

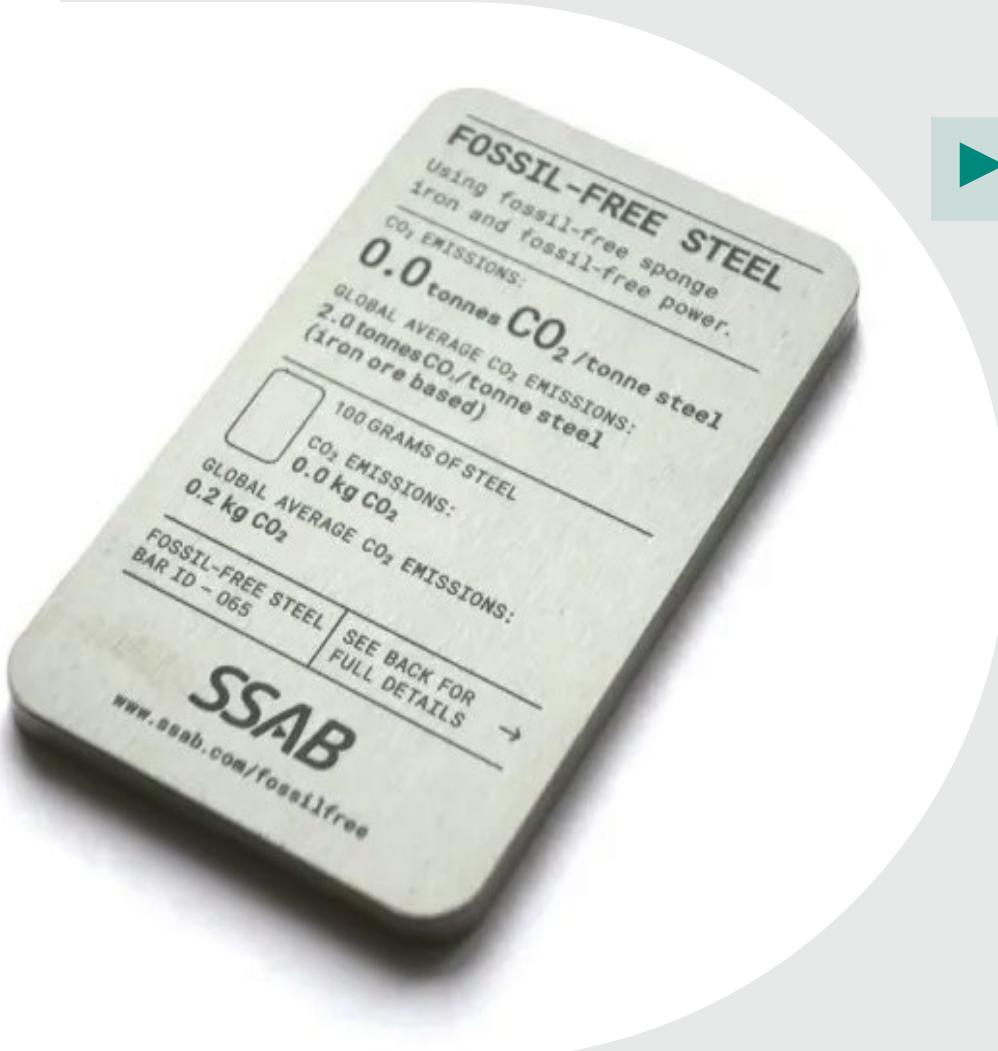
# The fossil-free journey from a technical perspective

