

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

GUIDANCE LAUNCH WEBINAR

19 September 2023

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- **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
  - o Development process and applicability
  - o Pathways and core boundaries
  - o Criteria and target-setting methods
5. Q&A Session
6. Closing remarks

# TODAY'S WEBINAR TEAM



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**Communications Manager**  
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# OPENING REMARKS

Poll #2

# 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?



DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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**.

Founding Partners



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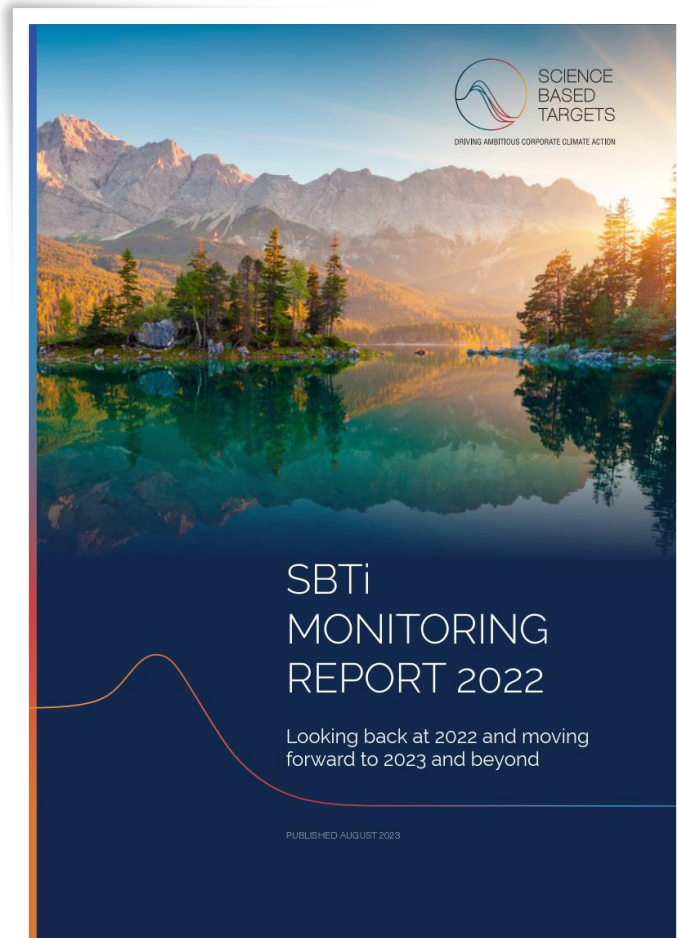
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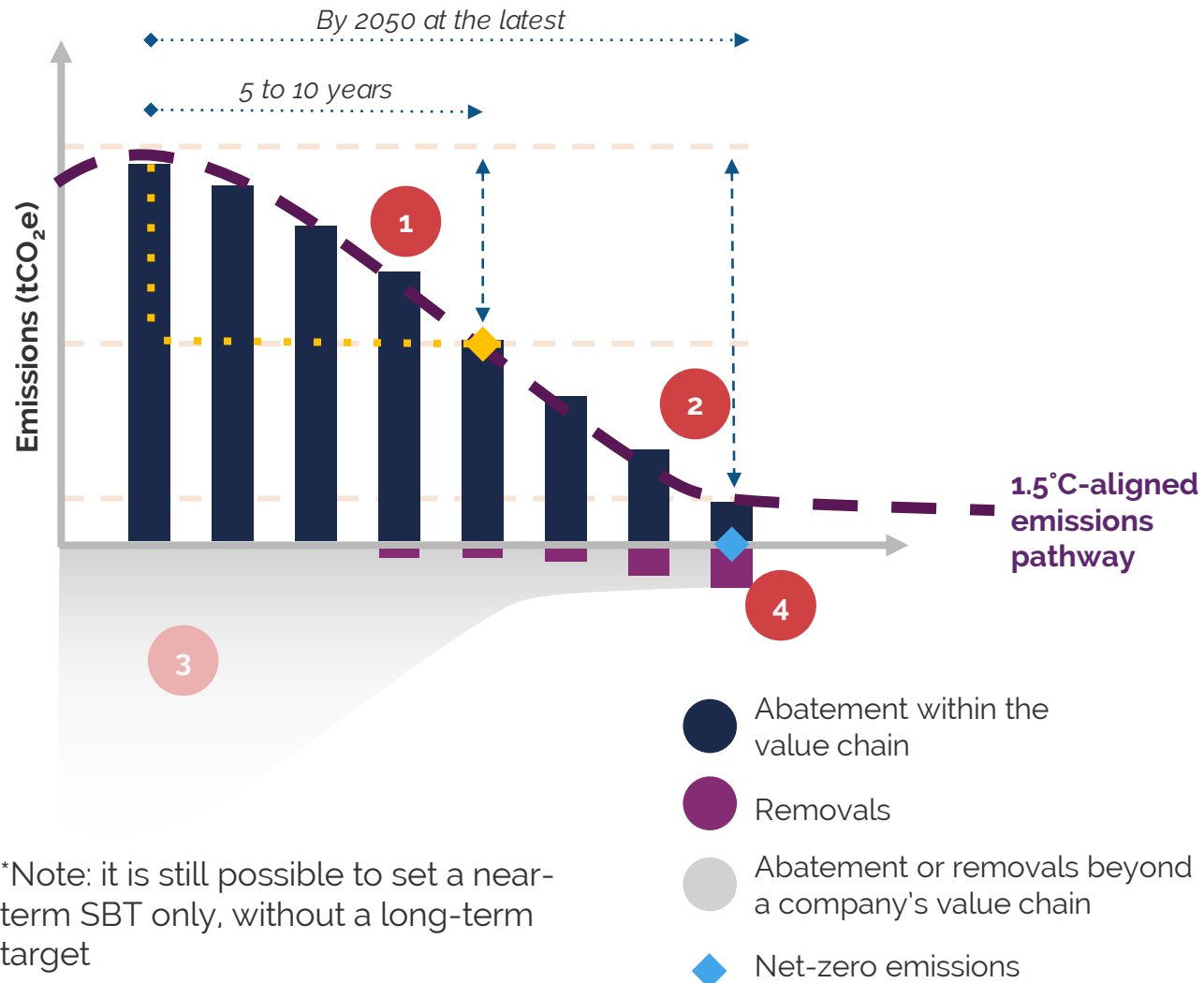
# INTRODUCTION TO THE SBTi

## PROGRESS TO DATE



To learn more about the progress in science-based targets globally, consult the [SBTi Monitoring Report 2022](#)

# THE NET-ZERO STANDARD FRAMEWORK



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

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

**2 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

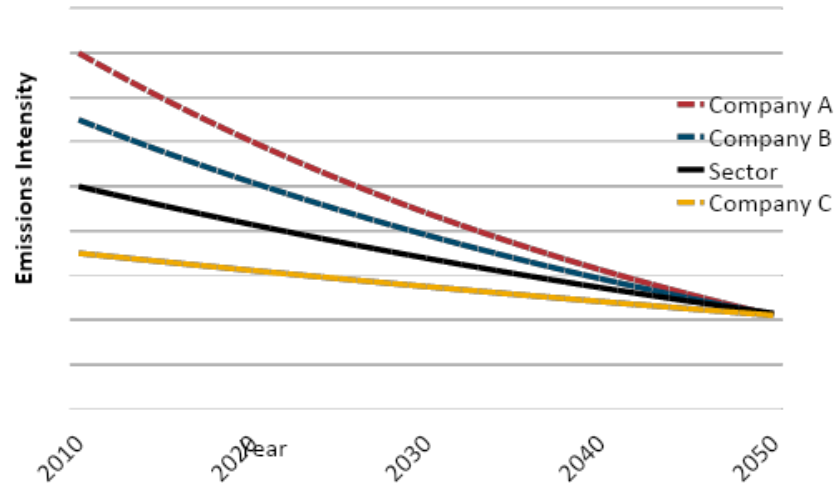
**Beyond value chain mitigation:**  
In the transition to net-zero, companies should take action to mitigate emissions beyond their value chains. For example, purchasing high-quality, jurisdictional REDD+ credits or investing in direct air capture (DAC) and geologic storage

**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

Required Recommended

# TARGET-SETTING APPROACHES

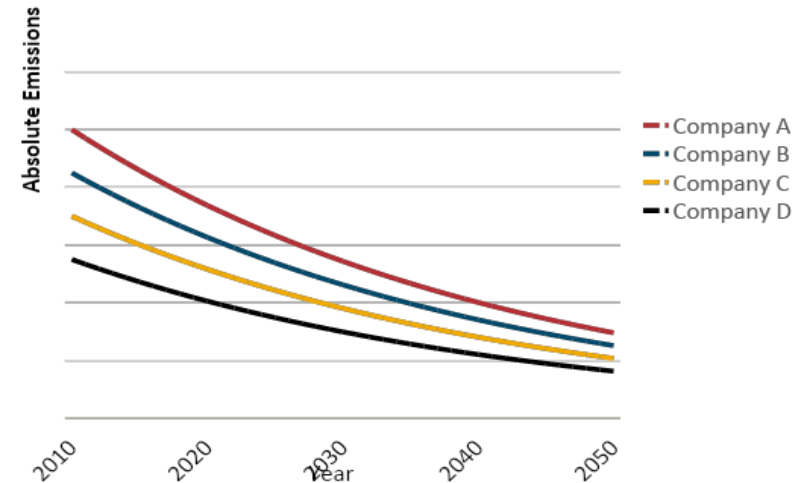
## Carbon intensity convergence / Sectoral Decarbonization Approach (SDA)



