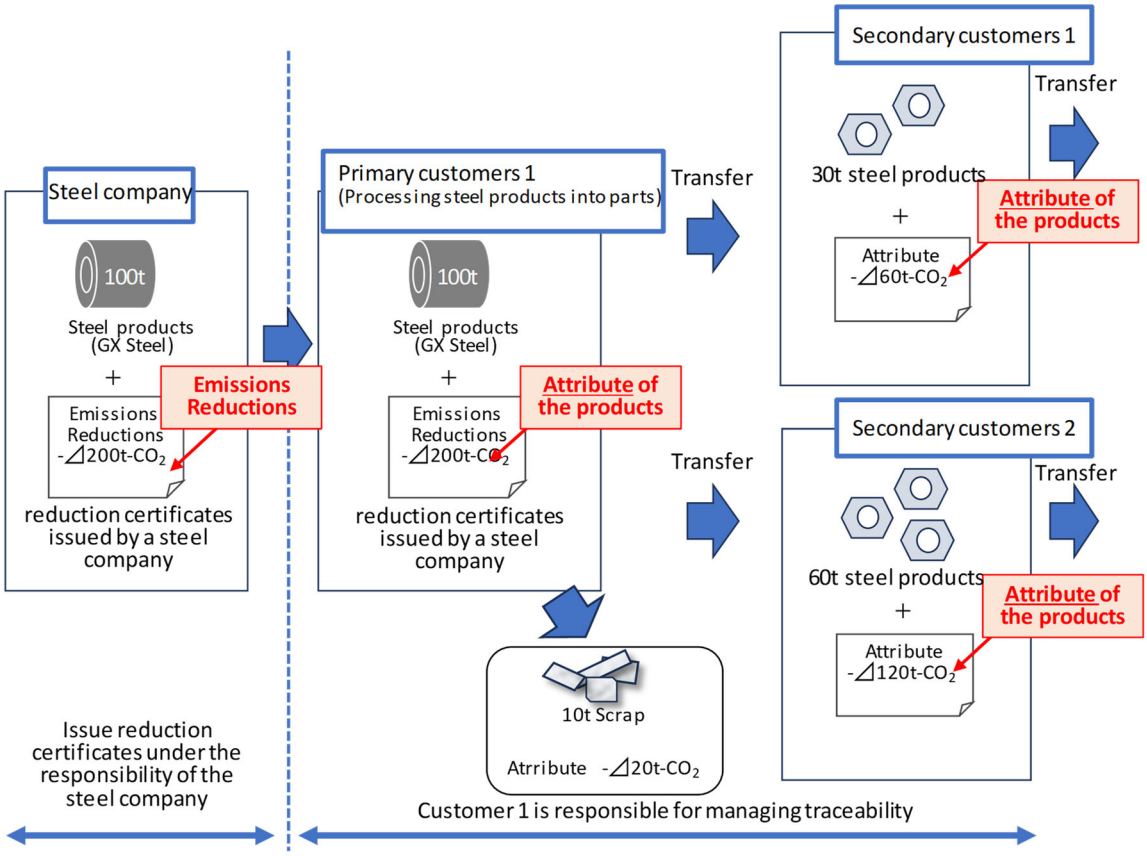

Figure 2: Transfer of GX Steel and Reduction Certificates, and Differences Between REPs and Attributes (Example)

8 GHG Emission Allocation (GX Allocation)

Chapter 8 explains how GHG emissions are allocated to specific products within the scope of the calculated REPs and how the resulting values are claimed as CFP. The overall framework—including the procedures and requirements in Chapter 5 (Calculation of GHG Emission Intensity per Steel Product (General CFP)) and Chapter 6 (Calculation of REPs)—remains the same as in the GX Mass Balance approach.

8.1 Applicable Methodologies

GX allocation is based on the "allocation" approach set out in ISO 14067:2018 and ISO 14044:2006. At worldsteel, discussions are under way on allocating REPs to CFPs in accordance with a mass-balance approach; however, the current ISO 14067 does not permit the allocation of REPs to CFPs. On the other hand, regarding emissions, it can be interpreted that emissions allocation within the range of REPs and CFP calculation are possible by following the procedure described in ISO 14067 6.4.6.2.

