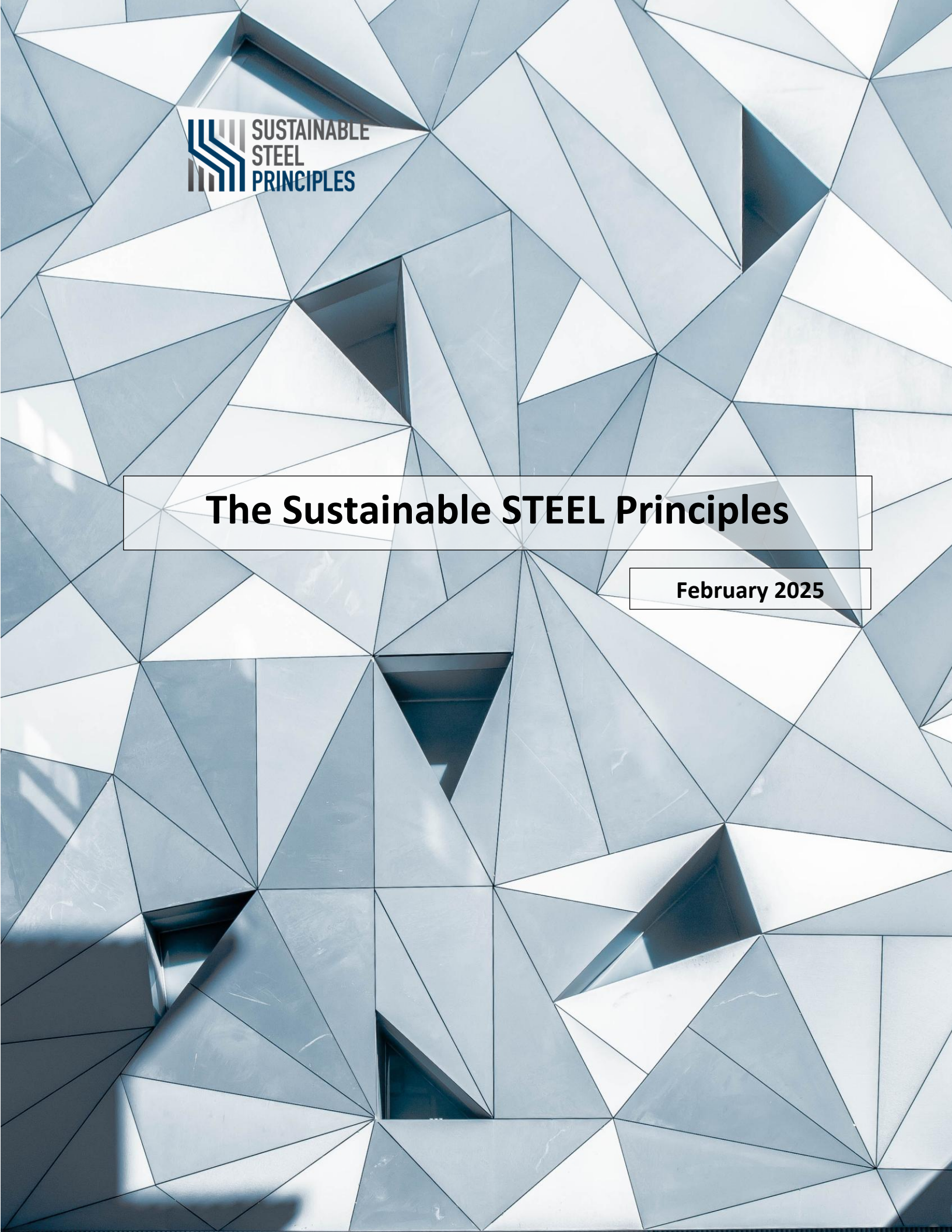

The Sustainable STEEL Principles

February 2025

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I. Letter from the Working Group

We are proud to announce the launch of the Sustainable STEEL Principles, a set of commitments for banks to adopt a common measurement and disclosure framework to support the steel industry in forging a pathway to net-zero carbon emissions. This innovative, sector-specific standard has been carefully crafted with input from a range of stakeholders to incentivize the transition necessary to encourage the decarbonization of the steel sector.

Steel is a critical material, essential to the functioning of the global economy, from the production of the world's vehicles and household appliances to its buildings and infrastructure. Due to the sector's reliance on coal, it is also the largest source of industrial CO_2 emissions.[i] As a result, decarbonizing this sector is simultaneously one of the greatest challenges and opportunities of our time.

The Sustainable STEEL Principles enable banks to measure the climate alignment of their steel lending portfolios by providing insight into their clients'[1] emissions intensity, compared to net-zero pathways. Consequently, the Principles help empower financial institutions in providing clients with the tools necessary for decarbonization. We invite all interested banks to join us in becoming a User of the Sustainable STEEL Principles and to use this groundbreaking climate alignment standard.

These Principles have been inspired by the Poseidon Principles, which launched in 2019, and serve as a model of financial institutions committing to implement climate-related principles in a hard-to-abate sector. We hope that the Sustainable STEEL Principles will play a similar role in revolutionizing sustainable finance for the steel sector and can influence decision-making by financial institutions towards green investments.

Initially, the Sustainable STEEL Principles are only applicable to banks and their lending portfolios. Going forward, however, we will explore the inclusion of export credit agencies, and consider expanding to include capital markets activity. The Principles apply globally, to credit products in general, and to those that facilitate capital investments in particular.

The Sustainable STEEL Principles provide guidance for the measurement and disclosure of carbon dioxide emissions from the steel sector.[2] Other greenhouse gas emissions (GHGs), such as methane emissions, are not included in this version of the framework. In the future, the Steering Committee of the Sustainable STEEL Principles may consider expanding the scope of emissions, or amending various methodological components to ensure that the Sustainable STEEL Principles are complementary to other initiatives, such as ResponsibleSteel and SBTi.

We recognize that the utilization of forward-looking metrics provides critical information to inform portfolio climate alignment and have therefore integrated an optional forward-looking

[1] In the text that follows, the terms client, Borrower, and In-Scope Counterparty are each used to refer to steel sector companies that fall within the scope of this methodology, as well as trading and financial companies in select cases. For detail, see *Section IV, Financial Scope*.

[2] CO_2 emissions are the only greenhouse gas included in this methodology.

indicator within this methodology. This particular metric reflects company ambition but is an incomplete measure of future alignment. Therefore, the Steering Committee may consider the inclusion of a more sophisticated forward-looking metric going forward and making it a requirement to disclose.

Ultimately, as Users, we commit to implementing the Sustainable STEEL Principles and envision this as a living, breathing document. We will therefore work with clients and partners on an ongoing basis to continue improving upon them. It is not within the power of banks alone to change the steel sector – it is dependent on many other stakeholders across the value chain. By using the Sustainable STEEL Principles, however, we intend to make climate a part of every steel debt transaction and client conversation.

The Working Group would like welcome Crédit Agricole CIB to the list of founding institutions to the Sustainable STEEL Principles and invite all interested banks to join us in supporting the decarbonization of the steel sector, critical to addressing climate change and limiting warming to 1.5°C, by becoming Users of the Sustainable STEEL Principles and adopting these groundbreaking Principles.

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Erik van Doezum
Director, Metals, Mining & Fertilizers EMEA, ING

_____

Christophe Hadjal
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Marc Thümecke
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Ben Daly
Head, Transition Finance, Standard Chartered Bank

II. Preamble

Steel is an emissions-intensive sector, accounting for roughly 7% of global greenhouse gas emissions (GHGs),[ii] with demand projected to grow 30% by 2050.[iii] In order to avoid carbon lock-in,[3,iv] the decarbonization of this hard-to-abate sector is both demanding and urgent.

Financial institutions have a particularly important role to play, since lending is one of the largest sources of capital for the steel sector.[4] This means lenders are well-positioned to play a key role in supporting their clients in their efforts to reach net-zero.

For financial institutions, climate alignment means actively pursuing climate objectives by using lending and investment decisions, advisory services, capital markets activities, and advocacy to move the real economy toward net-zero decarbonization pathways. The world must move from target-setting toward the difficult task of implementation. Steering portfolios in line with climate targets will require benchmarking progress and engaging clients, in order to facilitate the decarbonization of the real economy.

Users of the Sustainable STEEL Principles are asked to adhere to the following five principles, described in subsequent sections, which provide lenders with the tools necessary to advance the decarbonization of the steel sector:

1. **S**tandardized assessment,
2. **T**ransparent reporting,
3. **E**nactment,
4. **E**ngagement, and
5. **L**eadership

These Sustainable STEEL Principles represent a framework for banks[5] to effectively assess and disclose the climate alignment of steel finance portfolios. They are fit-for-purpose and supported by a thoroughly vetted methodology: the following framework was developed over 12 months by RMI and the five Working Group banks — ING, Societe Generale, Citi, UniCredit and Standard Chartered — in consultation with over 20 additional banks. In total, its components were reviewed by over eighty institutions from finance, civil society, and industry, including 30 geographically diverse steelmakers, and industry associations[6].

[3] The term 'carbon lock-in' refers to impediments preventing industrialized economies from transitioning to low-carbon solutions, due to increasing returns of scale of incumbent fossil fuel energy systems.
[4] Based on an assessment of capital raising for the iron and steel sector. Data sourced from the Thomas Reuters Business Classification for Iron and Steel.
[5] The focus on lenders stems from the steel industry's reliance on debt financing as a source of capital. The scope may expand to include capital markets activities (i.e., debt and equity underwriting) beginning in 2024 or later, in alignment with the Net-Zero Banking Alliance's timeline and guidance.
[6] The Sustainable STEEL Principles were designed to align with the commitments and reporting expectations of the Net-Zero Banking Alliance (NZBA). The framework has been informed throughout the drafting process by ongoing collaboration with the NZBA and its governing body, the United Nations Environment Programme Finance Initiative (UNEP-FI). Financial institutions can use the SSP to satisfy NZBA reporting requirements, as detailed in this document: https://www.unepfi.org/industries/banking/climate-target-setting-for-steel-sector-financing/.

In 2025, the Sustainable STEEL Principles transitioned to an open-source structure, enabling broader industry participation and adoption. Previously managed as a proprietary framework available to committed members, SSP will now be public and hosted by RMI. Updates will be made through consultations with relevant stakeholders, including Users, industry, and technical experts. By making the Sustainable STEEL Principles publicly accessible, the initiative aims to drive wider financial sector engagement and strengthen accountability in steel sector decarbonization while maintaining robust technical integrity.

All information that banks collect on the climate alignment of their Borrowers will be aggregated, anonymized, and reported, consistent with applicable laws. No sharing of commercially sensitive information between competitors shall occur as a consequence of using the Sustainable STEEL Principles.

The international law firm Allen & Overy has performed a legal review of the entirety of the Sustainable STEEL Principles framework and all related documentation.

III. The Sustainable STEEL Principles

The Users of the Sustainable STEEL Principles commit to the five principles outlined below. For further detail, please refer to the subsequent sections in the agreement text. Note: all terms defined in Section XII.5, Glossary, are capitalized throughout the text.

1. Standardized assessment of climate alignment

To report on the climate alignment of their steel lending portfolios under the Sustainable STEEL Principles, Users will annually assess their climate alignment according to the Sustainable STEEL Principles guidance and methodology for all In-Scope Financings.

This includes measuring the carbon intensity and the resulting climate alignment of their steel portfolios, as well as measuring the percent of their portfolio represented by emissions reduction targets,

2. Transparent reporting

I. Users will annually report the following in their institutional sustainability reports:
   - Portfolio Alignment Score and parameters used for reporting,
   - An optional brief narrative providing context into their score and high-level insight into their institution's strategies for climate alignment, and

   In addition, Users are invited to disclose, on an optional basis:
   - Forward-looking indicators, including the percentage of their portfolio represented by a net-zero target, and the percentage represented by an interim emissions reduction target.
   - The source of their data (i.e., the percent reported from Borrowers, the percent reported from the data provider, and the percent N/A, determined by exposure), and what data provider was used.

II. Users will publicly acknowledge using the Sustainable STEEL Principles in their individual annual reports.

Under the Sustainable STEEL Principles, steel companies disclose to their lenders their Emissions Intensity[7], fraction of Scrap-based Inputs used in steel production (from here on referred to as Scrap Charge), for the previous calendar year, as well as their company's emissions reduction targets.[8]

[7] "Emissions Intensity" is used in this document to refer to CO_2 emissions intensity only.
[8] The Sustainable STEEL Principles reporting template also includes a field to enable steelmakers to calculate their absolute emissions according to both the Sustainable STEEL Principles methodology and the GHG Protocol, which may be required for other reporting standards (e.g., PCAF, NZBA, etc.).

While lenders calculate a Climate Alignment Score for each Borrower, only the lender's Portfolio Alignment Score is publicly disclosed. No information on an individual steelmaker's Emissions Intensity, Scrap Charge, absolute emissions, or Climate Alignment Score is disclosed publicly, and no commercially sensitive information will be shared, either between Users, or between steelmakers through Users.

3. Enactment

Users are encouraged to perform required Borrower- and portfolio-level calculations with data sourced directly from Borrowers, which includes limited assurance where possible. Alternatively, when data is not available directly from a Borrower, or where data has not been assured, Users are able to source data from third-party data providers; the Sustainable STEEL Principles will recommend a list of data providers that have demonstrated their ability to provide robust data in line with the Sustainable STEEL Principles methodology and requirements, though there is no requirement to use a specific provider.

Users will use best efforts to request the provision of data in financial contracts. An example covenant clause can be accessed by contacting RMI for all new In-Scope Financings, as defined in *Section IV, Financial Scope,* though Users are free to use alternative language that conveys the same meaning.

4. Engagement

Users recognize the importance of client engagement to maximize real economy impact. Using the information obtained from the Climate Alignment Scores of their clients, Users are encouraged to engage with clients at their discretion to advance emissions reductions in line with 1.5°C.

Users can apply the tools, learnings, and parameters of these Principles to engage clients to discuss their transition plans, the financial products available to support their transition, and the bank's expectations for emissions reductions.

5. Leadership

At their individual financial institutions, Users of the Sustainable STEEL Principles are encouraged to set steel portfolio targets informed by the methodology of the Sustainable STEEL Principles. The target date(s), when those targets are set, and the specific target scenario, are at the full discretion of Users.

At the financial sector level, Users commit to supporting updates to the framework of these Principles whenever appropriate, as sector data evolves, available information improves, and new scenarios are developed.

Across the steel sector, Users are encouraged to consider utilizing the Sustainable STEEL Principles framework for advocacy purposes, at their discretion and where appropriate, in the interest of decarbonizing the steel industry.

IV. Financial scope

Under the Sustainable STEEL Principles, Users obtain data on their clients' Emissions Intensity and Scrap Charge, and then perform calculations to measure the climate alignment of their steel lending portfolios. For details on calculating steelmaker Emissions Intensity and Scrap Charge, see *Appendix XII.1, Technical Guidance*.

The following Financial Scope provides guidance to Users to support these calculations by first defining the universe of Borrowers and financings that are included.

IV.1 Identifying In-Scope Counterparties

To report on portfolio alignment under the Sustainable STEEL Principles, Users should[9] calculate the climate alignment of all Borrowers that are considered In-Scope Counterparties. An In-Scope Counterparty is defined as an entity that:

a. Produces a minimum of 250 kilotons p.a. of crude steel at the group-level (i.e., inclusive of the entity and all Subsidiaries on an aggregate basis, but not any parent entity) and
b. Generates 20% or more of total revenue through Crude Steelmaking Activities at the group-level (i.e., inclusive of the entity and all Subsidiaries on an aggregate basis, but not any parent entity).[10]

While 250 kilotons p.a. of crude steel is the minimum threshold for reporting purposes, Users are able to report on Borrowers with smaller production values on a voluntary basis. If a User decides to do so, they are asked to disclose this decision within the parameters used for reporting. See *Section VI, Principle 2: Transparent reporting*.

Crude Steelmaking Activities are the production of crude steel, as well as the sale of processed steel products using crude steel produced in-house by the same counterparty. For the avoidance of doubt, a counterparty which generates all of its revenue through the sale of steel products that were manufactured using crude steel purchased from a third party (i.e., a re-roller) would not be considered an In-Scope Counterparty.

An entity is considered to have a Subsidiary if it holds a direct or indirect ownership stake of 50% or more of the voting equity of another entity or otherwise controls another entity.

To identify In-Scope Counterparties, Users may utilize an applicable classification system (i.e., NACE, NAICS, etc.) to generate a subset of Borrowers which likely qualify. For applicable codes,

[9] It is recognized that in certain instances banks may not be able to identify all Eligible Counterparties due to data constraints etc. In each case, Users commit to identifying all Eligible Counterparties on a best-efforts basis.

[10] The figure of 20% is based on the rationale utilized by SBTi to define Oil and Gas Companies in the Financial Sector Science-Based Targets Guidance from February 2022. In this guidance, SBTi defines Oil and Gas Companies as "Companies that derive more than 30 percent of revenues from […] oil and gas. The 30 percent threshold is based on a 20-30 percent range for the share of revenue used to exclude oil and gas companies" by financial institutions. For the purposes of the Sustainable STEEL Principles, the figure of 20% was chosen to define In-Scope Counterparties in order to be as inclusive as possible while still capturing relevant steel producers.

see *Appendix XII.2, Financial Scope: Relevant NAICS and NACE Codes*. Subsequently, Users would verify whether each Borrower would be included using the definition of In-Scope Counterparties as defined above.

IV.2 Identifying In-Scope Financings

Once all In-Scope Counterparties have been determined, Users will subsequently identify In-Scope Financings[11]. An In-Scope Financing is a financing that:

1. Is provided to an In-Scope Counterparty; or
2. Is provided to any Financial or Trading Company and covered by a Parent Guarantee provided by an In-Scope Counterparty.