### Homogeneous sectors:

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

## Carbon emissions contraction



### 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.



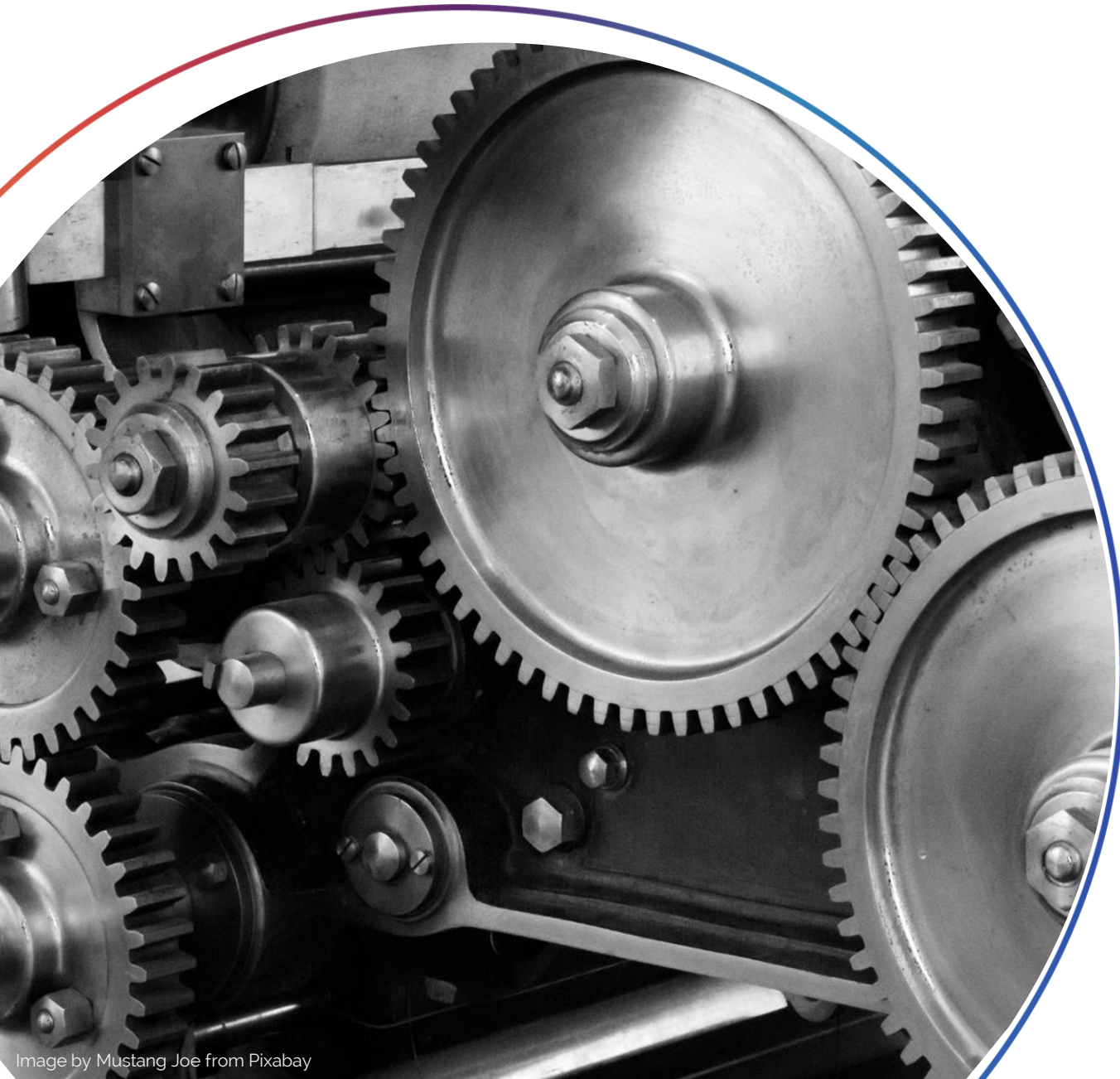
# THE SBTi STEEL GUIDANCE: DEVELOPMENT PROCESS AND APPLICABILITY

Poll #3

# 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.

| Expert Advisory Group members               |                                               |
|---------------------------------------------|-----------------------------------------------|
| Aceros AZA S.A.                             | Nippon Steel Corporation                      |
| Aperam                                      | Outokumpu Oyj                                 |
| ArcelorMittal                               | Ovako                                         |
| Baoshan Iron & Steel Co Ltd (Baosteel)      | POSCO                                         |
| Bellona                                     | Potsdam Institute for Climate Impact Research |
| BlueScope Steel Limited                     | ResponsibleSteel                              |
| Cleveland Cliffs                            | Rocky Mountain Institute (RMI)                |
| E3G                                         | Severstal PAO                                 |
| Energy Transitions Commission (ETC)         | Tata Steel                                    |
| Environmental Coalition on Standards (ECOS) | Transition Pathways Initiative                |
| Gerdau                                      | Vallourec                                     |
| Imperial College                            | Voestalpine AG                                |
| JSW Steel Ltd                               | World Steel Association                       |
| Liberty Steel UK                            | WWF (Finland)                                 |



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





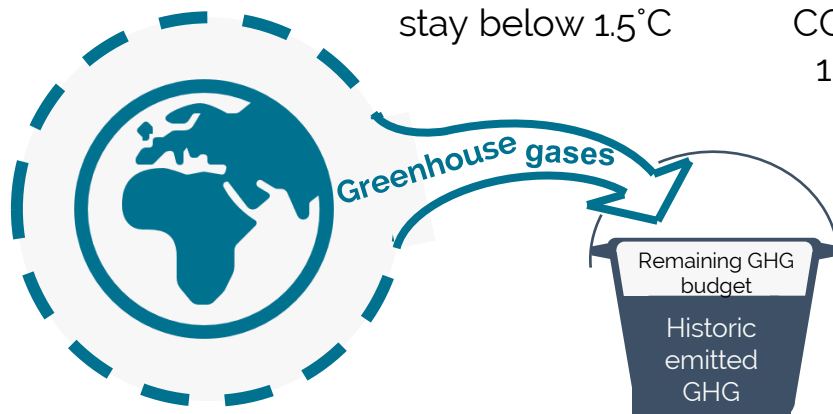
# EMISSIONS BUDGET AND ALLOCATION AMONG SECTORS



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

In our pathways, the remaining CO<sub>2</sub> budget for energy and industrial process CO<sub>2</sub> emissions aligned with 1.5°C is 450-480 GT CO<sub>2</sub>

2020-2050 carbon budget used by the SBTi to assess 1.5°C pathway is between 20-40 GT CO<sub>2</sub>