Under this approach, the total GHG emissions equivalent to Scope 1 and Scope 2 for the product (CFP before allocation × production volume) are allocated within the range of the REPs. As a result of this allocation, the product is categorized as GX Steel (Allocated CFP, low CFP) or non-GX Steel (Residual CFP,

high CFP), which is interpreted as reflecting the relationship with the product's function (GX value). However, the allocation is subject to the following constraints: The allocated amount shall not exceed the value obtained by adding the REPs per unit of production (REPs/production volume) to the post-reduction General CFP. This value corresponds to the CFP prior to the implementation of the emission reduction project. Furthermore, the allocation shall not cause the Scope 1 and Scope 2 equivalent CFP to fall below zero. The former constraint, in particular, prevents an unlimited supply of GX Steel.

8.1.1 Methodological Case Study

In the example shown in Figure 3, consider a hypothetical factory that manufactures only one type of product.

Production volume is 1 million t-product,

the total REPs from emission reduction projects is 0.5 million t-CO_2e,

and the product's CFP (General CFP) after the emission reduction project is 2.5 t-CO_2e/t-product.

First, as shown in the central diagram of Figure 3, Residual CFP (CFP before reduction actions) is calculated. In this example, it is: 3.0 t-CO_2e/t-product. This value corresponds to the General CFP plus the REPs divided by the production volume.

3.0 t-CO_2e/t-product = *2.5* t-CO_2e/t-product + (*0.5M* t-CO_2e/year ÷ *1M* t-product/year)

In the right diagram of Figure 3, a low CFP of 0.7 t-CO_2e/t-product (Allocated CFP, where residual Scope 3 upstream equivalent remains unallocated due to the effect of emission reduction projects) is allocated to GX Steel with high GX value. Conversely, a high CFP of 3.0 t-CO_2e/t-product (Residual CFP) is allocated to non-GX Steel with low GX value. The Allocated CFP for GX Steel need not be 0.7 t-CO_2e/t-product; it could be set at 1.2 t-CO_2e/t-product, for example.

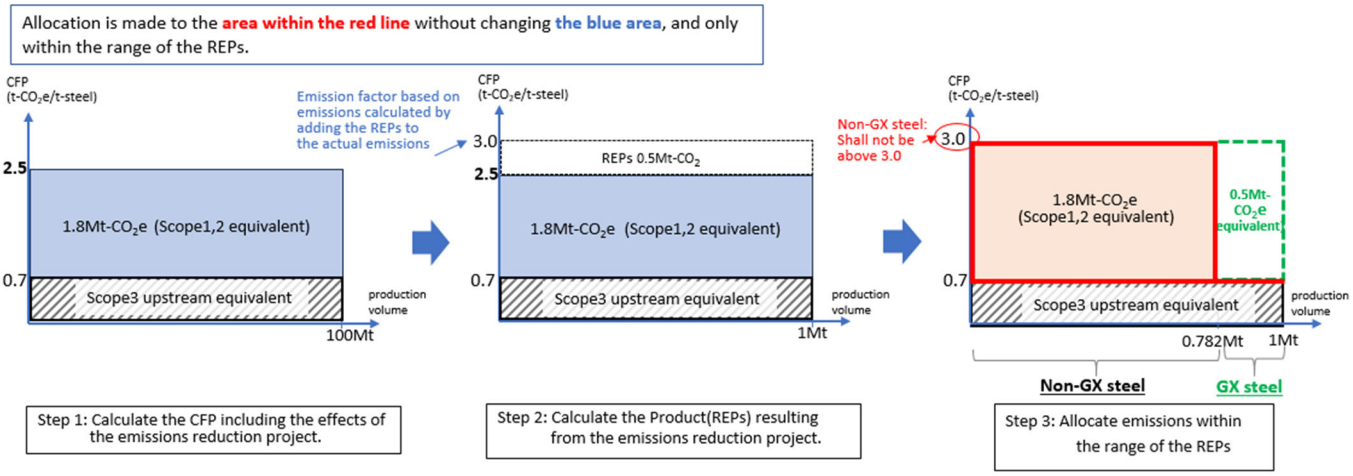

Figure 3 Relationship between total emissions and CFP before and after allocation

Here, Figure 3 shows that total emissions are equal both before and after allocation, and simultaneously, the REPs are also equal. Therefore, the allocation of emissions in Chapter 8 can be said to be essentially synonymous with the assignment of REPs specified by the GX Mass Balance in Chapter 7.

