1.5°C SCIENCE BASED TARGET SETTING IN THE STEEL SECTOR

PUBLIC CONSULTATION WEBINAR

23 November 2022
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 and introduction - Amelie Tan / Paulina Tarrant
2. Introduction to the SBTi and background - Karl Downey
3. Steel criteria and guidance
   ○ Pathways and system boundary - Rafal Malinowski (ETC)
   ○ Steel criteria and consultation questions - Karl Downey & Brenda Chan
4. Q&A session
TODAY’S WEBINAR TEAM

KARL DOWNEY
Senior Technical Manager and industry lead
SBTi

BRENDA CHAN
Technical Manager, Steel
SBTi

AMELIE TAN
UK & WW Regional Manager
SBTi
(1st Session)

AAMIR KHAN
Project Officer
SBTi

PAULINA MORENO
Communications Manager
SBTi

PAULINA TARRANT
Net-Zero Engagement Manager
SBTi
(2nd Session)

RAFAL MALINOWSKI
Project Manager
ETC
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INTRODUCTION TO THE SBTi
What is the Science Based Targets initiative?

The Science Based Targets initiative (SBTi) is a **global body** enabling businesses and financial institutions to set **ambitious emissions reductions** targets in line with the **latest climate science**.
INTRODUCTION TO THE SBTi

Progress to date

To learn more about the progress of the initiative, consult the SBTi Progress Report 2021.

1,957 with science-based targets
4,061 companies taking action
1,510 net-zero commitments

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Companies with science-based targets are delivering emissions reductions at scale

- Reduced emissions by 29% between 2015-2020.
- 1.5B tonnes of annual CO$_2$e emissions covered by the SBTi.
- $38tn$ of global market capitalization.
- 70 countries and 15 industries.

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

THE NET-ZERO STANDARD FRAMEWORK

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TARGET-SETTING APPROACHES

Carbon intensity convergence / Sectoral Decarbonisation Approach (SDA)

Homogeneous sectors:
- Power
- Cement
- Iron & Steel
- Transport (some sectors)
- Buildings

Heterogeneous sectors:
- Other industry

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.
On 15 September 2022, the SBTi and Mission Possible Partnership announced a technical collaboration.
THE SBTi STEEL PROJECT
SBTi STEEL PROJECT

- Steel companies can already set well-below 2°C-aligned targets using the SBTi tools

- SBTi has launched this project to provide resources for companies to set 1.5°C-aligned targets:
  - 1.5°C pathway
  - Detailed target-setting rules
  - Near and long term targets

- Project timeline:
  Oct 2021 - April/May 2023
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceros AZA S.A.</td>
<td>Nippon Steel Corporation</td>
</tr>
<tr>
<td>Aperam</td>
<td>Outokumpu Oyi</td>
</tr>
<tr>
<td>ArcelorMittal</td>
<td>POSCO</td>
</tr>
<tr>
<td>Baoshan Iron &amp; Steel Co Ltd (Baosteel)</td>
<td>Potsdam Institute for Climate Impact Research</td>
</tr>
<tr>
<td>Bellona</td>
<td>Responsible Steel</td>
</tr>
<tr>
<td>BlueScope Steel Limited</td>
<td>Rocky Mountain Institute (RMI)</td>
</tr>
<tr>
<td>Cleveland-Cliffs Inc.</td>
<td>Severstal PAO</td>
</tr>
<tr>
<td>E3G</td>
<td>Tata Steel</td>
</tr>
<tr>
<td>Energy Transitions Commission (ETC)</td>
<td>Transition Pathway Initiative</td>
</tr>
<tr>
<td>Environmental Coalition on Standards (ECOS)</td>
<td>Vallourec</td>
</tr>
<tr>
<td>Gerdau</td>
<td>Voestalpine AG</td>
</tr>
<tr>
<td>Imperial College</td>
<td>World Steel Association</td>
</tr>
<tr>
<td>JSW Steel Ltd</td>
<td>WWF (Finland)</td>
</tr>
<tr>
<td>Liberty Steel</td>
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</tbody>
</table>
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Multiple pathways were reviewed in order to provide ambitious, yet realistic basis for target-setting

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

- 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

Annual iron & steel sector emissions
MtCO2

Cumulative 2020-50 emissions [GtCO2]

- 2020
- 2030
- 2050

-24%  -52%  -30%  -15%  -37%  -44%  -53%  -38%


41²  44¹  47  70  56  62¹  40¹  32¹,²

Note 1: Based on linear interpolation of available datapoints
Note 2: Only direct emissions related to Iron & Steelmaking
Multiple pathways were reviewed in order to provide ambitious, yet realistic basis for target-setting.

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Note 1: Based on linear interpolation of available datapoints
Note 2: Only direct emissions related to Iron- & Steelmaking
Hot rolled product boundary with some upstream elements captures most vital sources of emissions without overburdening companies.