## IPCC SECTOR



# WHAT DOES THE SBTi STEEL GUIDANCE & TOOLS COVER?





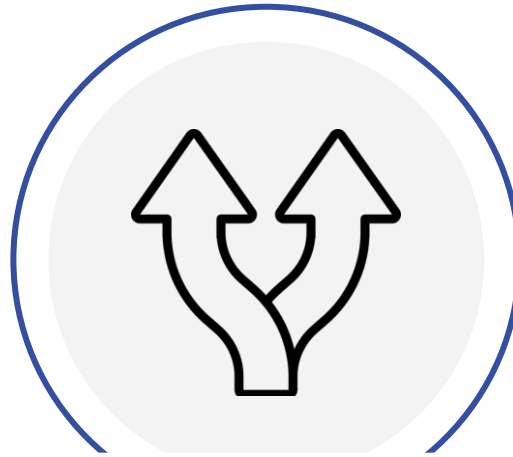
# THE SBTi STEEL GUIDANCE: PATHWAYS AND CORE BOUNDARIES



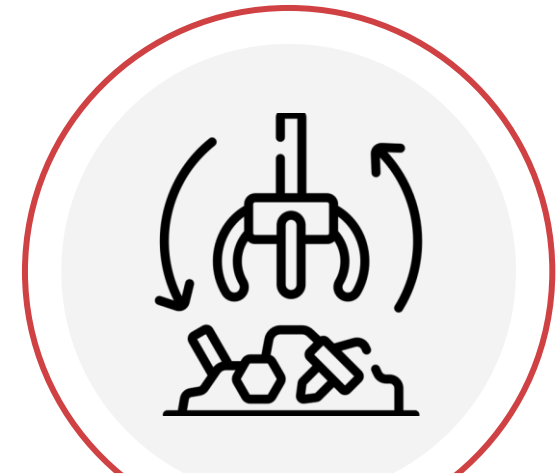
# MAIN FEATURES OF THE STEEL GUIDANCE



**Fixed system  
boundary**



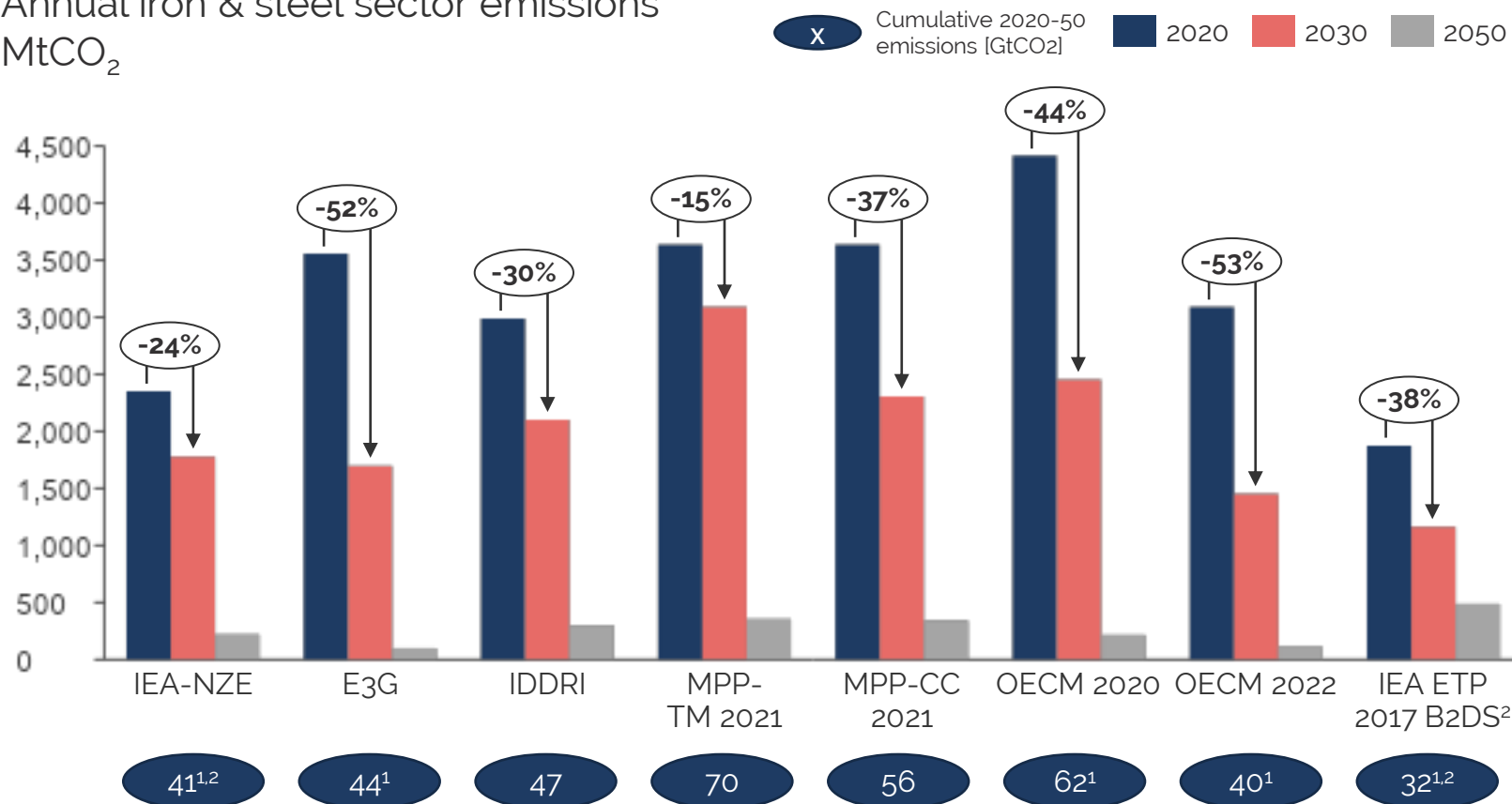
**Split  
pathways**



**Scrap-input-  
dependent  
pathways**

# MULTIPLE PATHWAYS WERE REVIEWED IN ORDER TO PROVIDE AMBITIOUS, YET REALISTIC BASIS FOR TARGET-SETTING

Annual iron & steel sector emissions  
MtCO<sub>2</sub>



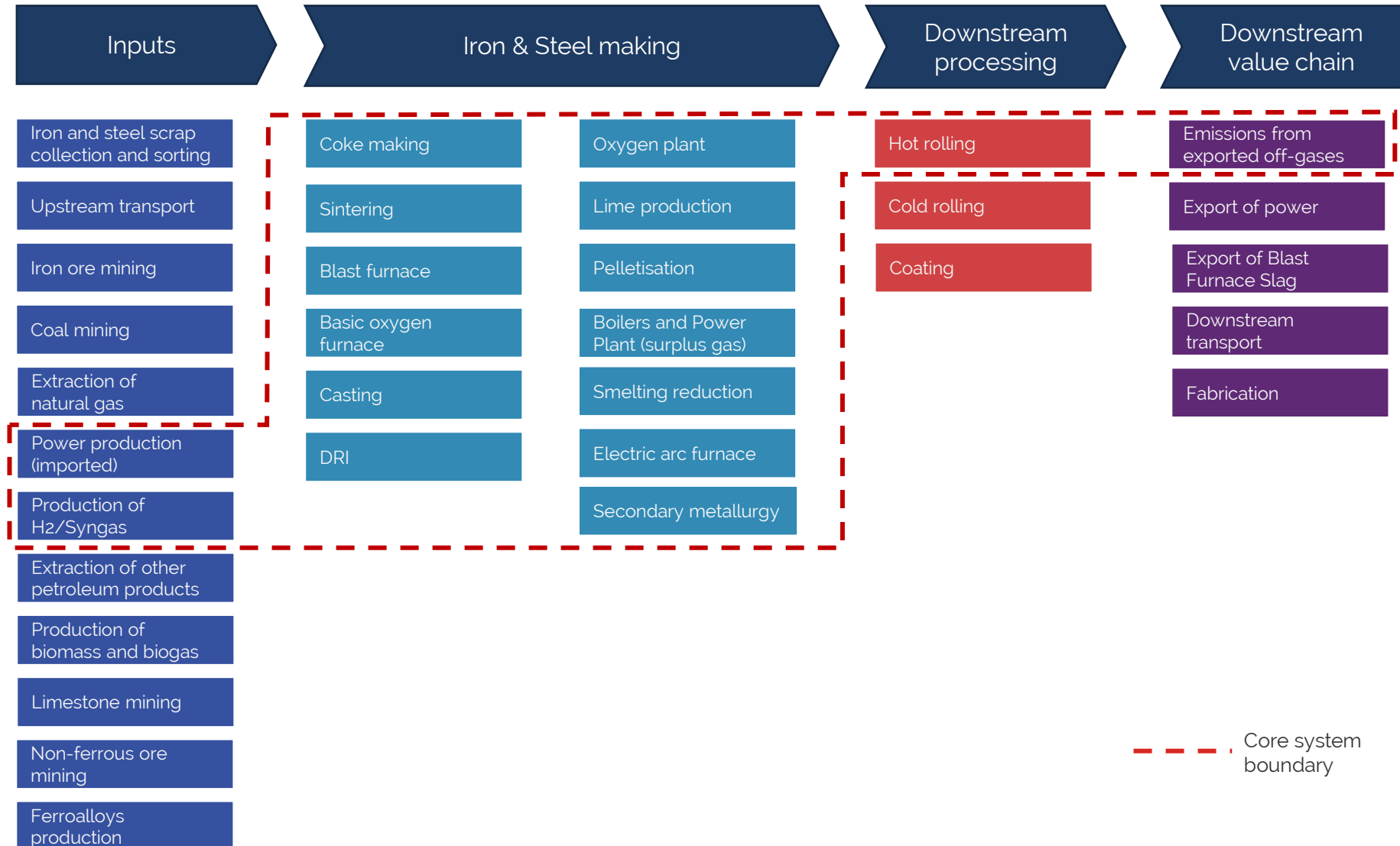
- 2020 values vary significantly which is driven mainly by differences in emission system boundaries.
- Pathways exhibit large differences when it comes to projected ambition level, especially by 2030, which is impacted by assumptions on technology availability and model optimization logic.
- Total budget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

