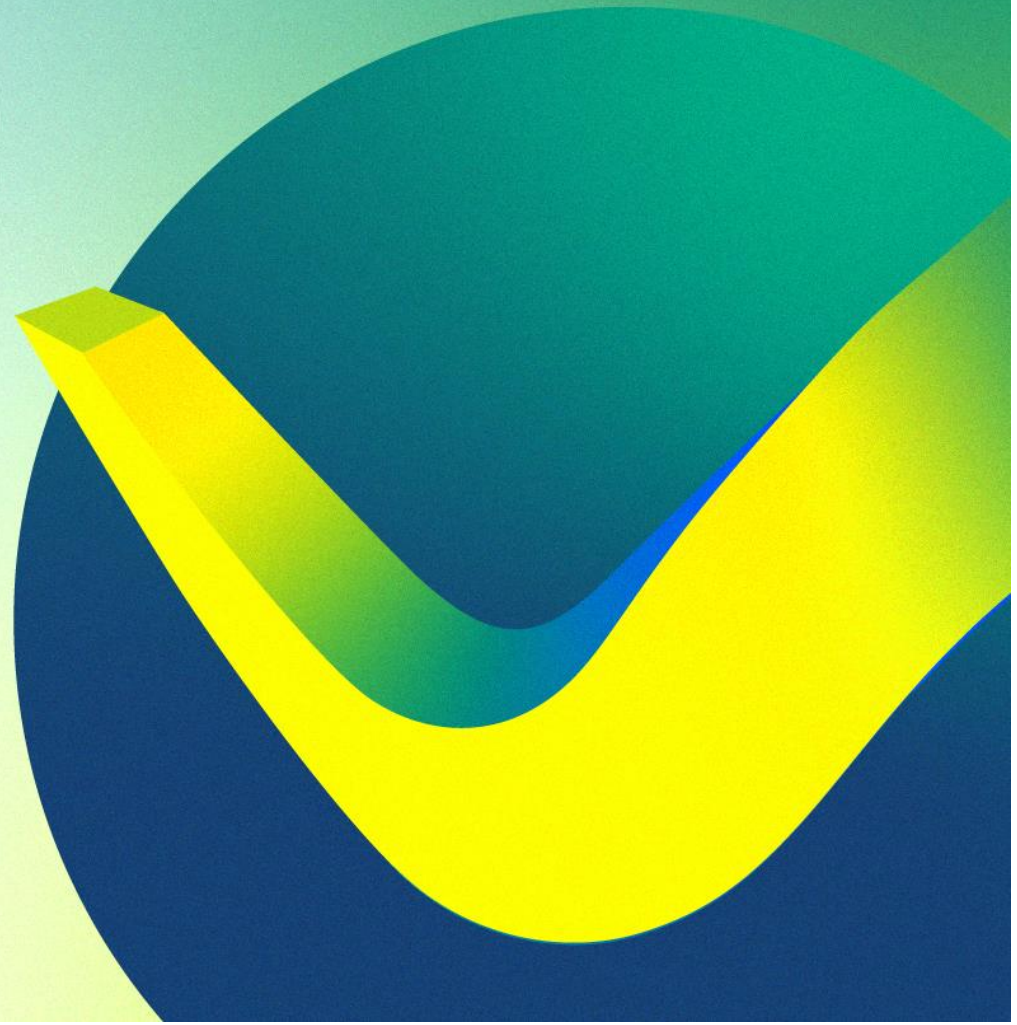
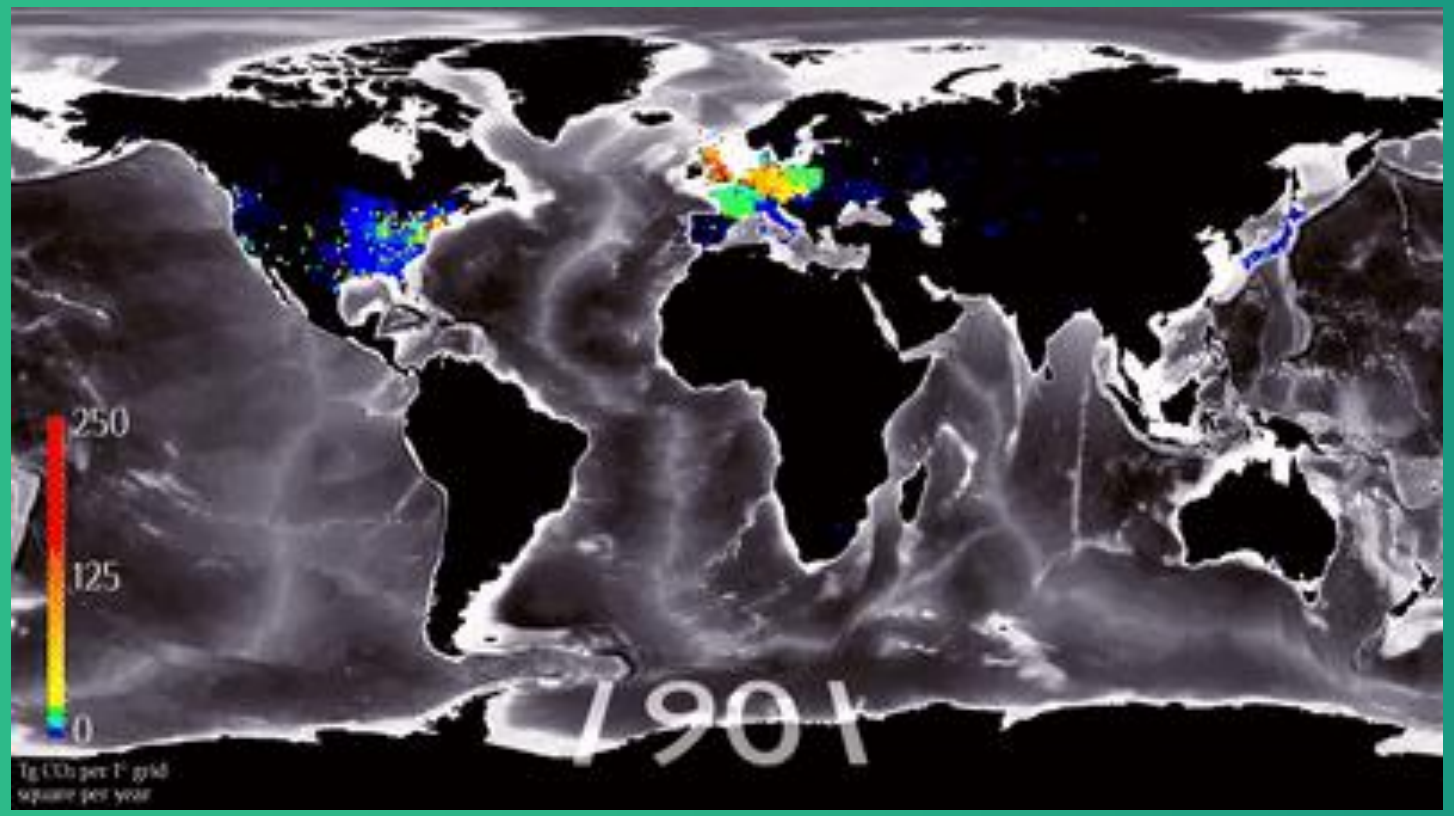
The way to climate neutrality – Carbon footprint in the future