Furthermore, by defining GX value = α ($0 \leq \alpha \leq 1$), the CFP obtained through allocation can be generalized using the following calculation formula:

CFP subject to allocation= Residual CFP × (1 - α)

where "CFP subject to allocation" refers to the portion to which allocation is applied, specifically the portion corresponding to Scope 1 and Scope 2. The treatment of emissions equivalent to upstream Scope 3 that are not subject to allocation is detailed in Section 8.1.2.

α reflects the reduction effect per unit of product relative to Residual CFP. The Allocated CFP for products to which no GX value is allocated is equal to Residual CFP.

Furthermore, allowing α to be less than 0 would enable concentrating large emissions allocations on specific steel products (as shown in the right diagram of Figure 4) while allocating small emissions to the remaining steel products, potentially creating unlimited quantities of GX Steel. Conversely, allowing α to be greater than 1 would enable allocating negative emissions to steel products. Therefore, α must satisfy $0 \leq \alpha \leq 1$.

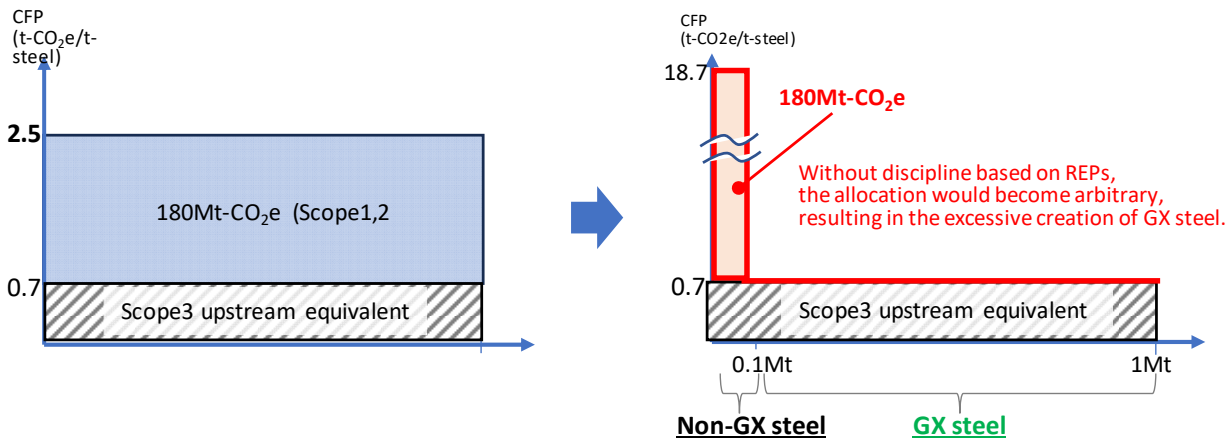

Figure 4: NG Allocation Example

8.1.2 Treatment of Scope 1, 2, and Scope 3 Upstream Equivalents in GX Allocation

The GX Allocation is based on the concept of allocation in LCA. As a result of allocating inputs in the life cycle inventory analysis, the output—GHG emissions—is allocated.

Therefore, the allocation targets in the GX Allocation are emissions related to the manufacturing stage,

specifically Scope 1+2 equivalents and a portion of Scope 3 upstream equivalents[5].

Consequently, the calculation scope for Scope 1+2 equivalent and Scope 3 upstream equivalent emissions in the GX Allocation differs from the so-called cradle-to-gate or gate-to-gate boundaries.

When calculating the REPs in Chapter 6 and the emissions subject to allocation in Chapter 8, the Scope3 upstream equivalent emissions associated with inputs that generate GHG emissions are included in the calculation boundary.