A Financial Company is defined as a company that is not a bank and that is organized to provide or raise credit for operations that fall within the Fixed System Boundary of the Sustainable STEEL Principles. For details on the Fixed System Boundary, see *Section V.1, The Sustainable STEEL Principles Methodology.*

A Trading Company is defined as a company organized to carry on commerce with crude steel and processed steel products.

A Parent Guarantee is defined as a guarantee of payment and performance to the lender of the obligations, monetary or otherwise, incurred by a Subsidiary under the agreement for the Financing if the Subsidiary fails to perform on those obligations.

Financial products that should be reported as In-Scope Financings are defined as credit products – including bilateral loans, syndicated loans, and club deals. Exhibit 1 contains a list of financial products that fall within the scope of the Sustainable STEEL Principles. For syndicated financial products, climate alignment calculations should be based on the Users' portion of the financing.

[11] It is recognized that due to data constraints, banks may not always be able to identify all In-Scope Financings. In each case Users commit to identifying all In-Scope Financings on a best-efforts basis.

Exhibit 1. Financial products considered in-scope[12]

FINANCIAL PRODUCTS	IN-SCOPE
Asset finance	Yes
Bank guarantee	Voluntary
Bridge Loan	Yes
Buyer credit	Yes
Export finance	Yes
Factoring programs (both recourse and non-recourse)	Voluntary
General corporate purpose loan	Yes
Letters of credit	Voluntary
Revolving credit facility	Yes
Revolving loan	Yes
Swingline	Yes
Term loan facility	Yes
Working capital facility	Yes

Reporting on bank guarantees, letters of credit and factoring programs can be performed voluntarily. Whichever voluntary products the User elects to report on must be done consistently throughout all portfolio calculations, and a list of included products must be disclosed annually. See *Section VI, Principle 2: Transparent reporting* for details on reporting requirements.

IV.3 Identifying Dedicated Financings

When providing financings for specific Projects, lenders may prefer to report on the basis of asset-level data instead of corporate-level data. This is permitted under the methodology if the financing provided is considered a Dedicated Financing. Dedicated Financings are defined as any financing that is:

1) Provided for a dedicated funding source for the construction, development, maintenance, or retrofitting of a specific mill, Plant, factory, or manufacturing facility that falls within the Fixed System Boundary of the Sustainable STEEL Principles, as per *Section V.1, The Sustainable STEEL Principles Methodology*, and

2) Falls within one of the categories below:[13]
   - Project Finance: without a minimum amount of financing.
   - Project-Related Corporate Loans: without a minimum amount of financing, with an original loan tenor of at least two years, and where the financing is related to a Project over which the Borrower has Effective Operational Control (either direct or indirect).
   - Bridge Loans: loans with a tenor of less than two years that are intended to be Refinanced by Project Finance or a Project-Related Corporate Loan.

[12] The list of financial products is for illustrative purposes and is not intended to be exhaustive.
[13] Definitions for the products covered by the definition of Dedicated Financing conform to the definitions of covered products in the *EP4*, Equator Principles, July 2020.

- Project-Related Refinance and Project-Related Acquisition Finance, where one of the following three criteria are met:
    - The underlying Project was originally financed with one of the aforementioned products; or
    - There has been no material change in the scale or scope of the Project; or
    - Project Completion has not yet occurred at the time of the signing of the facility or loan agreement.

For the purpose of reporting on Dedicated Financings, asset-level data is defined as the emissions of the financed asset, as well as all emissions upstream and downstream within the Fixed System Boundary that are generated by assets that directly supply or are supplied by the financed asset. See Exhibit 3 in *Section V.1, The Sustainable STEEL Principles Methodology* for an illustration of the Fixed System Boundary and *Section V.2 Benchmarking emissions* for details on asset-level reporting.

If the mill, Plant, factory, or manufacturing facility financed by a Dedicated Financing is not Operational for the entire calendar year of the reporting year, then financing shall be excluded from alignment calculations. The asset would only be included for reporting purposes once Operational.

Operational is defined as producing crude steel for the purposes of generating revenue. Users are encouraged to disclose the Dedicated Financing exposure to non-Operational assets in a brief narrative section of their institutional sustainability reports. This may be either on a quantitative basis, noting the amount of non-operating asset level exposure, or on a qualitative basis, by providing a high-level description of the assets, so long as no commercially sensitive information is disclosed. See *Section VI, Principle 2: Transparent reporting*.

IV.4 Additional Guidance for Determining Exposure

Credit limits or outstandings

To calculate the climate alignment of their steel lending portfolios, Users can determine the reported exposure to each Borrower using the credit limit of the In-Scope Financing[14] – i.e., committed amounts – or the outstandings under the In-Scope Financing on December 31st annually.[15] Whichever method the User selects must be applied consistently throughout all portfolio calculations and Users are encouraged to disclose the method used along with their Portfolio Alignment Score in their institutional sustainability reports (see *Section VI, Principle 2: Transparent reporting* for guidance pertaining to disclosure requirements).

Tenor

An In-Scope Financing should only be reported if the original tenor of the limit under which it is issued is at least one year. Exposure with a shorter tenor may be reported on a voluntary basis. If the User elects to report on exposure with a shorter tenor, this must be reported on consistently

[14] This guidance may change pending NZBA recommendations, with which these Principles seek to align.

[15] Financial institutions may choose to follow their institutional policy instead, and can defer to their institution's reporting procedures in determining their approach.

throughout all portfolio calculations and disclosed (see *Section VI, Principle 2: Transparent reporting* for guidance pertaining to disclosure requirements).

Weighting exposure by steel-related revenue

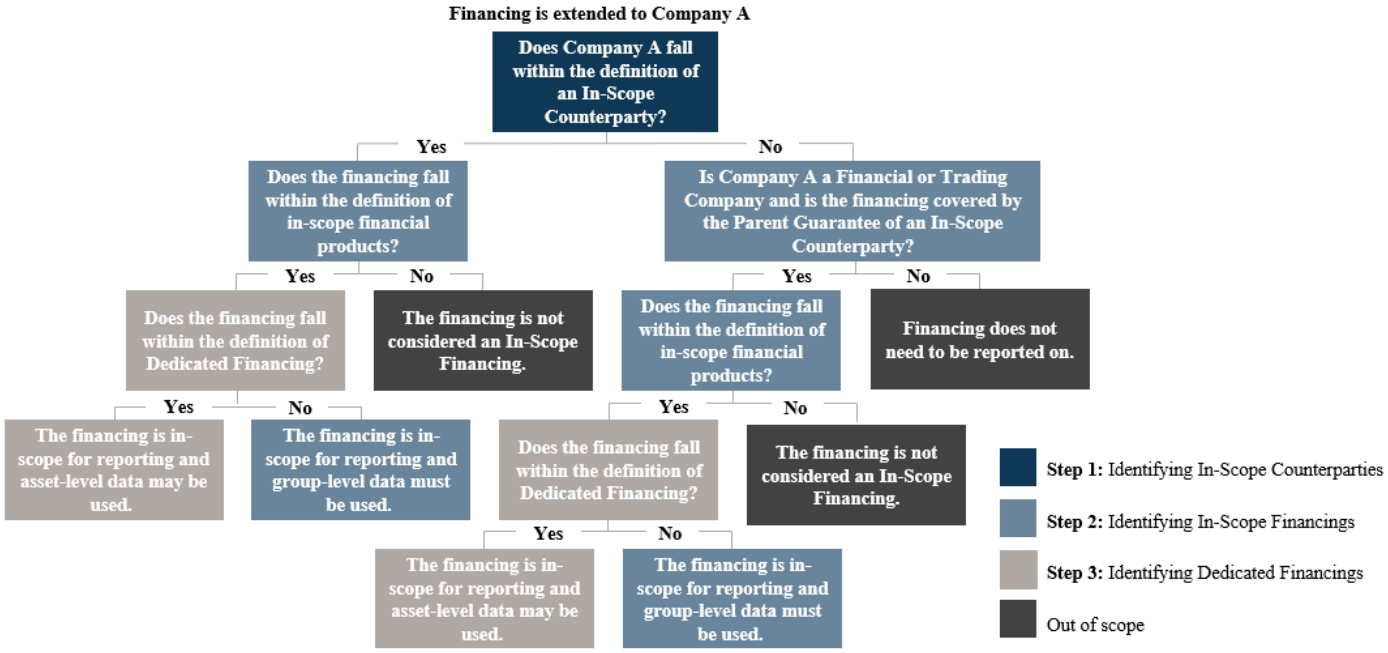
Reported exposure (excluding Dedicated Financings) will be weighted by the percentage of steel-related revenues of the total revenues of the In-Scope Counterparty. This approach can simplify reporting for Users with exposures to a large, diversified group since they can weight the total exposure by the percentage of steel-related revenues of the whole group, rather than identify each Borrower under the financing. For example, if a lender has $100 million of reported exposure to a Borrower where the In-Scope Counterparty (either the Borrower itself or a Guarantor) generates 30% of its revenue from steel, the lender would use a weight of $30 million for that Borrower when calculating the average Emissions Intensity and Scrap Charge at the portfolio-level.

See *Section V.2 Benchmarking emissions* for more information on performing Borrower-level and portfolio-level calculations.

Financial scope decision tree

In summary, to assist Users in understanding the financial scope of the Sustainable STEEL Principles, the decision tree in Exhibit 2 can provide guidance in identifying In-Scope Counterparties and exposure to said counterparties.

Exhibit 2. Decision Tree for Reporting



V. Principle 1: Standardized assessment of climate alignment

This section forms the guidance for financial institutions to assess the climate alignment of their steel lending portfolios. It provides the instruction manual for measuring the climate alignment of steel producers and the resulting lending portfolios of Users in a consistent, sector-specific manner, comparing steel producers to selected scientific Benchmarks. This methodology, which has been thoroughly reviewed by dozens of financial institutions, industry representatives, and sector experts alike, is carefully designed to create an optimal incentive structure to advance the decarbonization of the sector. The intent is to encourage both the increased utilization of scrap, as well as drive the adoption of net-zero technologies capable of deep emissions reductions.

Principle commitments:

Users will annually assess climate alignment according to the Sustainable STEEL Principles guidance and methodology for all In-Scope Financings provided to In-Scope Counterparties. This includes measuring the carbon intensity and the resulting climate alignment of their steel portfolios, as well as measuring the percent of their portfolio represented by emissions reduction targets.

The following section is organized into three components:

1. The Sustainable STEEL Principles Methodology: the metrics required for measurement of climate alignment and the boundary delineating the scope of emissions,
2. The Benchmarks: used by Users measure Emissions Intensity to assess the climate alignment of Borrowers, and
3. The forward-looking metric: determining the percent of the User's portfolio which includes emissions reduction targets, on an optional basis.

V.1 The Sustainable STEEL Principles Methodology: measuring steelmaker emissions

Metrics

Users of the Sustainable STEEL Principles request Borrowers to report on two metrics to determine climate alignment: 1) Emissions Intensity, normalized by steel production, and 2) Scrap Charge.[16]

[16] The Sustainable STEEL Principles reporting template also includes a field to enable steelmakers to calculate their absolute emissions according to both the Sustainable STEEL Principles methodology and the GHG Protocol, which may be required for other reporting standards (e.g., PCAF, NZBA, etc.).

1) **Emissions Intensity**

As outlined in detail in *Appendix XII.1, Technical guidance*, steel companies are asked to calculate their Emissions Intensity by dividing total CO_2 emissions (including Direct Emissions, Indirect Emissions, and Credits,[17] according to the Fixed System Boundary) by the mass of steel produced[18] from steelmaking processes:

$$\frac{Tons\ of\ CO_2\ emitted}{Mass\ of\ steel\ produced\ in\ tons}$$

The rationale for using an Emissions Intensity metric is twofold. Even though an absolute emissions metric is more precise in that it reflects the total amount of carbon dioxide emitted, an Emissions Intensity metric enables a more equitable comparison of emissions between steelmakers. By normalizing emissions by output, lenders can make a direct comparison between Borrowers, regardless of size.

Secondly, Emissions Intensity is a commonly used metric for emissions reporting purposes. The World Steel Association[v] uses Emissions Intensity as the sole CO_2 indicator; ResponsibleSteel[vi] calls for steelmakers to report the GHG Emissions Intensity for Plants that produce crude steel; and the Science Based Targets Initiative (SBTi) Sectoral Decarbonization Approach[vii] sets targets based on carbon Emissions Intensity.

2) **Scrap Charge**

In addition to Emissions Intensity, Users will ask Borrowers to disclose their Scrap Charge, the fraction of Scrap-based Inputs used in steel production. To standardize and simplify disclosure, reporting is only required on purchased Pre- or Post-Consumer External Scrap, according to the following equation:

$$F_s = \frac{M_s}{(M_S + \sum_{i=1}^{N} M_i \times x_i)}$$

[17] Credits are defined as CO_2 emissions which should be subtracted from the overall emissions estimate of a corporate and/or a Plant; applies to Intermediate Products that are usable within the steel supply chain but are Exported to operations outside the Fixed System Boundary.

[18] Mass of steel produced denotes mass of final steel product outputs of the rolling and coating stages of the Fixed System Boundary, as shown in *Section V.1, The Sustainable STEEL Principles Methodology (Fixed System Boundary)*, although non-integrated producers who are not involved in these final stages are able to report on mass of crude steel produced as a proxy.

Where M_s is the mass of scrap (defined as mass of purchased External Scrap minus the mass of sold Home Scrap[19]), and M_i and x_i are the mass and iron grade, respectively, of each Ore-based Input used.

This methodology includes a steelmaker's Scrap Charge in calculating climate alignment due to the significant difference in Emissions Intensity between steel produced with iron ore (primary) and scrap (secondary steel production). As primary steel production generates 94%[20] of the sector's emissions, this methodology seeks to ensure the application of emissions Benchmarks appropriate for the specific raw material mix.[viii] Ultimately, each steelmaker's Scrap Charge is used to generate an Emissions Intensity Benchmark, specific to that steelmaker, based on their fraction of Scrap-based Inputs used each year. For a detailed explanation, see *Section V.2, Benchmarking emissions*.

Fixed System Boundary

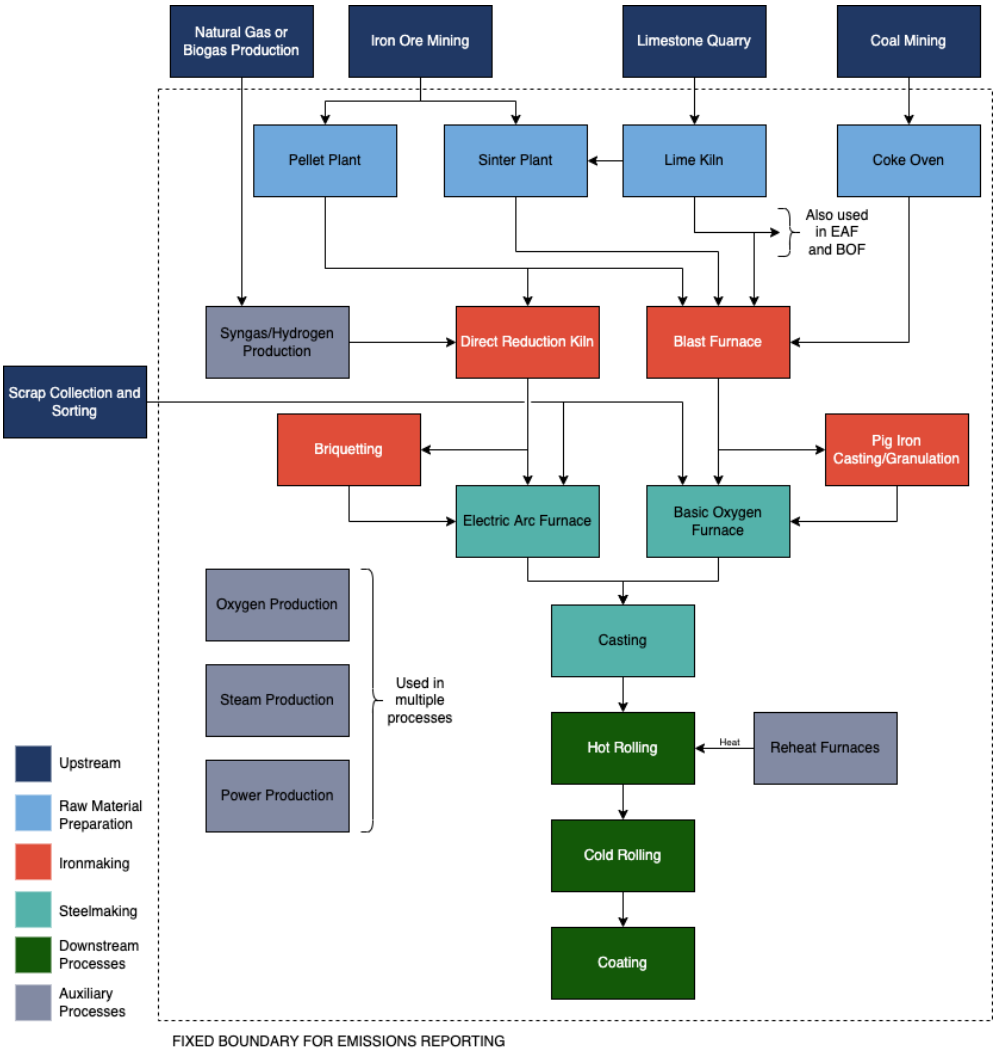
Currently, steelmakers report CO_2 emissions according to their scope of production and in accordance with scopes 1, 2, and/or 3, as determined by the GHG Protocol. However, in the steel sector, there is a high degree of variability in emissions, particularly scope 3, depending on the ownership structure and level of vertical integration. Therefore, this accounting approach can make it difficult to compare steel companies equitably.

Instead, under the Sustainable STEEL Principles, Borrowers quantify their Emissions Intensity within a Fixed System Boundary of activities (Exhibit 3), informed by the recommendations of the Net-Zero Steel Pathway Methodology Project (NZSPMP).[ix] Within a Fixed System Boundary, Borrowers are responsible for reporting on all emissions within the same boundary, irrespective of ownership of various processes and regardless of whether they are an integrated or non-integrated producer.