Jonas Adolfsson

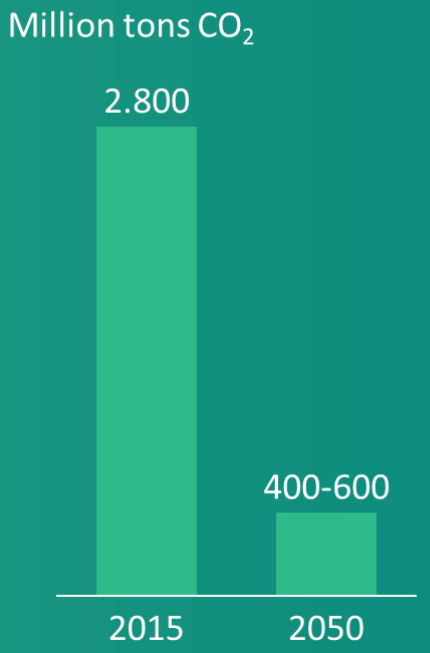
Business Development Mobility



SWEDISH
STEEL PRIZE



CO_2 reductions required given Paris Agreement



The Mobility industri have started the transformation

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Electric propulsion is the future

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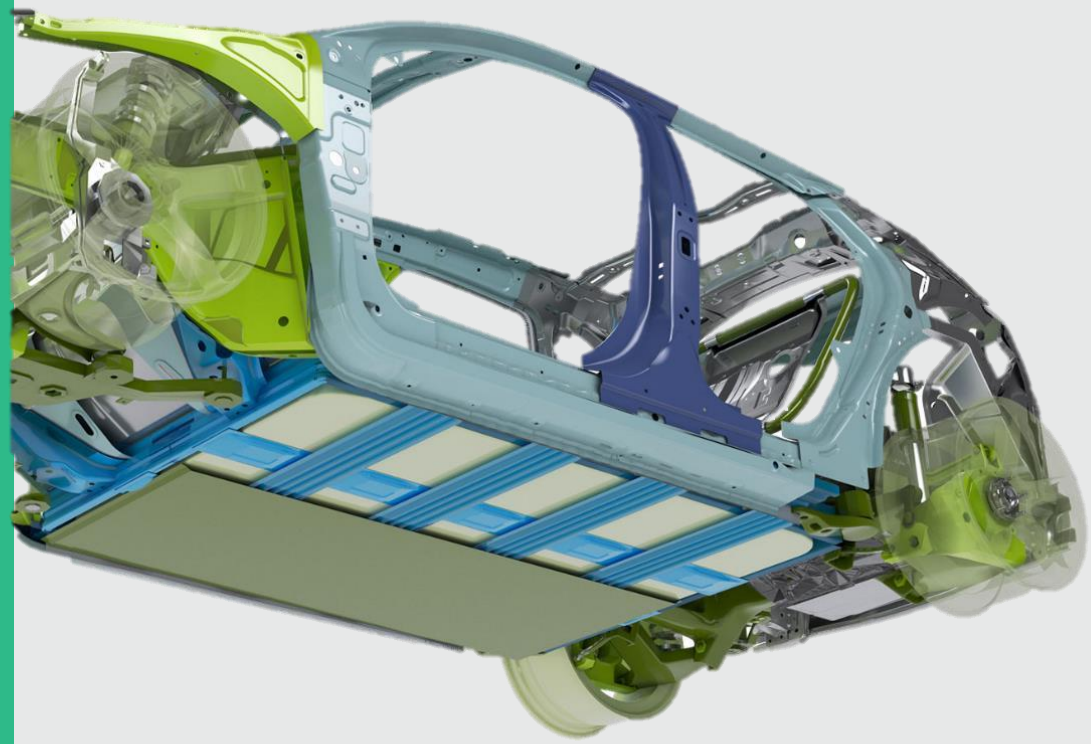