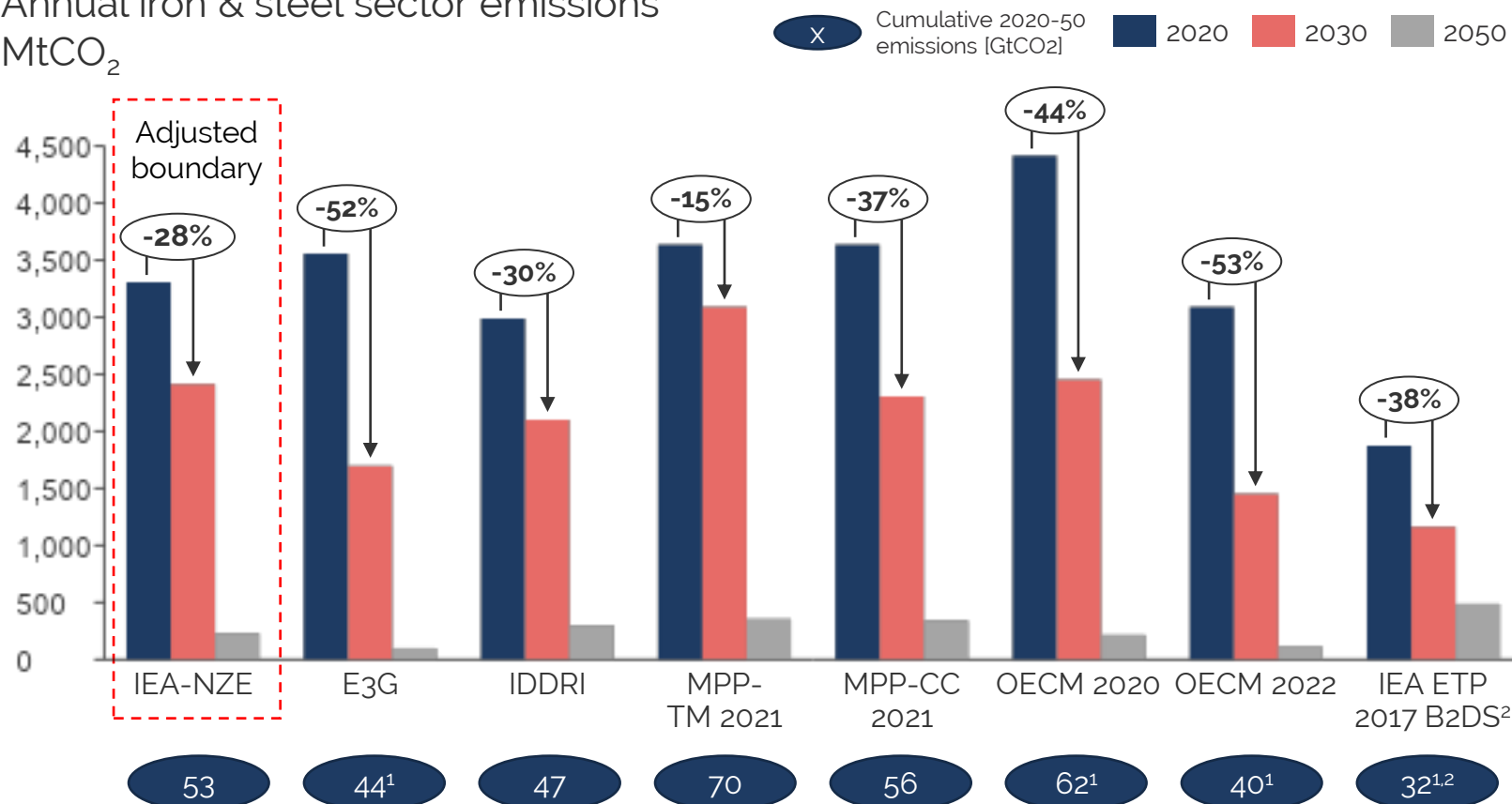


- System boundary ensures consistent treatment of all processes required to make steel regardless of whether they are in companies' scope 1, 2, or 3.
- Upstream fossil fuel-related emissions have been excluded from the boundary due to large data uncertainty, but mandatory scope 3 target was proposed 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

Annual iron & steel sector emissions  
MtCO<sub>2</sub>



- 2020 values vary significantly which is driven mainly by differences in emission system boundaries.
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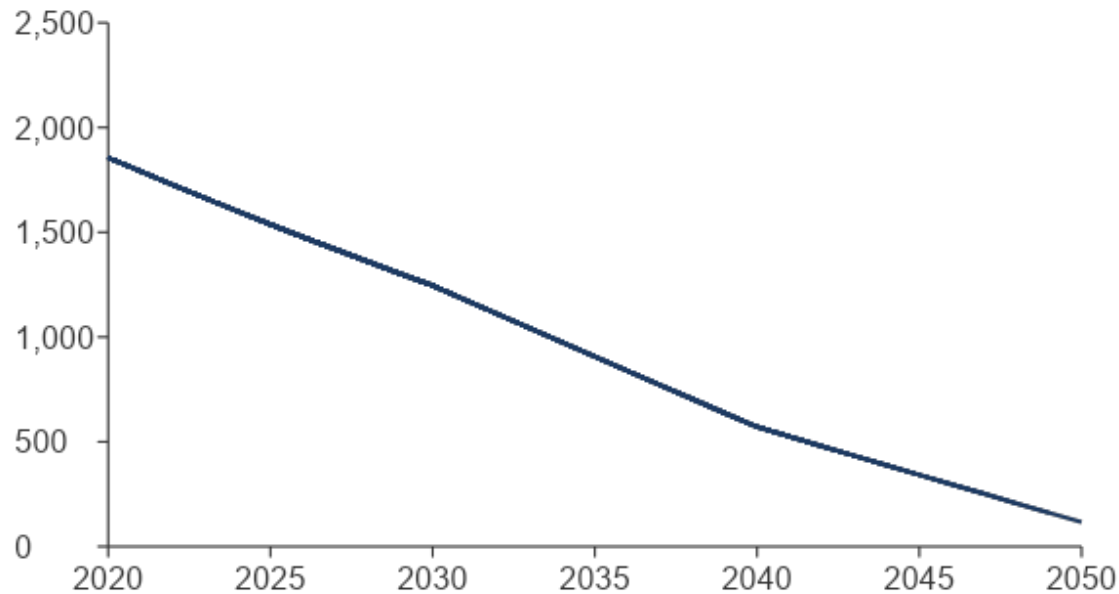
**Note: scenarios use different system boundaries for their emissions and should not be compared one-to-one**

Note 1: Based on linear interpolation of available datapoints

Note 2: Only direct emissions related to iron- & steelmaking

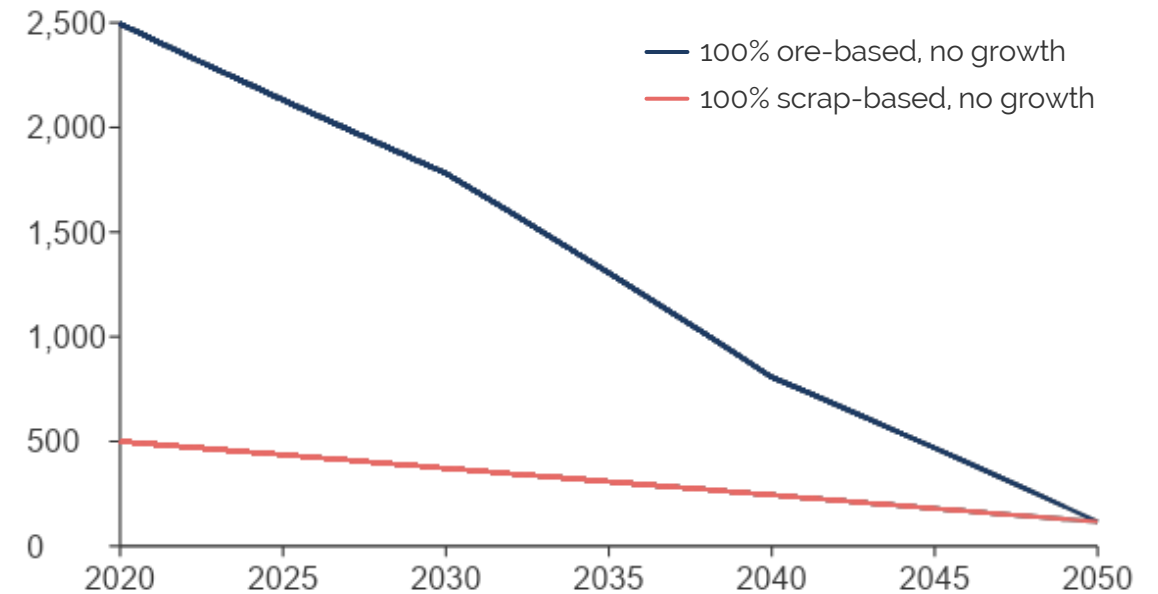
# ORE- AND SCRAP-BASED PRODUCTION PRESENT FUNDAMENTALLY DIFFERENT EMISSIONS PROFILES – HENCE THE PATHWAY WAS SPLIT WHILE PRESERVING THE BUDGET

Average emission intensity of steel production – single pathway kgCO<sub>2</sub>eq/t hot rolled product



**Implied carbon budget = ~53 GtCO<sub>2</sub>**

Average emission intensity of steel production – split pathway kgCO<sub>2</sub>eq/t hot rolled product

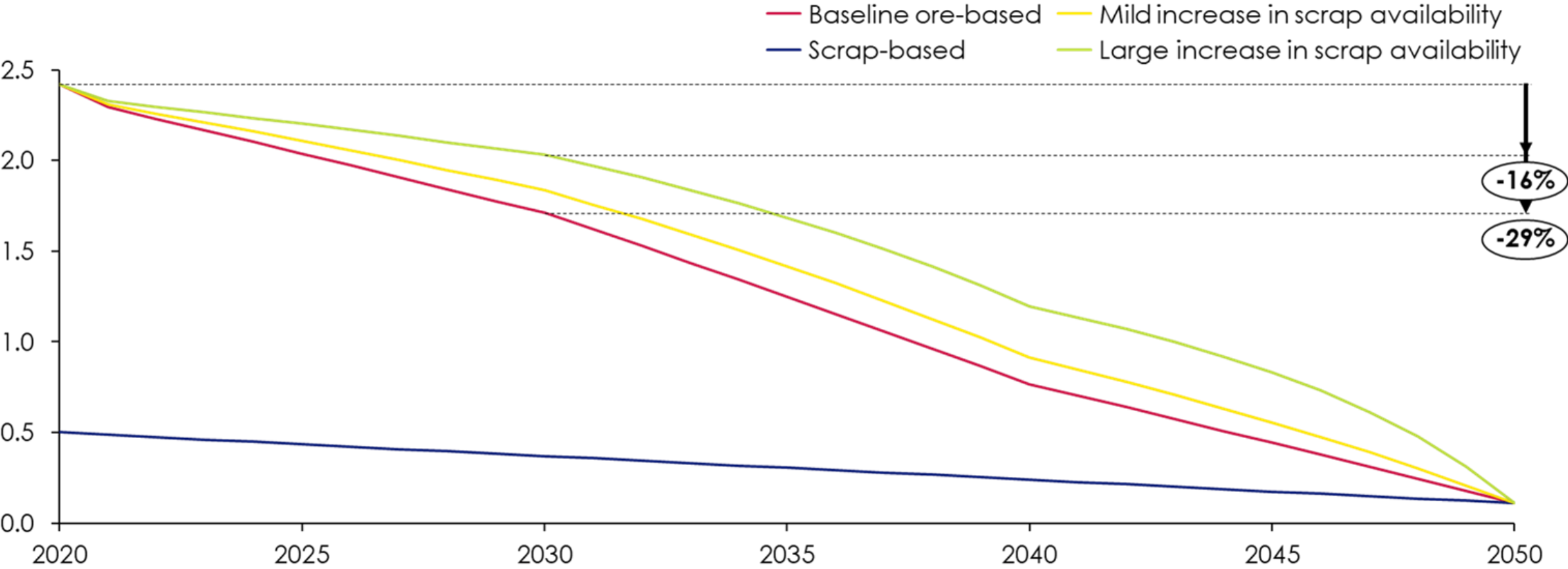


Ore-based budget = ~46 GtCO<sub>2</sub>  
Scrap-based budget = ~7 GtCO<sub>2</sub>  
**Total = ~53 GtCO<sub>2</sub>**