[19] In the *Technical guidance for the calculation of Emissions Intensity and Scrap Charge used in steel production*, Borrowers are asked to report on purchased Pre- or Post-Consumer External Scrap and to exclude Home Scrap that is generated at the same Plant that produces steel. To avoid incentivizing steelmakers to sell Home Scrap and purchase it back from another source to inflate the fraction of Scrap Charge reported, any sales of Home Scrap are subtracted from the mass of purchased External Scrap.

[20] This figure is the result of the Sustainable STEEL Principles Working Group's own calculations, based on data from the Mission Possible Partnership's Steel Sector Transition Strategy, using the same scope as the Fixed System Boundary.

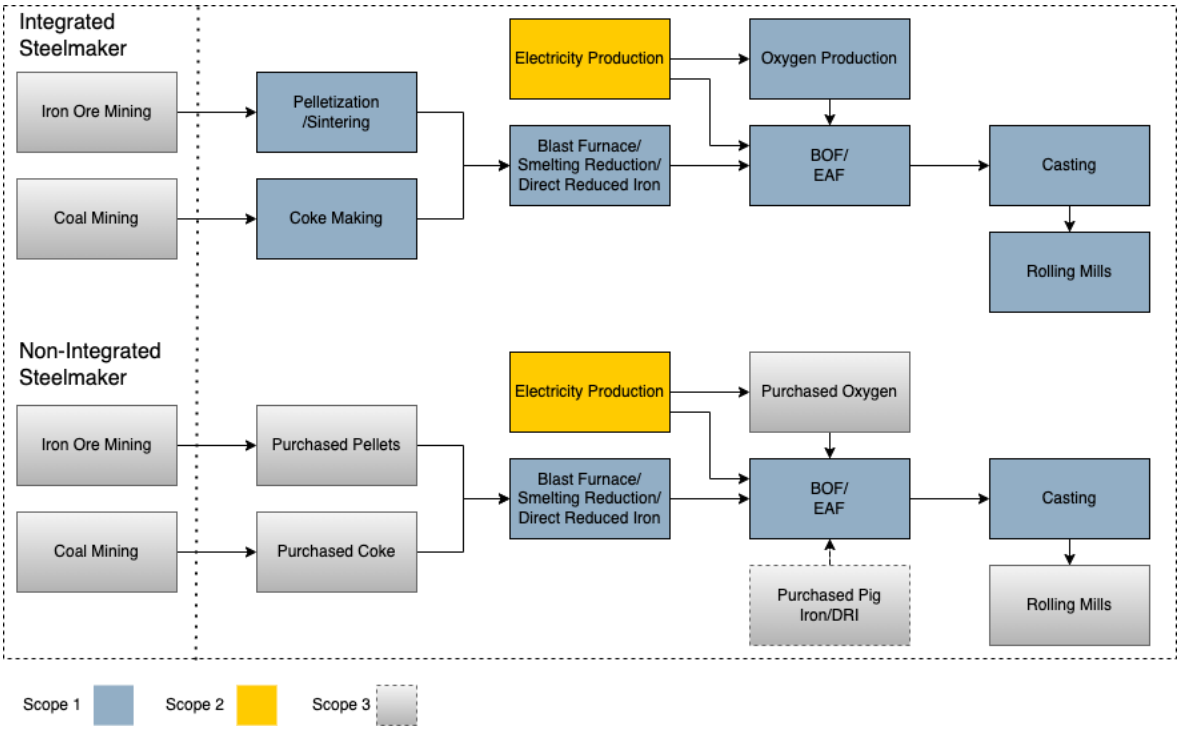
Exhibit 3. Fixed System Boundary of the Sustainable STEEL Principles



Source: RMI's elaborations based on ISO 14404, the Net-Zero Steel Pathways Methodology Project, the World Steel Association, and ACT (Assessing Low Carbon Transition).

A Fixed System Boundary does not abandon the accounting standard of scopes 1, 2, and 3; rather, it establishes a singular boundary of emissions resulting from the production of steel, regardless of whether those emissions are considered scope 1, 2, or 3 for any one entity.[x] Within this boundary lies a steelmaker's scope 1 and 2 emissions and a portion (depending on the level of vertical integration) of scope 3 emissions (specifically in the categories of purchased goods and services and processing of sold products) (Exhibit 4).

Exhibit 4. Example of scope 1, 2, and 3 emissions within the Fixed System Boundary



Within the boundary, every Borrower would report on the emissions of raw material preparation, ironmaking, steelmaking, and auxiliary processes. While entities other than Borrowers do not themselves report under this framework, steelmakers using upstream and downstream products and services within the Fixed System Boundary are expected to account for these emissions when reporting their crude steel production. Non-vertically integrated steel producers can use either Primary Emissions Data sourced directly from their suppliers and offtakers, or standard emissions factors if they are unable to secure data sourced directly (or have a large number of suppliers / offtakers). See *Appendix XII.1, Technical guidance* for a detailed categorization of activities within the Fixed System Boundary.

In summary, a Fixed System Boundary can ensure greater consistency in reporting, increase transparency, and enable a more equitable comparison of steelmakers' emissions performance.

While all emissions resulting from ironmaking, steelmaking, and auxiliary processes fall within the Fixed System Boundary, emissions from iron and coal mining are considered out of scope, as depicted in Exhibit 3. This is due to the following reasons:

1. The scenarios utilized under this methodology do not include mining emissions within the steel sector boundary. Therefore, the inclusion of mining emissions in the data report by Borrowers would result in inconsistencies in scope between Borrower data and the Benchmarks Users use to assess their Borrowers' emissions;

2. The CO_2 emissions that result from iron ore and coal mining represent a relatively small portion of total steel sector emissions,[21] and
3. The desire to be consistent with other standards to the greatest degree possible.[22]

While emissions resulting from iron ore and coal mining are not currently included, the Sustainable STEEL Principles may consider expanding the Fixed System Boundary to include emissions from mining in the future, as well as include additional GHG emissions, such as methane, if scenarios allow.

V.2 Benchmarking emissions

1) **Differentiating emissions from primary and secondary production**

Rather than utilizing a single carbon budget to benchmark emissions from the steel sector, the Sustainable STEEL Principles differentiate between emissions resulting from the production of steel from iron ore (primary steel) and the production of steel from scrap, or used steel available for reprocessing (secondary steel). This differentiation of emissions was derived from the recommendations of the NZSPMP. For additional detail, see *Appendix XII.1, Technical guidance*.

Given that secondary steel production emits a fraction of the emissions of primary production, a single Emissions Intensity scenario for steel could incentivize steelmakers to increase their consumption of scrap to reduce their overall emissions. While steelmakers are encouraged to increase scrap use, global scrap availability is limited.[23] Therefore, a single emissions scenario for the sector could result in larger steelmakers purchasing scrap to reduce their Emissions Intensity, only redistributing, rather than reducing, the sector's overall emissions. While individual steel companies might be able to decrease their emissions by increasing scrap-based production up to a point, primary steelmaking will continue to produce the majority of the sector's emissions, and therefore a separate Benchmark for primary steel production is warranted.[xi]

Therefore, under the Sustainable STEEL Principles, steelmakers are evaluated based on their specific usage of scrap, allowing for a fairer and more robust comparison of Borrower emissions. Practically, this means that each steelmaker's decarbonization target is company-specific, weighted based on their use of External Scrap.

Differentiating between emissions from primary and secondary steel reflects the market realities of the sector and aims to both increase scrap use in the short-term and incentivize capital investments in low-carbon steelmaking technologies and recycling in the medium- and long-term.

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[21] However, upstream fugitive methane (particularly from coal mining) can be significant. Lifecycle assessment studies indicate that direct CO_2 emissions (excluding methane) of 0.013 tCO_2/t of iron ore and 0.04 tCO_2/t coal, based on ~2t of iron ore and 0.5t of coal consumed for each ton of steel, produced results in ~0.05 tCO_2/t steel of mining emissions or ~3% of the average steel emissions footprint.

[22] Emissions resulting from mining are not included in the NZSPMP recommendations, ISO standards, Worldsteel Climate Action data collection framework, or the ACT methodology. However, it is noted that ResponsibleSteel includes mining emissions as well as non-CO_2 GHG emissions, such as methane.

[23] For an explanation on the limitations of scrap availability, see Box 1 of "*The Sustainable STEEL Principles: Differentiating Between Primary and Secondary Steel Production*."

Lastly, this approach provides transparency and equips the sector's lenders with the insights they need to support the climate alignment of their steel lending portfolios.

This differentiation is applied regardless of the benchmarking option utilized, as discussed in the next section.

2) **Assessing Borrower progress toward net-zero**

To measure climate alignment, the carbon intensity of a Borrower must be compared to a Benchmark, determined from an emissions reduction scenario. To do so, starting in 2025, lenders may choose between two options:

1. **Alignment Zone**: Borrowers and portfolios are benchmarked using the SSP's Alignment Zone approach, which compares emissions intensity against both the 2021 version of the IEA NZE and the 2021 version of the MPP TM scenarios. This is the legacy approach of the SSP, introduced at the launch in 2022, and may be used for reporting until 2027. While this approach is more complex, it offers an additional layer of nuance to the benchmarking of steelmakers. The implementation of this approach is described in *Section V.2.1* below.

2. **Percent deviation approach**: Climate alignment is reported as the percentage deviation of a portfolio's emissions intensity relative to the IEA NZE decarbonization trajectory. A positive alignment score indicates that the portfolio's emissions intensity exceeds the trajectory, while a negative or zero score indicates alignment. The use of a single benchmark simplifies benchmarking and is in line with other steel standards, such as those published by SBTi and CBI[24]. From 2027 onward, this approach will be the standard methodology for alignment with the SSP framework. Its implementation is described in further detail in *Section V.2.2* below.

For both options, differentiated benchmarks are used for primary and secondary production. The benchmark data will be available on the website of the Sustainable STEEL Principles. Lenders are encouraged to transition to the percent deviation approach to prepare for its adoption in 2027.

V.2.1 The Alignment Zone Approach

To account for the absence of a third-party regulator to identify an appropriate scenario for the sector, as well as the economic, regulatory, and technological uncertainty faced by the sector in pursuit of net-zero, the Alignment Zone Approach utilizes two decarbonization scenarios, which together form an Alignment Zone.

Within the Alignment Zone, a Borrower's Emissions Intensity, weighted by Scrap Charge, is benchmarked against an adaptation of the International Energy Agency Net-Zero by 2050 Scenario

[24] Both SBTi and CBI utilize the IEA NZE as benchmark for their steel sector methodologies, see https://sciencebasedtargets.org/resources/files/SBTi-Steel-Guidance.pdf and https://www.climatebonds.net/files/files/Steel%20Criteria%20document_Final%20version.pdf

(IEA NZE)[25,xii] and the Mission Possible Partnership's Technology Moratorium scenario (MPP TM),[xiii] one of several scenarios within the Steel Sector Transition Strategy Model (ST-STSM).[26]

The IEA NZE models the transition needed for the global energy sector to achieve net-zero CO_2 emissions by 2050 in a way that is consistent with a 50% probability of limiting global temperature rise to 1.5°C, without overshoot.[xiv] The model is top-down and delivers the optimal share of technology choices by country and region over time by optimizing emissions reductions and minimizing costs, while satisfying demand for steel.

Achieving the pace of emissions reductions under the IEA NZE, consistent with limiting global temperature rise to 1.5°C, without overshoot, assumes a supportive policy environment. However, the regulatory framework and policy conditions modeled in the NZE do not yet exist, presenting challenges to the decarbonization of steelmaking in all geographies, particularly emerging economies.

Therefore, an additional scenario, the MPP TM, is included as a second Benchmark in the Alignment Zone. This bottom-up model reflects the technological and economic conditions of the prevailing regulatory framework. The MPP TM is a net-zero scenario that models steel asset switches to whichever steelmaking technology offers the lowest total cost of ownership at each major investment decision, assuming that new investments are exclusively made in near-zero emissions[xv] steelmaking technologies after 2030.[27] The MPP Steel Sector Transition Strategy Model was additionally selected due to its granularity and transparency of its assumptions.

Jointly, the IEA NZE and the MPP TM model scenarios create an Alignment Zone with three categories. Depending on each company's Alignment Score, it can be placed within the Alignment Zone in the following categories (Exhibit 5):

- 1.5°C-aligned: Emissions Intensity lower than the IEA NZE,
- Well-below 2°C: Emissions Intensity above the IEA NZE, but below the MPP TM, and
- Misaligned: Emissions Intensity above the MPP TM.

[25] The IEA NZE Benchmark utilized by the Sustainable STEEL Principles is a modified version on the "Net Zero by 2050" scenario published by the International Energy Agency (IEA) in 2021, with the following modifications:

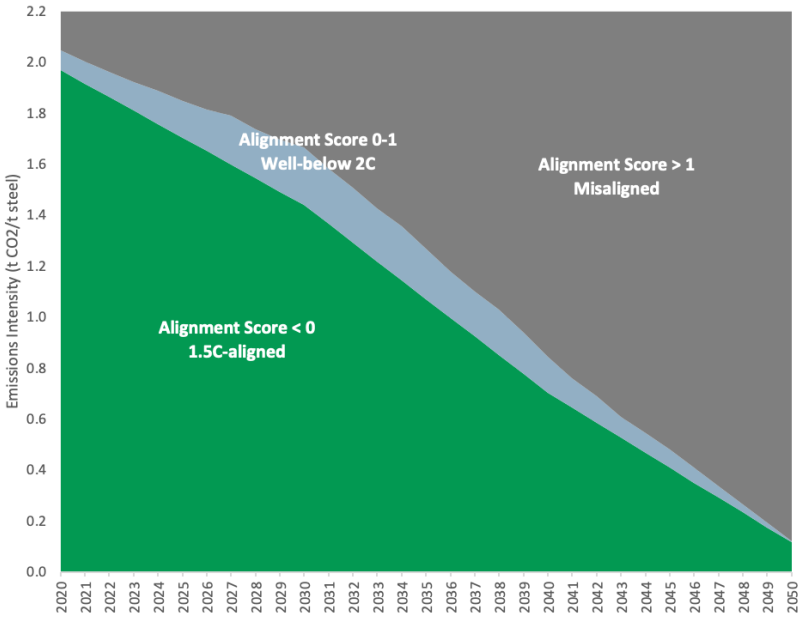
I. Yearly emissions and scrap utilization data was interpolated using the decadal emissions and scrap utilization data published by the IEA in the "Net Zero by 2050" report;
II. Scope 1 emissions were taken directly from the IEA's "Net Zero by 2050" report, while scope 2 emissions were estimated using the technology shares of total production included in the report paired with the corresponding emissions factors included in the MPP model.

All subsequent references to the IEA NZE denote the scenario inferred from the IEA's "Net Zero by 2050" report with the above modifications.

[26] Please refer to the Alignment Zone Briefing, Section 1, for a rationale behind the scenario selection process and the explanation of assumptions underpinning both chosen scenarios.

[27] Please refer to the Alignment Zone Briefing, Section 1, for further detail on the MPP TM.

Exhibit 5. The Alignment Zone for a sample steelmaker



Note: Scenarios in Exhibit 5 are based on the sample steelmaker's inputs to production consisting of 25% scrap.

Using Emissions Intensity and Scrap Charge, lenders calculate an Alignment Score for each Borrower, plotted against an Alignment Zone, specific to that Borrower. Lenders will similarly calculate a Portfolio Alignment Score using the average Emissions Intensity and average Scrap Charge of their portfolio.

For more on the objective of the Alignment Zone and scenarios included, see *The Sustainable STEEL Principles: Alignment Zone Briefing*.

Instructions for calculating Borrower-level Alignment Scores

Using a Borrower's Emissions Intensity and Scrap Charge data, Users can calculate individual Borrower-level Alignment Scores, with the following equation:

$$\mu_i = \frac{E_\delta}{Z_\delta}$$

Where μ_i refers to the Borrower-level Alignment Score.