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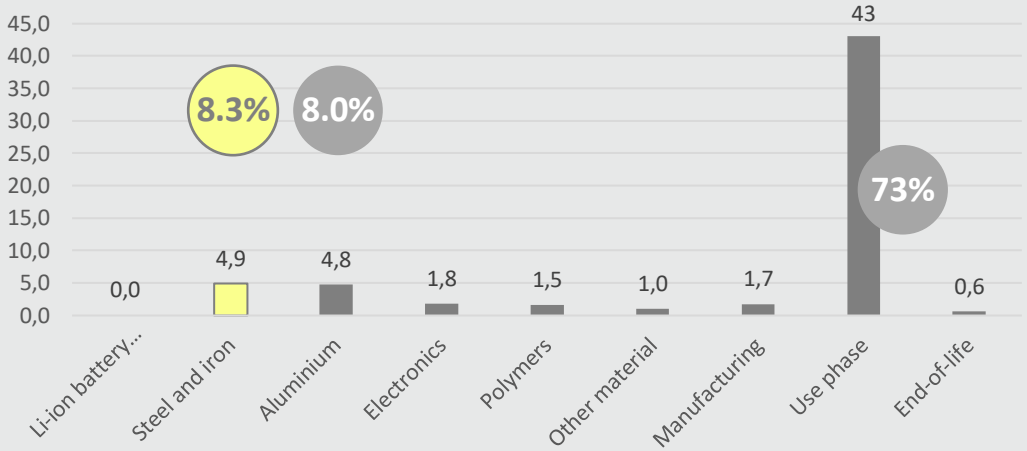
Petrol car vs. electric

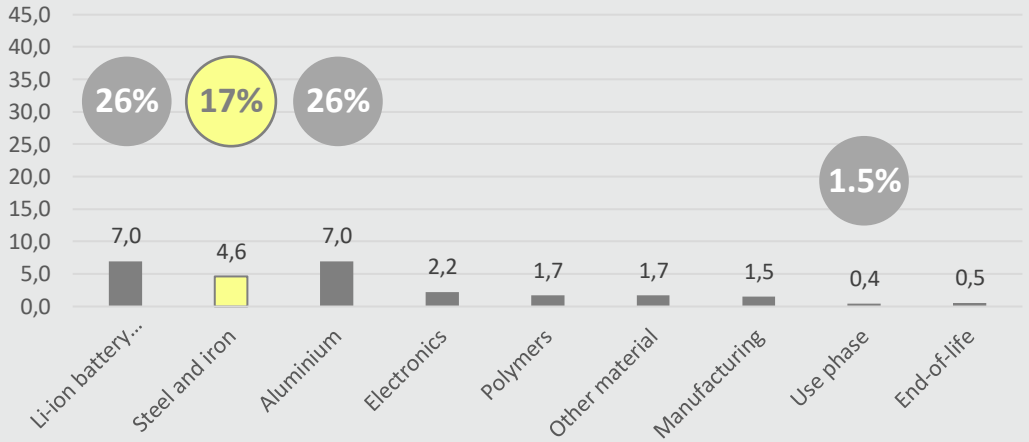
Volvo XC40 (2021) with Petrol E5

59 tonnes CO_2e
per 200,000 km lifetime range



Volvo XC40 Recharge (2021) with Wind mix

26 tonnes CO_2e
per 200,000 km lifetime range



24 tons CO2e embodied carbon (material and manufacturing)

Source: Volvo. Carbon footprint report. Volvo C40 Recharge. 2021-11-04.
Link: https://www.volvocars.com/images/v/-/media/Market-Assets/INTL/Applications/DotCom/PDF/C40/Volvo-C40-Recharge-LCA-report.pdf