8.2 Requirements for Internal Management of the GX Allocation

8.2.1 Account Setup and Management

Within the account, the organization shall appropriately manage the balance of REPs equivalent to the emissions allocated to the CFP of any steel product and the validity period of REPs as specified in 8.2.3.

8.2.2 Calculation Period for Each CFP and REPs

Under the GX Allocation, the data collection period used for calculating each CFP shall, in principle, be the same as the data collection period used for calculating the REPs. If the two periods do not match, the discrepancy shall be justified.

For example, if the average data for fiscal year 2024 (the one-year period from April 2024 to March 2025) is used in the calculation of the General CFP, the calculation of the emission reduction project's REPs shall also use process data from fiscal year 2024. The data used for CFP calculation shall include the effects of the emission reduction project.

8.2.3 Operational Period and Validity Period for REPs of Each CFP

The allocation period for emissions under the GX Allocation corresponds to the CFP operational period.

For example, if a CFP value calculated using fiscal year 2024 average data is used (made available for use by customers, etc.) in fiscal year 2026, the REPs are valid only within fiscal year 2026 and expire thereafter.

8.2.4 Geographical Boundary

Since REPs are calculated and accumulated within an organization[6], they may be allocated to any steel product manufactured within the same organization, including those produced across different sites.

8.3 Calculation of Each CFP Using the GX Allocation

8.3.1 Method of Operation

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[5] Emissions associated with inputs that actually involve GHG emissions during the manufacturing stage (e.g., fuel or electricity)

[6] In this guideline, emissions reductions project shall be planned by the organization itself with additional costs borne by the organization, and be responsibly executed under a consistent **domestic** framework.

The principle of the GX Allocation is to maintain the organization's total emissions unchanged. Since Allocated CFP values have upper and lower limits for each product (see 8.1.1), allocated emissions shall be tracked quantitatively and managed, and allocations shall remain within the range of the REPs managed in the account.

8.3.2 Upper Limit of Allocated Emissions per Product

For each product, calculate Residual CFP using the following formula:

General CFP + (REPs / Total Production Volume)

Emissions shall not be allocated beyond Residual CFP equivalent to Scope 1+2 and a portion equivalent to upstream Scope 3 (see 8.1.2).

8.3.3 CFP Disclosure

Organizations applying the GX Allocation shall disclose or publish three CFPs (General CFP, Allocated CFP and Residual CFP). Disclosing or publishing these three clearly demonstrates the calculation results obtained using the GX Allocation described in Chapter 8.

8.4 Third-Party Verification

Account management shall be verified by a third party to ensure the reliability of the data used and that calculations are appropriately performed based on ISO 14064-3:2019 or other relevant standards.

To ensure the reliability of environmental claims related to GX Steel, ISO 14068-1:2023 should be used as the basis and, where necessary, combined with the following standards.

- ISO 14021:2016 Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)
- ISO 14026: 2017 Environmental labels and declarations — Principles, requirements and guidelines for communication of footprint information (Standard for communicating environmental information such as Environmental Product Declarations (EPD))

8.5 Information Provided to Customers

In the GX Allocation, Allocated CFP and Residual CFP are embodied directly in the product without passing through reduction certificates and are disclosed to customers via CFP certificates, etc.

This section describes information that should be displayed on the product to enhance transparency:

- Description of steel products
- Steel material purchase volume
- CFP-Related Information

  Explicit indication that CFP was calculated using the GX Allocation

  CFP Value without applying GX allocation (General CFP)

  CFP value reflecting GX value after applying GX allocation (Allocated CFP) - only for customers

buying GX steel

CFP value not reflecting GX value after applying GX allocation (Residual CFP)

- Reduction effect achieved by purchasing the steel products

9 Information regarding the scheme

ISO 14021:2016 - Environmental labels and declarations - Self-declared environmental claims (Type II environmental labels) Clause 6.1.2 specifies the information requirements that shall be provided when making self-declared environmental claims. Companies offering products based on these guidelines should disclose the following information, either individually or by referring to published guidelines:

- The scheme owner, i.e., the steel company
- In particular, details regarding the scheme's operational methods:
  Usage method, relevant international standards, data quality, organizational scope
- Details of emission reduction projects and their additionality
- Period during which reductions were achieved
- Details of verification
- Details of the verifier

10 Disclaimer

The treatment of GX value related to GX Steel manufactured and supplied by steelmakers pursuant to this guideline shall rest entirely with the customer, and neither the Japan Iron and Steel Federation nor its member companies shall bear any responsibility in this regard.