The numerator, the Emissions Delta E_δ, is defined as the difference between actual emissions and the emissions prescribed by the IEA NZE, weighted by the percentage of primary and secondary production derived from the Scrap Charge. It is calculated as follows:

$$E_\delta = E_i - (\big((1 - \boldsymbol{S_i}) * B_{ap}\big) + (\boldsymbol{S_i} * B_{as}))$$

The next calculation is for the Zone Delta, defined as the difference between the Benchmark emissions prescribed by the MPP TM and the Benchmark emissions prescribed by the IEA NZE, each also weighted by the percentage of primary and secondary production derived using the Borrower's Scrap Charge:

$$Z_\delta = \Big(\big((1 - \boldsymbol{S_i}) * B_{bp}\big) + (\boldsymbol{S_i} * B_{bs})\Big) - \Big(\big((1 - \boldsymbol{S_i}) * B_{ap}\big) + (\boldsymbol{S_i} * B_{as})\Big)$$

Each term in the above equations is defined as follows:

Term	Definition
$\boldsymbol{E_i}$	Borrower-Level Emissions Intensity (t CO_2/t steel)
$\boldsymbol{S_i}$	Percentage of Scrap-based Inputs in production mix
$\boldsymbol{B_{ap}}$	IEA NZE Primary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{B_{as}}$	IEA NZE Secondary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{B_{bp}}$	MPP TM Primary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{B_{bs}}$	MPP TM Secondary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{Z_\delta}$	Zone Delta (t CO_2/t steel)
$\boldsymbol{E_\delta}$	Emissions Delta (t CO_2/t steel)
μ_i	Borrower-Level Alignment Score

Exhibit 6. Sample calculation of an Alignment Score at the Borrower-level

	Parameter	Terms & Equations	Steelmaker A	Steelmaker B
Borrower-level data	Scrap Charge 2022	S_i	0.10	0.90
	Emissions 2022 *(t CO2/t steel)*	E_i	2.40	0.35
	IEA NZE Benchmarks 2022 (Primary; Secondary) *(t CO2/t steel)*	B_{ap}; B_{as}	2.26; 0.67	
	MPP TM Benchmarks 2022 (Primary; Secondary) *(t CO2/t steel)*	B_{bp}; B_{bs}	2.38; 0.73	
Borrower-level calculations	Borrower Lower Target *(t CO2/t steel)*	$T_{li} = ((1 - S_i) * B_{ap}) + (S_i * B_{as})$	((1 – 0.10) * 2.26) + (0.10 * 0.67) = **2.10**	((1 – 0.90) * 2.26) + (0.90 * 0.67) = **0.83**
	Borrower Upper Target *(t CO2/t steel)*	$T_{ui} = ((1 - S_i) * B_{bp}) + (S_i * B_{bs})$	((1 – 0.10) * 2.38) + (0.10 * 0.73) = **2.22**	((1 – 0.90) * 2.38) + (0.90 * 0.73) = **0.90**
	Zone Delta *(t CO2/t steel)*	$Z_\delta = T_{ui} - T_{li}$	2.22 – 2.10 = **0.12**	0.90 – 0.83 = **0.07**
	Emissions Delta *(t CO2/t steel)*	$E_\delta = E_i - T_{li}$	2.40 – 2.10 = **0.30**	0.35 – 0.83 = **-0.48**
	Borrower Alignment Score	$\mu_i = E_\delta / Z_\delta$	0.30 / 0.12 = **2.50**	-0.48 / 0.07 = **-6.86**

As outlined in Exhibit 6, Users calculate a lower and upper emissions reduction target, specific to each Borrower, weighted by the Borrower's metallic inputs. In this example, steelmaker A's lower target within the Alignment Zone is calculated by taking a weighted average of their primary production (0.9) and the IEA NZE primary emissions target for 2022 (2.26), plus steelmaker A's secondary production mix (0.1) and the IEA NZE secondary emissions target for 2022 (0.67). This results in a lower emissions reduction target of 2.1. Applying the same methodology to steelmaker B, whose scrap utilization is much higher, results in a lower emissions reduction target of 0.83.

Likewise, the steelmakers' upper targets are calculated by taking a weighted average of their primary production and the MPP TM primary emissions target for 2022 (2.38), plus the steelmakers' secondary production mix and the MPP TM secondary emissions target for 2022 (0.73).

The steelmakers' Alignment Scores are then calculated by taking a ratio of their Emissions Delta, defined as the difference between the steelmakers' actual emissions and the IEA NZE, and the Zone Delta, defined as the difference between the Benchmark emissions prescribed by the MPP TM and the Benchmark emissions prescribed by the IEA NZE.

Exhibit 7. Alignment Score

Zone Delta *(t CO2/t steel)*	$Z_\delta = T_{ui} - T_{li}$	2.22 – 2.10 = **0.12**	0.90 – 0.83 = **0.07**
Emissions Delta *(t CO2/t steel)*	$E_\delta = E_i - T_{li}$	2.40 – 2.10 = **0.30**	0.35 – 0.83 = **-0.48**
Borrower Alignment Score	$\mu_i = E_\delta / Z_\delta$	0.30 / 0.12 = **2.50**	-0.48 / 0.07 = **-6.86**

Borrower-level Alignment Scores will not be publicly disclosed and are only calculated to support Users' engagement with their clients. Users are encouraged to utilize the above methodology to inform clients of their Alignment Scores and engage with them to advance emissions reductions in line with 1.5°C. Please see *Section VIII. Principle 4: Engagement* for more details around the recommendations for client engagement.

Steps for calculating a Portfolio Alignment Score:

Users are asked to report their Portfolio alignment annually, as outlined under *Section VI, Principle 2: Transparent reporting.* Portfolio climate alignment scores are calculated by taking a weighted average of the Emissions Intensity and Scrap Charge for all Borrowers, weighted by the exposure to each Borrower in the portfolio. This portfolio-level data is then used to calculate a portfolio-level Alignment Score, applying the same methodology used to calculate Borrower-level scores.

Portfolio average Emissions Intensity is calculated using the following equation:

$$E_t = \sum_{i=1}^{N} w_i E_i$$

Where E_t is the portfolio average Emissions Intensity and w_i is the exposure to a Borrower as a share of total exposure in-scope for reporting.

Portfolio average Scrap Charge is similarly calculated according to the following equation:

$$S_t = \sum_{i=1}^{N} w_i S_i$$

Where S_t is the portfolio average Scrap Charge. Using the portfolio average Emissions Intensity and Scrap Charge, Users can calculate their Portfolio Alignment Scores using the following equation:

$$\mu_t = \frac{E_\delta}{Z_\delta}$$

Where μ_t refers to the portfolio-level Alignment Score. The numerator, the Emissions Delta E_δ, is defined as the difference between actual emissions and the emissions prescribed by the IEA NZE, weighted by the percentage of primary and secondary production derived from the Scrap Charge. It is calculated as follows:

$$E_\delta = E_t - (\big((1 - S_t) * B_{ap}\big) + (S_t * B_{as}))$$

The next calculation is for the Zone Delta, defined as the difference between the Benchmark emissions prescribed by the MPP TM and the Benchmark emissions prescribed by the IEA NZE, each also weighted by the percentage of primary and secondary production derived from the Scrap Charge:

$$Z_\delta = \Big(\big((1 - S_t) * B_{bp}\big) + (S_t * B_{bs})\Big) - \Big(\big((1 - S_t) * B_{ap}\big) + (S_t * B_{as})\Big)$$

Each term in the above equations is defined as follows:

Term	Definition
w_i	Weight of the Exposure to an individual Borrower in a portfolio
$\boldsymbol{E_t}$	Portfolio average Emissions Intensity (t CO_2/t steel)
$\boldsymbol{S_t}$	Percentage of Scrap-based Inputs in production mix
$\boldsymbol{B_{ap}}$	IEA NZE Primary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{B_{as}}$	IEA NZE Secondary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{B_{bp}}$	MPP TM Primary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{B_{bs}}$	MPP TM Secondary Emissions Benchmark (t CO_2/t steel)
$\boldsymbol{Z_\delta}$	Zone Delta (t CO_2/t steel)
$\boldsymbol{E_\delta}$	Emissions Delta (t CO_2/t steel)
μ_t	Portfolio-level Alignment Score

See *Section IV, Financial Scope*, for more details on the weighting of group-level emissions, as well as Exhibit 8 for an example calculation.

Exhibit 8. Sample calculation of an Alignment Score at the portfolio-level

	Parameter	Terms & Equations	Producer A	Producer B
Borrower-level data	Scrap Charge 2022	S_i	0.10	0.90
	Emissions 2022 *(t CO2/t steel)*	E_i	2.40	0.35
	Steel-related Revenues *(% of total)*	R_i	100%	50%
	Exposure 2022 *(USD)*	O_i	$150mn	$400mn
	In-Scope Exposure 2022 *(USD)*	$X_i = R_i * O_i$	100% * $150mn = $150mn	50% * $400mn = $200mn
	Exposure Weight	$w_i = \frac{X_i}{\sum_{i=1}^{N} X_i}$	$150mn / $350mn = 0.43	$200mn / $350mn = 0. 57
Portfolio-level calculations	Portfolio Average Scrap Charge	$S_t = \sum_{i=1}^{N} w_i S_i$	(0.10 * 0.43) + (0.90 * 0.57) = **0.56**	
	Portfolio Average Emissions Intensity	$E_t = \sum_{i=1}^{N} w_i E_i$	(2.40 * 0.43) + (0.35 * 0.57) = **1.23**	
	IEA NZE Benchmarks 2022 (Primary; Secondary) *(t CO2/t steel)*	B_{ap}; B_{as}	2.26; 0.67	
	MPP TM Benchmarks 2022 (Primary; Secondary) *(t CO2/t steel)*	B_{bp}; B_{bs}	2.38; 0.73	
	Portfolio Lower Target *(t CO2/t steel)*	$T_{lt} = ((1 - S_t) * B_{ap}) + (S_t * B_{as})$	((1 - 0.56) * 2.26) + (0.56 * 0.67) = **1.37**	
	Portfolio Upper Target *(t CO2/t steel)*	$T_{ut} = ((1 - S_t) * B_{bp}) + (S_t * B_{bs})$	((1 - 0.56) * 2.38) + (0.56 * 0.73) = **1.46**	
	Portfolio Zone Delta *(t CO2/t steel)*	$Z_\delta = T_{ut} - T_{lt}$	1.46 - 1.37 = **0.09**	
	Portfolio Emissions Delta *(t CO2/t steel)*	$E_\delta = E_t - T_{lt}$	1.23 - 1.37 = **-0.14**	
	Portfolio Alignment Score	$\mu_t = E_\delta / Z_\delta$	-0.14 / 0.09 = **-1.56**	

-------- Publicly reported annually

As outlined in Exhibit 8, the User would take an average of the Emissions Intensity and Scrap Charge of Steelmaker A and Steelmaker B, weighted by their exposure. The User then their overall annual Portfolio Alignment Score of -1.56, which means that the User is 1.5°C-aligned.

In the calculations of portfolio average Emissions Intensity and Scrap Charge, Users should include the group-level Emissions Intensity and group-level Scrap Charge from any exposure that qualifies as an In-Scope Financing. As described in *Section IV, Financial Scope*, User may also elect to report at the asset-level for Dedicated Financings, which allows for the incorporation of asset-level data into the Portfolio Alignment Score using the weight of the Dedicated Financing exposure. For additional detail, see *Section IV, Financial Scope*, and *Section V.2.3.* below for an example calculation.

V.2.2. The percent deviation approach

The percent deviation approach offers a simplified, standardized method for measuring climate alignment by comparing portfolio emissions intensity directly against the International Energy Agency Net-Zero by 2050 Scenario (IEA NZE) trajectory, adjusted for the Fixed System Boundary of the SSP methodology (see Section X). Under this approach, climate alignment is calculated as the percentage deviation of a portfolio's Emissions Intensity relative to the IEA NZE decarbonization trajectory for a given year.

Why introduce the percent deviation approach? The decision to phase in the percent deviation approach reflects the need for greater standardization, simplicity, and comparability across financial institutions. While the Alignment Zone provides a nuanced view of sectoral alignment, the percent deviation approach offers a more straightforward metric that enables clear benchmarking against a single trajectory—the IEA NZE. The use of a single trajectory also more closely mirrors the steel-specific methodologies published by the Science Based Targets initiative and the Climate Bonds Initiative[28]. By adopting a single, widely recognized benchmark, the percent deviation approach supports enhanced transparency in climate reporting for the industry.

Phased Adoption Timeline: The percent deviation approach is being introduced as an option for portfolio alignment reporting for the 2025 and 2026 reporting years (on 2024 and 2025 emissions data, respectively). During this transitional period, lenders may report alignment using either the percent deviation approach or the Alignment Zone framework. Starting in 2027, the percent deviation approach will be the standard methodology for alignment with the SSP framework..

Steps for calculating Borrower-level percent deviation

To calculate climate alignment under the Percent Deviation Approach, the following steps must be taken:

1. **Obtain Borrower data**
   Gather annual data for the Borrower, including:

   a. E_i: CO_2 emissions per ton of steel produced (Emissions Intensity)

[28] Both SBTi and CBI utilize the IEA NZE as benchmark for their steel sector methodologies, see https://sciencebasedtargets.org/resources/files/SBTi-Steel-Guidance.pdf and https://www.climatebonds.net/files/files/Steel%20Criteria%20document_Final%20version.pdf

b. S_i: Scrap Charge, representing the share of secondary (scrap-based) steel in the Borrower's production mix.

2. Establish the IEA NZE benchmark for the Borrower

Determine the Borrower's benchmark emissions intensity for the reporting year using the IEA NZE decarbonization trajectory:

a. B_p: Benchmark for primary steel production (from the IEA NZE trajectory for the given year).

b. B_s: Benchmark for secondary steel production (from the IEA NZE trajectory for the given year).

Compute the weighted benchmark as:

$$B_{req} = \big((1 - S_i) * B_p\big) + (S_i * B_s)$$

Where S_i is the Scrap Charge for secondary production, and $1 - S_i$ represents other metallic inputs for primary production.

3. Calculate the Borrower's percent deviation

Compare the Borrower's actual emissions intensity (E_i) with the required benchmark emissions intensity (B_{req}) using the following formula:

$$\Delta_i = \frac{(E_i - B_{req})}{B_{req}} * 100$$

a. A positive Δ_i indicates the Borrower's emissions intensity exceeds the benchmark (misaligned).

b. A zero or negative Δ_i indicates the Borrower is aligned or below the benchmark.

Exhibit 9. Sample calculation of percent deviation at the Borrower-level

	Parameter	Terms & Equations	Steelmaker A	Steelmaker B
Borrower-level data	Scrap Charge 2022	S_i	0.10	0.90
	Emissions 2022 *(t CO2/t steel)*	E_i	2.40	0.35
Borrower-level calculations	IEA NZE Benchmarks 2022 (Primary; Secondary) *(t CO2/t steel)*	B_p; B_s	2.26; 0.67	
	Weighted IEA NZE Target	$B_{req} = \big((1 - S_i) * B_p\big) + (S_i * B_s)$	((1 – 0.10) * 2.26) + (0.10 * 0.67) = **2.10**	((1 – 0.90) * 2.26) + (0.90 * 0.67) = **0.83**
	Borrower Alignment Score	$\Delta_i = \frac{(E_i - B_{req})}{B_{req}} * 100$	$\frac{(2.40-2.10)}{2.10} * 100$ = 14.2%	$\frac{(0.35-0.83)}{0.83} * 100$ = **-57.8%**

Steps for calculating Portfolio-level percent deviation

1. **Gather Borrower data**
For each Borrower in the portfolio, obtain the following annual data:

a. E_i: CO_2 emissions per ton of steel produced (Emissions Intensity)

b. S_i: Scrap Charge, representing the share of secondary (scrap-based) steel in the Borrower's production mix.

c. R_i: Steel-related revenues as a percentage of total revenues (see *Section IV.4 Additional Guidance for Determining Exposure* for additional guidance).

d. O_i: Exposure associated with each Borrower. (see *Section IV.4 Additional Guidance for Determining Exposure* for additional guidance)

2. **Determine In-Scope Exposure and Weights**

   a. Calculate in-scope exposure for each Borrower

$$X_i = R_i * O_i$$

   b. Determine the exposure weight of each Borrower in the portfolio:

$$w_i = \frac{X_i}{\sum_{i=1}^{N} X_i}$$

3. **Calculate Portfolio average Scrap Charge**

   a. Compute the average weighted Scrap Charge for the portfolio:

$$S_t = \sum_{i=1}^{N} w_i S_i$$

4. **Calculate Portfolio average Emissions Intensity**

   a. Compute the average weighted Emissions Intensity of the portfolio:

$$E_t = \sum_{i=1}^{N} w_i E_i$$

5. Establish the IEA NZE benchmark for the Portfolio

Calculate the portfolio's required emissions intensity target using the weighted IEA NZE benchmarks, where:

a. B_p: Benchmark for primary steel production (from the IEA NZE trajectory for the given year).

b. B_s: Benchmark for secondary steel production (from the IEA NZE trajectory for the given year).

Compute the weighted benchmark as:

$$B_{req} = \big((1 - S_t) * B_p\big) + (S_t * B_s)$$

4. Calculate the Portfolio's percent deviation

Compare the portfolio's average emissions intensity (E_t) with the required benchmark emissions intensity (B_{req}) using the following formula:

$$\Delta_t = \frac{(E_t - B_{req})}{B_{req}} * 100$$

a. A positive Δ_t indicates that the Portfolio's emissions intensity exceeds the benchmark (misaligned).

b. A zero or negative Δ_i indicates the Portfolio is aligned or below the benchmark.

Exhibit 10. Sample calculation of percent deviation at the Portfolio-level

	Parameter	Terms & Equations	Producer A	Producer B
Borrower-level data	Scrap Charge 2022	S_i	0.10	0.90
	Emissions 2022 *(t CO2/t steel)*	E_i	2.40	0.35
	Steel-related Revenues *(% of total)*	R_i	100%	50%
	Exposure 2022 *(USD)*	O_i	$150mn	$400mn
	In-Scope Exposure 2022 *(USD)*	$X_i = R_i * O_i$	100% * $150mn = $150mn	50% * $400mn = $200mn
	Exposure Weight	$w_i = \frac{X_i}{\sum_{i=1}^{N} X_i}$	$150mn / $350mn = 0.43	$200mn / $350mn = 0. 57
Portfolio-level calculations	Portfolio Average Scrap Charge	$S_t = \sum_{i=1}^{N} w_i S_i$	(0.10 * 0.43) + (0.90 * 0.57) = **0.56**	
	Portfolio Average Emissions Intensity	$E_t = \sum_{i=1}^{N} w_i E_i$	(2.40 * 0.43) + (0.35 * 0.57) = **1.23**	
	IEA NZE Benchmarks 2022 (Primary; Secondary) *(t CO2/t steel)*	$B_p; B_s$	2.26; 0.67	
	Weighted IEA NZE Target	$B_{req} = ((1 - S_i) * B_p) + (S_i * B_s)$	((1 - 0.56) * 2.26) + (0.56 * 0.67) = **1.37**	
	Borrower Alignment Score	$\Delta_t = \frac{(E_t - B_{req})}{B_{req}} * 100$	$\frac{(1.23-1.37)}{1.37} * 100 =$ **-10.2%**	

-------- Publicly reported annually

V.2.3 Aggregating group- and asset-level Emissions Intensity and Scrap Charge into a portfolio average

The following guidance is applicable to both the Alignment Zone approach and the percentage deviation approach. When reporting on Dedicated Financings, asset-level emissions data is used in the calculations of portfolio average emissions data. The asset-level data is weighted separately from any group-level data. As outlined in Exhibit 11, User will aggregate asset-level data and group-level data separately, weighted by the exposure associated with each.

