1.5°C SCIENCE BASED TARGETS IN STEEL

Karl Downey, Senior Technical Manager & Industry lead Science Based Targets initiative (SBTi)

Worldsteel Open Forum
5 October 2022
● What part of the steel value chain is your company active? Primary/upstream, secondary or downstream?

● Have you heard of science-based targets (SBTs)?
CLIMATE CHANGE: RIGHT HERE, RIGHT NOW

El Aneto (3,404m), highest peak in the Pyrenees

1876  2013  2020  2022
### THE SCIENCE BEHIND AIMING TO KEEP WARMING TO 1.5°C

<table>
<thead>
<tr>
<th></th>
<th>1.5°C</th>
<th>2.0°C</th>
<th>2°C impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global population exposed to severe heat at least once every 5 years</td>
<td>14%</td>
<td>37%</td>
<td><strong>2.6x worse</strong></td>
</tr>
<tr>
<td>Number of ice-free arctic summers</td>
<td>At least 1 every 100 years</td>
<td>At least 1 every 10 years</td>
<td><strong>10x worse</strong></td>
</tr>
<tr>
<td>Further decline in coral reefs</td>
<td>70-90%</td>
<td>99%</td>
<td><strong>Up to 40% worse</strong></td>
</tr>
<tr>
<td>Decline in marine fisheries</td>
<td>1.5M tonnes</td>
<td>3M tonnes</td>
<td><strong>2x worse</strong></td>
</tr>
</tbody>
</table>

Despite understanding the severity of climate change impacts, current policies put us on track for **between 2.7–3.1°C**.

Source: Climate Action Tracker, May 2021 update
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) 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

SBTi COMPANIES NOW REPRESENT:

- 35% global market capitalization
- 27% high-impact companies
- 53M tonnes CO$_2$ total committed annual emissions reductions

- In 2021 the number of SBTi companies increased **three times faster** than in 2020.
  - 1,300+ companies set and committed to science-based targets.

Learn more about our progress: [SBTi Progress Report 2021](#).
WHAT ARE SCIENCE BASED TARGETS?
In 2015, 195 countries agreed to:

- **Limit global temperature increase** to well below 2°C and pursue efforts to limit it to 1.5°C.
- Increase the world’s ability to adapt to the adverse impacts of climate change and foster more **carbon efficient development**.
- Make finance flows consistent with a **low-emissions and climate-resilient** future.
A GHG budget is an estimate of the cumulative CO2, methane, and other Kyoto gases that can be emitted over a period of time, while limiting temperature rise to a specific amount. Budget calculations are highly sensitive to assumptions regarding climate sensitivity and likelihood of temperature outcome, despite the apparent simplicity.
Does your company have a “2050 decarbonisation plan” / “net-zero strategy” or similar?

Does your company buy offsets?
1. To set near-term science-based targets: 5-10 year emission reduction targets in line with $1.5^\circ$C pathways.

2. To set long-term science-based targets: Target to reduce emissions to a residual level in line with $1.5^\circ$C scenarios by no later than 2050.

3. 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.

4. 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.

Cross-sector 2020-30 reduction is 42%
Sector-specific reduction depends on sector
WHAT THE SBTi DOES (AND DOES NOT DO)

The SBTi *does*:  

- Provide the basis to validate company targets as ambitious enough to align with climate science: Emissions reductions of **how much** and **by when**:

  "Company X commits to reducing scope 1 and 2 GHG emissions by 42% by 2030 from a 2020 base year"

- Every company’s individual case is taken into account

SBTi *does not* provide:  

- Roadmap of technologies that should be used to meet targets
- Product-level certification or comparisons
SBTi STEEL PROJECT
The SBTi launched a project in November 2021 to provide resources for companies to set targets:

- 1.5°C pathway(s)
- Detailed target-setting rules
- Near and long-term targets

Three challenges:

1. 1.5°C emissions scenarios
2. Splitting pathways into ore-based and scrap-based activities
3. Defining core system boundary

ETC/MPP brought on as technical partner to help with technical work
STEEL PROJECT TIMELINE

<table>
<thead>
<tr>
<th>Event</th>
<th>Jan 22</th>
<th>Apr 22</th>
<th>Jul 22</th>
<th>Oct 22</th>
<th>Jan 23</th>
<th>Apr 23</th>
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</thead>
<tbody>
<tr>
<td>Convening the EAG and project kick-off</td>
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<td>Initial review of different scenarios, carbon</td>
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<tr>
<td>budgets, steel demand and reports</td>
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<tr>
<td>Review pathways (Technical partner)</td>
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<tr>
<td>Review target setting methodologies (Technical</td>
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<tr>
<td>partner)</td>
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<tr>
<td>Assess steel specific issues and drafting</td>
<td></td>
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<tr>
<td>recommendations for guidance (Technical partner)</td>
<td></td>
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<tr>
<td>Drafting the guidance</td>
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<tr>
<td>Public consultation</td>
<td></td>
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<tr>
<td>SBTi review and approval</td>
<td></td>
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<tr>
<td>Publication of final deliverables (tools and</td>
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<tr>
<td>guidance)</td>
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<td></td>
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<tr>
<td>Socialization of resources developed</td>
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</tbody>
</table>
IEA NZE and Roe et al. (2019) are used to derive carbon budget allocation across sectors for the maximum remaining budget of 500 GT CO$_2$. In other words, these studies define the upper bound of sectoral carbon budgets that must not be exceeded by target-setting pathways.