# THE BENEFIT OF INCREASING SCRAP USE IS SPREAD ACROSS THE WHOLE INDUSTRY

## Emission intensity pathways of ore- and scrap-based production

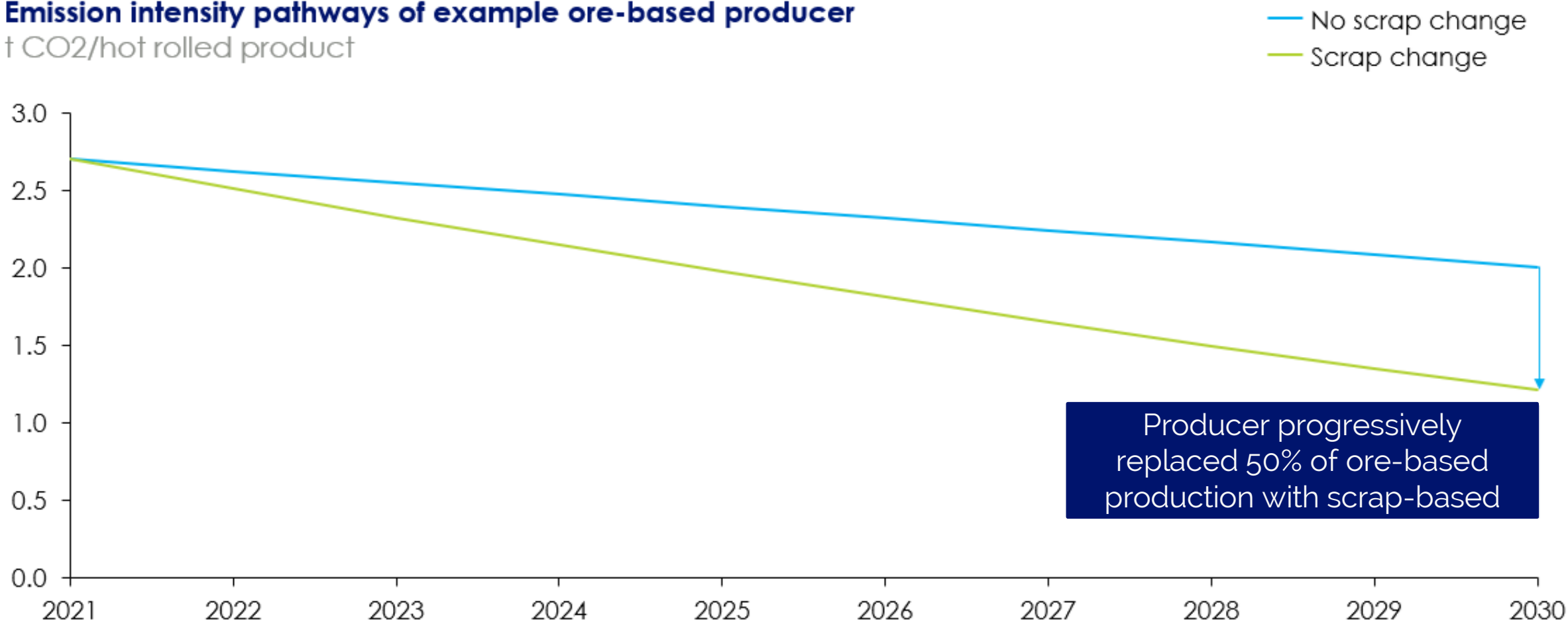
† CO2/hot rolled product



# 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

† CO<sub>2</sub>/hot rolled product





# 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

| Company  | Production type (stable scrap share between target year and base year except E) | Base year (2020) emission intensity (kg CO <sub>2</sub> eq/t hot rolled steel) | Required intensity reduction by 2030 vs 2020 (%) |
|----------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------|
| <b>A</b> | 100% scrap-based                                                                | 500                                                                            | 26.1%                                            |
| <b>B</b> | 100% scrap-based                                                                | 800                                                                            | 28.8%                                            |
| <b>C</b> | 0% scrap-based                                                                  | 2,500                                                                          | 29.4%                                            |
| <b>D</b> | 30% scrap-based                                                                 | 1,700                                                                          | 28.9%                                            |
| <b>E</b> | 0% scrap-based going to 20% scrap in target year                                | 2,500                                                                          | 40.5%                                            |

# COMMUNICATING SCIENCE-BASED TARGETS

## Examples of target wordings

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



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.**

- Emissions target outside the core boundary



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



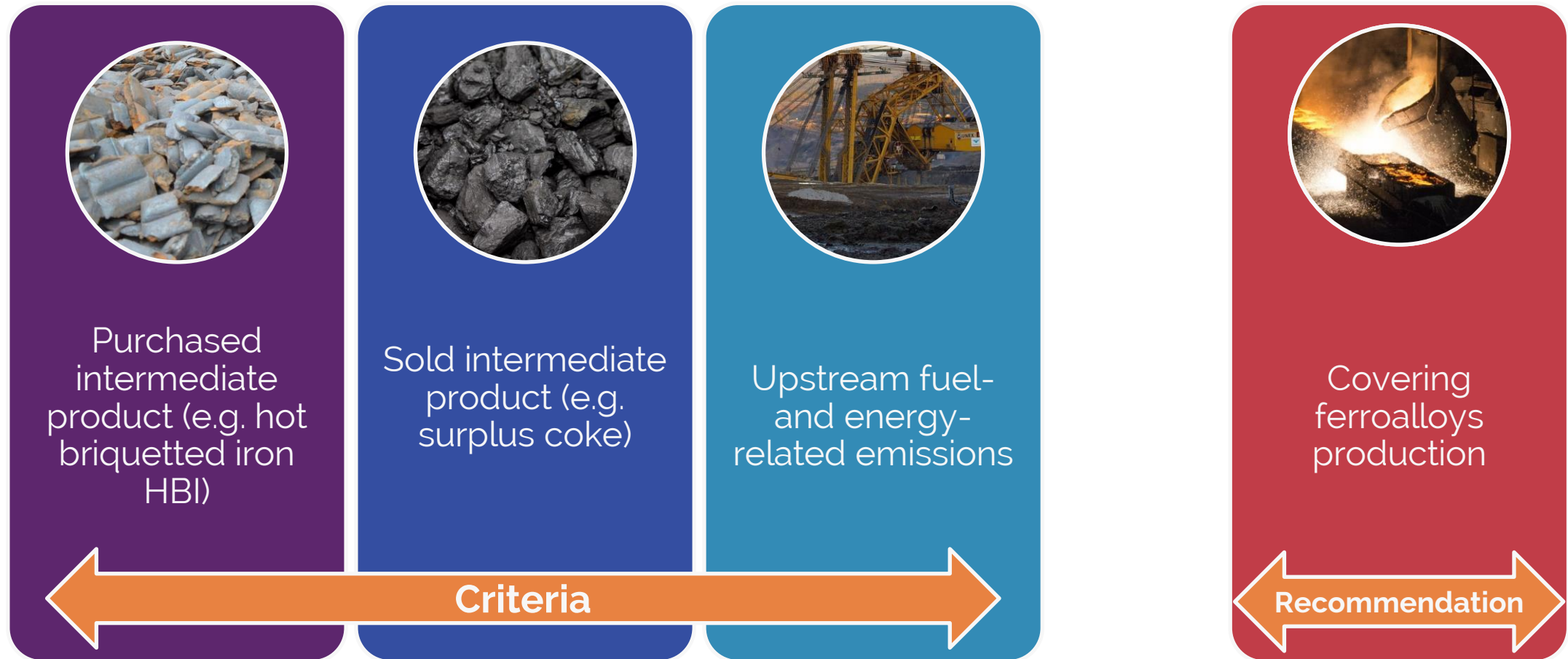
- Other scope 3 target



Company E further commits to reduce scope 3 GHG emissions from fuel- and energy-related emissions 25% over the same timeframe.