Exhibit 11. Group- and asset-level data aggregation

Borrower	Borrower Percent of steel-related revenues	Financing type	Financing credit limit	Exposure in-scope for reporting	Emissions in-scope for reporting	Emissions Intensity 2022	Scrap Charge 2022	Alignment Score 2022
Borrower X	100%	Dedicated financing	USD 100mn	USD 100mn	Group-level or asset-level	1.50 t of CO_2 / t of steel produced (asset-level)	10% (asset-level)	-7.1
	100%	General corporate purpose	USD 100mn	USD 100mn	Group-level only	1.63 t of CO_2 / t of steel produced	14%	-5.1

Borrower Y	75%	General corporate purpose	USD 100mn	USD 75mn	Group-level only	2.42 t of CO_2 / t of steel produced	3%	1.6

Portfolio Average Emissions Intensity (average of Borrower Emissions Intensity, weighted by in-scope exposure) = 1.80

Portfolio Average Scrap Charge (average of Borrower Scrap Charge, weighted by in-scope exposure) = 9.5%

Double Counting

When calculating climate alignment at both the group- and asset-level, the Sustainable STEEL Principles do not attempt to avoid double counting. If a User provides both general financing and Dedicated Financing to the same Borrower (Exhibit 11) and chooses to use asset-level data for the Dedicated Financing, the asset-level emissions reported under the Dedicated Financing would be accounted for in both the asset-level data and in the group-level data (as a result of averaging the emissions from the Borrower's entire production).

While using these separate figures to calculate a portfolio-level score could be considered double counting, the Sustainable STEEL Principles do not attempt to avoid double-counting, since the group-level data is intended to be a reflection of all of the steelmaker's production, including the production of the asset financed through a Dedicated Financing.

V.3 The forward-looking indicator

While reporting on Emissions Intensity from the previous year can indicate a User's climate alignment to date, a forward-looking indicator is an important tool for showcasing ambition or anticipating projected emissions.

According to the Task Force on Climate-Related Financial Disclosures (TCFD) Portfolio Alignment Team's report, the aim of forward-looking indicators is to:

- Inform target-setting,
- Guide management decision-making processes and portfolio allocation decisions,
- Support lenders in their engagement with clients, and
- Serve as a complement to existing target-setting guidance as well as existing financial regulation.[xvi]

Under the Sustainable STEEL Principles, Users may report a forward-looking metric on an optional basis, in addition to reporting on the climate alignment of their portfolio for the previous year. This indicator is intended to reflect the net-zero ambition of their Borrowers for 2050, or earlier, and their interim emissions reduction targets for 2030, or earlier.

Should Users opt to report their forward-looking indicator, the following should be disclosed:

1) The percentage of the portfolio that has publicly committed to net-zero emissions[29] at the group-level for scope 1 and 2 emissions by 2050, or earlier, and

2) The percentage of the portfolio that has publicly committed to interim emissions reduction targets at the group-level for scope 1 and 2 emissions by 2030, or earlier.

To be considered valid, a target must include the following:

1. Be a publicly stated emissions reduction goal,
2. At a minimum, include scope 1 and 2 emissions at the group-level,
3. Be set by 2050 or sooner for the net-zero target, and by 2030 or sooner for an interim target.

Users may access this data on their clients' emissions targets from third-party data providers.

Users would report these two indicators in percentage terms as the exposure to clients that have set qualifying targets, divided by the total exposure that is in-scope for reporting.

[29] Net-zero targets may also be defined as "carbon-neutral" or "climate-neutral" steelmaking, achieved through the utilization of carbon capture, utilization, and storage (CCUS).

Exhibit 12. Forward-looking indicator reporting

Borrower	Interim goal	Does the interim goal qualify for reporting?	Net-zero goal	Does the net-zero goal qualify for reporting?	Exposure in-scope for reporting (2022)
Borrower A	20% reduction in scope 1 and 2 Emissions Intensity by 2030	**Yes**	Carbon-neutral by 2050 on a scope 1 and 2 basis	**Yes**	$100mn
Borrower B	Peak emissions on a scope 1 and 2 basis by 2030	**No**	Carbon-neutral by 2050 on a scope 1 and 2 basis	**Yes**	$150mn
Borrower C	30% reduction in scope 1 and 2 Emissions Intensity by 2035	**No**	Carbon-neutral by 2050 on a scope 1 basis	**No**	$75mn
Borrower D	30% reduction in scope 1 and 2 Emissions Intensity for European operations by 2030	**No**	Carbon-neutral soon after 2050 on a scope 1 and 2 basis	**No**	$125mn
Borrower E	10% reduction in scope 1 and 2 Emissions Intensity by 2025 and 30% by 2035	**Yes**	80% reduction in scope 1 and 2 Emissions Intensity by 2050	**No**	$50mn
User reporting	**30% of the 2022 portfolio has publicly committed to interim emissions reduction targets.**		**50% of the 2022 portfolio has publicly committed to net-zero-emissions reduction targets.**		

This methodology is aligned with the guidance for "binary target measurements" in the 2021 PAT report,[xvii] as well as with the guidance from SBTi on SBT Portfolio Coverage Targets for Financial Institutions.[xviii]

Importantly, Users are encouraged to engage with Borrowers that have not publicly disclosed emissions reduction targets to inquire into their plans for target setting. For detail, see *Section VIII, Principle 4: Engagement*.

The main advantages of the selected forward-looking indicator are the ease of implementation, minimal reporting requirements, as well as transparency, stemming from the lack of reliance on any assumptions. However, emissions reduction targets are not necessarily indicative of future Emissions Intensity and as a result, this indicator is not highly actionable, nor very instructive. Therefore, the Sustainable STEEL Principles will periodically revisit options for forward-looking indicators to consider alternative options capable of providing further insights into future alignment, and reflecting the level of preparedness of steelmakers for the net-zero transition.

At a later date, the Sustainable STEEL Principles may consider requiring the disclosure of the forward-looking indicator as mandatory.

VI. Principle 2: Transparent reporting

This section outlines the Transparent reporting requirements.

Guidance for Annual Disclosures:

Any financial institution that lends to steelmakers and / or other In-Scope Counterparties may use the Sustainable STEEL Principles to independently measure and disclose the climate alignment of its lending to the iron and steel sector. A participating financial institution, or User, of the Sustainable STEEL Principles should follow these guidelines to disclose the climate alignment of its iron and steel lending portfolio.

Requirement 1:

1. A User reports the following in its own institutional reporting on an annual basis:

    a. The portfolio Alignment Score based on prior-year data (as detailed under *Section V, Principle 1: Standardized assessment*), and, on an optional basis, the emissions intensity of its iron & steel lending portfolio.

    b. The parameters used for reporting, including:

        1. Whether the score was calculated based on debt outstanding or credit limits, and

        2. Whether any, and if so, which, voluntary products (as defined in *Section IV, Financial Scope*) were included in the calculation, and

        3. Whether In-Scope Counterparties that produce less than 250 kilotons p.a. of steel (as defined in *Section IV, Financial Scope*), were voluntarily included in the calculation, and

        4. Whether the User reported voluntarily on exposures to In-Scope Financings in which the limit has a tenor shorter than one year, and

        5. The applicable perimeter within the bank for which the disclosed data pertains.

    c. Which data provider the User used.

2. A User is encouraged to report a brief narrative to contextualize its actions and strategies for climate alignment.

3. A User is also encouraged to report the forward-looking indicator: the percentage of steel lending portfolio represented by a net-zero target (by 2050, or earlier) and percentage represented by an interim target (by 2030, or earlier).

Requirement 2:

> A User should publicly acknowledge using the Sustainable STEEL Principles in its own institutional reporting. The manner and location of the acknowledgment may be determined at the discretion of the user. The acknowledgment serves to promote standardization, publicize the Sustainable STEEL Principles, and inspire additional financial institutions to undertake similar efforts.

To encourage consistent reporting with the Sustainable STEEL Principles, it is recommended that banks obtain external verification or limited assurance for their reporting.

Summary of reporting guidance

What to report	Needed or voluntary?
Portfolio Alignment Score	Needed
Portfolio emissions intensity	Voluntary
Parameters used for reporting	Needed
Third-party data provider used	Needed
Brief narrative	Voluntary
Forward-looking indicator	Voluntary
Public acknowledgment	Needed

RMI reserves the right to disclose the average alignment score of all users of the Sustainable STEEL Principles that have made their Alignment Scores public (calculated as a simple average), as well as a sector alignment score of all global steel producers calculated using third-party data.

Users of the Sustainable STEEL Principles are encouraged to share all of the above information with RMI via email.

How to meet the requirements:

Users must adhere to three requirements as part of their participation in the Sustainable STEEL Principles, as outlined in Exhibit 13.

Exhibit 13. Disclosure requirements under Principle 2 - Transparent reporting

	Requirement	What to disclose	Where to disclose
1	Report annually in individual annual report	a) Portfolio Alignment Score (as detailed under *Section V, Principle 1: Standardized assessment*). b) Parameters used for reporting: i) Whether the score was calculated based on debt outstanding or credit limits,[30] and ii) Whether any, and if so, which, voluntary products (as defined in *Section IV, Financial Scope*) were included in the calculation, and iii) Whether In-Scope Counterparties that produce less than 250 kilotons p.a. of steel (as defined in *Section IV, Financial Scope*), were voluntarily included in the calculation, and iv) Whether the User reported voluntarily on exposures to In-Scope Financings in which the limit has a tenor shorter than one year. v) The applicable perimeter within the bank for which the disclosed data pertains. Users are invited to disclose, on an optional basis, the source of their data (i.e., the percent reported from Borrowers[31], the percent reported from third-party data providers). c) An optional brief narrative offering more insight into their actions and strategies for climate alignment. d) On an optional basis, the forward-looking indicator: the percentage of steel lending portfolio represented by a net-zero target (by 2050, or earlier) and percentage represented by an interim target (by 2030, or earlier).	In individual annual report
2	Public acknowledgement	Publicly acknowledge using the Sustainable STEEL Principles. The manner and location of the acknowledgment may be determined at the discretion of the user.	At the discretion of the User, typically in individual annual report

Users may request data directly from their Borrowers on a timeline they deem appropriate,. For avoidance of doubt, Borrower-level Alignment Scores will not be publicly disclosed.

Guidance on brief narratives

[30] This guidance may change pending NZBA recommendations, which these Principles will seek to align with.
[31] All data will be aggregated, anonymized, and unattributable to any individual steel producer.

Users may accompany their Portfolio Alignment Score with a brief narrative, usually no longer than a page, providing additional context. While the topics included are ultimately up to the discretion of each User, topics may include, but are not limited to, the following:

1. Key takeaways from your Alignment Score,
2. If disclosing an Alignment Score above zero: the institution's plans and expected timeline for achieving a score that is 1.5°C-aligned,
3. Geographic or geopolitical considerations relevant to your Alignment Score, and/or
4. Dedicated Financings for assets not yet Operational.[32]

Finally, User is encouraged to have their brief narratives reviewed internally to ensure that disclosed information does not contain any commercially sensitive information.

[32] The details of the information disclosed remains at the discretion of each lender. Users should ensure that no commercially sensitive information is being shared.

Example: Transparent reporting

In this example, a User of the Sustainable STEEL Principles begins using the SSP to report and successfully complies with the *Principle 2: Transparent reporting requirements*.

Requirement 1: The User discloses the following in their individual annual report:

1) Portfolio Alignment Score. The User's score is -2, indicating its portfolio is aligned with the Emissions Intensity of the IEA NZE and is 1.5°C-aligned.

2) Parameters used for reporting. The User explains that their Portfolio Alignment Score was calculated based on the debt outstanding of In-Scope Financings, that they included Bank Guarantees, that In-Scope Counterparties that produce less than 250 kilotons p.a. of steel were included in their reporting, and that the User decided not to report on exposures to In-Scope Financings in which the limit has a tenor shorter than one year. The User indicates the perimeter within the bank for which the disclosed data pertains, specifying that it includes their investment banking division but not commercial banking.[*]

3) Brief narrative. The User provides an explanation of its Portfolio Alignment Score, noting their key takeaways and specifying a Dedicated Financing provided to a new low-carbon steel mill not yet Operational.

4) Forward-looking indicator. The User voluntarily discloses that 20% of their portfolio has net-zero targets, and 11% has interim targets,.

5) Source of their data (provided on an optional basis): The User specifies that climate alignment data was sourced directly from its clients for 70% of its portfolio, 25% was sourced from a third-party data provider, and that data was not available for the remaining 5%.

Requirement 2: The Users acknowledges in their annual report use of the Sustainable STEEL Principles.

[*]In this example, investment banking is intended to refer to the bank's division which provides wholesale banking services to large and global clients, while commercial banking is intended to refer to the bank's division which provides regional banking services to small or mid-sized clients. Users are able to specify which divisions are included in their reporting requirements as part of the calculation explanations.

VII. Principle 3: Enactment

This section details how Users can enact this measurement and disclosure framework, by requesting data from Borrowers where possible, and otherwise, by obtaining data from third-party data providers.

Principle commitments:

Users are encouraged to perform required Borrower- and portfolio-level calculations with data sourced directly from Borrowers, which includes limited assurance. Alternatively, when data is not available directly from a Borrower, or where data has not been assured, Users are able to source data from third-party data providers. The Sustainable STEEL Principles recommend data providers that have demonstrated their ability to provide robust data in line with the Sustainable STEEL Principles methodology and requirements, though there is no requirement to use a specific provider.

Users will use best efforts to request the provision of data in financial contracts. An example covenant clause can be accessed with a request to RMI for all new In-Scope Financings, as defined in *Section IV, Financial Scope*, though Users are free to use alternative language that conveys the same meaning.

Sourcing emissions and Scrap Charge

This step requires collecting Emissions Intensity, absolute emissions, and Scrap Charge data assured with limited assurance from Borrowers (preferred method), or from third-party data providers. When using data providers, a single data provider should be used for all reporting in any specific year to ensure consistent reporting. The list of recommended data providers can be found in *Appendix XII.3 Third-party data*. As much as possible, this data should encompass all of the User's Borrowers, as detailed in *Section IV, Financial Scope*.

Exhibit 14. Data sourcing options

	Preferred Path	Allowed Path
Source Emissions Intensity, absolute emissions, and Scrap Charge data	Steelmaker	Single-source data provider
*Limited assurance**	3rd Party	N/A

*The objective of a limited assurance engagement is a reduction in risk to a level that is acceptable in the circumstances of the assurance engagement. Limited assurance is not an audit.

Permissible information flow methods:

Method 1 (preferred path): Borrower provides User with Emissions Intensity and Scrap Charge data directly, following *Appendix XII.1, Technical guidance* and using the *Emissions Reporting Template*, if desired. Steelmakers are encouraged to seek limited third-party assurance and provide evidence of this assurance alongside disclosures, in order to ensure Emissions Intensity and Scrap Charge were calculated according to the Sustainable STEEL Principles.

Method 2 (allowed path): Alternatively, Users may source data from third-party data providers. In this scenario, limited assurance of data is not required.

Example: Enactment

In this example, the User complies with the Principle III: Enactment during the year 2023.

1) User chooses to include the standard covenant clause provided by RMI in new In-Scope Financings and requests 2022 Emissions Intensity and Scrap Charge data from their Borrowers* by June 2023 in order to perform the necessary Borrower-level and portfolio-level calculations and disclose their Portfolio Alignment Score. User reminds clients that this data must contain limited assurance when reported.

2) User receives data for 75% of their portfolio directly from Borrowers, and utilizes the data provided by a third-party data provider for additional In-Scope Counterparties. Data on 5% of their portfolio is not available.

3) On an optional basis, along with other reporting requirements listed under *Principle 2: Transparent reporting*, User reports that they sourced 75% of their 2022 portfolio climate alignment data directly from clients (including limited assurance), 20% from the selected third-party data provider, and that data was not available for the remaining 5% of their portfolio.

VIII. Principle 4: Engagement

This section outlines high-level parameters and specific actions for client engagement that Users may take to effectively assist clients in their efforts to reach net-zero, in line with their respective bank's steel decarbonization target.

Principle commitments:

Users recognize the importance of client engagement to maximize real economy impact. Using the information obtained from the Climate Alignment Scores of their clients, Users are encouraged to engage with clients at their discretion to advance emissions reductions in line with 1.5°C.

Users can apply the tools, learnings, and parameters of these Principles to engage clients to discuss their transition plans, the financial products available to support their transition, and the bank's expectations for emissions reductions.

Specifically, Users are encouraged to consider the following processes for client engagement:

1. **Share Alignment Scores**: Inform clients of their Alignment Score, and company-specific Alignment Zone, which charts out the low-carbon transition against two net-zero scenarios.

2. **Encourage target-setting**: Under the Sustainable STEEL Principles methodology, Users will gain clarity as to their clients' emissions reduction targets. For clients without publicly stated net-zero and/or interim emissions reduction targets, or for clients whose targets lack ambition, Users may encourage the adoption of emissions reduction targets in line with best practices. The specific target to be set is entirely at the discretion of the client.

3. **Encourage transition planning**: Using client Alignment Scores for reference, inquire as to whether clients have a transition plan to guide their company's low-carbon transition, and if not, encourage clients to create one.

4. **Discuss alternatives**: Where appropriate, discuss specific opportunities for transitional switches with clients, including financing tools available to support client decarbonization, net-zero compatible technologies, and the financings available.

IX. Principle 5: Leadership

This section details the leadership positions Users are encouraged to demonstrate with regards to steel decarbonization, not only within their own institutions, but also more broadly, to advance industry-wide change.

Principle commitments:

At their individual financial institutions, Users of the Sustainable STEEL Principles are encouraged to set steel portfolio targets informed by the methodology of the Sustainable STEEL Principles. The target date(s), when those targets are set, and the specific target scenario, are at the full discretion of Users.