Reduced tailpipe emissions
→ More focus on embedded CO_2e

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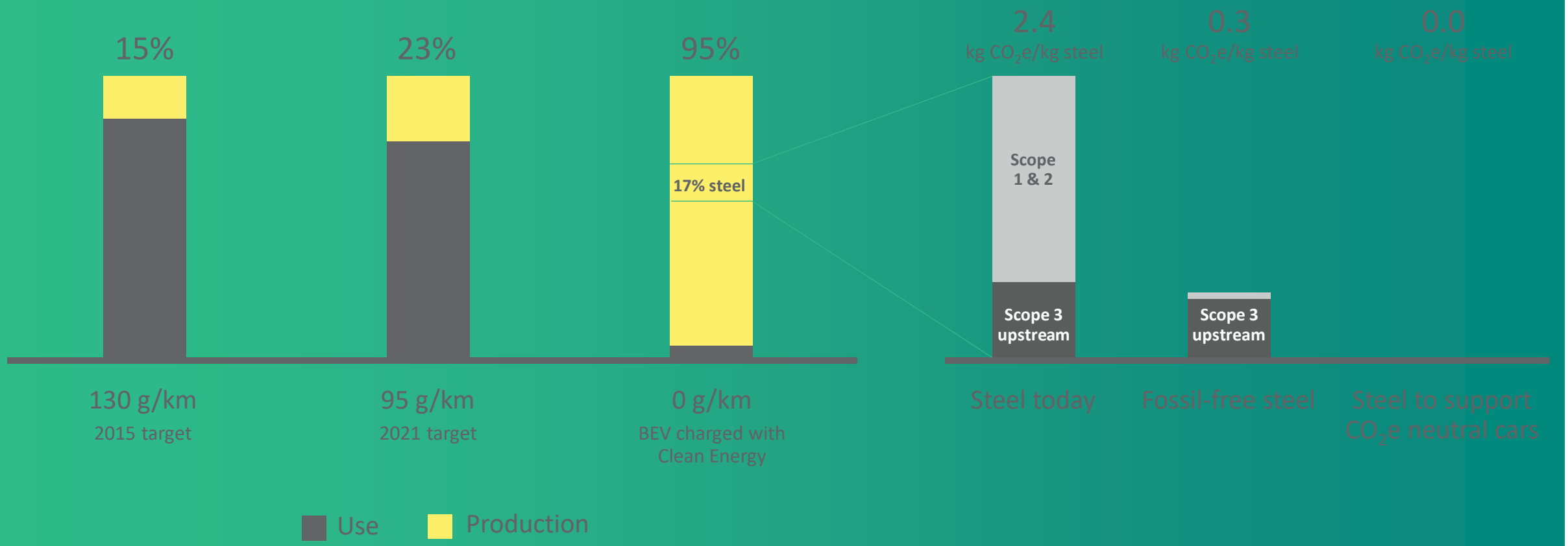

Estimated time line

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2025 — Advanced engineering starts

2027 — Product development starts

2030 — 1st carbon neutral cars

2039 — Carbon neutral company and cars

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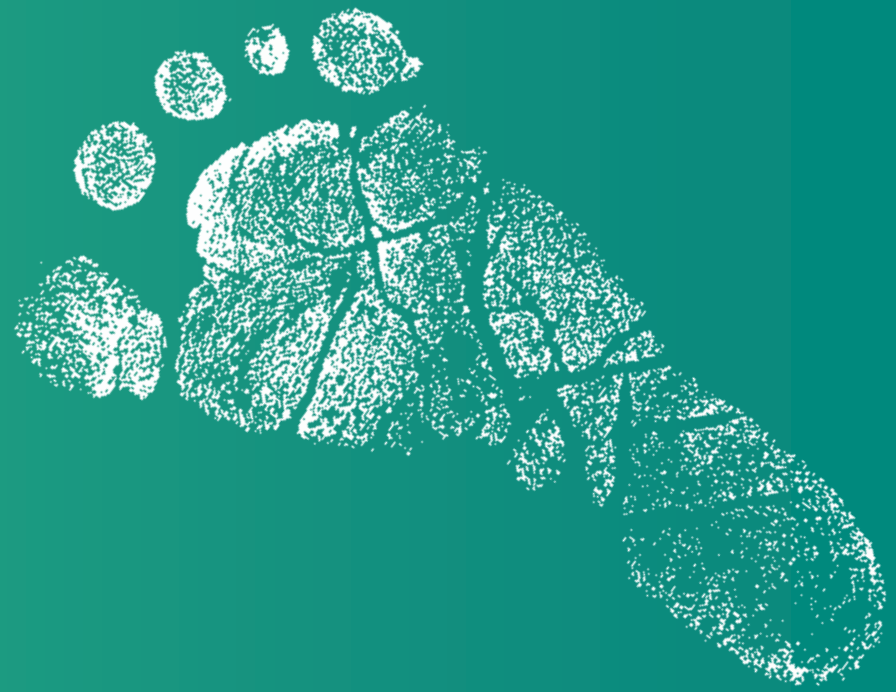
CARBON FOOTPRINT IS A PRODUCT DEVELOPMENT PARAMETER



Why is embedded carbon footprint important?