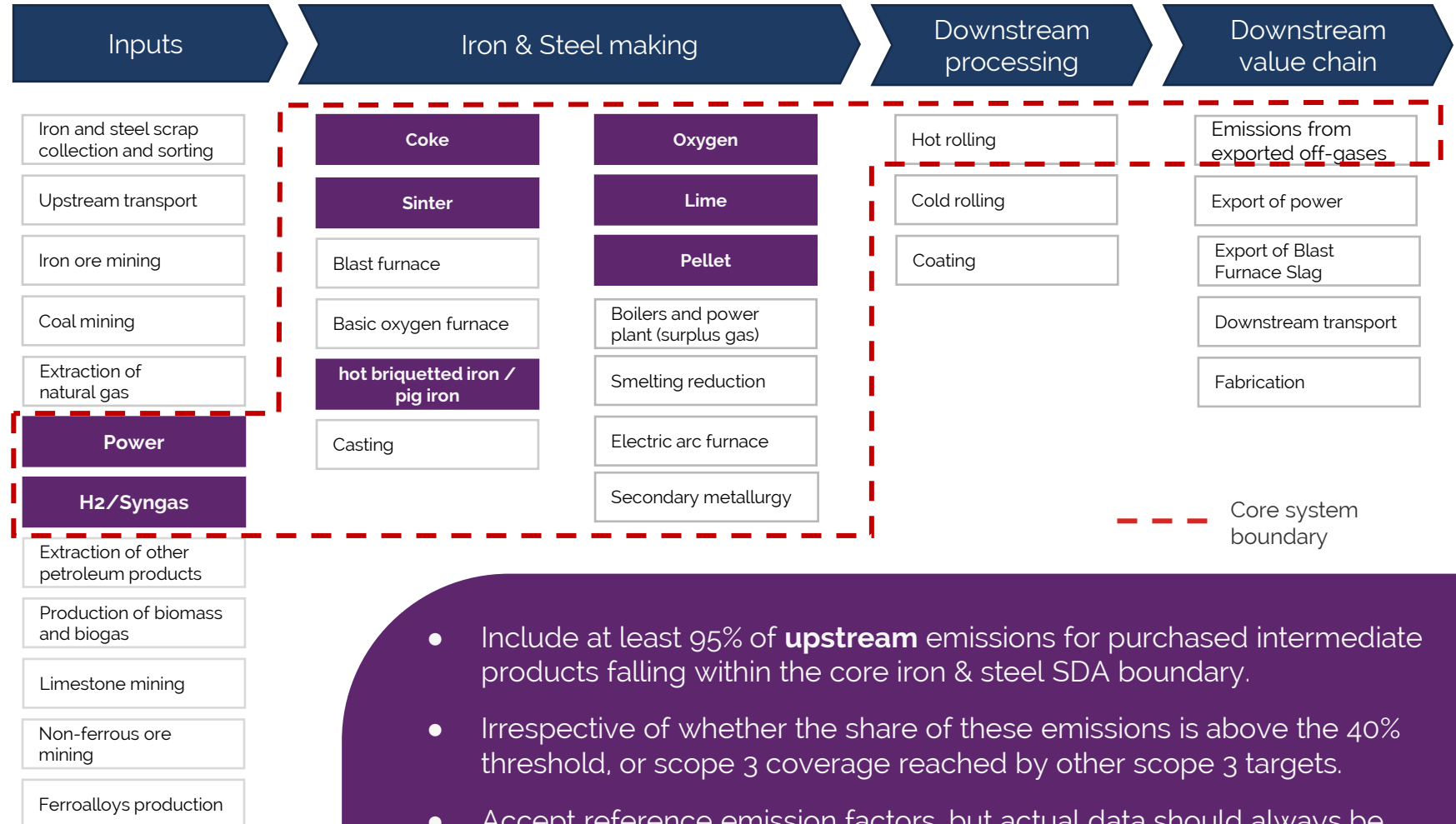
# SCOPE 3 COVERAGE | CRITERIA AND RECOMMENDATION



# PURCHASED INTERMEDIATE PRODUCTS

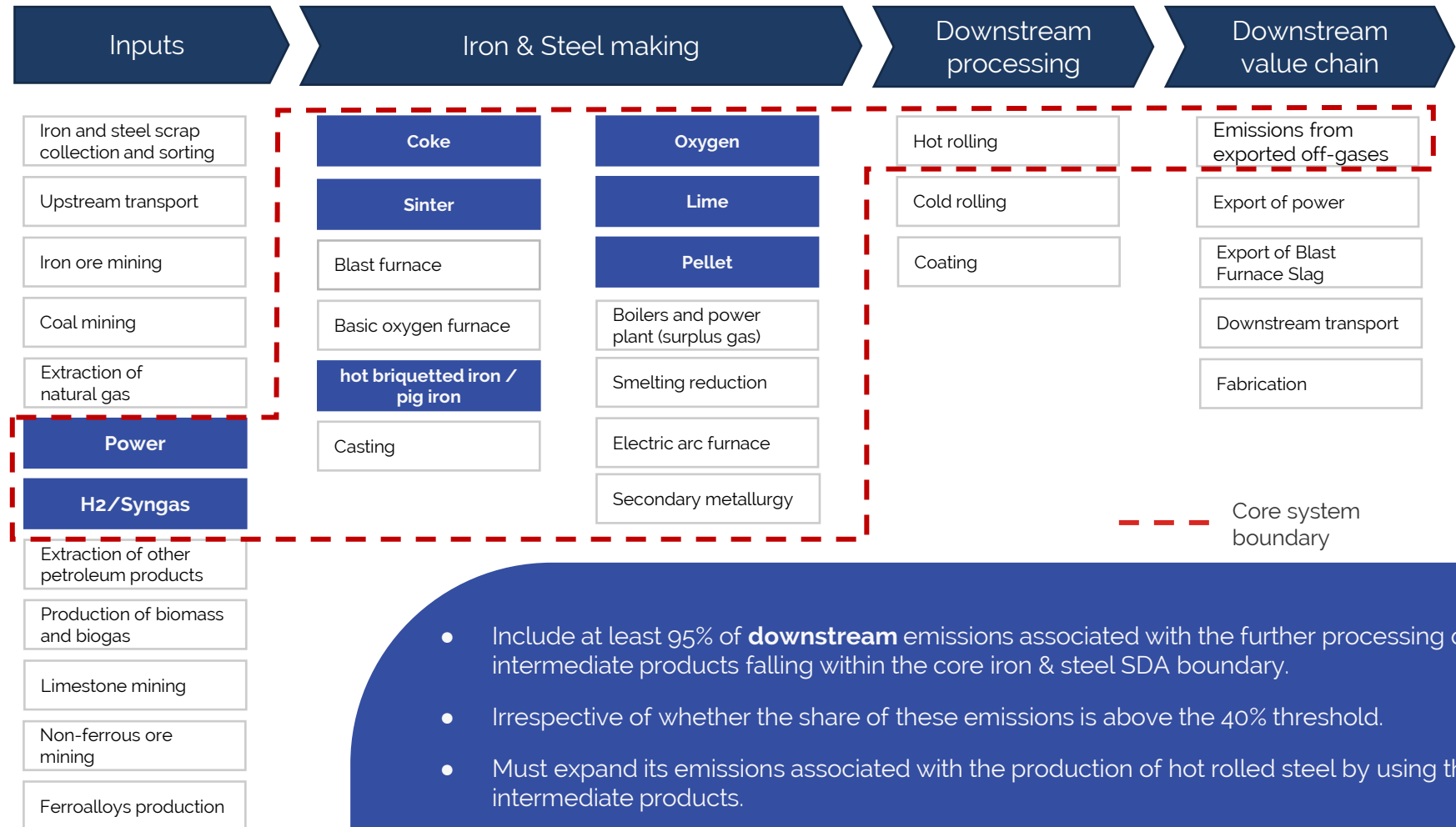


Purchased intermediate product (e.g. hot briquetted iron HBI)



- 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

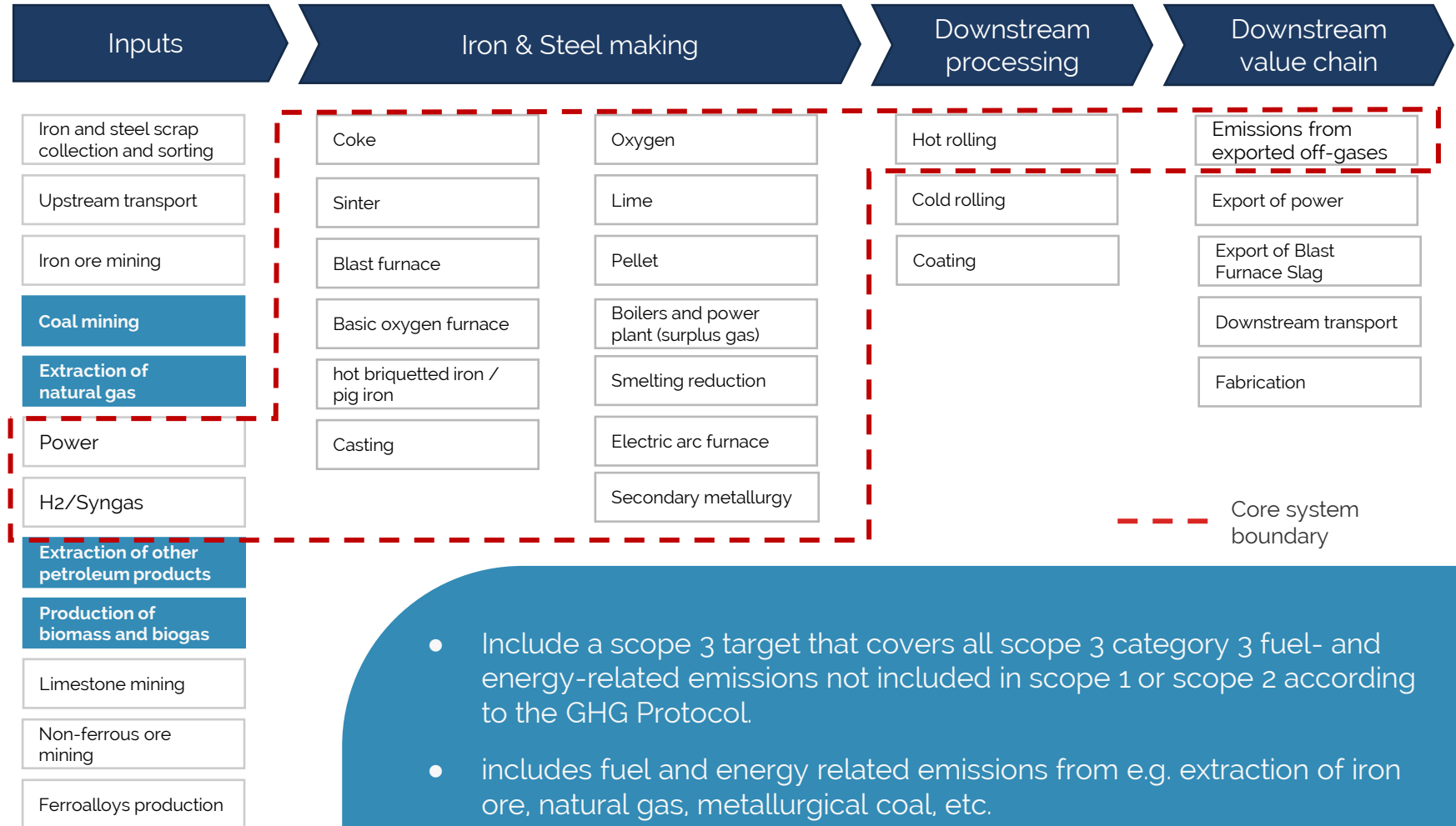


- Include at least 95% of **downstream** emissions associated with the further processing of intermediate products falling within the core iron & steel SDA boundary.
- Irrespective of whether the share of these emissions is above the 40% threshold.
- Must expand its emissions associated with the production 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