At the financial sector level, Users should commit to updating the framework of these Principles through engagement with the Advisory Group whenever appropriate, as sector data evolves, and available information improves, and new scenarios are developed.

Across the steel sector, Users are encouraged to consider utilizing the Sustainable STEEL Principles framework for advocacy purposes, at their discretion and where appropriate, in the interest of the decarbonization of the steel industry.

Internally, Users are encouraged to demonstrate leadership through decarbonizing their own steel lending portfolios and charting a path forward for their financial institution's broader transition. This means demonstrating the opportunities to decarbonize hard-to-abate sectors such as steel, and applying lessons learned to other sectors in the financial institution's portfolio.

Participation in the Sustainable STEEL Principles does not necessitate the adoption of any single target, and individual target-setting remains at the full discretion of each User. However, Users are encouraged to utilize this methodology for target-setting purposes. While the Alignment Zone is comprised of two net-zero scenarios to support measurement and engagement, Users are encouraged to set a target to guide the emissions reduction of their steel lending portfolios.

Likewise, Users are encouraged to utilize this methodology for interim target-setting.

Externally, Users commit to demonstrating leadership in two ways:

1. Committing to continually improve the framework of these Principles through engaging with the Advisory Group. This includes, but is not limited to, updating scenarios when

possible, and updating data requirements as better data becomes available. Technical discussions and scope revisions fall under the purview of the Sustainable STEEL Principles Advisory Group; more information can be found in *Section X. Governance.*

2. Advocating for industry-wide change and broader steel decarbonization, as and where appropriate.

X. Governance

The Sustainable STEEL Principles is a framework managed and maintained by RMI's Center for Climate-Aligned Finance, an independent, non-partisan, nonprofit organization.

Maintenance of the Sustainable STEEL Principles:

The Sustainable STEEL Principles are intended to be updated as the sector evolves. For example, new scenarios may become available, new technologies may emerge, and there may be changes in the regulatory environment that prompt updates to this framework to ensure relevance and consistency with other initiatives. RMI will be responsible for all updates but will engage an Advisory Group of users and other stakeholders as outlined below. Users should make best efforts to implement the changes when they are made.

Financial institutions that use the Sustainable STEEL Principles will have the opportunity to inform technical and methodological updates through participation in the Advisory Group. Advisory Group members commit to meeting annually to discuss the status of the framework and advise RMI as to whether updates are required to ensure the framework remains relevant and effective. In addition, input from Advisory Group members will be requested on an ad hoc basis.

Participation in the Advisory Group will be open to financial institutions who participated in the original Sustainable STEEL Principles Working Group (2021–22), as well as to additional users of the Sustainable STEEL Principles. All users will be invited to join the Advisory Group. However, the number of members is capped at 10 and priority will be given to members of the Sustainable STEEL Principles Working Group and banks who adopted the methodology at its inception.

Prior to the Advisory Group annual meeting, RMI will determine whether to recommend updates to the framework. To inform this recommendation, RMI will survey the sector to identify whether material changes have occurred across other methodologies, scenarios, or data availability, as well as sectoral and climate finance initiatives.

If an update is determined to be necessary, RMI will conduct the work to update the framework in consultation with external stakeholders. Consultation will entail engaging industry members, civil society, and other financial institutions to source feedback on the use of the framework and the proposed updates. Advisory Group members are expected to support RMI in the consultation process; however, RMI will be the developer and the ultimate decision-making authority on the methodology updates.

XII. Appendices

XII.1 Technical guidance for the calculation of Emissions Intensity and Scrap Charge used in steel production

Introduction

Under the Sustainable STEEL Principles, Users will request data on their Borrowers' Total Production, absolute emissions, Emissions Intensity and Scrap Charge, which is the fraction of Scrap-based Inputs used in steel production. All Borrower-level information will be aggregated and anonymized, resulting in an overall Portfolio Alignment Score for each lender. No information on individual steelmaker Emissions Intensity, Scrap Charge, or climate alignment will be disclosed publicly.

The following section outlines the requirements and guidelines steel producers should follow when calculating their Emissions Intensity and Scrap Charge to report to the Sustainable STEEL Principles Users.

Emissions Reporting Requirements

To calculate the alignment of a steel-producing client per the methodology outlined in *Section V, Principle 1: Standardized assessment of climate alignment*, Users request the following data points from steelmakers on an annual basis:

1. Emissions Intensity of steel production,
2. Absolute emissions
3. The fraction of Scrap-Based Input in production (Scrap Charge)

This information is required to be reported at the group-level, or at the asset-level in the case of Dedicated Financings. See *Section IV, Financial Scope*. To assist Borrowers in disclosing this data, the *Emissions Reporting Template* can be used (which can be requested from RMI and also found on the Sustainable STEEL Principles website). This spreadsheet is intended exclusively for the purposes of the Borrower to assist in performing the calculations of the above requested data. The completed spreadsheet is not required to be shared with lenders.

In addition to these data points, Users will request data from clients on their publicly stated emissions reduction targets, specifically:

1. A net-zero target by 2050 at the group-level for scope 1 and scope 2 emissions, and
2. An interim target at the group-level for 2030 or earlier for scope 1 and scope 2 emissions.

Clients will be asked to disclose these targets to Users. Users will aggregate these values and weigh them by exposure to determine the percentage of their portfolio that has committed to net-zero by 2050, and the percentage of their portfolio that has committed to interim targets by 2030.

Emissions Intensity of Steel Production

Steelmakers should report an Emissions Intensity at the group-level per *Appendix XII.1, Technical guidance (In-Scope Counterparties and Reporting),* and *Section IV, Financial Scope*, and at the asset-level per *Appendix XII.1, Technical guidance (In-Scope Counterparties and Reporting)* and *Section IV, Financial Scope* in the case of Dedicated Financings.

An Emissions Intensity is total carbon dioxide emissions—including Direct Emissions, Indirect Emissions, and Credits per the scope defined in *Appendix XII.1, Technical guidance (Scope),* and the calculation methodology outlined in *Appendix XII.1, Technical guidance (Emissions Calculation Requirements)*—divided by the Tons of Steel Produced from the steelmaking processes shown in Exhibit 15.

Absolute CO_2 emissions are total carbon dioxide emissions—including Direct Emissions, Indirect Emissions, and Credits per the scope defined in *Appendix XII.1, Technical guidance (Scope),* and the calculation methodology outlined in *Appendix XII.1, Technical guidance (Emissions Calculation Requirements).*

Tons of Steel Produced is defined as tons of final steel product from any of the downstream processes included in the Fixed System Boundary, as shown in Exhibit 15. Non-integrated producers, where they are unable to collect data on steel products produced from downstream processors, may report on tons of crude steel produced as a proxy.

Ore-based Input and Scrap-based Input

Two iron metallic inputs are used to produce steel: iron ore and its derivatives (Ore-based Input) and Scrap-based Input, or steel available for reprocessing. The CO_2 intensity Benchmark a Group or a Plant must meet to be considered aligned per *Section V.2, Benchmarking emissions*, will be adjusted for the Scrap Charge used in a given year. The Scrap Charge is calculated based on the total metallic inputs used in production, per the methodology outlined in *Appendix XII.1, Technical guidance (Scrap Charge Calculation Methodology)*. For simplicity, Users consider Scrap-based Input to be composed of 100% iron.

In-Scope Counterparties and Reporting

As detailed in *Section IV, Financial Scope*, counterparties are defined as in-scope for reporting purposes if they:

I. Produce a minimum of 250 kilotons p.a. of crude steel at the group-level, (inclusive of the entity and all Subsidiaries on an aggregate basis), but not any parent entity, and
II. Generate 20% or more of total revenue through Crude Steelmaking Activities at the group-level (i.e., inclusive of the entity and all Subsidiaries on an aggregate basis).

Crude Steelmaking Activities are the production of crude steel, as well as the sale of processed steel products using crude steel produced in-house by the same counterparty. A counterparty which

generates all its revenue through the sale of steel products that were manufactured using crude steel purchased from a third party (i.e., a re-roller), is not considered in-scope.

Per *Section IV, Financial Scope*, a counterparty is considered to have a Subsidiary if it holds an ownership stake of 50% or more of the voting equity of another entity.

Furthermore, a financing is in-scope for reporting if it:

- Is provided to an In-Scope Counterparty; or
- Is provided to any Financial Company or Trading Company and covered by a Parent Guarantee provided by an In-Scope Counterparty. In such cases, the Borrower on the financing will be responsible for reporting on the emissions of the parent's steel production.

A Financial Company is defined as a company that is not a bank and that is organized to provide or raise credit for operations that fall within the Fixed System Boundary (Exhibit 15). A Trading Company is defined as a company organized to carry on commerce with crude steel and processed steel products.

Group-level data will be used by the Users to calculate their clients' alignment, unless a Financing is a Dedicated Financing, in which case asset-level data—or data from a financed steel production Plant—may be used per *Section IV, Financial Scope*.

Scope

1) Fixed System Boundary

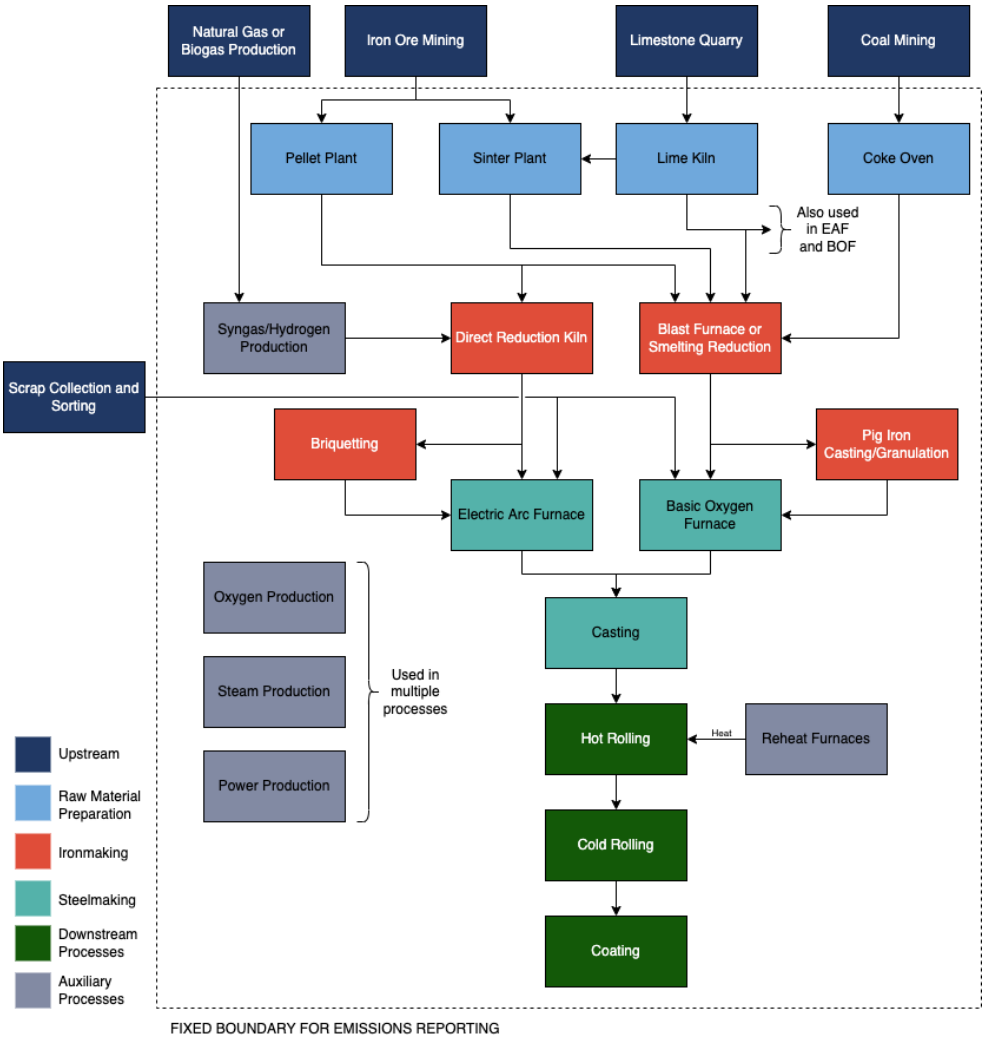
Steelmakers are asked to report on all emissions within the processes outlined in Exhibit 15, whether they occur onsite or are Imported to the Plant, including raw materials preparation, ironmaking, steelmaking, and auxiliary processes (Fixed System Boundary).

To ensure all emissions within the Fixed System Boundary are captured, non-vertically integrated producers can use standard emissions factors provided in *Appendix XII.1, Technical guidance (Data Sources)*, if unable to secure Primary Emissions Data from their suppliers or off takers. Non-vertically integrated producers and integrated producers are treated alike and are required to report all the emissions within the Fixed System Boundary both onsite and imported.

Steel producers or iron ore miners with assets or processes that cross the Fixed System Boundary may use reasonable and generally accepted assumptions or measurements to separate emissions from those assets and processes in order to map to the SSP's boundary.

Stainless steel is excluded from SSP reporting as it is not covered under the SSP benchmarks. The production of its ferroalloy inputs involves distinct processes and significant variations in emissions intensity, making it incompatible with SSP methodologies. SSP will continue to assess sectoral developments that may inform future updates.

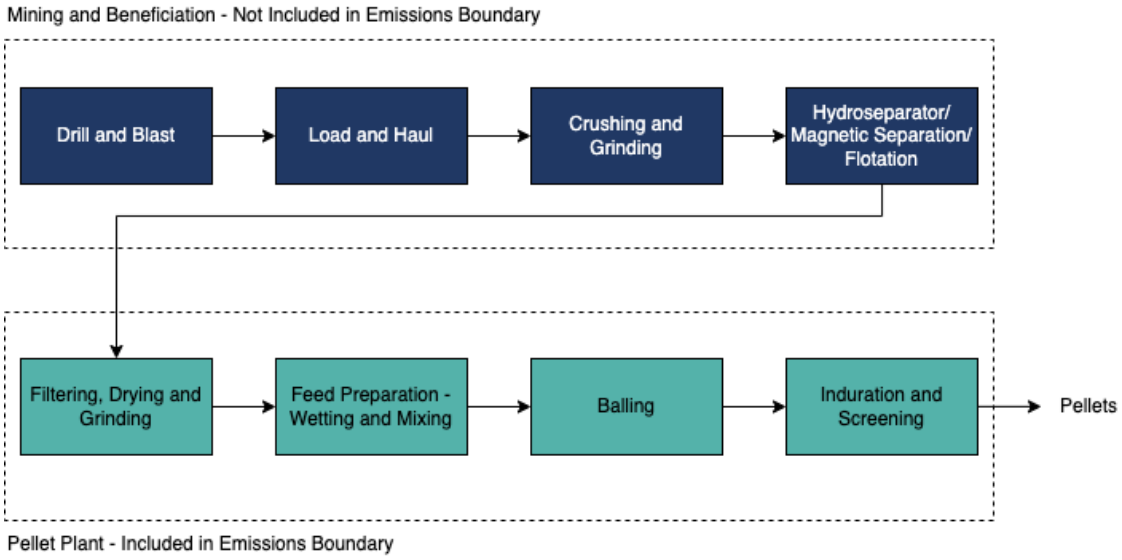
Exhibit 15. Fixed System Boundary of the Sustainable STEEL Principles



Source: RMI's elaborations based on ISO 14404, the Net-Zero Steel Pathways Methodology Project, the World Steel Association, and ACT (Assessing Low Carbon Transition).

Note that iron ore mining and beneficiation are not included in the Fixed System Boundary. For clarity, the definition of Pellet Plant Operations is based on the European Union's Best Available Techniques reference documents (BREFs) and is proposed as "any drying and grinding steps that occur after the upgrading (e.g., via magnetic separation, flotation, etc.) of the iron ore as well as feed preparation (e.g., wetting and mixing with binders), balling, induration, and screening steps to produce pellets." This definition is illustrated in Exhibit 16.

Exhibit 16. Pellet Plant Boundary



2) Direct and Indirect Emissions

Per the Fixed System Boundary outlined in *Appendix XII.1, Technical guidance (Fixed System Boundary)*, steelmakers must report their Direct Emissions and Indirect Emissions. For each Plant, the definitions of Direct and Indirect Emissions are partially based on the categories of Emissions Sources as defined by ISO 14404, specifically:

- Direct – refers to emissions from fuel sources and electricity use occurring within a steel Plant, where the emissions factor is defined based on the carbon intensity of that fuel source/electricity generation.
- Indirect – refers to emissions that occur outside of a steel Plant (for example, if pellets are Imported). These emissions should be determined by the relevant producer/consumer and transferred to the steel company. Where this is not possible, average emissions factors can be used per *Appendix XII.1, Technical guidance (Data Sources),* and *Section, XII.1.16, Annex*. Note that this is an expansion of the categories defined in ISO 14404 and include downstream processes (such as rolling), which may not be performed on the steelmaking Plant but need to be included to comply with the Fixed System Boundary outlined in *XII.1.7, Fixed System Boundary*. Transport emissions are not included.

3) Credits

Credits refer to CO_2 emissions which should be subtracted from the overall CO_2 emissions estimate of a group and/or a Plant, following the calculation methodology outlined in *Appendix XII.1, Technical guidance (Credit Methodology).* Credits will only be considered for Exports of Intermediate Products outside of the Plant which are also usable in the steel supply chain (e.g., pellet, sinter, lime, and coke). Intermediate Products are all liquids and solids generated during the raw materials preparation processes and ironmaking processes listed in Exhibit 15.

For example, if a Plant operates a pellet Plant that also Exports some pellets, the emissions associated with producing the Exported pellets can be Credited. This ensures that only the emissions from pellets consumed in steelmaking onsite are included in a group or a Plant's Emissions Intensity. The emissions of the Exported pellets would instead be included within the Fixed System Boundary of the purchaser's or user's Emissions Intensity calculation.