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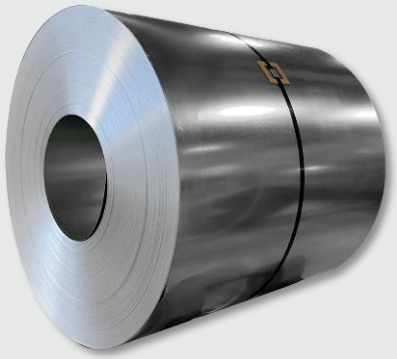

SSAB ZERO™ STEEL

SSAB FOSSIL FREE STEEL™

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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.

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How can you influence the footprint?

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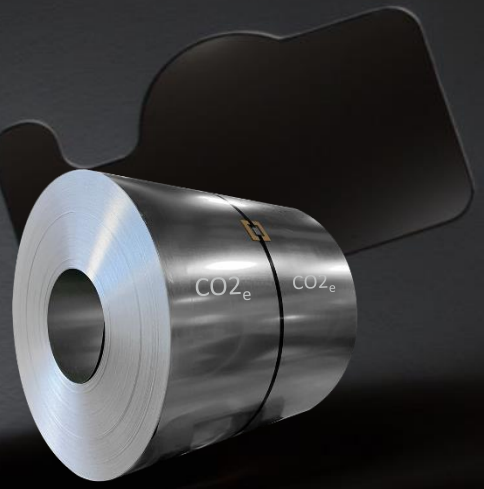


LIGHTWEIGHT

Low CO2e Material

Material Efficiency

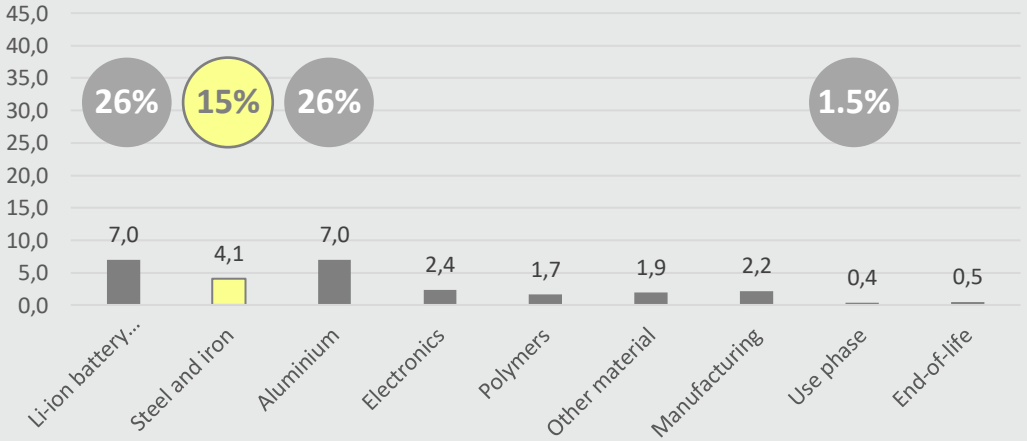
Material Utilization

Energy Consumption

Polestar 2

Polestar 2 Long Range Dual (2020) with Wind Power

27 tonnes CO_2e
per 200,000 km lifetime range



Polestar 0

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Polestar 0 Projec

$0 tCO_2e$

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

Source: Polestar. Life cycle assessment. Cradle-to-grave. Carbon footprint of Polestar 2. 2020-09-15.
Link: https://www.polestar.com/dato-assets/11286/1600176185-20200915polestarlcafinala.pdf

SSAB ZERO® STEEL

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

0.0

kg CO_2e emissions per kg steel (target).