Annex I Terms and Definitions

1	Allocated CFP	CFP calculated using the GX allocation method, representing the CFP of GX Steel that reflects the GX value.
2	Attributed CFP	CFP of steel to which the attributes of non-fossil electricity have been attributed.
3	Chain of Custody (CoC)	The processes by which inputs, outputs, and related information are transferred, monitored, and controlled as they pass through each relevant step of the supply chain, and the approaches used to manage those processes.
4	cradle to gate	The system boundary covering raw material extraction, transportation of those materials, and the product manufacturing processes up to the factory gate.
5	gate to gate	The system boundary covering the product manufacturing processes from the incoming gate to the outgoing gate of the plant.
6	General CFP	CFP calculated in accordance with ISO 14067:2018 and any PCR based on it. For Non-Fossil Powered Steel, it refers to CFP calculated by broadly attributing the non-fossil electricity attributes across all products.
7	GX allocation	One method of supplying GX Steel, defined in the GX Steel Guidelines as a method that allocates product emissions within the range of the organization's Reduced Emissions of Product (REPs) so as to provide low-CFP products.
8	GX value	In the steel industry, the value of emission reductions (Reduced Emissions of Product (REPs)) in scope 1 achieved in the course of the industry's own Green Transformation (GX), such as through transformation of steelmaking processes or switching of primary fuels.
9	GX Steel	Steel products that achieve a significant reduction in environmental impact through additional direct emission reduction actions on a company-by-company basis (Scope 1), and that experience a significant price increase compared to general products when the costs associated with these actions are included.
10	GX Mass balance	One method of supplying GX Steel, defined in the GX Steel Guidelines as a method in which the organization's Reduced Emissions of Product (REPs) are assigned to selected products using a mass-balance approach and supplied together with a reduction certificate.
11	Residual CFP	In cases where the CFP of steel is calculated using the GX allocation method, the CFP of steel that does not reflect the GX value. In cases where the CFP of Non-Fossil Powered Steel is calculated, the CFP of steel to which the attributes of non-fossil electricity are not allocated. In both cases this CFP serves as the baseline for evaluating the emission-reduction effect of products.
12	account	A mechanism for appropriately managing, within an organization, the balance of Reduced Emissions of Product (REPs) that are calculated in accordance with the GX Steel Guidelines and verified by a third party.

13	primary data	Quantified values of a process or activity obtained from direct measurement or from calculations based on direct measurement.
14	greenhouse gas (GHG)	A collective term for gases that absorb infrared radiation and re-emit it toward the Earth's surface, thereby warming the air near the surface. They include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and others.
15	carbon footprint of products (CFP)	The sum of greenhouse gas emissions and removals within a product system. It is expressed as a CO2-equivalent value and calculated based on a life-cycle assessment that uses climate change as a single impact category.
16	external certificate	A certificate purchased from outside the organization that records information on environmental attributes such as emission intensities or GHG emissions associated with electricity or input materials, and which itself is the object of trade.
17	activity level	A quantified indicator of the level of activity that leads to greenhouse gas emissions or removals, calculated through measurement, modeling, or computation.
18	cut-off criteria	Requirements and decision rules for excluding specific material or energy flows, or unit processes or product systems, and for determining the quantities of such flows that are excluded from the product system.
19	functional unit	A quantified reference unit that describes the performance of a product system. It is used for final products.
20	elementary flow	Inputs (such as fossil fuels, water, and air) or outputs (such as exhaust gases, wastewater, and waste heat) that are exchanged directly between a product system and the natural environment.
21	Green Transformation (GX)	Societal transformation efforts aimed at simultaneously achieving greenhouse gas emission reductions and economic growth.
22	verification	The act by which an independent third-party organization or body confirms that data or processes conform to specified standards or criteria. When such a third party guarantees conformity under a certification program, this is referred to as certification.
23	coking coal metallurgical coal	Coal used in ironmaking and steelmaking processes. Examples include coking coal for coke production, coal for pulverized coal injection, coal for sintering, coal for basic oxygen furnaces, coal for electric furnaces, and coal for direct reduced iron (DRI).
24	ferroalloy	Alloys of iron and alloying non-ferrous metals (such as manganese, silicon, and chromium) that are used in steelmaking processes.

