1.5°C SCIENCE-BASED TARGET-SETTING IN THE STEEL SECTOR

GUIDANCE LAUNCH WEBINAR

19 September 2023
VIDEO-CONFERENCE GUIDELINES

● This is a **Zoom webinar**. Your camera and microphone are automatically muted.

● Participants can **send questions via the Q&A button**.

● **Slides from this webinar will be shared** after this call.

● Please note that this webinar will be **recorded** for the benefit of those who cannot attend.
AGENDA

1. Welcome
2. Opening remarks
3. Introduction to the SBTi
4. The SBTi Steel Guidance
   - Development process and applicability
   - Pathways and core boundaries
   - Criteria and target-setting methods
5. Q&A Session
6. Closing remarks
TODAY’S WEBINAR TEAM

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OPENING REMARKS
SCIENCE-BASED TARGETS FOR STEEL

OPENING REMARKS

Alberto Carrillo Pineda
Chief Technical Officer
SBTi
INTRODUCTION TO THE SCIENCE BASED TARGETS INITIATIVE (SBTi)
INTRODUCTION TO THE SBTi

WHAT IS THE SCIENCE BASED TARGETS INITIATIVE?

The Science Based Targets initiative (SBTi) drives ambitious corporate climate action by enabling businesses and financial institutions globally to set science-based greenhouse gas emissions reduction targets.
INTRODUCTION TO THE SBTi

PROGRESS TO DATE

To learn more about the progress in science-based targets globally, consult the SBTi Monitoring Report 2022.

3,451 companies with science-based targets

5,997 companies taking action

2,399 net-zero commitments
THE NET-ZERO STANDARD FRAMEWORK

To set near-term science-based targets:
5-10 year emission reduction targets in line with 1.5°C pathways*

To set long-term science-based targets:
Target to reduce emissions to a residual level in line with 1.5°C scenarios by no later than 2050

Beyond value chain mitigation:
In the transition to net-zero, companies should take action to mitigate emissions beyond their value chains. For example, purchasing high-quality, jurisdictional REDD+ credits or investing in direct air capture (DAC) and geologic storage

Neutralization of residual emissions:
GHGs released into the atmosphere when the company has achieved their long-term SBT must be counterbalanced through the permanent removal and storage of carbon from the atmosphere

*Note: it is still possible to set a near-term SBT only, without a long-term target

By 2050 at the latest
5 to 10 years

1.5°C-aligned emissions pathway

Abatement within the value chain
Removals
Abatement or removals beyond a company’s value chain
Net-zero emissions

1
2
3
4

1
2
3
4

Required
Recommended

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Note: an absolute contraction pathway for 1.5°C has already been derived by the SBTi and requires a minimum 4.2% linear annual reduction or a 42% reduction over 2020-2030, whichever is higher.
DEVELOPMENT OF THE SBTi STEEL GUIDANCE

- Project ran from Nov 2021 - July 2023.
- Expert Advisory Group made up of diverse set of stakeholders accompanied the project.
- 60-day public consultation.
- SBTi internal review.
- Published July 2023.

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<th>Expert Advisory Group members</th>
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<td>Aceros AZA S.A.</td>
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<td>Nippon Steel Corporation</td>
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<td>Aperam</td>
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<td>Outokumpu Oyj</td>
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<tr>
<td>ArcelorMittal</td>
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<tr>
<td>Ovako</td>
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<td>Baoshan Iron &amp; Steel Co Ltd (Baosteel)</td>
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<td>POSCO</td>
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<td>Bellona</td>
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<td>Potsdam Institute for Climate Impact Research</td>
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<td>BlueScope Steel Limited</td>
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<td>ResponsibleSteel</td>
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<td>Cleveland Cliffs</td>
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<td>Rocky Mountain Institute (RMI)</td>
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<td>Severstal PAO</td>
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<td>Energy Transitions Commission (ETC)</td>
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<td>Tata Steel</td>
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<td>Environmental Coalition on Standards (ECOS)</td>
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<td>JSW Steel Ltd</td>
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<td>World Steel Association</td>
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<td>Liberty Steel UK</td>
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<td>WWF (Finland)</td>
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On 15 September 2022, the SBTi and Mission Possible Partnership announced a technical collaboration.

The SBTi Seel Project is first time MPP work has been leveraged, through technical partnership with Energy Transitions Commission.
EMISSIONS BUDGET AND ALLOCATION AMONG SECTORS

**CARBON BUDGET**
Determine global and sector budget greenhouse gases to stay below 1.5°C

**EMISSIONS ALLOCATION ACROSS SECTORS**
In our pathways, the remaining CO₂ budget for energy and industrial process CO₂ emissions aligned with 15°C is 450-480 GT CO₂

**IRON & STEEL SECTOR**
2020-2050 carbon budget used by the SBTi to assess 15°C pathway is between 20-40 GT CO₂
WHAT DOES THE SBTi STEEL GUIDANCE & TOOLS COVER?

