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Polestar 2

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Carbon footprint
Summary

Introduction

This document illustrates the carbon footprint of Polestar 2 and is taken from the Life Cycle Assessment report. That report, which can be considered a more in-depth analysis, can be read and downloaded at: polestar.com/sustainability.

The carbon footprint report of Polestar 2 is not critically reviewed but is calculated according to ISO14044 methodology. Data is based on Start of Production (SoP) for Model Year 2026 (MY26).

Introduction
Transparency

Polestar is dedicated to ensuring transparency regarding the environmental impact of its vehicles. This document aims to promote openness to all audiences by disclosing the carbon footprint associated with our passenger vehicles. This is a summary of the full Life Cycle Assessment report, available at: polestar.com

Read the full report →

Introduction
Carbon footprint

A carbon footprint is the total amount of greenhouse gas emissions, expressed in CO_2 equivalents, caused throughout the entire life cycle of a vehicle.

In the cradle-to-gate calculations we include:

- Material production and refining. From raw materials to components (including battery).
- Manufacturing and logistics. Energy used in assembly plant, transport of parts to the manufacturing plants and finished vehicles delivered directly to the dealer.

For the cradle-to-grave calculations we add on and include:

- Use phase. Electricity consumed during assumed 200,000 km of driving over 15 years.
- Maintenance. Parts replaced during the vehicle lifetime.
- End-of-life. Dismantling and disposal of the vehicle.

By assessing the full life cycle, we can identify the processes and materials with the greatest climate impact, enabling us to make better design choices and drive decarbonisation across our value chain.

Use phase calculation based on

15 years

200 000 km

Introduction
How we measure

How do we measure it?
Our assessments follow the ISO 14044 standard and use the 100-year global warming potential (GWP) factors from the IPCC (2021). The functional unit is the production and use of a Polestar 2 with a lifetime distance of 200,000 km assumed over 15 years. Energy use is based on WLTP electricity consumption figures*. We apply a recycled content approach: emissions from recycled material inputs are included, but no credits are given for recycling at end-of-life.

Who reviews this data?
The carbon footprint report of Polestar 2 is not critically reviewed but is calculated according to ISO14044 methodology. This strengthens credibility and ensures transparency towards customers, investors, and other stakeholders.

Why does it matter?
A carbon footprint is more than a number. It gives us clarity on where emissions occur, guides material and process choices, and helps accelerate our journey to climate-neutral mobility.

*Final WLTP certification pending

The product
Technical details

Technical details	Long range Dual motor	Long range Single motor	Standard range Single motor
Powertrain	Electric	Electric	Electric
Drive type	All wheel drive	Rear wheel drive	Rear wheel drive
Power	310 kW (421 hp)	229 kW (299 hp)	200 kW (272 hp)
Max speed	205 km/h	205 km/h	205 km/h
0 - 100 km/h	4.5 s	6.2 s	6.4 s
WLTP range	596 km	659 km	554 km
Energy consumption, WLTP	15.8-17.2 kWh/100 km	14.8-15.8 kWh/100 km	14.9-15.8 kWh/100 km
Battery capacity (gross)	82 kWh	82 kWh	70 kWh
Battery pack weight, (Chemistry)	362 kg, (NMC)	362 kg, (NMC)	322 kg, (NMC)
Curb weight	2 108 kg	2 009 kg	1 949 kg

Carbon footprint
To car handover

The cradle-to-gate carbon footprint represents all processes occurring up until the point the vehicle arrives at the dealership for customer handover. When, for example, the Polestar 2 Long range Dual motor reaches its customer, the average carbon footprint totals 23.1 tCO_2e. The carbon footprint of other variants is also shown in the graph.

Continuing with the Long range Dual motor variant, the largest share of it's carbon footprint, 68%, comes from various material extractions and production such as aluminium, steel, copper, plastics, electronics, and rubber used in the vehicle (excluding the battery modules). Li-ion battery modules are the next biggest contributor, responsible for 26% of the impact for the Long range Dual motor variant.

Manufacturing and logistics account for 7%, which includes the transport of parts to the manufacturing plant and then finished vehicles transported from the plant to our customers. Emissions in manufacturing are also included, however these are lower than 0.1 tCO_2e since the plant producing them is using renewable electricity and biogas for its energy needs. The carbon footprint from logistics varies depending on which market the Polestar 2 is shipped to. The total figures presented in the graph for each model variant includes the average logistics emissions across all markets.

Cradle-to-gate carbon footprint
MY26

	Long range Dual motor	Long range Single motor	Standard range Single motor
Manufacturing and logistics	1.6	1.6	1.6
Li-ion battery modules	5.9	5.9	5.0
Material production	15.7	14.9	15.4

Carbon footprint
During lifetime

The cradle-to-grave carbon footprint is calculated based on all processes occurring over an assumed 200,000 km lifetime of the Polestar 2, including end-of-life treatment.

The carbon footprint of the use phase is highly dependent on how the electricity used to charge the Polestar 2 is generated.

Using the global average electricity mix, the GHG emissions from the use of the vehicle results in 10.8 to 10.1 tCO_2e, depending on variant, while the European average electricity mix results in 3.1 to 2.9 tCO_2e, depending on variant. Customers can make significant reductions to their climate impact by charging with renewable electricity: charging exclusively with wind power electricity results in 0.4 tCO_2e.

Both the Global and European electricity mixes include carbon intensity reductions that are estimated to occur during the assumed 15-year lifetime of the vehicle. Data is sourced from the International Energy Agency (IEA) according to their STEPS Scenario.

Cradle-to-grave carbon footprint

MY26, Long range Dual motor

End-of-Life	0.5
Use phase, Global electricity mix	10.8
Use phase, European electricity	3.1
Use phase, Wind electricity mix	0.4
Maintenance	1.6
Manufacturing and logistics	1.6
Li-on battery modules	5.9
Material production	15.7

Cradle-to-grave carbon footprint

MY26, Long range Single motor

End-of-Life	0.5
Use phase, Global electricity mix	10.1
Use phase, European electricity	2.9
Use phase, Wind electricity mix	0.4
Maintenance	1.6
Manufacturing and logistics	1.6
Li-on battery modules	5.9
Material production	14.9

Cradle-to-grave carbon footprint

MY26, Standard range Single motor

End-of-Life	0.5
Use phase, Global electricity mix	10.2
Use phase, European electricity	2.9
Use phase, Wind electricity mix	0.4
Maintenance	1.6
Manufacturing and logistics	1.6
Li-on battery modules	5.0
Material production	15.4