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SWEDISH STEEL PRIZE

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

0.0

kg CO_2e emissions per kg steel (target).

SSAB ZERO® STEEL

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

0.3

kg CO_2e emissions per kg steel (target).

SSAB FOSSIL FREE STEEL™

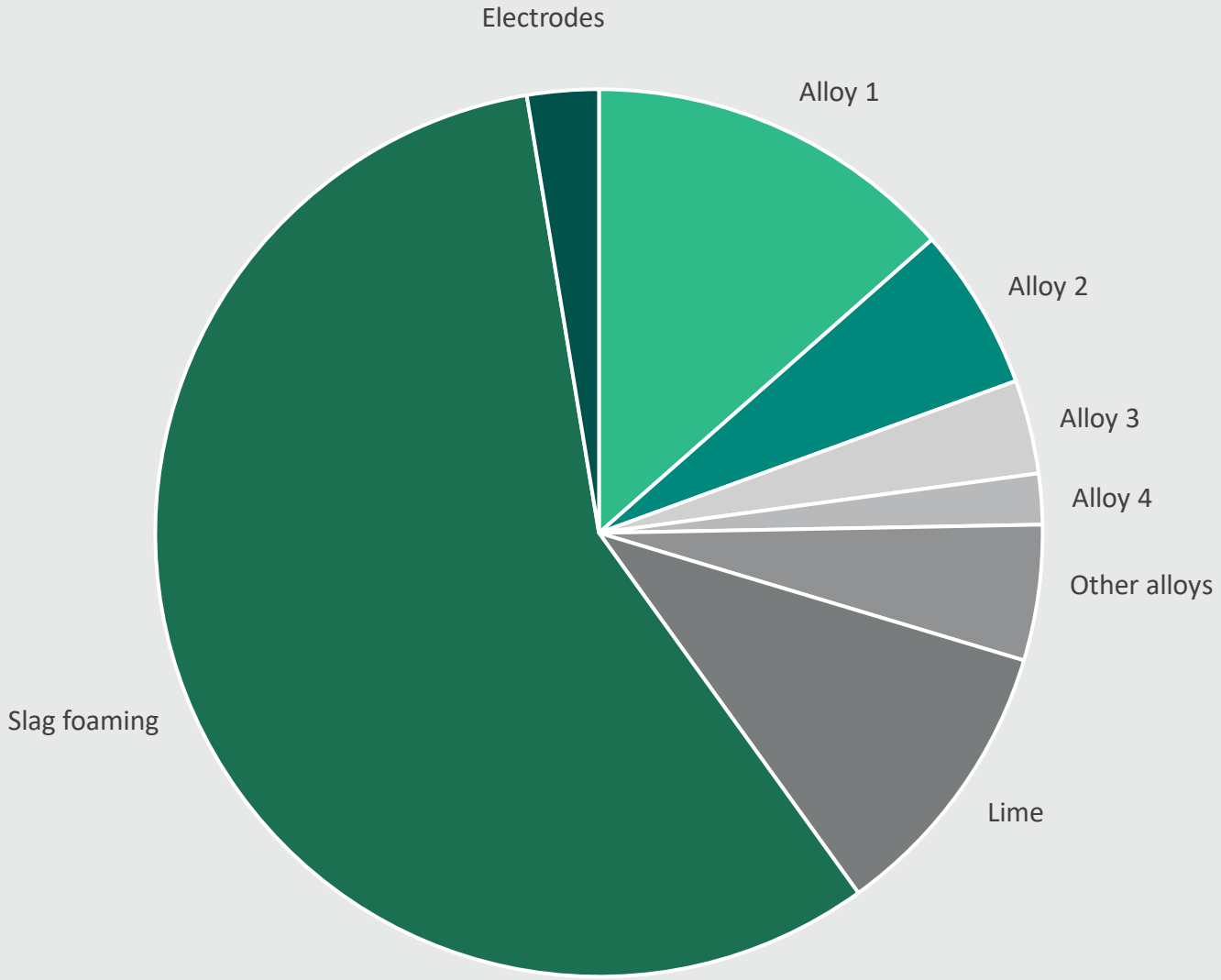
SWEDISH STEEL PRIZE

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

0.3

kg CO_2e emissions per kg steel (target).