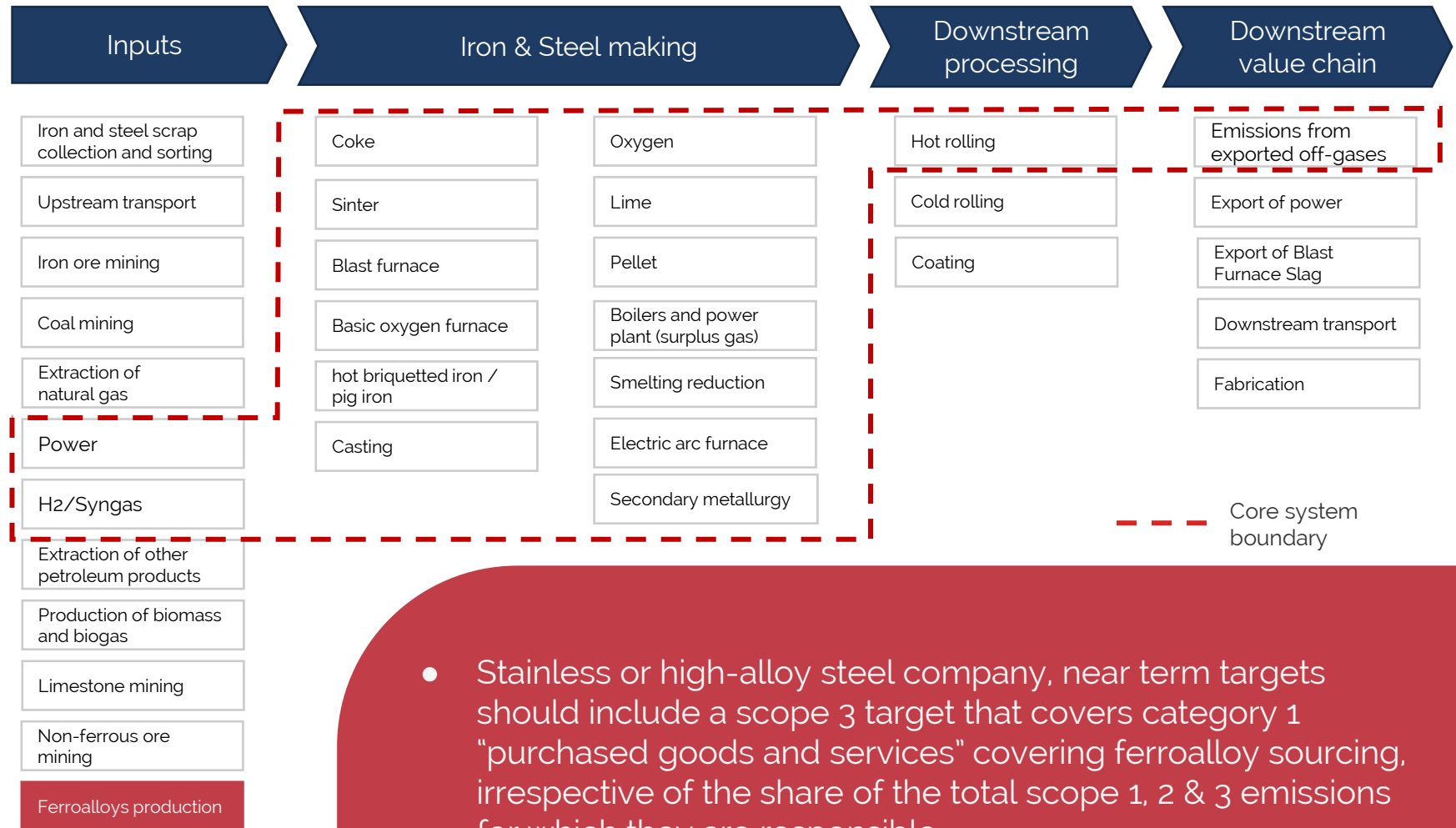
Upstream fuel-  
and energy-  
related emissions



- 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



- 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

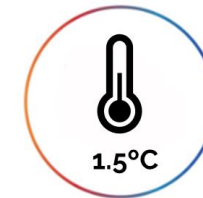


## SBTi Steel Target Setting Tool

Version: 1.0  
Support: [info@sciencebasedtargets.org](mailto:info@sciencebasedtargets.org)

### Section 1. Input data

|                                                 |                                   |                                                                       |
|-------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------|
| Target setting method                           | Sectoral Decarbonization Approach |                                                                       |
| SDA scenario                                    | SBTi 1.5C                         |                                                                       |
| SDA sector                                      | Iron and steel - core boundary    |                                                                       |
| Base year                                       | 2021                              | Select a base year                                                    |
| Base year   Activity output                     | 10,000,000                        | Tonnes of hot rolled steel                                            |
| Base year   Emissions within the core boundary* | 12,000,000                        | ICO2e (Emissions intensity: 1.2 tCO2e/t) * Please refer to the iron t |
| Target year                                     | 2031                              | Select a target year                                                  |
| Target year   Type of activity projection       | Target year output                | Dropdown                                                              |
| Target year   Activity output                   | 11,000,000                        | Tonnes of hot rolled steel                                            |
| Scrap ratio in base year                        | 10%                               | Enter a value between 0 and 100%                                      |
| Scrap ratio in target year                      | 10%                               | Enter a value between 0 and 100%                                      |



Quick guide Iron & Steelmaker Tool Steel Procurement Tool Iron & steel core boundary



## Science-Based Target Setting Tool

Version: Version 2.2  
Support: [info@sciencebasedtargets.org](mailto:info@sciencebasedtargets.org)

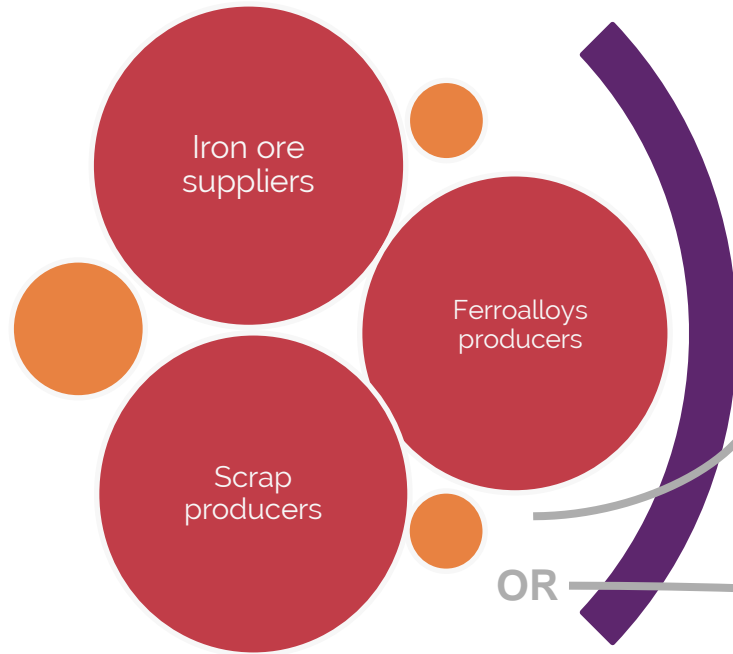
### Section 1. Input data

|                                                |                      |                                                                    |
|------------------------------------------------|----------------------|--------------------------------------------------------------------|
| Target setting method                          | Physical intensity   | Please review the latest version of the SBTi Guidance and Criteria |
| Base year                                      | 2021                 | Dropdown                                                           |
| Target year                                    | 2031                 | Dropdown                                                           |
| Base year output                               | custom physical unit | custom physical unit                                               |
| Target year output                             | custom physical unit | custom physical unit                                               |
| Scope 3 emissions (total or specific category) | ICO2e                | ICO2e                                                              |

### Section 2. Absolute Contraction Approach

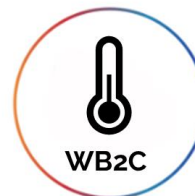
### Section 3. Economic intensity targets

README Quick guide SBT Tool Scope 3 Tool Calculations Database

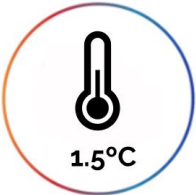


## UPSTREAM

- Cross-sector absolute reduction (2.5% annual reduction).
- physical intensity (7% annual reduction).
- economic intensity (7% annual reduction).
- Supplier engagement.