Exported by-products (e.g., blast furnace slag), which cannot be used in the steel supply chain, are therefore not eligible to be considered as Credits. Changes in inventory (i.e., stock increases or decreases) of Intermediate Products are not considered positive or negative Credits.

Off-gases (e.g., coke oven gas, blast furnace gas, basic oxygen furnace gas, etc.) can be combusted to produce heat or electricity. In the case where Off-gases are used for electricity generation, no Credit is applied to the Exported electricity as the electricity is being used outside the steel supply chain. Refer to *Appendix XII.1, Technical guidance (Electricity Emissions Factor)*, for additional calculation details.

Emissions Calculation Guidelines

1) Emissions Methodology

The calculation procedure is adapted from and expanded based on the ISO 14404 series, which is the standard used by the steel industry to calculate emissions at the Plant level specifically:

$$E_{CO2} = \sum_{t=1}^{N} K_{t,d,CO2} \times Q_{t,d,CO2} + \sum_{t=1}^{N} K_{t,i,CO2} \times Q_{t,i,CO2} - \sum_{t=1}^{N} K_{t,c,CO2} \times Q_{t,c,CO2}$$

Where t (from 1 through N) refers to each fuel, energy, or other input (Emissions Source); K refers to emissions factors as defined in *Appendix XII.1, Technical guidance (Electricity Emissions Factor)*, *Appendix XII.1, Technical guidance (Data Sources)*, and *Appendix XII.1, Technical guidance (Annex)*; Q refers to Plant quantity; and d, i, and c refer to Direct, Indirect, and Credit Emissions respectively as defined in *Appendix XII.1, Technical guidance (Direct and Indirect Emissions)* and *Appendix XII.1, Technical guidance (Credits)*.

This calculation provides the overall emissions which is converted to an intensity figure by dividing by the Tons of Steel Produced:

$$I_{co2} = \frac{E_{co2}}{M_{total}}$$

Where I_{co2} refers to carbon Emissions Intensity, E_{co2} refers to total emissions; and M_{total} refers to total Tons of Steel Produced.

At the group-level, the Emissions Intensity is then calculated through a weighted average of emissions among Plants owned by the steelmaker by Tons of Steel Produced. Per *Section IV, Financial Scope*, reporting must occur for Plants directly owned by the steelmaker and its

Subsidiaries, as well as those Plants that are directly owned by the In-Scope Counterparty of the Financing, which may be a parent company. When aggregating emissions at the group-level, a Borrower is responsible for reporting on:

I. The emissions of the Plants that it owns directly, weighted by the Borrower's ownership percentage in those Plants.

II. The emissions of the Plants that it owns indirectly through a Subsidiary[33], weighted by the ownership percentage of the Subsidiary in those Plants.[34]

III. The emissions of the Plants that are owned directly by a parent company, if the Borrower is a Financial or Trading Company and the provided financing is covered by a Parent Guarantee given by an In-Scope Counterparty, weighted by the ownership percentage of the parent company in those Plants.[35,36] While the Borrower may have difficulty reporting on the relevant emissions data in this case, a User may always rely on data provided by a third-party data provider, as detailed in *Section VII, Principle 3: Enactment*.

This aggregation methodology applies to the reporting of Scrap Charge as well. Please refer to the next section for more details on the *Scrap Charge Calculation Methodology*.

[33] As defined in *Section IV. Financial Scope*, a Borrower is considered to have a Subsidiary if it holds a direct or indirect ownership stake of 50% or more of the voting equity of another entity, or otherwise controls another entity.
[34] As per the guidance provided, a Borrower is not required to report on the emissions of Plants that it indirectly owns through an entity that is not a Subsidiary (e.g., a minority equity stake in another steelmaker). Conversely, a Borrower is responsible for reporting on the full emissions that are attributable to a Subsidiary, even if the ownership stake of the Borrower in the Subsidiary is only 50%. As a result, Borrowers do not have to report on entities in which they have minority stakes but no operational control.
[35] When a Financial or Trading Company Borrower is reporting on Plants owned by an In-Scope Counterparty parent that has provided a Parent Guarantee on the Financing, the Borrower will be responsible for reporting on the full emissions attributable to the parent company, whether the parent is a full owner of the Borrower or not.
[36] If the Borrower is an In-Scope Counterparty, then the Borrower will only be responsible for reporting on its group-level steel production emissions (i.e., exclusive of any parent company emissions), regardless of whether a Parent Guarantee is provided on the financing by another In-Scope Counterparty.

Exhibit 17. Group-level Aggregation Example

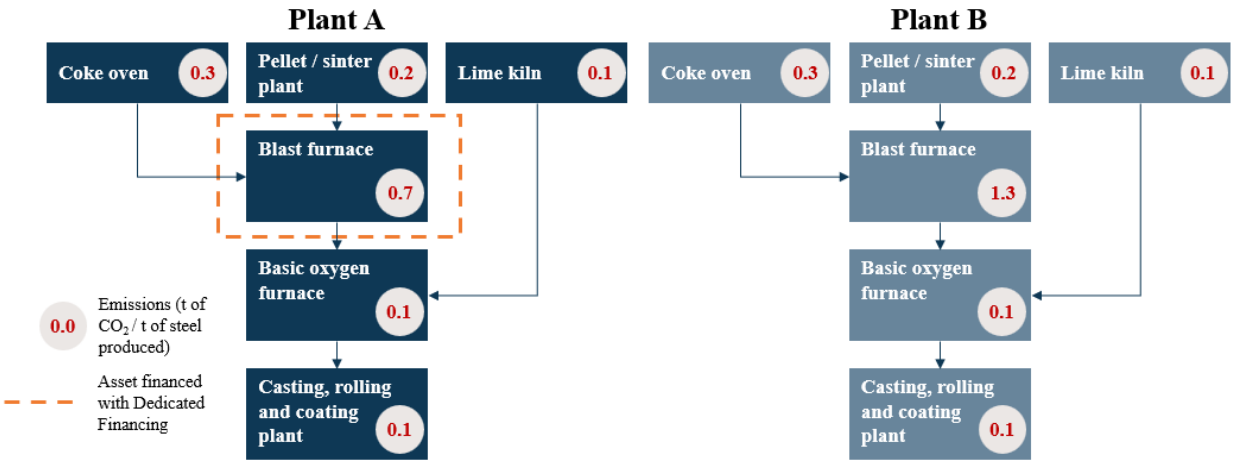
Borrower	Assets owned	Plant ownership percentage *(%)*	Plant-level Emissions Intensity 2022 *(t of CO_2/ t of steel produced)*	Plant-level Scrap Charge 2022 *(%)*	Production 2022 *(kilotons)*	Ownership weighted production 2022 *(kilotons)*	Group-level Emissions Intensity 2022 *(t of CO_2/ t of steel produced)*	Group-level Scrap Charge 2022 *(%)*
Borrower Y	Plant A	100%	2.30	5%	500	500 * 100% = 500	(2.30 * (500 / 1125)) + (2.90 * (250 / 1125)) + (2.25 * (375 / 1125)) = **2.42**	(5% * (500 / 1125)) + (0% * (250 / 1125)) + (15% * (375 / 1125)) = **7%**
	Plant B	50%	2.90	0%	500	500 * 50% = 250		
Steelmaker Z (60% owned by Borrower Y)	Plant C	75%	2.25	15%	500	500 * 75% = 375		

Exhibit 17 illustrates the calculations performed by steelmakers to calculate their group-level Emissions Intensity and Scrap Charge. The example demonstrates group-level aggregation for Borrower Y with a steelmaker Subsidiary (Steelmaker Z). Each entity has varying ownership stakes in three total steelmaking Plants. The group-level Emissions Intensity and Scrap Charge is weighted by production, and then weighted by ownership stake.

In this example, Borrower Y would calculate its group-level Emissions Intensity using 100% of the production at Plant A, 50% of the production at Plant B, and 75% of the production at Plant C, even though it only owns 60% of Steelmaker Z. Steelmaker Z is a subsidiary of Borrower Y, since the Borrower owns more than 50% of the company, and therefore Borrower Y is responsible for reporting on steelmaker Z's full stake in Plant C (i.e., 75% of total production of Plant C). Borrowers only disclose the group-level Emissions Intensity and Scrap Charge data to lenders unless the lender is reporting at the asset-level on a Dedicated Financing (see Section IV.3). No Borrower data, whether reported at the group-level or at the asset-level, is made publicly available by the lender.

When reporting on Dedicated Financings, asset-level emissions data may be requested by the User to determine the alignment of the Plant to the Benchmark, which will be calculated separately from the group-level Alignment Scores. Refer to *Section IV, Financial Scope* for details on when this is applicable. Asset-level data is defined as the emissions of the financed asset, as well as all emissions upstream and downstream within the Fixed System Boundary (Exhibit 15) generated by assets that directly supply or are supplied by the financed asset. Reporting on upstream and downstream assets can be done using actual emissions, or with Emissions Factors included in the *Appendix XII.1, Technical guidance (Annex)*.

Exhibit 18. Asset-level reporting



In Exhibit 18, Plant A and Plant B are owned by the same steelmaker, who received a Dedicated Financing to retrofit the blast furnace at Plant A. If the lender wishes to use asset-level reporting, only the assets which specifically supply or are supplied by the financed blast furnace need to be included in the emissions reporting. In this case, the User would report an Emissions Intensity of 1.5 tons of CO_2 per ton of steel produced (from the emissions of the coke oven, and pellet/sinter Plant that supply the blast furnace, as well as the emissions from the basic oxygen furnace, casting, rolling and coating Plant, and lime kiln).

If the User wishes to use group-level reporting, the Emissions Intensity of the steelmaker's production across both Plants would need to be included and the User would take an average of the Emissions Intensity of Plant A (1.5 tons of CO_2 per ton of steel produced) and Plant B (2.1 tons of CO_2 per ton of steel produced), weighted by the production at each Plant.

2) Scrap Charge Calculation Methodology

Per the methodology outlined in *Section V, Standardized assessment of climate alignment*, the share of Ore-based and Scrap-based metallic Inputs (Scrap Charge) used at a given steel production Plant each year is also required to define the CO_2 Benchmark against which a group's emissions will be compared to assess alignment.

Scrap-based Input is used steel available for reprocessing and it typically sourced as either:

- Pre-consumer Scrap – defined as material diverted as a waste stream during manufacturing (e.g., off-cuts from a stamping process). Pre-consumer Scrap is further categorized as Home Scrap when it is generated at the same Plant that produces steel or Prompt Scrap (or manufacturing scrap) when it is generated from subsequent manufacturing Plants.
- Post-consumer Scrap – defined as material recovered from steel containing products which have reached end-of-life (e.g., recycling of steel from defunct automobiles).

To standardize and simplify reporting on Scrap-Based Inputs each year, Users will require reporting only on purchased Pre- and Post-consumer External Scrap from the previous year. Any scrap that is sold by the Plant is to be subtracted from the purchased External Scrap to ensure that Home Scrap is not counted. The Ore-based Inputs are based on the mass and iron content of purchased product (i.e., iron ore, pellets, sinter, pig iron and DRI/HBI). As such, the calculation for the Scrap Charge becomes:

$$F_s = \frac{M_s}{(M_S + \sum_{i=1}^{N} M_i \times x_i)}$$

Where M_s is the mass of scrap (defined as mass of purchased External Scrap minus the mass of sold Home Scrap), M_i and x_i is the mass and iron grade respectively of each Ore-based Input used.

3) Credit Methodology

Only emissions from Intermediate Products which are Exported from a Plant and usable in the steel supply chain (as defined in *Appendix XII.1, Technical guidance* (*Credits*)) can be considered Credits. An example of the Credit calculation is provided in Exhibit 19.

Exhibit 19: Example Calculation for Intermediate Product Credits

Parameter	**Value**
Total pellet production (Mt)	4.0
Total emissions to produce pellets (Mt CO_2)	0.5
Pellet Emissions Intensity (t CO_2/t pellets)	0.125 = (0.5 / 4.0)
Pellets Exported (Mt)	1.0
Total Plant emissions (Mt CO_2) before Credit	5.625
Exported pellets Credit (Mt CO_2)	0.125 = (0.125 * 1.0)
Total Plant emissions (Mt CO_2) after Credit	5.5

4) Electricity Emissions Factor

The Greenhouse Gas Protocol (GHG Protocol) provides two methods for determination of an electricity emissions factor: Location-based and Market-based. The Location-based Emissions Factor is determined using the average emissions for the grid where the consumer is located, whereas the Market-based Emissions Factor accounts for contractual mechanisms (e.g., renewable energy certificates) that a consumer may use to reduce electricity emissions.

The GHG Protocol encourages companies to report electricity emissions using both methods, as each provides different information. For reporting under these Principles, Location-based Emissions Factors are preferred. Market-based Emissions Factors may be used, except for electricity produced from Exported Off-gases.

For Location-based emissions, the latest available carbon intensity data should be provided from a reliable and verifiable source in the following order of priority: local Plant data, regional data, and national data from the International Energy Agency (IEA) or other official government source if IEA data is not available. Market-based mechanisms should comply with the quality criteria

outlined in the GHG Protocol (Scope 2 addendum) to convey reliable emissions data. The seven criteria include requirements on date of energy generation, energy mix, geographic boundary etc.[37]

Steelmakers often use Off-gases to produce electricity. Generally, the steelmaker will use these Off-gases to produce electricity either via:

- Onsite electricity generation, which is owned and operated by the steel producer, or
- Selling the Off-gas to an independent power producer (IPP) located adjacent to the steel Plant, and then purchasing the electricity back from the IPP.

In either case, all emissions associated with the Off-gases should be reported by the steelmaker. This is achieved by accounting for all fuel source inputs to processes which produce Off-gas and not applying any Credit for Off-gases which are Exported, as stated in *Appendix XII.1, Technical guidance (Credits)*.

For steel producers which Exported Off-gases to an IPP, a calculation is required to determine if the steel production is a net-producer or consumer of electricity (for onsite producers, this is likely not required as electricity Export or Imports to/from the grid would be metered).

Steel producers need to measure the volume of Off-gases Exported and combine this with both measured energy content and conversion efficiency (reported by the IPP), or by using the default values in Exhibit 20. The total amount of electricity generated from the Exported Off-gases will be the sum of the energy content for each Off-gas, multiplied by the volume of each Off-gas Exported, multiplied by the conversion efficiency.

[37] GHG Protocol Scope 2 Guidance: Section 7.5 Additional Guidance on Scope 2 Quality Criteria.

Exhibit 20: Default Values for Electricity Calculations

Parameter	Unit	Value	Source
Coke ovens gas energy content	GJ/Nm³	19	World Steel Association
Blast furnace gas energy content	GJ/Nm³	3.3	World Steel Association
BOF gas energy content	GJ/Nm³	8.4	World Steel Association
Conversion efficiency	%	37	World Steel Association

Where the total amount of electricity produced from Off-gas Exports exceeds the total electricity consumed by any facility within the Fixed System Boundary, which is covered by the contract with the IPP, the steel producer should report the emissions from all the fuel consumed (as this will be inclusive of the emissions in subsequent combustion of the Off-gases). Conversely, where the total amount of electricity produced from Off-gases is less than the total electricity consumed, the Location- or Market-based Emissions Factor should be applied to the net Import of electricity (emissions from the Off-gas combustion are again captured based on the fuel used in each process).

Note that a steelmaker shall not use a Market-based Emissions Factor to reduce the emissions from Off-gases-based electricity generation.

5) Data Sources

To ensure that emissions performance-based purchasing decisions support the transition to low-carbon steelmaking, it is necessary to use data provided directly from the entity responsible for those emissions (Primary Emissions Data) within the Fixed System Boundary.

When Primary Emissions Data is not available, steelmakers can use the standard emission factors provided by the Intergovernmental Panel on Climate Change (IPCC) and World Steel Association instead, detailed in the Annex.

Annex

Direct/Indirect[38]	CO_2 Emissions Source	Unit	Emissions Factor (tCO_2/unit)[39]	Source	Emission Factor Type
Direct Emissions Factors	Coking coal	t	3.06	World Steel Association	Solid Fuel Sources
	Ironmaking coal[2]	t	2.953	World Steel Association	
	Sinter/BOF coal	t	2.785	World Steel Association	
	Steam coal	t	2.462	World Steel Association / IPCC	
	Charcoal	t	0.000	World Steel Association / IPCC	
	Coke	t	3.257	World Steel Association	
	Petroleum coke	t	3.188	IPCC	
	EAF coal	t	3.257	World Steel Association	
	Light oil	m^3	2.601	World Steel Association	Liquid and Gas Fuel Sources
	Heavy oil	m^3	2.907	World Steel Association	
	Diesel	t	3.151	IPCC	
	LPG	t	2.985	World Steel Association	
	Natural gas	t	2.675	IPCC	
	Iron Ore	t	0.037	World Steel Association	Other Inputs
	Limestone	t	0.44	IPCC	
	Dolomite	t	0.476	IPCC	
	EAF electrodes	t	3.663	World Steel Association	
	Pig iron	t	0.172	World Steel Association	
	DRI/HBI (Coal)	t	0.073	World Steel Association	
	DRI/HBI (Gas)	t	0.073	World Steel Association	
Indirect Emissions Factors	Pellet	t	0.137	World Steel Association	
	Sinter	t	0.262	World Steel Association	
	Pig iron	t	1.855	World Steel Association	
	DRI/HBI (Gas)	t	0.78	World Steel Association	
	DRI/HBI (Coal)	t	1.21	World Steel Association	
	Coke	t	0.224	World Steel Association	
	EAF electrodes	t	0.65	World Steel Association	
	Burnt lime	t	0.95	World Steel Association	

[38] For some sources both a direct and indirect emissions factor should be applied.
[39] This list will be updated following developments from World Steel Association and the Intergovernmental Panel on Climate Change.