25	final product	A product that does not require further processing before use. Examples include automobiles, building structures, exterior building components, and containers.
26	Reduced Emissions of Product (REPs)	The amount of GHG or CO2 emission reductions achieved by emission reduction projects implemented within an organization that are additional and for which the reductions can be appropriately quantified. They are organized as a total amount in t-CO2e.
27	reduction certificate	A document, supplied by steel companies in accordance with the GX Steel Guidelines, that records the attributes of GX Steel and is delivered to customers together with the product. The reduction certificate itself is not traded as a commodity.
28	Emission reduction projects	Investments and technology implementations carried out to reduce an organization's GHG emissions.
29	system boundary	The boundaries of activities that are included when calculating GHG emission intensities for each steel product and Reduced Emissions of Product (REPs), or when allocating REPs to specific steel products.
30	steel scrap	Steel material recovered from life-cycle stages of steel products—such as steel production processes, manufacturing processes for final products, and when final products reach end-of-use—and recycled as a raw material for steel production. For calculation of recycling benefits under ISO 20915:2018, it refers only to scrap purchased from outside the product system.
31	scope 1, 2 and 3	Scope 1 refers to direct emissions released by the company itself; scope 2 refers to indirect emissions from the generation of purchased energy such as electricity; and scope 3 refers to other indirect emissions occurring in the value chain from other entities. For details, see the GHG Protocol Corporate Accounting and Reporting Standard.
32	scope 1, 2 and 3 equivalent	In the guidelines, the convenient term "scope 1, 2 and 3 equivalent" is used to refer to the following portions of CFP. The detailed calculation boundaries follow the concepts of scope 1, 2 and 3 in the GHG Protocol Corporate Accounting and Reporting Standard. Scope 1 equivalent: the portion of gate-to-gate emissions corresponding to direct emissions released by the company itself. Scope 2 equivalent: the portion of gate-to-gate emissions corresponding to indirect emissions from the procurement of energy such as electricity. Scope 3 equivalent: the portion of cradle-to-gate emissions excluding gate-to-gate.
33	Product Category Rules (PCR)	A set of rules and requirements for developing type III environmental declarations or CFP declarations for a given product category.

34	Environmental Product Declaration (EPD)	A type III environmental label conforming to ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures, comprising an environmental program that provides quantitative disclosure of environmental impacts over the full life cycle of products and services from raw material procurement through disposal and recycling, and the environmental labels issued under that program.
35	product system	A collection of unit processes involved in the life cycle of a product, as defined by the system boundary.
36	product-specific calculation rules	A compilation of rules, requirements, and guidelines for CFP calculation defined for specific product categories or industries, such as PCRs.
37	declaration unit	The quantity of product within a product system required to deliver the function expressed by the functional unit. Used for intermediate products.
38	attribute	Values attributed to a product. Specifically, in the GX Steel Guidelines this includes attributes such as Reduced Emissions of Product (REPs), while in the guidelines for Non-Fossil Powered Steel it includes characteristics such as how the electricity used was generated.
39	organization	In the guidelines, an “organization” is in principle defined as a single company. Where multiple steelworks exist within an organization, it is required that manufacturing activities be subject to unified decision-making. Companies that satisfy all of the following conditions may, provided that double counting is appropriately prevented, be treated as a single organization: • Business relationship: they engage only in business related to steelworks and do not conduct external sales or other businesses. • Mutual supply: they mutually supply energy and utilities and manage them as an integrated whole. • Contribution to production: they are positioned as key processes in the steelmaking production chain.
40	unit process	The smallest element for which the quantification of inputs and outputs of product, material, or energy flows is carried out over the entire life cycle.
41	intermediate flow	Flows of materials or energy (such as components, electricity, and processing materials) exchanged between processes within a product system. Unlike elementary flows, they are internal flows that occur within the system boundary.
42	additionality	In the GX Steel Guidelines, a project is considered to have additionality if it would not be implemented in the absence of the objective of reducing GHG emissions and would not be viable without additional economic benefits.
43	ferrous raw materials	Mineral raw materials extracted from the earth that constitute the main component of steel products. They may undergo intermediate processing for use as ironmaking raw materials. Examples include lump ore, fine ore, sintered ore, pellets, direct reduced iron (DRI), and hot briquetted iron (HBI).