ETC reviewed emissions scenarios that would fit within this budget.

### CHALLENGE 1: EMISSIONS ALLOCATION ACROSS SECTORS

<table>
<thead>
<tr>
<th>Sector</th>
<th>2019 CO$_2$ emissions (GT CO$_2$)</th>
<th>2020-2050 CO$_2$ budget used by the SBTi to assess 1.5°C pathways (GT CO$_2$)</th>
<th>Share of 2020-2050 energy and industrial processes CO$_2$ budget relative to sector's share in 2019 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy supply</td>
<td>15.3</td>
<td>115-146</td>
<td>59-75</td>
</tr>
<tr>
<td>Electricity and heat</td>
<td>13.8</td>
<td>102-133</td>
<td>58-76</td>
</tr>
<tr>
<td>Transport</td>
<td>8.3</td>
<td>100-129</td>
<td>95-123</td>
</tr>
<tr>
<td>Road transport</td>
<td>6.1</td>
<td>73-91</td>
<td>92-117</td>
</tr>
<tr>
<td>Maritime transport</td>
<td>0.9</td>
<td>12-16</td>
<td>101-143</td>
</tr>
<tr>
<td>Aviation</td>
<td>1.0</td>
<td>15-19</td>
<td>110-147</td>
</tr>
<tr>
<td>Industry</td>
<td>8.9</td>
<td>134-153</td>
<td>116-135</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>2.5</td>
<td>20-40</td>
<td>62-126</td>
</tr>
<tr>
<td>Cement</td>
<td>2.5</td>
<td>35-41</td>
<td>109-131</td>
</tr>
<tr>
<td>Chemicals</td>
<td>1.3</td>
<td>13-26</td>
<td>73-153</td>
</tr>
<tr>
<td>Buildings</td>
<td>3.0</td>
<td>30-41</td>
<td>75-107</td>
</tr>
<tr>
<td>Residential buildings</td>
<td>2.0</td>
<td>20-30</td>
<td>74-117</td>
</tr>
<tr>
<td>Service buildings</td>
<td>1.0</td>
<td>10-11</td>
<td>76-89</td>
</tr>
<tr>
<td>Cross-sector total (CO$_2$ only)</td>
<td>35.5</td>
<td>450-480</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 1. 2020-2050 CO$_2$ emissions budgets used by the SBTi for the energy supply, transportation, industry, and buildings sectors. Budgets cover direct emissions only (i.e., scope 1) but when setting SBTIs, companies must set targets that also cover indirect emissions (i.e., scopes 2 and 3). Due to expected mitigation trade-offs across sectors, the lower bound of “Total” CO$_2$ emissions is higher than aggregating the lower bound of all sectors. 2019 CO$_2$ emissions data are sourced from IEA (2021). Sector-specific pathways in-line with the budget ranges in this table do not automatically qualify for use by the SBTi.
Split pathways must:
- Conserve sector carbon budget
- Incentivize:
  - Non-scrap-based emission reduction levers AND
  - increased scrap use AND
  - emission reduction in secondary production,
  - …without penalizing those who have already significantly decarbonized
CHALLENGE 3: CORE SYSTEM BOUNDARY

Inputs
- Upstream transport
- Iron and steel scrap collection and sorting
- Iron ore mining
- Coal mining
- Extraction of natural gas
- Power production (imported)
- Production of H2/Syngas
- Extraction 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
- Flaring

Iron & Steel making
- Secondary metallurgy

Downstream processing
- Hot rolling
- Lime production
- Pelletisation
- Boilers and Power Plant (surplus gas)
- Smelting reduction
- Electric arc furnace

Downstream value chain
- Emissions from exported off-gases
- Export of heat and power (credits)
- Export of BF slag (credits)
- Downstream transport
- Fabrication

Proposed SDA System Boundary
NEXT STEPS

• Finalization of technical questions
• Public consultation in November
• Publication in April 2023

SBTi generic methods available – leading companies do not tend to wait for sector pathways – even in the steel sector!

Companies are rewarded for not delaying to set targets by less challenging targets
WHY SBTs ARE THE NEW MUST-HAVE FOR COMPANIES
WHY SBTs ARE BECOMING A MUST-HAVE

**Investors & Finance**
Investors asking their portfolio companies to be "Paris-aligned" and have a credible transition plan
Sustainability-linked Bonds

**Clients**
Supplier engagement (targets)
"Preferred supplier"

**Reputation & risk**
ESG Ratings
Campaigns

**Compliance**
Future legislation
Public court cases
Selection of companies committed to set targets or with SBTi- approved targets.
ARE YOU A VISIONARY OR A PRAGMATIST?

Image source: Geoffrey Moore
We are urgently calling on all companies to set science-based net-zero targets.

- 963+ companies have already committed to net-zero through the Business Ambition for 1.5°C Campaign.
- You can commit now by signing the SBTi commitment letter*. 

*Companies have 24 months to submit targets.
THANK YOU!

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