- System boundary ensures consistent treatment of all processes required to make steel regardless of whether they are in companies’ scope 1, 2, or 3 (direct and indirect emissions).
- 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.
Ore- and scrap-based production present fundamentally different emissions profiles – hence the pathway was split.

Average emission intensity of steel production – single pathway

Average emission intensity of steel production – split pathway

Implied carbon budget = ~55 GtCO2

Ore-based budget = ~48 GtCO2
Scrap-based budget = ~7 GtCO2
Total = ~55 GtCO2
Scrap presents a critical decarbonization lever for all steelmaking that utilizes a proportion of ore-based metallics

### SENSITIVITY ANALYSIS (ILLUSTRATIVE)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Unit</th>
<th>Baseline</th>
<th>65% final scrap ratio&lt;sup&gt;1&lt;/sup&gt;</th>
<th>80% final scrap ratio&lt;sup&gt;1&lt;/sup&gt;</th>
<th>95% final scrap ratio&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ore-based budget</td>
<td>GtCO2</td>
<td>47.8</td>
<td>46.5</td>
<td>45.5</td>
<td>44.4</td>
</tr>
<tr>
<td>Scrap-based budget</td>
<td>GtCO2</td>
<td>7.0</td>
<td>8.2</td>
<td>9.3</td>
<td>10.4</td>
</tr>
<tr>
<td>Ore-based production</td>
<td>Mt hot rolled steel</td>
<td>35,947</td>
<td>30,571</td>
<td>26,022</td>
<td>21,473</td>
</tr>
<tr>
<td>Scrap-based production</td>
<td>Mt hot rolled steel</td>
<td>23,727</td>
<td>29,103</td>
<td>33,652</td>
<td>38,201</td>
</tr>
<tr>
<td>Ore-based budget per tonne of produced steel</td>
<td>kgCO2/t hot rolled steel</td>
<td>1,329</td>
<td>1,522</td>
<td>1,747</td>
<td>2,066</td>
</tr>
<tr>
<td>Scrap-based budget per t of produced steel</td>
<td>kgCO2/t hot rolled steel</td>
<td>293</td>
<td>282</td>
<td>276</td>
<td>272</td>
</tr>
<tr>
<td>Required average drop in emission intensity by 2030 for ore-based production</td>
<td>% vs 2020</td>
<td>-29%</td>
<td>-24%</td>
<td>-18%</td>
<td>-11%</td>
</tr>
</tbody>
</table>

Note 1: Assuming linear growth of scrap ratio between 2020 and 2050
Steelmaking assets will need to decarbonise irrespective of scrap use.

Illustrative emission intensity evolution of BF-BOF single producer – with sliding scale methodology kgCO2/t hot rolled product, switch to 30% scrap in 2030

<table>
<thead>
<tr>
<th>Metric</th>
<th>Emission intensity (kgCO2/t hot rolled product)</th>
<th>2030 reduction vs 2020 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting point</td>
<td>2,400</td>
<td>N/A</td>
</tr>
<tr>
<td>2030, zero scrap input</td>
<td>1,715</td>
<td>-29%</td>
</tr>
<tr>
<td>2030, 30% scrap input</td>
<td>1,328</td>
<td>-45%</td>
</tr>
<tr>
<td>2030 target adjustment resulting from scrap use</td>
<td>387</td>
<td>-16%</td>
</tr>
</tbody>
</table>
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CONSULTATION QUESTIONS

1. Do the guidance and pathway chosen sufficiently incentivise near-term emissions reductions in the steel industry?

2. Do you agree with the iron & steel core SDA boundary?

3. Do you agree with the use of a scrap-input-dependent approach, where the decarbonisation pathway for the sector is split into ore-based and scrap-based approaches, and company targets depend on their scrap ratio and how this changes over time?
### EXAMPLE TARGETS

<table>
<thead>
<tr>
<th>Company</th>
<th>Production type (stable between target year and base year except E, F)</th>
<th>Base year (2020) emission intensity (kg CO2eq/ts)</th>
<th>Required intensity reduction by 2030 vs 2020 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100% scrap-based EAF</td>
<td>500</td>
<td>26%</td>
</tr>
<tr>
<td>B</td>
<td>100% ore-based BF-BOF</td>
<td>2,400</td>
<td>29%</td>
</tr>
<tr>
<td>C</td>
<td>70% ore-based BF-BOF</td>
<td>1,700</td>
<td>29%</td>
</tr>
<tr>
<td>D</td>
<td>50% scrap, 50% HBI EAF</td>
<td>900</td>
<td>27%</td>
</tr>
<tr>
<td>E</td>
<td>90% ore-based going to 85% in target year</td>
<td>2,400</td>
<td>32%</td>
</tr>
<tr>
<td>F</td>
<td>100% ore-based going to 80% in target year</td>
<td>2,400</td>
<td>40%</td>
</tr>
</tbody>
</table>
“Company E commits to reducing scope 1, 2 and 3 GHG emissions covered by the iron & steel core SDA boundary by 32% per tonne of hot rolled steel by 2030 from a 2020 base year. The scrap share associated with this target increases 1.5 times over the target timeframe.”