**UPSTREAM**
- Iron ore suppliers
- Ferroalloys producers
- Scrap producers

**IRON & STEEL PRODUCERS**
- Ore-based steel producers
- Scrap-based steel producers

**DOWNSTREAM**
- Financial Institution
- Automotive companies
- Construction
THE SBTi STEEL GUIDANCE: PATHWAYS AND CORE BOUNDARIES
MAIN FEATURES OF THE STEEL GUIDANCE

- **Fixed system boundary**
- **Split pathways**
- **Scrap-input-dependent pathways**
MUTIPLE PATHWAYS WERE REVIEWED IN ORDER TO PROVIDE AMBITIOUS, YET REALISTIC BASIS FOR TARGET-SETTING

Annual iron & steel sector emissions
MtCO₂

- 2020 values vary significantly which is driven mainly by differences in emission system boundaries.
- Pathways exhibit large differences when it comes to projected ambition level, especially by 2030, which is impacted by assumptions on technology availability and model optimization logic.
- Total budget and emission trajectory are crucial inputs into SBTi target-setting methodology.

Note: scenarios use different system boundaries for their emissions and should not be compared one-to-one

Note 1: Based on linear interpolation of available datapoints
Note 2: Only direct emissions related to iron- & steelmaking
## Iron & Steel Core Boundary

### Inputs
- Iron and steel scrap collection and sorting
- Upstream transport
- Iron ore mining
- Coal mining
- Extraction of natural gas
- Power production (imported)
- Production of H₂/Syngas
- Production of other petroleum products
- Production of biomass and biogas
- Limestone mining
- Non-ferrous ore mining
- Ferroalloys production

### Iron & Steel making
- Coke making
- Sintering
- Blast furnace
- Basic oxygen furnace
- Casting
- DRI
- Oxygen plant
- Lime production
- Pelletisation
- Boilers and Power Plant (surplus gas)
- Smelting reduction
- Electric arc furnace
- Secondary metallurgy

### Downstream processing
- Hot rolling
- Cold rolling
- Coating

### Downstream value chain
- Emissions from exported off-gases
- Export of power
- Export of Blast Furnace Slag
- Downstream transport
- Fabrication

- **System boundary ensures consistent treatment of all processes required to make steel regardless of whether they are in companies’ scope 1, 2, or 3.**

- **Upstream fossil fuel-related emissions have been excluded from the boundary due to large data uncertainty, but mandatory scope 3 target was proposed instead.**

- **Hot rolling was included due to it being the last emission intense step shared by vast majority of steel products.**
IEA NZE was selected as the reference pathway based on the balance of credibility and feasibility criteria.

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MtCO₂

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ORE- AND SCRAP-BASED PRODUCTION PRESENT FUNDAMENTALLY DIFFERENT EMISSIONS PROFILES – HENCE THE PATHWAY WAS SPLIT WHILE PRESERVING THE BUDGET

Average emission intensity of steel production – single pathway  kgCO$_2$eq/t hot rolled product

Average emission intensity of steel production – split pathway  kgCO$_2$eq/t hot rolled product

Implied carbon budget = ~53 GtCO$_2$

Ore-based budget = ~46 GtCO$_2$
Scrap-based budget = ~7 GtCO$_2$
Total = ~53 GtCO$_2$
THE BENEFIT OF INCREASING SCRAP USE IS SPREAD ACROSS THE WHOLE INDUSTRY

Emission intensity pathways of ore- and scrap-based production

- Baseline ore-based
- Mild increase in scrap availability
- Scrap-based
- Large increase in scrap availability

-16% and -29%
IF A COMPANY INCREASES SCRAP USE IN THE MIDDLE OF TARGET PERIOD, THE TARGET ADJUSTS TO PREVENT DOUBLE-COUNTING OF THE SCRAP BENEFIT

Emission intensity pathways of example ore-based producer

Producer progressively replaced 50% of ore-based production with scrap-based
MAIN FEATURES OF THE SBTi STEEL GUIDANCE

- **Fixed system boundary** ensures that all material GHG emission sources are covered by 1.5°C ambition, regardless of asset ownership (going beyond the traditional scope 1, 2 and 3).

- The reference pathway was selected based on multiple expert interactions, adjusted to the core system boundary, and **split into ore-based and scrap-based reference pathways** in recognition of the fundamental differences of the two techniques.