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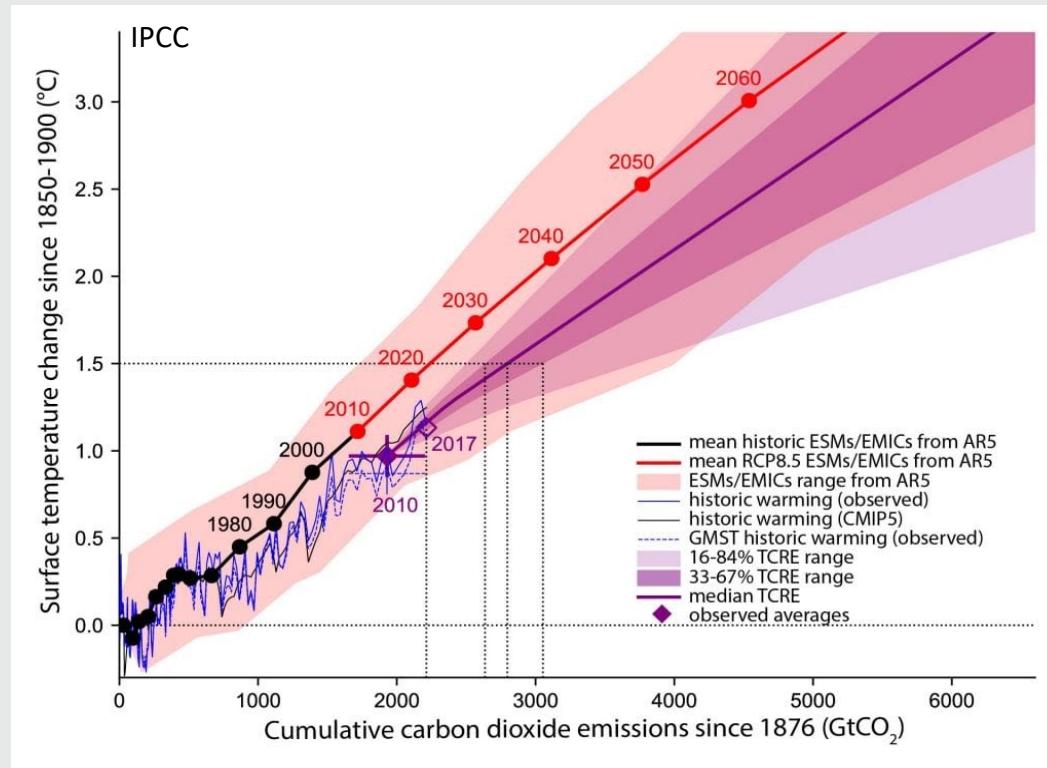
# Fossil-free steel



- ▶ Why?
- ▶ Who?
- ▶ What?
- ▶ How?
- ▶ Where?
- ▶ When?

# Earth warming pace is unsustainable!

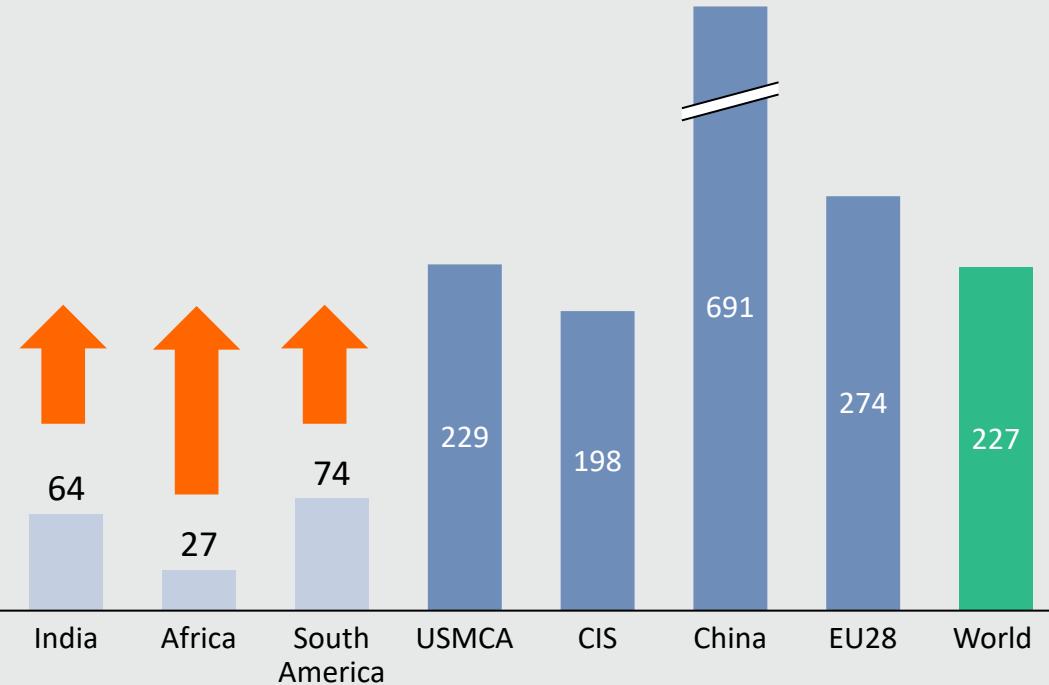
Cumulative CO2 emissions since 1876 vs. Earth temperature change, GtCO2 and Celsius



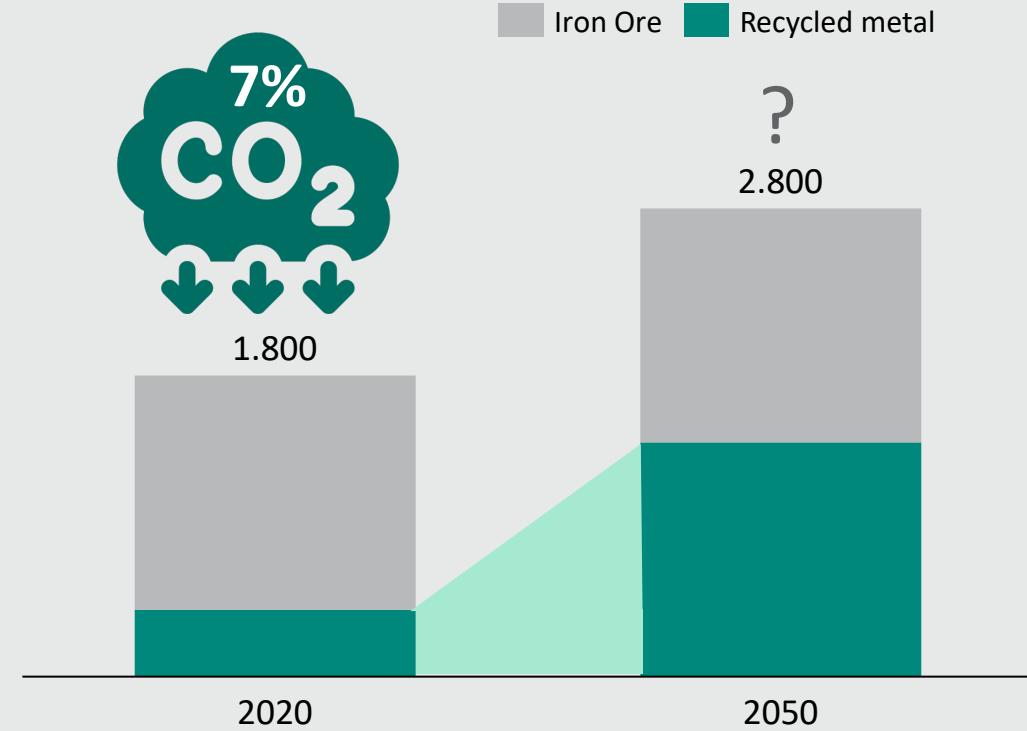
Source: IPCC

# Today, 7% of Global CO2 emissions come from steel

2020: Apparent steel consumption per capita, kg/capita



Global steel demand and CO2 contribution, mt & % share



Source: World steel association, BI analysis



# SSAB is taking the lead!

From steel product ...



... to customers product





# What is the offer?



- Fossil-free electricity
- Fossil-free fuels
- Fossil-free internal transports
- Fossil-free sponge iron based on the HYBRIT® Technology
- Based on high-quality recycled steel



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# What is the offer?

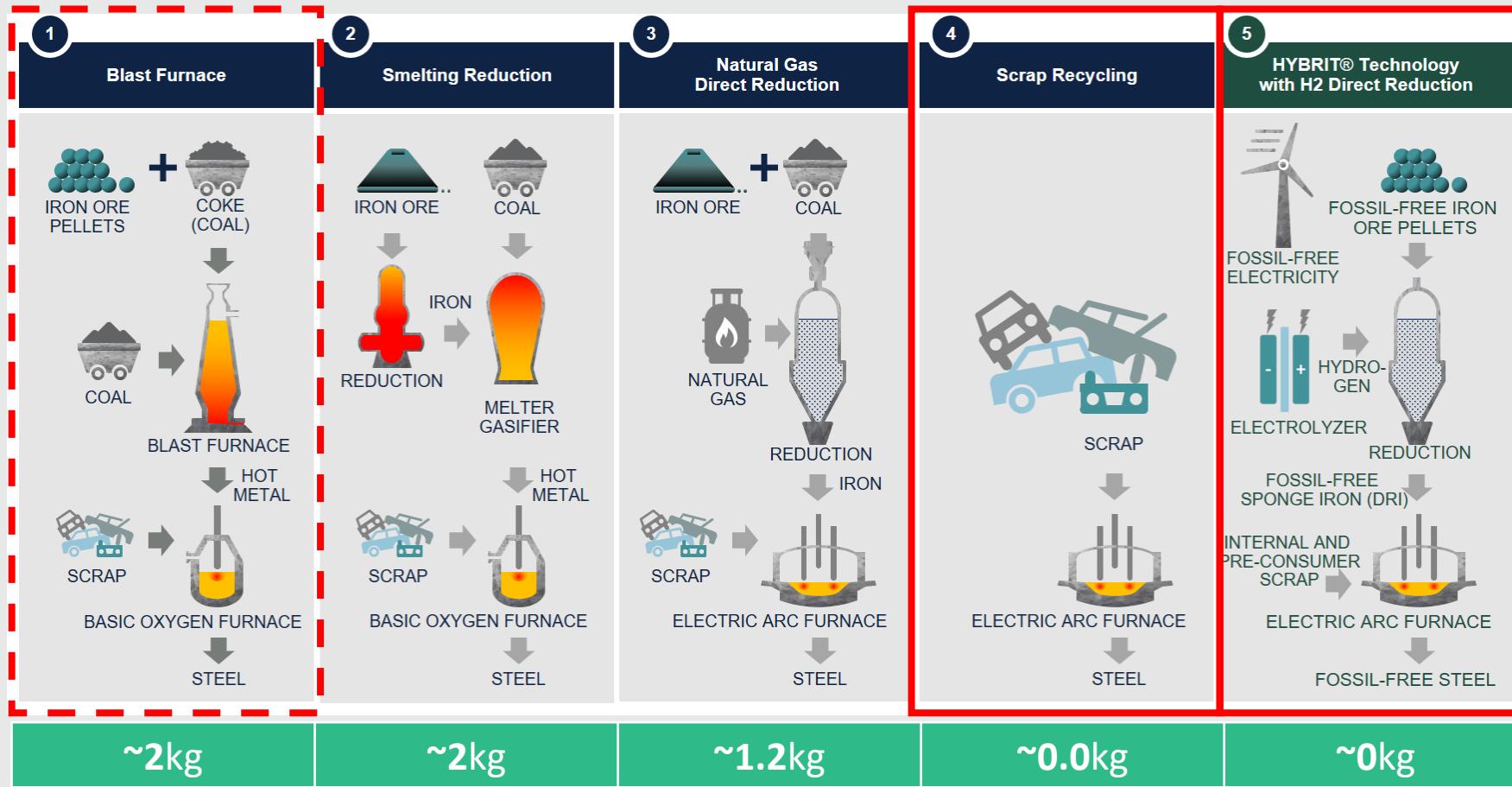


Carbon emission in operations  
including purchased energy (Scope 1-2):  
**0.0 kg CO<sub>2</sub>e** emissions per kg steel (target).

The emissions are not completely zero, but so small that we  
guarantee that it is less than 0.05 kg CO<sub>2</sub>e emissions per kg steel,  
and thus rounded to 0.0.

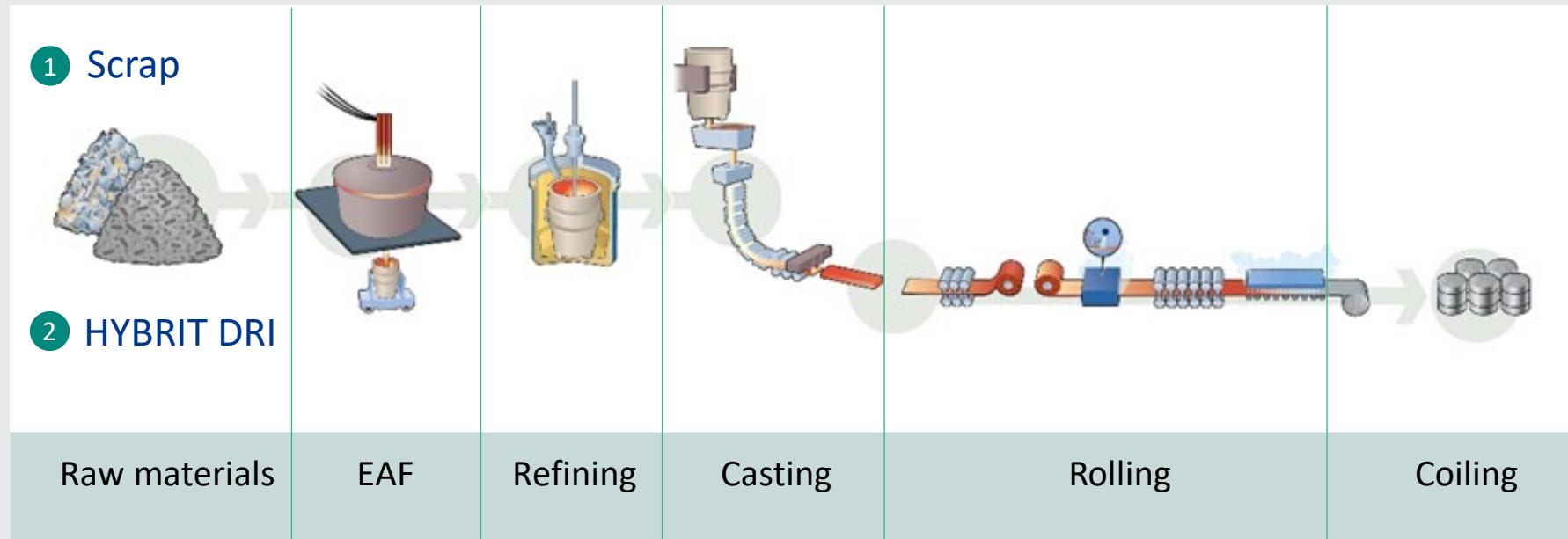
Carbon emission in operations including purchased energy and raw material  
(Scope 1-3 Upstream): 0.3 kg CO<sub>2</sub>e emissions per kg steel (target).

# How is the steel produced?



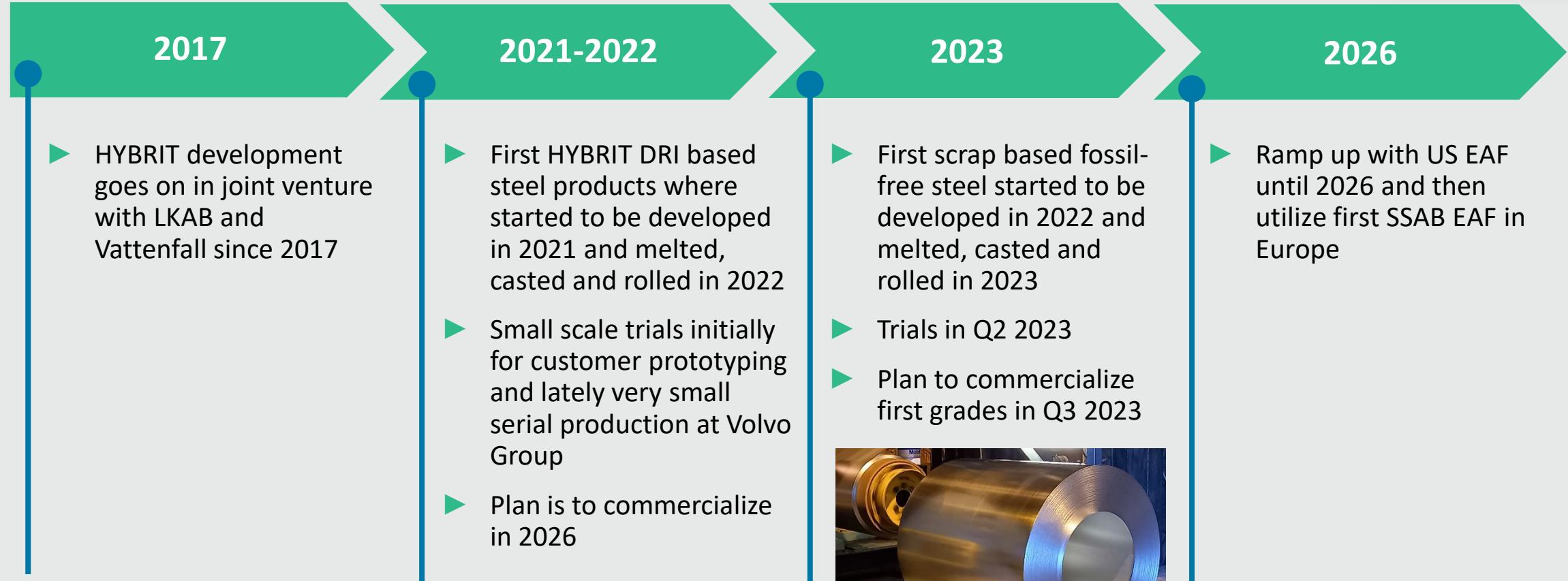
# “Mini-mill”: What is the production process?

Illustration of the future production process from the mini-mills



Fossil Free energy throughout the production process + Biofuel + Biogas

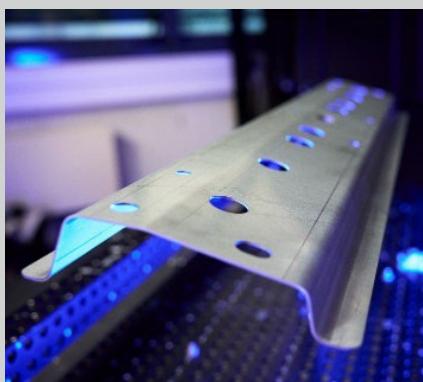
# How do we develop fossil-free steel grades?



# Early use of fossil-free steel



Mercedes-Benz



Seat cross-member for EV

- Fossil-free partnership
- Proof of concept in Docol CR 1500M-EG Fossil-free
- Same properties as serial material

**FORVIA**



Front seat side member

- Fossil-free partnership
- Proof of concept in Docol CR 1000CP-UC Fossil-free
- Same properties as serial material



Heavy truck frame rails

- Fossil-free partnership
- Docol HR 600MC fossil-free
- Same properties as in serial material



Polestar

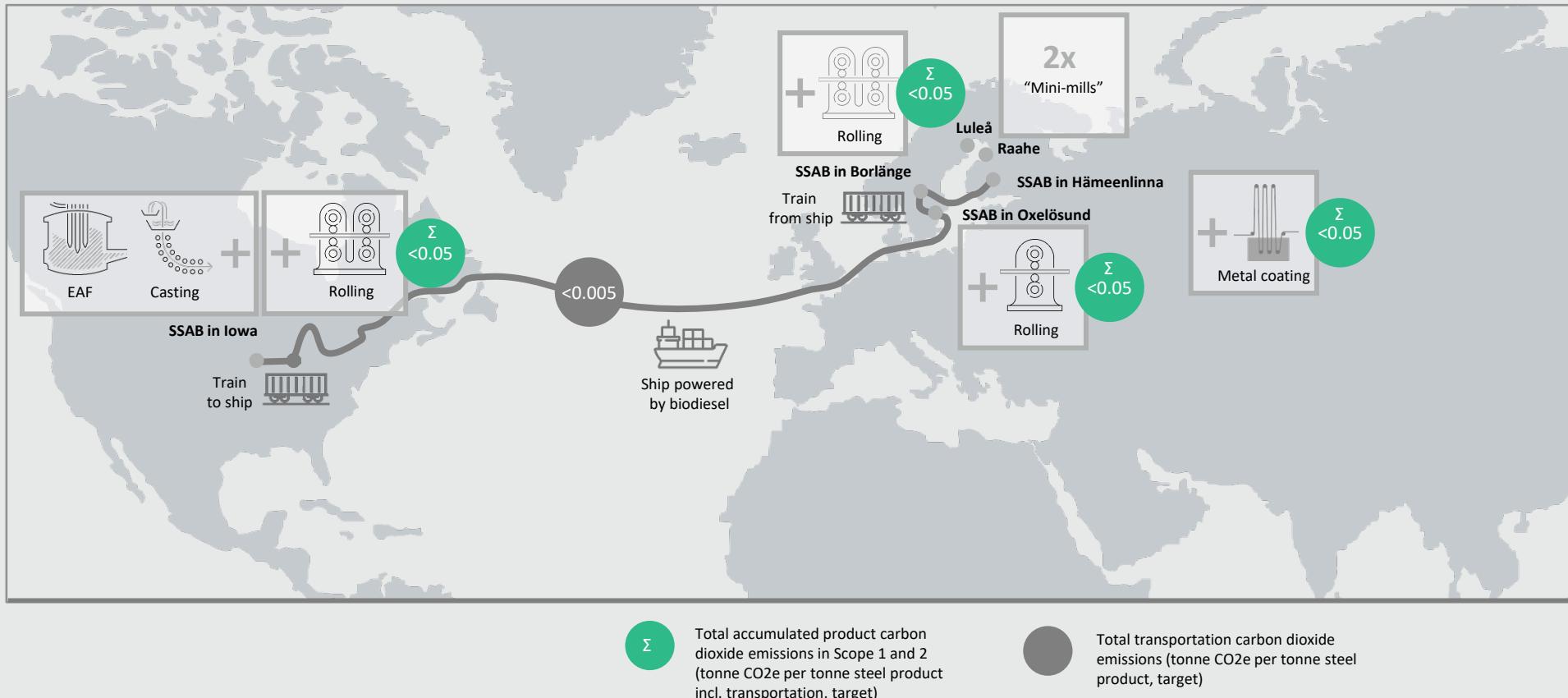


"Project 0"

- Fossil-free partnership
- Joint cooperation in development of climate neutral vehicle by 2030



# Where?





# When?



- **2017** HYBRIT, Hydrogen Breakthrough Ironmaking Technology
- **2023** SSAB Zero™, first commercial zero emission steel grades
- **~2026** EAF in Oxelösund, ramp-up fossil-free steel production in Europe
- **~2030** New Nordic Strip Mill system (“mini-mills”)

SSAB has since long been focusing on upgrading customer applications by High-Strength Steels and continues improvements of our production processes



# Key takeaways



- The SSAB fossil-free transformation is already ongoing
- We are confident with the chosen technology
- Environmental permissions and allocation of electricity supply set the pace at the moment