44	steel product	Steel products manufactured from iron ore or steel scrap and shipped, as well as secondary processed products manufactured from these as raw materials (products manufactured through secondary processing are intermediate products, not final products). The term is synonymous with “steel materials.” Examples include pig iron, DRI/HBI, crude steel (slabs, billets, blooms), hot-rolled steel sheets and strips, pickled hot-rolled steel sheets and strips, cold-rolled steel sheets and strips, annealed cold-rolled steel sheets and strips, electro-galvanized steel sheets and strips, hot-dip galvanized steel sheets and strips, tin-free steel, tinplate, pre-painted steel sheets and strips, plates, shapes, heavy plates, bars, wire rods, seamless steel tubes, welded steel pipes, forge-welded steel pipes, stainless products, and transportation and industrial machinery products (such as rails and wheels).
45	finished product	A product at a steel manufacturer that has completed all processing steps (such as rolling, heat treatment, and surface treatment) and is ready for shipment. Such steel products may also be used as raw materials for manufacturing secondary processed products. Example: hot-rolled steel sheets procured by a secondary processor as raw material for producing cold-rolled steel sheets.
46	secondary data	Data that do not meet the requirements for primary data. Note 1: Secondary data may include data from databases or published literature, default emission factors from national inventories, calculated data, estimates, and other representative data verified by the competent authorities. Note 2: Secondary data may also include data obtained from proxy processes or estimates.
47	fuel	Energy sources (excluding process gases) that generate heat, steam, or electricity. Examples include boiler coal, fuel oil, natural gas, and LPG.
48	biomass based carbon	Carbon derived from biogenic materials. Biogenic refers to organic materials such as wood, crops, algae, animals, and compost (both living and dead). Materials embedded in geological formations and materials that have been transformed into fossils are excluded.
49	emission factor	A standard value provided by public bodies representing emissions per unit of activity (such as per unit of fuel or electricity used). Although it has the same units as emission intensity, it is distinguished from it.
50	emission intensity	GHG emissions per unit activity of a product, service, or business activity, calculated in CO2-equivalent units (CO2e) based on actual data and similar information. Although it uses the same units as the emission factor, it is distinguished from it.

51	assignment	In the GX Steel Guidelines, the act of attributing Reduced Emissions of Product (REPs) to selected steel products using GX Mass-balance.
52	allocation	In the GX Steel Guidelines, the act of dividing product emissions into higher and lower values within the range of the Reduced Emissions of Product (REPs).
53	boundary	The boundaries of activities that are included when calculating GHG emission intensities for each steel product and Reduced Emissions of Product (REPs), or when allocating REPs to specific steel products.
54	non-fossil electricity	Electricity generated without the use of fossil fuels. Specifically, it refers to electricity generated from renewable energy sources or nuclear power, etc.
55	Non-Fossil Powered Steel	Steel that utilizes non-fossil electricity, as defined in the Guidelines for Calculating the Carbon Footprint of Non-Fossil Powered Steel. Non-Fossil Powered Steel does not correspond to GX Steel.
56	non-ferrous raw materials	Non-ferrous constituents used in the manufacture of steel products, other than ferrous raw materials and coking coal. Examples include zinc, tin, and aluminium.
57	secondary raw materials	Steelmaking raw materials other than iron ore, coal, and scrap. Examples include limestone, dolomite, scrap, and ferroalloys.
58	MRO(Maintenance, Repair and Operations)	Inputs that do not become constituents of steel products but are consumed in operating activities such as steel product manufacturing processes and product shipment. Example: packaging materials.
59	physical connection	The condition in which the production chain is connected to an emission reduction project, regardless of whether products are manufactured at a single site or multiple sites.
60	Partial CFP	CFP covering only specific stages of the life cycle, such as cradle-to-gate or gate-to-gate.
61	attribution	The act of assigning the attributes of non-fossil electricity to selected steel products.
62	Life Cycle Assessment (LCA)	Compilation and evaluation of the inputs, outputs, and potential environmental impacts throughout the entire life cycle of a product system.
63	Life Cycle Stage	A specific stage in a product's life cycle, such as the manufacturing stage or use stage.
64	recycling	The reuse of previously used materials, products, or components as raw materials to produce usable items again.