	Burnt dolomite	t	1.1	World Steel Association	
	Oxygen	t	0.27	World Steel Association	
	Nitrogen	t	0.089	World Steel Association	
	Argon	t	0.063	World Steel Association	
	Self-generation	MWh	1.9	EPA Emissions Factors for 70/30 COG and BF gas mix with 37% conversion efficiency	
	Grid based	MWh	0.438	IEA NZE	
	Steam	t	0.195	World Steel Association	
	Rolling	t	0.084	Backes et al., 2021	

XII.2 Financial Scope: relevant NAICS and NACE codes

Exhibit 21: STEEL NAICS Codes

212210	Iron Ore Mining
331110	Iron and Steel Mills and Ferroalloy Manufacturing
331210	Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel
331221	Rolled Steel Shape Manufacturing
331511	Iron Foundries
331513	Steel Foundries (except Investment)
332111	Iron and Steel Forging

Exhibit 22: STEEL NACE Codes

C.24.1	Manufacture of basic iron and steel and of ferro-alloys
C.24.2	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel
C.24.3	Manufacture of other products of first processing of steel
B7.1	Mining of iron ores
C.24.51	Casting of iron
C.24.52	Casting of steel

XII.3 Third-party data

A Request for Quotation (RFQ) process was conducted to identify suitable third-party data providers for Users of the Sustainable STEEL Principles. The goal was to assess the availability, accuracy, and applicability of commercial data offerings that best align with the Sustainable STEEL Principles' methodology. This process adhered to fair, reasonable, and non-discriminatory (FRAND) principles to ensure an objective evaluation.

Each response to the RFQ was assessed against three broad criteria:

- **Data quality and coverage** – The provider's ability to offer comprehensive, accurate, and globally relevant steel sector emissions, production, and scrap utilization data.
- **Methodological alignment and usability** – The ability to calibrate, aggregate, and structure data in line with the SSP methodology, including ownership and reporting boundary considerations.
- **Clarity and reporting support** – The strength of the provider's technical proposal, transparency in reporting parameters, and ability to facilitate streamlined disclosures for financial institutions.

Through this evaluation, CRU emerged as the best-aligned data provider for the SSP framework. However, we expect this list to expand as additional providers are evaluated.

While there is no requirement to use a specific provider, Users of the SSP should disclose the third-party data sources they rely on in their reporting. This ensures transparency and comparability while allowing institutions the flexibility to select data sources that best suit their needs.

XII.4 Consultation process and stakeholder participation

Climate-Aligned Finance Working Group on Steel

Background: Facilitated by RMI's Center for Climate-Aligned Finance, the Steel Climate-Aligned Finance Working Group, comprised of ING, Société Générale, Citi, Standard Chartered, and UniCredit, designed the Sustainable STEEL Principles. To ensure the framework reflected the market realities of the sector, some of the largest steel companies, technical experts, and over 20 additional banks provided input to the various components of the Principles.

Stakeholder involvement: At each juncture, the Working Group consulted with peer banks to gain broader insights, sought consensus from clients to garner industry support, and requested input from technical experts to ensure the framework optimizes for the correct incentive structure to decarbonize the steel sector.

Consultations:

- Methodology: The first consultation process to gather feedback on the proposed methodology was conducted over four months and included five webinars. The aim of the consultation was to gauge stakeholder support for the Fixed System Boundary and decision to differentiate between emissions from primary and secondary steel production through separate Emissions Intensity Benchmarks.

- Roadmap: The consultation on the roadmap (i.e., the Benchmark utilized to gauge the alignment of steelmakers) was conducted over the course of six months and included four webinars, numerous bilateral engagements, and the collection of written feedback from over twenty institutions. It was during this process that the Working Group developed and refined the Alignment Zone.

- Financial scope: The Financial Scope was developed over five months during which draft proposals were shared and written feedback was collected from ten financial institutions. As a result of these engagements, asset-level reporting and the reference to industry standard classification systems were included in the framework, among other suggestions.

- Forward-looking indicator: Representatives from the Expert Committee were consulted during the development of the forward-looking indicator, which is to be reported on an optional basis. While a simple indicator was selected for the methodology, its limitations are acknowledged and the Sustainable STEEL Principles Steering Committee will plan to explore more complete and actionable indicators in the future.

- Technical guidance: The technical guidance was reviewed by three steelmakers—two of which ran a mock implementation—as well as two members of the Expert Committee. The guidance was developed to closely match existing reporting standards such as the World Steel Association’s, and was noted by steelmakers to be straightforward and intuitive.

The following stakeholders participated across the various consultation processes:

- Review Group: Bank of America, Barclays, BNP Paribas, Commerzbank, Deutsche Bank, European Bank for Reconstruction and Development, JPMorgan Chase, Mizuho, MUFG, Rabobank, Raiffeisen Bank International, SMTB, Swedbank, TD Bank, and Wells Fargo; with participation from Allianz, London Stock Exchange Group, Nordea Life & Pensions, and Wellington

- Industry Group: ArcelorMittal, JSW Steel, and US Steel; with participation from BlueScope Steel

- Additional industry representatives that provided feedback: DITH, Gerdau, Tata Steel, The Japan Iron and Steel Federation, and World Steel Association

- Expert Committee Members: 2° Investing Initiative, Ceres, Climate Bonds Initiative, CRU, Energy Transitions Commission, Glasgow Financial Alliance for Net Zero, Net Zero Asset Managers Initiative, Net-Zero Asset Owner Alliance, ResponsibleSteel, Science Based Targets Initiative, Transition Pathway Initiative, United Nations Environment Programme Finance Initiative, and the World Economic Forum

XII.5 Glossary

Acquisition Finance: the provision of financing for the acquisition of a Project or a Project company which exclusively owns, or has a majority shareholding in a Project, and over which the client has Effective Operational Control.

Advisory Group: Group of financial institutions and potentially other stakeholders engaged in guiding updates to the SSP framework. The Advisory Group provides input on technical and methodological updates to ensure the framework remains relevant as the steel sector evolves. Members commit to an annual meeting and may be consulted on an ad hoc basis. Participation is open to financial institutions that were part of the original Sustainable STEEL Principles Working Group (2021–22) and additional users, with membership capped at 10. While the group advises on updates, RMI remains responsible for developing and making final decisions on methodology revisions.

Alignment Score: Either the weighted average Emissions Intensity of a steelmaker or portfolio scored in reference to the International Energy Agency Net-Zero by 2050 Scenario, or the weighted average Emissions Intensity of a steelmaker or portfolio scored in reference to two net-zero by 2050 roadmaps—the International Energy Agency Net-Zero by 2050 Scenario and the Mission Possible Partnership's Technology Moratorium scenario—as per the methodology of the Sustainable STEEL principles.

Alignment Zone: The Alignment Zone plots out two emissions reduction scenarios (Benchmarks) for the steel sector reaching net-zero emissions in 2050 using two scenarios. The lower scenario is the International Energy Agency Net-Zero by 2050 Scenario, while the upper scenario is the Mission Possible Partnership's Technology Moratorium scenario, one of several scenarios within the Steel Sector Transition Strategy Model.

Benchmark: CO_2 intensity benchmark a group or a Plant must meet to be considered aligned per *Section V.2, Benchmarking emissions.*

Borrower: an entity that borrows, or seeks to borrow, money from a lender or bank, including any party liable for the loan except for Guarantors.

Bridge Loan: loan with a tenor of less than two years that is intended to be Refinanced by Project Finance or a Project-Related Corporate Loan.

Climate Alignment Score: a measure of the distance between a Borrower's actual Emissions Intensity and the Emissions Intensity of the Benchmark, corrected for the Borrower's Scrap Charge. The Climate Alignment Score is calculated as a ratio between the Emissions Delta and the Zone Delta.

Credits: CO_2 emissions which should be subtracted from the overall CO_2 emissions estimate of a group and/or a Plant; applies to Intermediate Products that are usable within the steel supply chain but are Exported to operations outside the Fixed System Boundary.

Crude Steelmaking Activities: the sale of steel products manufactured using crude steel produced in-house by the same counterparty.

Direct Emissions: emissions from fuel sources and electricity use occurring within a steel Plant, where the emissions factor is defined based on the carbon intensity of that fuel source/electricity generation.

Effective Operational Control: includes both direct control (as operator or major shareholder) of the Project by the client and indirect control (e.g., where a Subsidiary of the client operates the Project).

Emissions Delta: part of the Alignment Score calculations, defined as the difference between actual emissions and the emissions prescribed by the IEA NZE, weighted by the percentage of primary and secondary production.

Emissions Intensity: total carbon dioxide emissions—including Direct Emissions, Indirect Emissions, and Credits per the scope defined in *Appendix XII.1, Technical guidance (Direct and Indirect Emissions* and *Credits)*—divided by the Tons of Steel Produced from the steelmaking processes of the Fixed System Boundary defined in *Appendix XII.1, Technical guidance (Fixed System Boundary)*. Tons of Steel Produced is defined as tons of final steel product from any of the downstream processes included in the Fixed System Boundary. Non-integrated producers, where they are unable to collect data on steel products produced from downstream processors, may report on tons of crude steel produced as a proxy.

Emissions Source: process emitting CO2 during the production of steel products.

Export: Intermediate Products that are produced in a Plant within the Fixed System Boundary and are transferred outside the Plant for use elsewhere.

External Scrap: purchased Pre- or Post-consumer Scrap.

Financial Close: the date on which all conditions precedent to initial drawing of the debt have been satisfied or waived.

Financial Company: a company that is not a bank and that is organized to provide or raise credit for operations that fall within the Fixed System Boundary of the STEEL Principles.

Fixed System Boundary: all processes whether onsite or Imported outlined in Exhibit 15, including raw materials preparation, ironmaking, steelmaking, and auxiliary processes.

Guarantor: entity that has provided a Parent Guarantee, see definition of Parent Guarantee.

Home Scrap: Pre-consumer Scrap generated at the same Plant that produces steel.

Import: Intermediate Products that are outsourced and brought into the Plant to produce steel.

Indirect Emissions: emissions that occur outside of a steel Plant but within the Fixed System Boundary outlined in *Appendix XII.1, Technical guidance (Fixed System Boundary)*. Transport emissions are not included.

In-Scope Counterparty: a counterparty that produces a minimum of 250 kilotons p.a. of crude steel and Crude Steelmaking Activities represent 20% or more of its total revenue. If a counterparty is a diversified producer that is currently producing crude steel, they are considered an In-Scope Counterparty only if Crude Steelmaking Activities represent 20% or more of total revenue.

In-Scope Financing: a financing provided to an In-Scope Counterparty or to a Financial or Trading Company and covered by the Parent Guarantee of an In-Scope Counterparty.

Intermediate Product: all liquids and solids generated during the raw materials preparation processes and ironmaking processes listed in Exhibit 15.

Known Use of Proceeds: the information provided by the client on how the borrowings will be used.

Location-based Emissions Factor: accounts for average emission factors for the electricity grids where the consumer is located.

Market-based Emissions Factor: accounts for contractual mechanisms (e.g., renewable energy certificates) that a consumer may use to reduce electricity emissions.

Off-gases: coke oven gas, blast furnace gas, basic oxygen furnace gas, etc.

Operational: when used in reference to a steel production site, operational is defined as producing crude steel for the purposes of generating revenue

Ore-based Input: iron ore and its derivatives (i.e., pellets, sinter, pig iron and DRI/HBI).

Parent Guarantee: a guarantee of payment and performance to the lender of the obligations, monetary or otherwise, incurred by a Subsidiary under the agreement for the Financing if the Subsidiary fails to perform on those obligations.

Pellet Plant Operations: any drying and grinding steps that occur after the upgrading (e.g., via magnetic separation, flotation, etc.) of the iron ore as well as feed preparation (e.g., wetting and mixing with binders), balling, induration and screening steps to produce pellets.

Plant: steel production site.

Portfolio Alignment Score: a measure of the climate alignment of a User's steel lending portfolio, calculated as a Climate Alignment Score, by taking a weighted average of the Emissions Intensity and Scrap Charge of the portfolio, weighted by exposure to each Borrower.

Post-consumer Scrap: scrap recovered from steel contained products at the end of life.

Pre-consumer Scrap: waste produced during manufacturing processes, with Home Scrap.

generated on the same Plant of the steel production and Prompt Scrap generated from subsequent manufacturing Plants.

Primary Emissions Data: emissions data gathered directly from the supplier.

Project: a development in any sector at an identified location (the location does not need to be contiguous – a Project may be located over one or more geographic areas). It includes an expansion or upgrade of an existing operation. Projects can include new developments, expansions, or upgrades both in greenfield areas or previously developed areas. In the case of export credit agency-supported transactions, the new commercial, infrastructure or industrial undertaking to which the export is intended will be considered the Project.

Project Completion: the date at which a Project has been finished, functions, and performs according to certain pre-defined measures (usually defined in a completion test). After this date the Project's cash flows become the primary method of repayment.

Project Finance: a method of financing in which the lender looks primarily to the revenues generated by a Project, both as the source of repayment and as security for the exposure. In such transactions, the lender is usually paid solely or almost exclusively out of the money generated by the contracts for the Project's output. The client is usually a special purpose vehicle that is not permitted to perform any function other than developing, owning, and operating the installation. The consequence is that repayment depends primarily on the Project's cash flow and on the collateral value of the Project's assets.

Project-Related Corporate Loans: corporate loans, made to business entities (either privately, publicly, or state-owned or controlled) related to a Project, either a new development or expansion (e.g., where there is an expanded footprint), where the Known Use of Proceeds is related to a Project in one of the following ways:

I. The lender looks primarily to the revenues generated by the Project as the source of repayment (as in Project Finance) and where security exists in the form of a corporate or parent company guarantee;
II. Documentation for the loan indicates that the majority of the proceeds of the total loan are directed to the Project. Such documentation may include the term sheet, information memorandum, credit agreement, or other representations provided by the client into its intended use of proceeds for the loan.

This includes loans to government-owned corporations and other legal entities created by a government to undertake commercial activities on behalf of the government.

Prompt Scrap: Pre-consumer Scrap generated from subsequent manufacturing Plants.

Refinance: the process of replacing an existing loan with a new loan, where the new loan will be used to pay out (retire) an existing loan, and that loan is not near or in default.

Scrap Charge: the share of Ore-based and Scrap-based metallic Inputs.

Scrap-based Input: scrap or used steel available for reprocessing.

Subsidiary: an entity is considered to have a Subsidiary if it holds a direct or indirect ownership stake of 50% or more of the voting equity of another entity or otherwise controls another entity.

Tons of Steel Produced: tons of final steel product outputs of the rolling and coating stages of the Fixed System Boundary (Exhibit 15). Non-integrated producers, who are not involved in these final stages, are able to report on tons of crude steel produced as a proxy.

Trading Company: a company organized to carry on commerce with crude steel and processed steel products.

User (of the framework): A financial institution that applies the SSP framework to assess and disclose the climate alignment of its steel sector portfolio, support the transition of its clients, and integrate climate considerations into its overall institutional strategy.

Zone Delta: The difference between the Benchmark emissions prescribed by the MPP TM and the Benchmark emissions prescribed by the IEA NZE, used to calculate the Alignment Score.

XIII. References

[i] International Energy Agency, "Iron and Steel Technology Roadmap," October 2020, https://www.iea.org/reports/iron-and-steel-technology-roadmap

[ii] Mission Possible Partnership, "Net-Zero Steel Sector Transition Strategy," October 2021, https://missionpossiblepartnership.org/wp-content/uploads/2021/10/MPP-Steel_Transition-Strategy-Oct19-2021.pdf

[iii] International Energy Agency, "Iron and Steel Technology Roadmap," October 2020, https://www.iea.org/reports/iron-and-steel-technology-roadmap

[iv] Gregory C. Unruh, "Understanding carbon lock-in," *Energy Policy, Volume 28, Issue 12,* October 2000, https://doi.org/10.1016/S0301-4215(00)00070-7

[v] World Steel Association, "Sustainability Indicators," https://worldsteel.org/steel-by-topic/sustainability/sustainability-indicators/

[vi] ResponsibleSteel, "ResponsibleSteel Standard Version 1.1," June 2021, https://www.responsiblesteel.org/standard/

[vii] Science Based Targets Initiative, "Sectoral Decarbonization Approach (SDA): A method for setting corporate emission reduction targets in line with climate science," May 2015, https://sciencebasedtargets.org/resources/files/Sectoral-Decarbonization-Approach-Report.pdf

[viii] The Net-Zero Steel Pathway Methodology Project, "Final Report and Recommendations," July 2021, https://netzerosteelpathwayproject.com/

[ix] Ibid

[x] Greenhouse Gas Protocol, https://ghgprotocol.org/

[xi] The Net-Zero Steel Pathway Methodology Project, "Final Report and Recommendations," July 2021, https://netzerosteelpathwayproject.com/

[xii] International Energy Agency, "Net Zero by 2050: A Roadmap for the Global Energy Sector," May 2021, https://www.iea.org/reports/net-zero-by-2050

[xiii] Mission Possible Partnership, "Net-Zero Steel Sector Transition Strategy," October 2021, https://missionpossiblepartnership.org/wp-content/uploads/2021/10/MPP-Steel_Transition-Strategy-Oct19-2021.pdf

[xiv] International Energy Agency, *Net Zero by 2050*, IEA, 2021.

[xv] Box 1 in Mission Possible Partnership, "Net-Zero Steel Sector Transition Strategy" October 2021, https://www.energy-transitions.org/wp-content/uploads/2021/12/MPP-Steel_Transition-Strategy.pdf.

[xvi] Task Force on Climate Related Financial Disclosures Portfolio Alignment Team "Measuring Portfolio Alignment," June 2021, https://www.tcfdhub.org/wp-content/uploads/2021/10/PAT_Measuring_Portfolio_Alignment_Technical_Considerations.pdf

[xvii] Ibid

[xviii] Science Based Targets Initiative, "Financial Sector Science-Based Targets Guidance: Version 1.0," February 2022, https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf