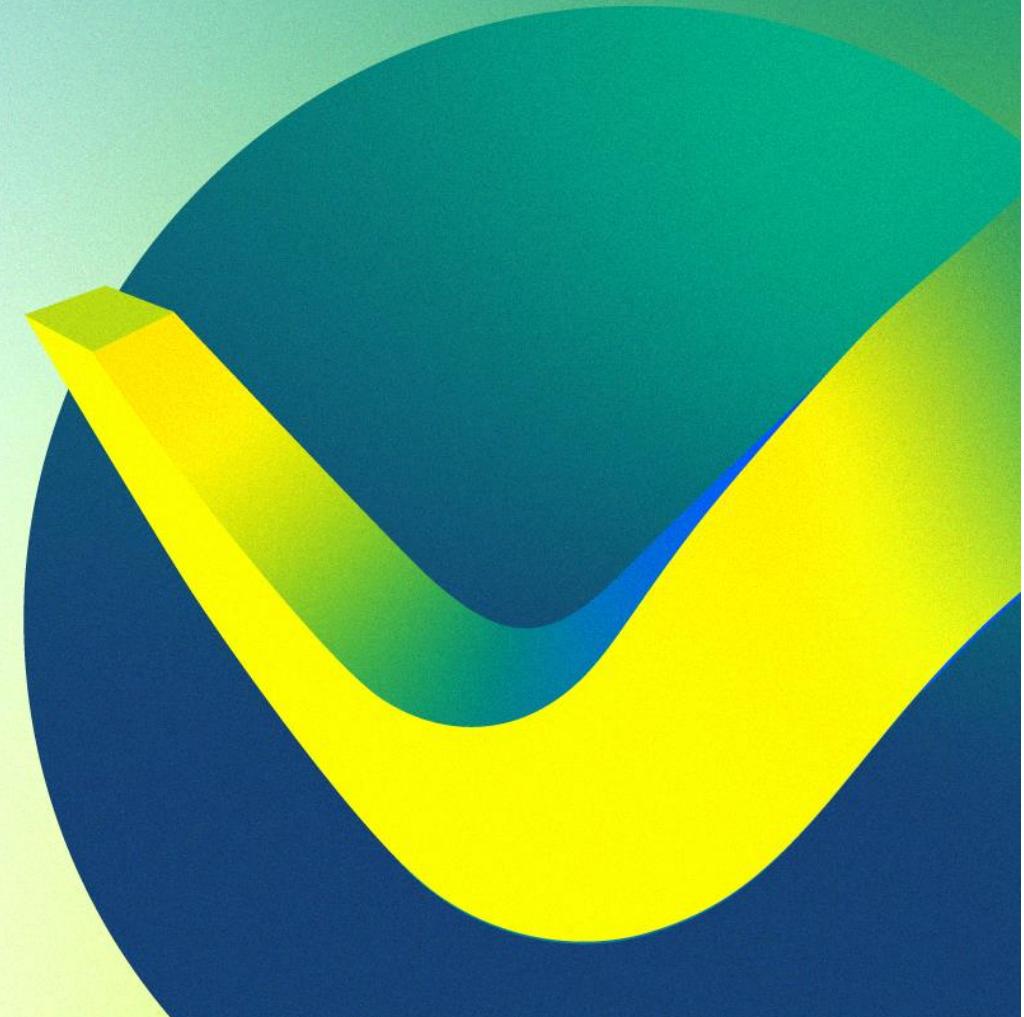
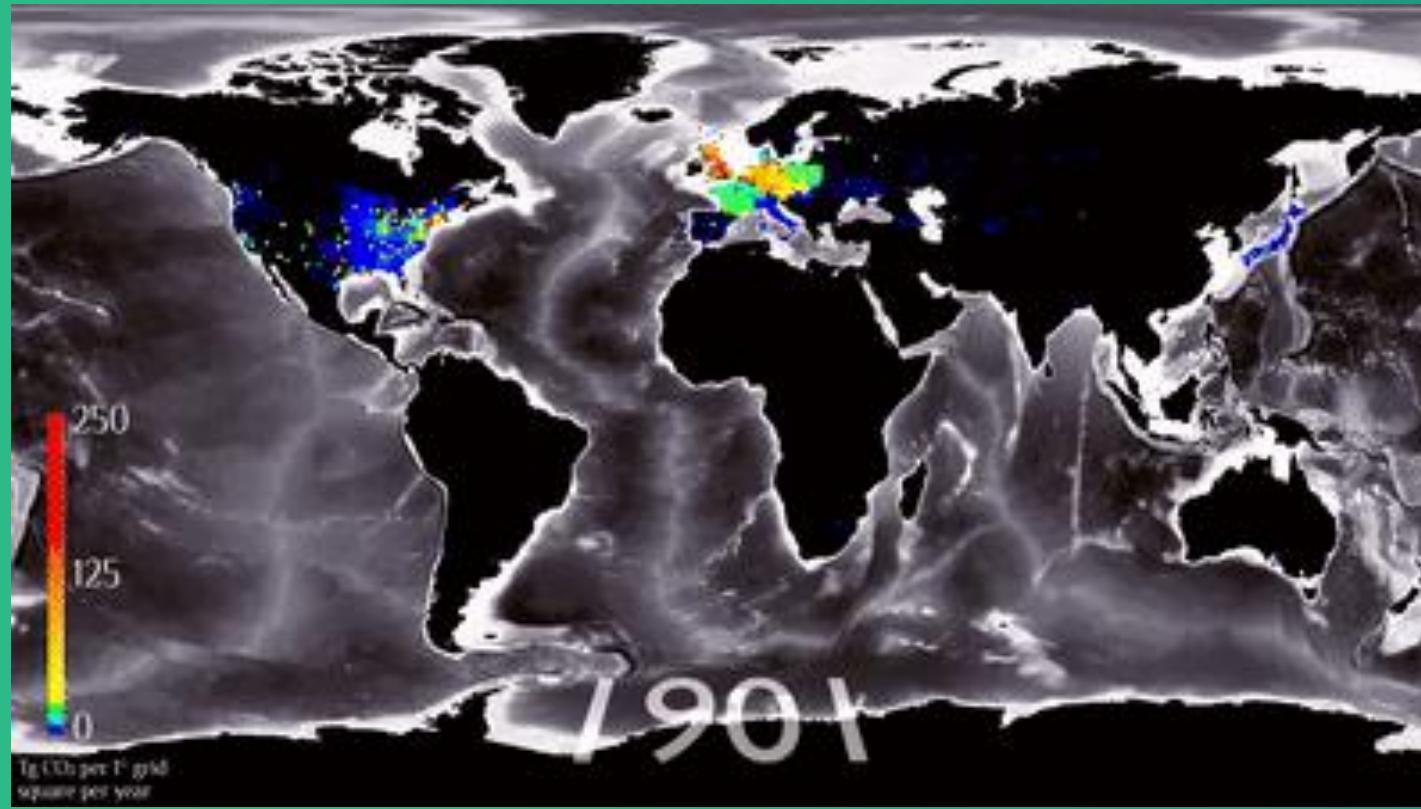


The way to climate neutrality – Carbon footprint in the future

Jonas Adolfsson

Business Development Mobility





**CO₂ reductions required
given Paris Agreement**

Million tons CO₂

2.800

400-600

2015

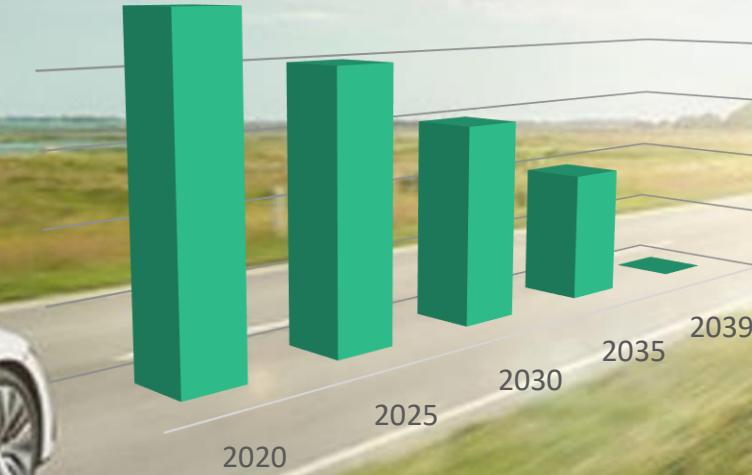
2050



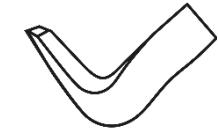
The Mobility
industri have started
the transformation



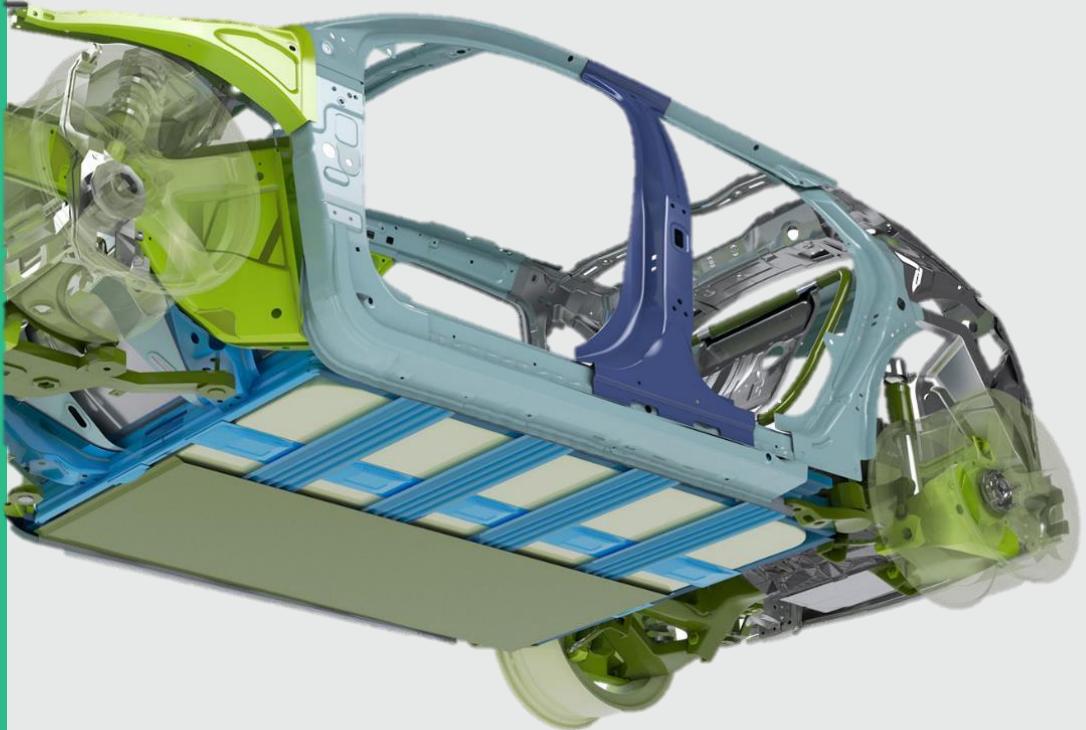
Mercedes-Benz "Ambition 2039" – carbon neutral in 2039



Electric propulsion is the future



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SSAB

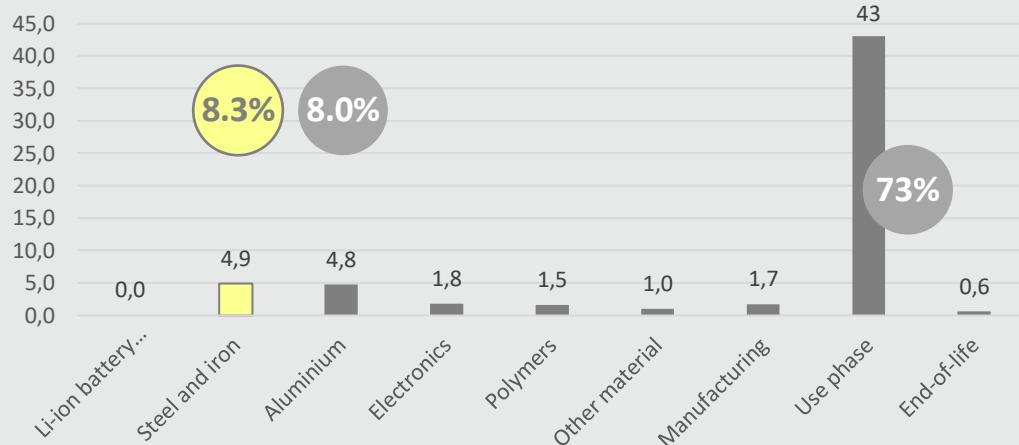
Petrol car vs. electric



Volvo XC40 (2021) with Petrol E5



59 tonnes CO₂e
per 200,000 km lifetime range



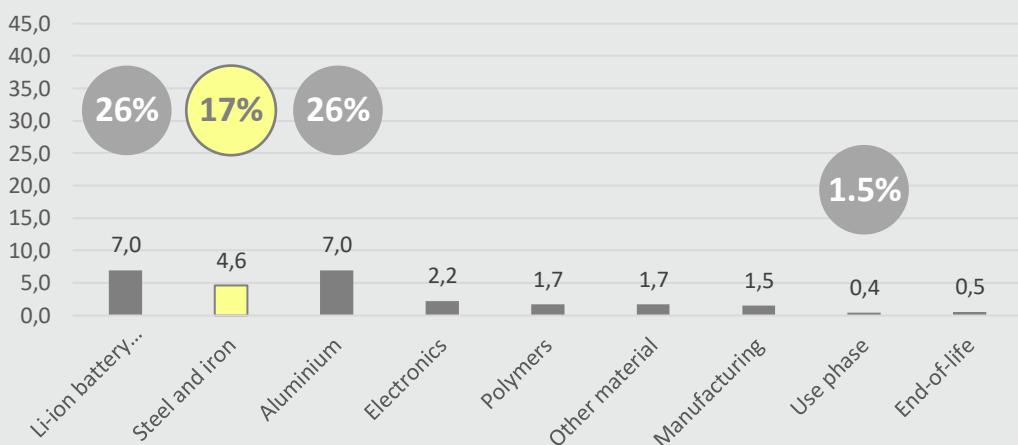
24 tons CO₂e embodied carbon (material and manufacturing)



Volvo XC40 Recharge (2021) with Wind mix

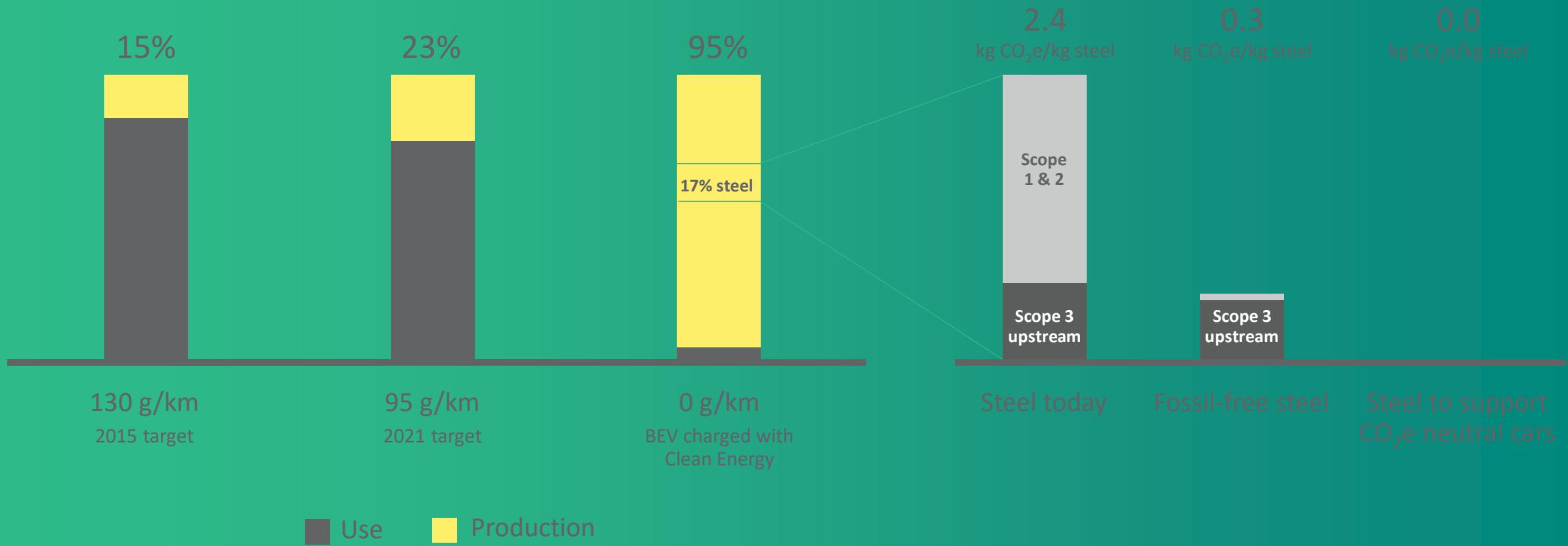


26 tonnes CO₂e
per 200,000 km lifetime range



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Reduced tailpipe emissions → More focus on embedded CO₂e



Estimated time line



2025

Advanced
engineering
starts

Product
development
starts

2027



2030

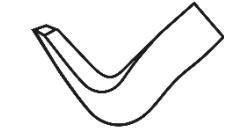
1st carbon
neutral cars

2039



Carbon neutral
company and cars

CARBON FOOTPRINT IS A PRODUCT DEVELOPMENT PARAMETER

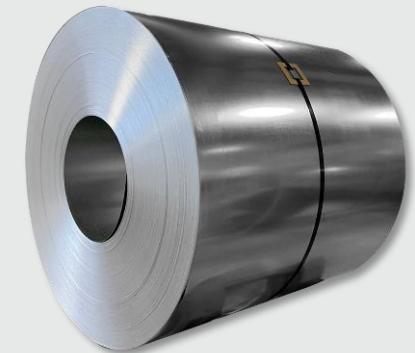


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Why is embedded carbon footprint important?



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Carbon footprint is a design parameter

- ▶ Tensile properties
- ▶ Compressive properties
- ▶ Shear properties
- ▶ Modulus of elasticity
- ▶ Hardness
- ▶ Density
- ▶ Permeability
- ▶ Thermal expansion
- ▶ Shrinkage
- ▶ Specific heat
- ▶ Creep
- ▶ Relaxation
- ▶ Fatigue
- ▶ **Carbon footprint**



It is specific.
It is measurable.
It is relevant.
It is needed to achieve goals.
It is product specific.
It takes an engineer.



How can you influence the footprint?



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CO₂e

CO₂e

LIGHTWEIGHT

Low CO₂e
Material

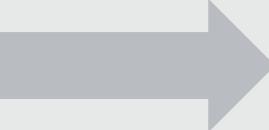
Material
Efficiency

Material
Utilization

Energy
Consumption



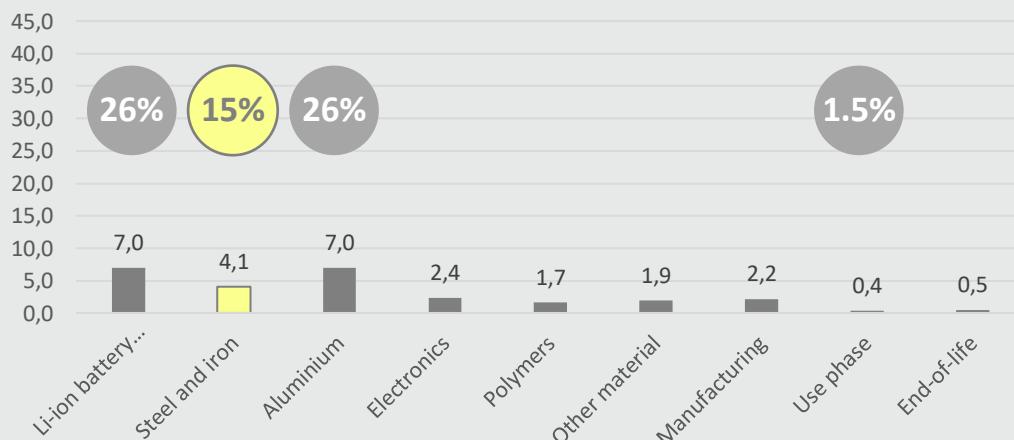
Polestar 2



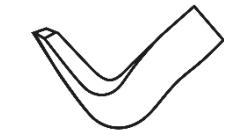
Polestar 2 Long Range Dual (2020) with Wind Power



27 tonnes CO₂e
per 200,000 km lifetime range



Polestar 0



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Polestar 0 Project
0tCO₂e

To eliminate all emissions by 2030.
24 tons CO₂e. Scope 1-3.
Including emissions from
all upstream suppliers.



Carbon emission in operations
including purchased energy (scope 1-2):

0.0

kg CO₂e emissions per kg steel (target).



Carbon emission in operations
including purchased energy and iron ore
(scope 1-2 and iron ore of scope 3 upstream):

0.0

kg CO₂e emissions per kg steel (target).





Carbon emission cradle to gate
(scope 1,2 & 3 upstream):

0.3

kg CO₂e emissions per kg steel (target).



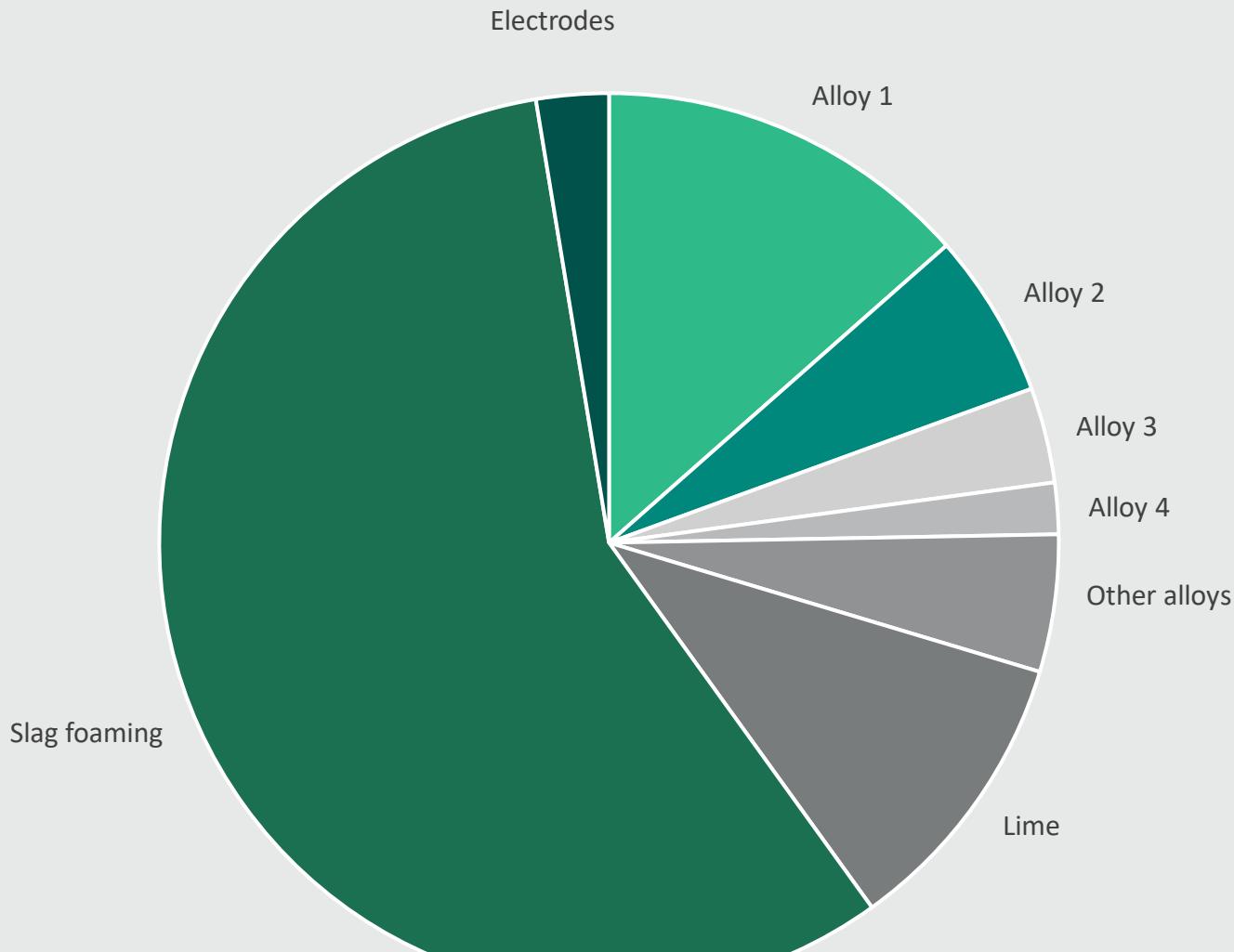
Carbon emission cradle to gate
(scope 1,2 & 3 upstream):

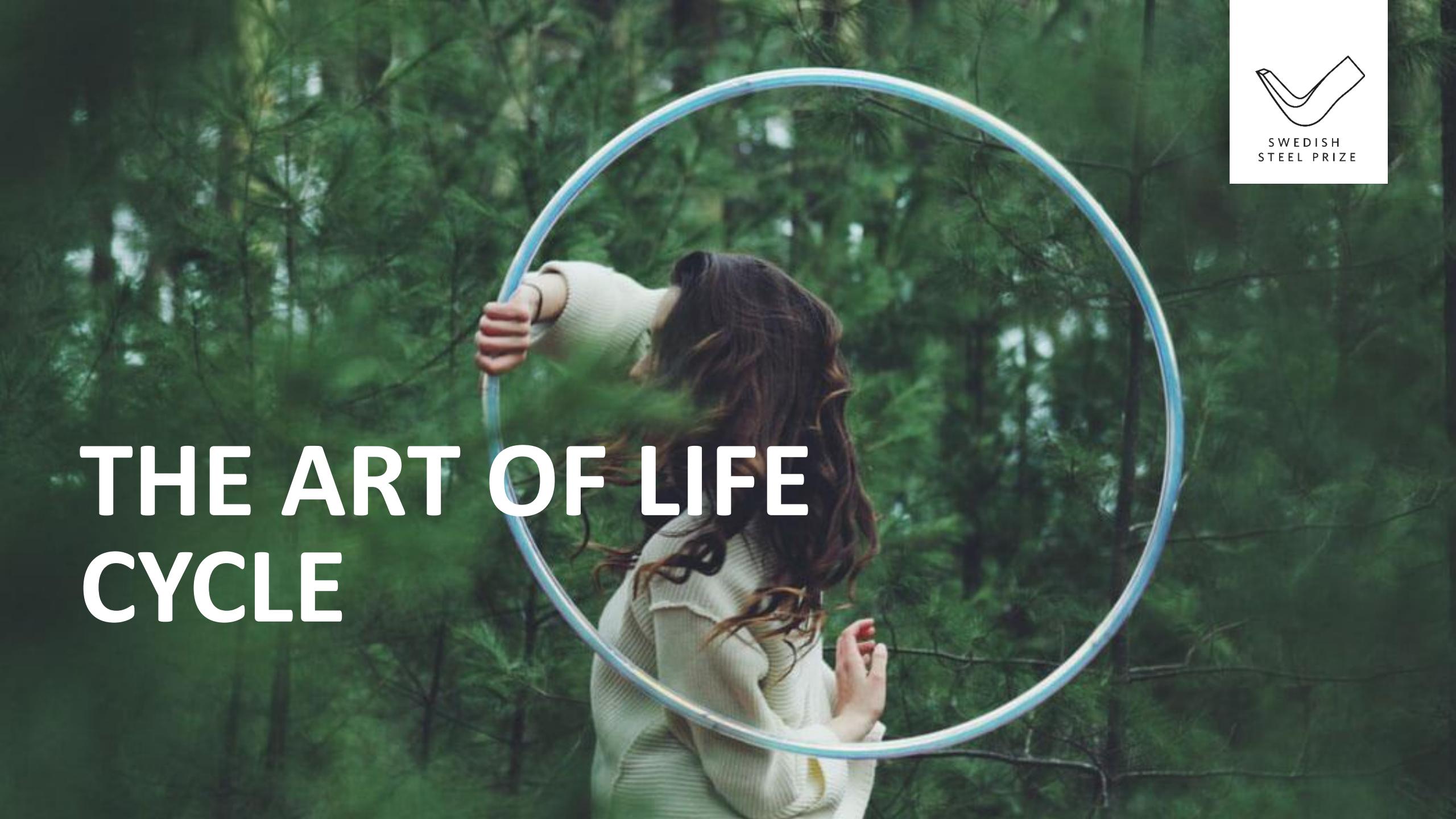
0.3

kg CO₂e emissions per kg steel (target).

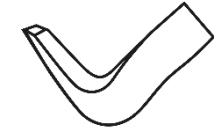


Remaining carbon footprint



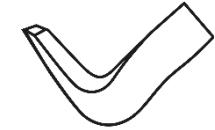


THE ART OF LIFE CYCLE

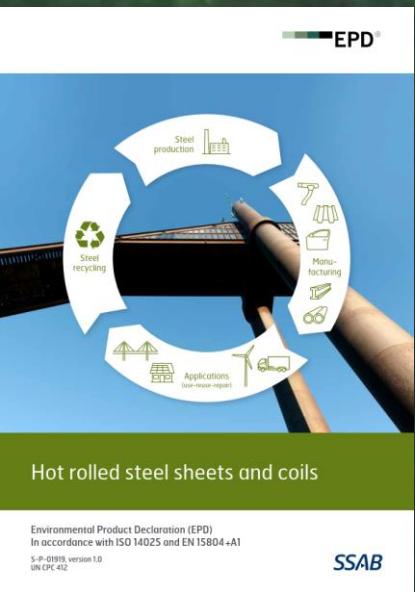


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DATA IS KING

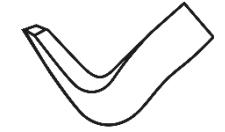


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Carbon footprint will be a design parameter

To reach carbon
neutrality



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SSAB

Resources



SSAB

- Brands & products
- Steel selector
- Fossil-free steel**
- Download center
- Support
- Services
- Contact us
- Company
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FOLLOW SSAB

The future is fossil-free! Are you in?

If you think sustainable steel production sounds like a contradiction in terms, you point. But now, it's time for a change.

Explore what a fossil-free future means for you

Not all green steel is fossil-free steel

Get to know our partners

WEBINAR  **FIRST IN FOSSIL FREE STEEL**  **WEBINAR** 

Answers to the most frequently asked questions about fossil-free steel

AVAILABLE ON-DEMAND

ENGLISH

SSAB is taking the lead in reducing the carbon footprint of the steel industry and is aiming to launch the world's first fossil-free steel by around 2026. But how does fossil-free steel production actually work? And what's the difference between green steel and fossil-free steel? Welcome to a fact-packed webinar to help you learn more about SSAB's fossil-free steel production.

Go to webinar

What is fossil-free steel and when will production start?

AVAILABLE ON-DEMAND

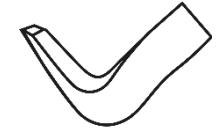
ENGLISH

Learn how SSAB's environmental product declarations, EPDs for short, work and how you can use them to see the environmental impact your product has throughout an entire life cycle. Plus, expand your knowledge on how the new steel processing technology HYBRIT produces fossil-free steel. Welcome to a fact-packed webinar with SSAB on the topic of sustainability.

Go to webinar

Go to webinar

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