Annex II Related Standards and Guidelines

As of 2025, the standards and existing or under-development guidelines related to these guidelines are as follows. (The text in parentheses indicates the issuance date.)

(1) Basic Standards and Guidelines for CFP Calculation

- ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework (July 2006)
- ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines (July 2006)
- ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification (August 2018)
- GHG Protocol LCA Standard
  WRI・WBCSD, Product Life Cycle Accounting and Reporting Standard (September 2011)
- Ministry of Economy, Trade and Industry / Ministry of the Environment, Carbon Footprint Guidelines (May 2023)
- CX-PCF Rules
  Catena-X, Catena-X Product Carbon Footprint Rulebook Ver3 (May 2024)
- PACT Methodology
  WBCSD, PACT Methodology Version 3.0 (April 2025)

(2) Product-Specific Standards and Guidelines for General Steel Products

- ISO 4948-1:1982 Steels — Classification Part 1: Classification of steels into unalloyed and alloy steels based on chemical composition (June 1982)
- ISO 20915:2018 Life cycle inventory calculation methodology for steel products (November 2018)
- JIS Q 20915:2019 Life cycle inventory calculation methodology for steel products (June 2019)
- ISO 21930:2017: Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services (July 2017)
- SuMPO EPD PCR
  Steel Products for Construction (Intermediate Goods) [7th Edition] PA-180000-AJ-07 (April 2025)
  Steel Products (excluding Construction) (Intermediate Goods) [6th Edition] PA-180000-AW-06 (April 2025)
- Japan Iron and Steel Federation, Guidelines for Calculating Product Carbon Footprint for Steel Products. (October 2025)

(3) Guidelines for Green Steel (including calculation of REPs)

- ISO 14064-1:2018 Greenhouse gases Part 1 (December 2018)
- ISO 14064-3:2019 Greenhouse gases Part 3
  — Specification with guidance for the verification and validation of greenhouse gas statements

- ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures
- ISO 14026:2017 Environmental labels and declarations
  — Principles, requirements and guidelines for communication of footprint information
- ISO 14021:2016 Environmental labels and declarations
  — Self-declared environmental claims (Type II environmental labelling)
- worldsteel CoC Guidelines
  World Steel Association, worldsteel guidelines for GHG chain of custody approaches in the steel industry (November 2024)

Revision History

Version	Issue Date / Revision Details
Version 1.0	September 29, 2022
Version 2.0	October 26, 2023
Version 2.1	November 13, 2024 Guideline name changed (Content unchanged)
Version 3.0	February 25, 2025 Partially revised following the publication of worldsteel guidelines for GHG chain of custody approaches in the steel industry
Version 3.1	April 22, 2025 Minor revisions to Chapter 6: "Use of Reduction Certificates by Customers"
Version 4.0	October 28, 2025 Added new content regarding the GX Allocation and changed the name of the guidelines.
Version 4.1	January 8, 2026 The typographical errors in Section 8.1 have been corrected as follows. *However, the allocation is subject to the following constraints: The allocated amount shall not exceed the value obtained by adding the* REPs per unit of production (REPs/production volume) *to the* ~~***pre*post**~~*-reduction General CFP (i.e., the CFP prior to the implementation of the emission reduction project). Furthermore, the allocation shall not cause the Scope 1 and Scope 2 equivalent CFP to fall below zero.* In addition, several expressions have been slightly revised (with no changes to the substantive content).

Disclaimer:

This is the English version as of May 15, 2026.

In the event of any discrepancy between the Japanese original and the English translation, the Japanese text shall prevail.