“Company X also commits to reducing all other scope 1 and 2 GHG emissions by 42% over the same timeframe.”

“Company X further commits to reducing scope 3 GHG emissions from fuel and energy related emissions 25% over the same timeframe.”
“In the draft guidance, companies must declare the relative change in scrap input associated with their target calculation. This is to provide transparency about the basis on which the target was calculated. Do you agree with this approach?”
“In the draft guidance, all scrap entering the melt shop (including home scrap and externally purchased scrap) is considered in the scrap ratio. Do you agree how the scrap ratio is determined?”
Near-term steel company SBTs shall include at least 95% of suppliers’ emissions for purchased intermediate products falling within the core iron & steel SDA boundary, irrespective of whether the share of these emissions compared to the total scope 1, 2, and 3 emissions of the company is above 40%.
SCOPE 3 MANDATORY TARGETS

Near-term steel company SBTs shall include a scope 3 target that covers at least scope 3 Category 3 “Fuel- and energy-related emissions not included in scope 1 or scope 2” regardless of their share of the company’s total emissions.

- All relevant scope 3 target-setting methods may be used
- On a cradle-to-gate basis
- Mandatory

*Metallurgical coal is included under “coal mining”
High-alloy producers will have different emissions than carbon steel producers:

- Upstream production of ferro-alloys
- Process emissions during steelmaking from carbon content in ferro-alloys
Stainless or high-alloy steel company near-term SBTs should include a scope 3 target that covers at least scope 3 Category 1 “Purchased goods and services” covering ferro-alloy sourcing, irrespective of the share of the total scope 1, 2 and 3 emissions for which they are responsible.
“Due to the absence of ferro-alloy 1.5°C emissions pathways, high-alloy steel producers may use the steel pathways for their steel production and must use generic methods for ferro-alloy production (either scope 1 or 3). Do you agree with this approach?”
SCOPE 3: ADDITIONAL OPTIONAL COVERAGE

Company can also set scope 3 emissions targets outside the SDA boundary e.g. emissions from transport of scrap:

- All relevant scope 3 target-setting methods may be used
- Cradle-to-gate basis for upstream products
- Optional
### UPSTREAM AND DOWNSTREAM COMPANIES

<table>
<thead>
<tr>
<th>Activities</th>
<th>Target-setting methods</th>
<th>Ambition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron ore supplier</td>
<td>Iron &amp; Steel SDA</td>
<td>1.5°C</td>
</tr>
<tr>
<td></td>
<td>Other scope 3 methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Cross-sector absolute reduction (2.5% annual reduction)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Physical intensity (7% annual reduction)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Economic intensity (7% annual reduction)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Supplier engagement</td>
<td>Well-below 2°C</td>
</tr>
<tr>
<td>Hydrogen producer (considered sector agnostic product)</td>
<td>Cannot use the Iron &amp; Steel SDA unless they can prove their products are solely used for the iron and steel making</td>
<td>Well-below 2°C</td>
</tr>
<tr>
<td></td>
<td>- Use other scope 3 methods</td>
<td></td>
</tr>
<tr>
<td>Automaker, construction (purchased steel)</td>
<td>• Iron &amp; Steel SDA</td>
<td>1.5°C</td>
</tr>
<tr>
<td></td>
<td>Other scope 3 methods</td>
<td></td>
</tr>
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</tbody>
</table>
SUBMITTING TARGETS TO THE SBTi

- **Requirement:** The company shall provide justification of the growth projection used to calculate the target using the SDA

- **Recommendation:** Steel companies should disclose information such as near-term investments that demonstrate they commit to ensuring breakthrough technology relevant to meeting target ambition is available in the timeframe expected
**Recommendation:** Companies whose targets are expressed in intensity terms are recommended to publish also the absolute emissions reductions to be achieved by their targets, in order to:

- Demonstrate that intensity targets lead to absolute emissions reductions, and
- Demonstrate progress through the optimization of steel use
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We invite you to provide feedback on the SBTi Steel Guidance until 23 January 2023.

The guidance and materials can be found on the SBTi steel webpage: https://sciencebasedtargets.org/sectors/steel

Slides and a recording of this webinar will be available on the SBTi steel webpage.

Feedback will be considered by the SBTi project team and EAG, however, the SBTi does not guarantee all perspectives will be reflected in the final materials.
CONTACT US

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