- **Scrap-input dependent pathways**: Scrap steel is treated as global common good, which benefits are recognized at the sector rather than company level, given its unequal distribution between industrialized and industrializing economies.
THE SBTi STEEL GUIDANCE: CRITERIA AND TARGET-SETTING METHODS
## EXAMPLES OF USING THE SCRAP-INPUT DEPENDENT PATHWAY FOR DIFFERENT TYPES OF COMPANIES

<table>
<thead>
<tr>
<th>Company</th>
<th>Production type (stable scrap share between target year and base year except E)</th>
<th>Base year (2020) emission intensity (kg CO2eq/t hot rolled steel)</th>
<th>Required intensity reduction by 2030 vs 2020 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100% scrap-based</td>
<td>500</td>
<td>26.1%</td>
</tr>
<tr>
<td>B</td>
<td>100% scrap-based</td>
<td>800</td>
<td>28.8%</td>
</tr>
<tr>
<td>C</td>
<td>0% scrap-based</td>
<td>2,500</td>
<td>29.4%</td>
</tr>
<tr>
<td>D</td>
<td>30% scrap-based</td>
<td>1,700</td>
<td>28.9%</td>
</tr>
<tr>
<td>E</td>
<td>0% scrap-based going to 20% scrap in target year</td>
<td>2,500</td>
<td>40.5%</td>
</tr>
</tbody>
</table>
Examples of target wordings

- Scope 1, 2 and 3 targets within the core boundary

- Emissions target outside the core boundary

- Other scope 3 target

Company E commits to reduce scope 1, 2 and 3 GHG emissions covered by the iron & steel core boundary 40.5% per tonne of hot rolled steel by 2030 from a 2020 base year. As the target calculation depends on the scrap ratio projection, company E will publish the scrap ratio associated with this target annually starting from the base year.

Company E also commits to reduce all other scope 1 and 2 GHG emissions 42% over the same timeframe.

Company E further commits to reduce scope 3 GHG emissions from fuel- and energy-related emissions 25% over the same timeframe.
Purchased intermediate product (e.g. hot briquetted iron HBI)

Sold intermediate product (e.g. surplus coke)

Upstream fuel- and energy-related emissions

Covering ferroalloys production

Criteria

SCOPE 3 COVERAGE | CRITERIA AND RECOMMENDATION
PURCHASED INTERMEDIATE PRODUCTS

- Include at least 95% of upstream emissions for purchased intermediate products falling within the core iron & steel SDA boundary.
- Irrespective of whether the share of these emissions is above the 40% threshold, or scope 3 coverage reached by other scope 3 targets.
- Accept reference emission factors, but actual data should always be used if available.
SOLD INTERMEDIATE PRODUCTS

Sold intermediate product (e.g. surplus coke)

- Include at least 95% of downstream emissions associated with the further processing of intermediate products falling within the core iron & steel SDA boundary.
- Irrespective of whether the share of these emissions is above the 40% threshold.
- Must expand its emissions associated with the production of hot rolled steel by using these intermediate products.
- Option to add further processing emissions without adjusting its activity to hot rolled steel.
- Accept reference emission factors, but actual data should always be used if available.
Upstream fuel- and energy-related emissions

- Include a scope 3 target that covers all scope 3 category 3 fuel- and energy-related emissions not included in scope 1 or scope 2 according to the GHG Protocol.
- Includes fuel and energy related emissions from e.g. extraction of iron ore, natural gas, metallurgical coal, etc.
- Upstream methane emissions.
FERROALLOYS PRODUCTION

Covering ferroalloys production

Recommendation

- Stainless or high-alloy steel company, near term targets should include a scope 3 target that covers category 1 “purchased goods and services” covering ferroalloy sourcing, irrespective of the share of the total scope 1, 2 & 3 emissions for which they are responsible.
UPSTREAM COMPANIES | TARGET-SETTING METHODS

- Cross-sector absolute reduction (2.5% annual reduction).
- Physical intensity (7% annual reduction).
- Economic intensity (7% annual reduction).
- Supplier engagement.

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DOWNSTREAM COMPANIES | TARGET-SETTING METHODS
RESOURCES FOR TARGET SETTING

THE SBTi STEEL GUIDANCE DOCUMENT, STEEL TARGET-SETTING TOOL AND WORKED EXAMPLES

**The SBTi Steel Guidance:**
provide methodology on how to set targets within a consistent core boundary according to the steel criteria

**Steel Target-Setting Tool:**
The tool calculates targets using the SDA method for emissions inside the iron & steel core boundary, as well as Steel SDA for steel purchasers

**Worked Examples:**
provide different worked examples to guide users in developing targets according to the SBTi Steel Guidance

**Recommendations on target wordings**

**Target submission**
Steel companies have up to **2 years** to develop their targets and have their targets approved and announced by the SBTi once they commit.

Previously committed steel companies will have **24 months** to submit their targets.

Submissions from the **first 5 steel companies**.

Contact the Project Team to express your interest! [aamirkhan@sciencebasedtargets.org](mailto:aamirkhan@sciencebasedtargets.org).

The target submission form and Steel Annex will be posted on the [SBTi steel webpage](http://sciencebasedtargets.org).
Q&A SESSION
CLOSING REMARKS
THE TIME TO ACT IS TODAY!

- We are urgently calling on all companies to set science-based net-zero targets.

- The new guidance and tools, as well as the recording of this webinar, can be found on the SBTi steel webpage.

- Companies are encouraged to take up the pilot validation slots.

- Should you have any questions, contact us at aamirkhan@sciencebasedtargets.org.
THANK YOU!