# DOWNSTREAM COMPANIES | TARGET-SETTING METHODS



## SBTi Steel Target Setting Tool

Version: 1.0

Support: [info@sciencebasedtargets.org](mailto:info@sciencebasedtargets.org)

Required Input

### Section 1. Input data

|                                |                                  |                                                                                                                         |
|--------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Target setting method          | Steel SDA - for steel purchasers | This option is for steel purchasers setting scope 3 category 1 targets. For other options, see the SBTi Steel Guidance. |
| Base year                      | 2021                             | Dropdown                                                                                                                |
| Target year                    | 2031                             | Dropdown                                                                                                                |
| Base year output               | 10,000,000                       | Tonnes of purchased steel                                                                                               |
| Target year output             | 11,000,000                       | Tonnes of purchased steel                                                                                               |
| Scope 3 emissions (Category 1) | 15,000,000                       | tCO2e (please refer to the SBTi Steel Guidance)                                                                         |

### Section 2. Steel Procurement Tool

|                             |                  |                    |                 |
|-----------------------------|------------------|--------------------|-----------------|
|                             | Base year (2021) | Target year (2031) | % SBT reduction |
| Physical intensity (tCO2/t) | 1.500            | 0.946              | 36.9%           |

Quick guide

Iron & Steelmaker Tool

Steel Procurement Tool

Iron & steel core boundary

T&E ...



## Science-Based Target Setting Tool

Version: Version 2.2

Support: [info@sciencebasedtargets.org](mailto:info@sciencebasedtargets.org)

### Section 1. Input data

|                                                  |                    |                                                                    |
|--------------------------------------------------|--------------------|--------------------------------------------------------------------|
| Target setting method                            | Physical intensity | Please review the latest version of the SBTi Guidance and Criteria |
| Base year                                        | 2021               | Dropdown                                                           |
| Target year                                      | 2031               | Dropdown                                                           |
| Base year output                                 |                    | custom physical unit                                               |
| Target year output                               |                    | custom physical unit                                               |
| Scope 3 emissions (total or specific categories) |                    | tCO2e                                                              |

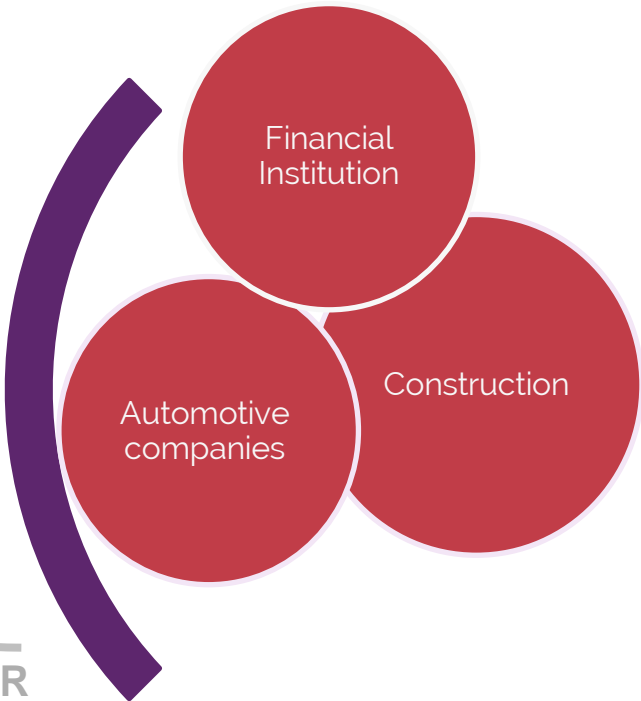
### Section 2. Absolute Contraction Approach

### Section 3. Economic intensity targets

|        |             |          |              |              |          |   |
|--------|-------------|----------|--------------|--------------|----------|---|
| README | Quick guide | SBT Tool | Scope 3 Tool | Calculations | Database | + |
|--------|-------------|----------|--------------|--------------|----------|---|



OR



DOWNSTREAM

# 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



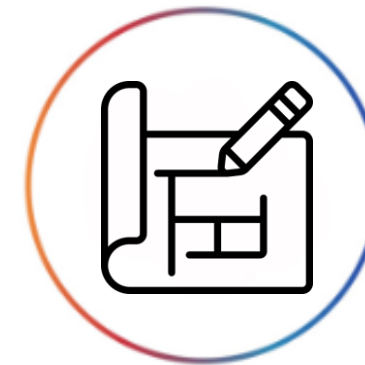
## Worked Examples:

provide different worked examples to guide users in developing targets according to the SBTi Steel Guidance



## 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



Recommendations on target wordings

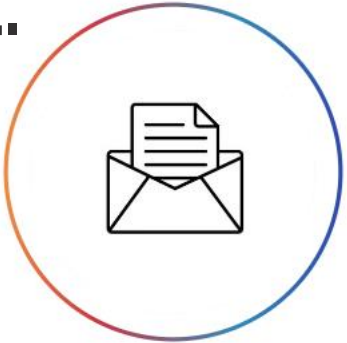


Target submission



# PILOT TARGET VALIDATION PHASE

1.



COMMIT

2.



DEVELOP

3.



SUBMIT

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

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

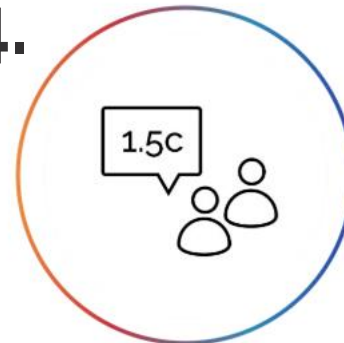
The target submission form and Steel Annex will be posted on the [SBTi steel webpage](#).



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

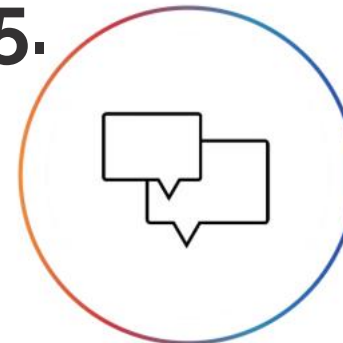
**Previously committed steel companies** will have **24 months** to submit their targets.

4.



COMMUNICATE

5.

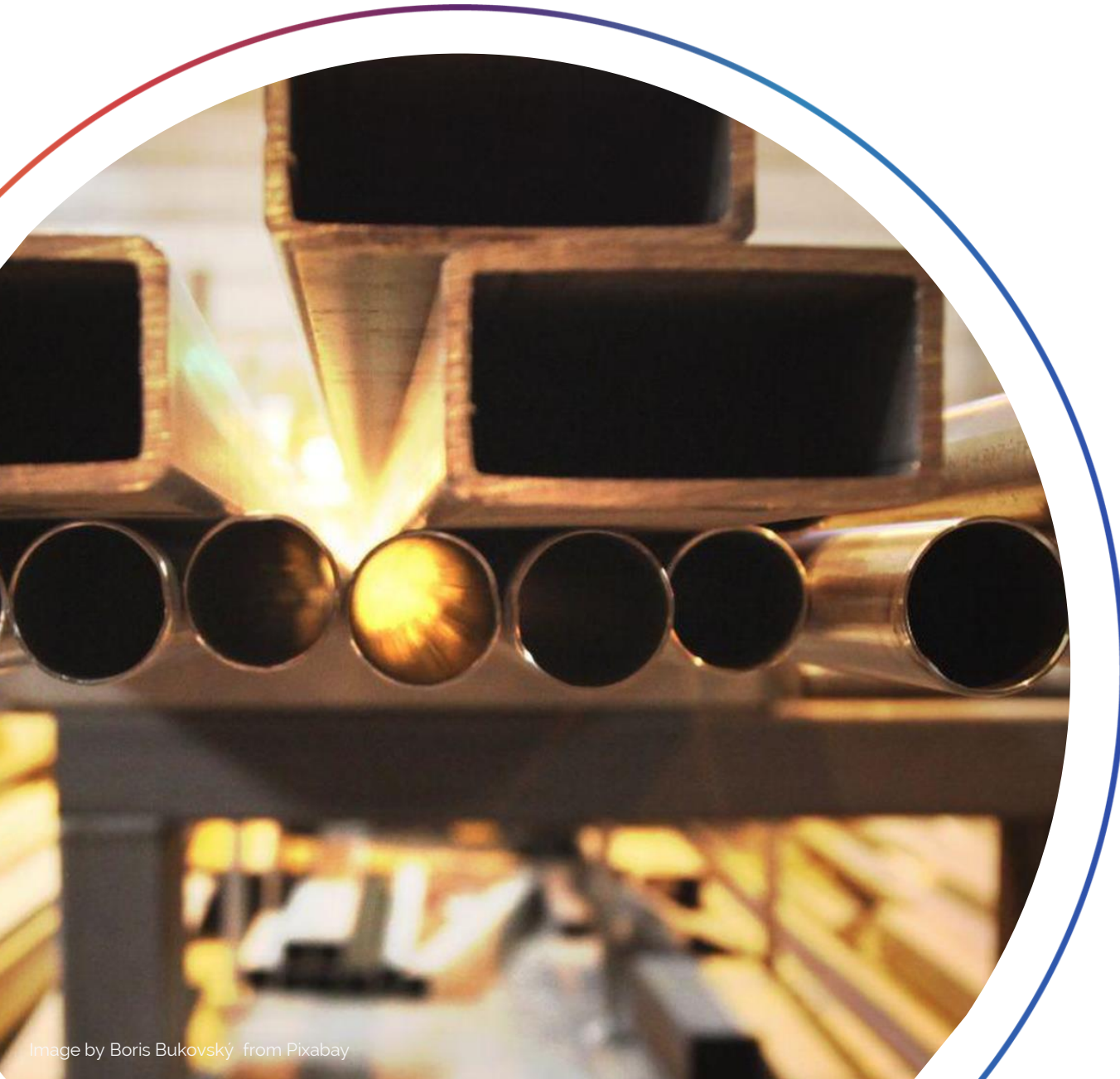


DISCLOSE

# Q&A SESSION

Poll #4

# 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](mailto:aamirkhan@sciencebasedtargets.org).



# CONTACT US



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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[Steel - Science Based Targets](#)



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# THANK YOU!