Remaining carbon footprint

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THE ART OF LIFE
CYCLE

DATA IS KING

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Carbon footprint will be a design parameter

To reach carbon neutrality

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Resources

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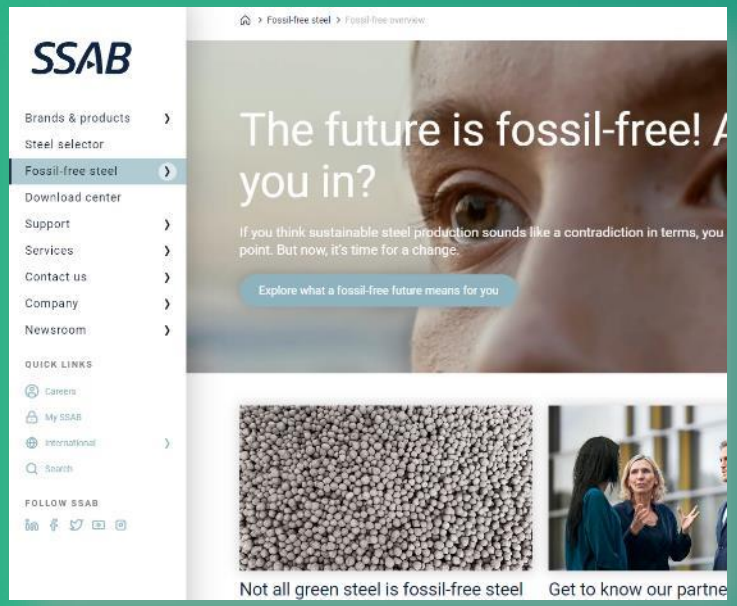

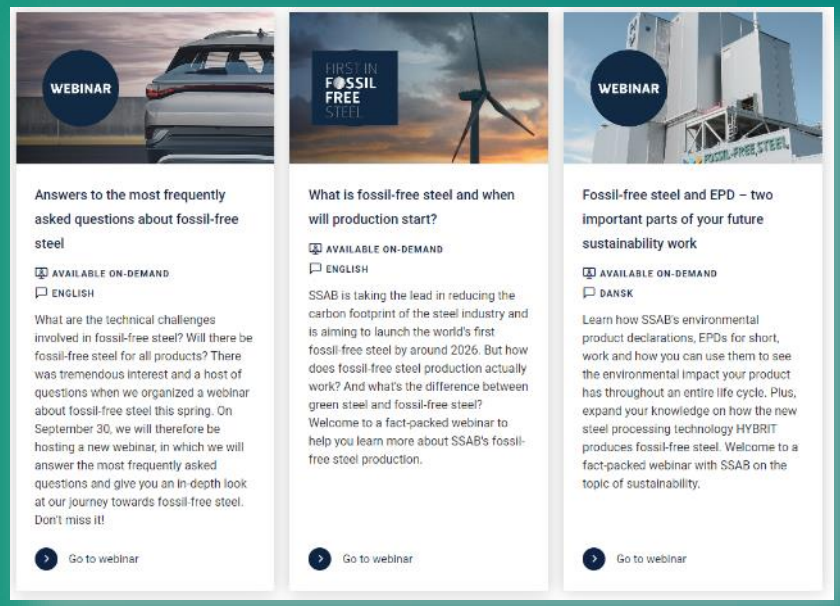

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