

# Volkswagen Green Finance Report

November 2023

CLASSIFICATION: PUBLIC

# DISCLAIMER

The following presentations as well as remarks/comments and explanations in this context contain forward-looking statements on the business development of the Volkswagen Group. These statements are based on assumptions relating to the development of the economic, political and legal environment in individual countries, economic regions and markets, and in particular for the automotive industry, which we have made on the basis of the information available to us and which we consider to be realistic at the time of going to press. The estimates given entail a degree of risk, and actual developments may differ from those forecast. All figures are rounded, so minor discrepancies may arise from addition of these amounts.

At the time of preparing these presentations, it is not yet possible to conclusively assess the specific effects of the latest developments in the Russia-Ukraine conflict on the Volkswagen Group's business, nor is it possible to predict with sufficient certainty to what extent further escalation of the Russia-Ukraine conflict will impact on the global economy and growth in the industry in fiscal year 2023.

Any changes in significant parameters relating to our key sales markets, or any significant shifts in exchange rates, energy and other commodities or the supply with parts relevant to the Volkswagen Group will have a corresponding effect on the development of our business. In addition, there may also be departures from our expected business development if the assessments of the factors influencing sustainable value enhancement and of risks and opportunities presented develop in a way other than we are currently expecting, or if additional risks and opportunities or other factors emerge that affect the development of our business.

We do not update forward-looking statements retrospectively. Such statements are valid on the date of publication and can be superseded.

This information does not constitute an offer to exchange or sell or an offer to exchange or buy any securities.

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# Foreword

Dear Ladies and Gentlemen,

We are proud to continue driving forward our sustainable financing strategy at Volkswagen Group. The recent issuance of Green Bonds is an impressive milestone on our sustainable financing journey. In line with our Volkswagen Group's Green Finance Framework 2022, which is fully aligned with EU taxonomy standards, we have issued EUR 6 billion of green bonds, bringing the total volume to EUR 9.5 billion and demonstrating our commitment to credible and ambitious sustainability goals.

As a major player in the automotive industry, our goal is not just to adapt to sustainable finance, but to actively shape it and strive for a CO<sub>2</sub>-neutral future. Our strategy reflects our commitment to lead the industry to a greener future.

I thank you for your continued support on Volkswagen's journey towards environmental responsibility and sustainable growth.

Yours sincerely, Rolf Woller  
Head of Group Treasury & Investor Relations



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# Volkswagen`s Paris Agreement derived Decarbonization Program covers the entire product life cycle.

## SBTi<sup>1</sup> approved

- DCI<sup>2</sup> to be reduced by 30% compared to 2018
- Reduction measures credited only
- Ambition level for scope 1-2 is aligned with a 1.5 °C decarbonization pathway

## Net carbon neutral

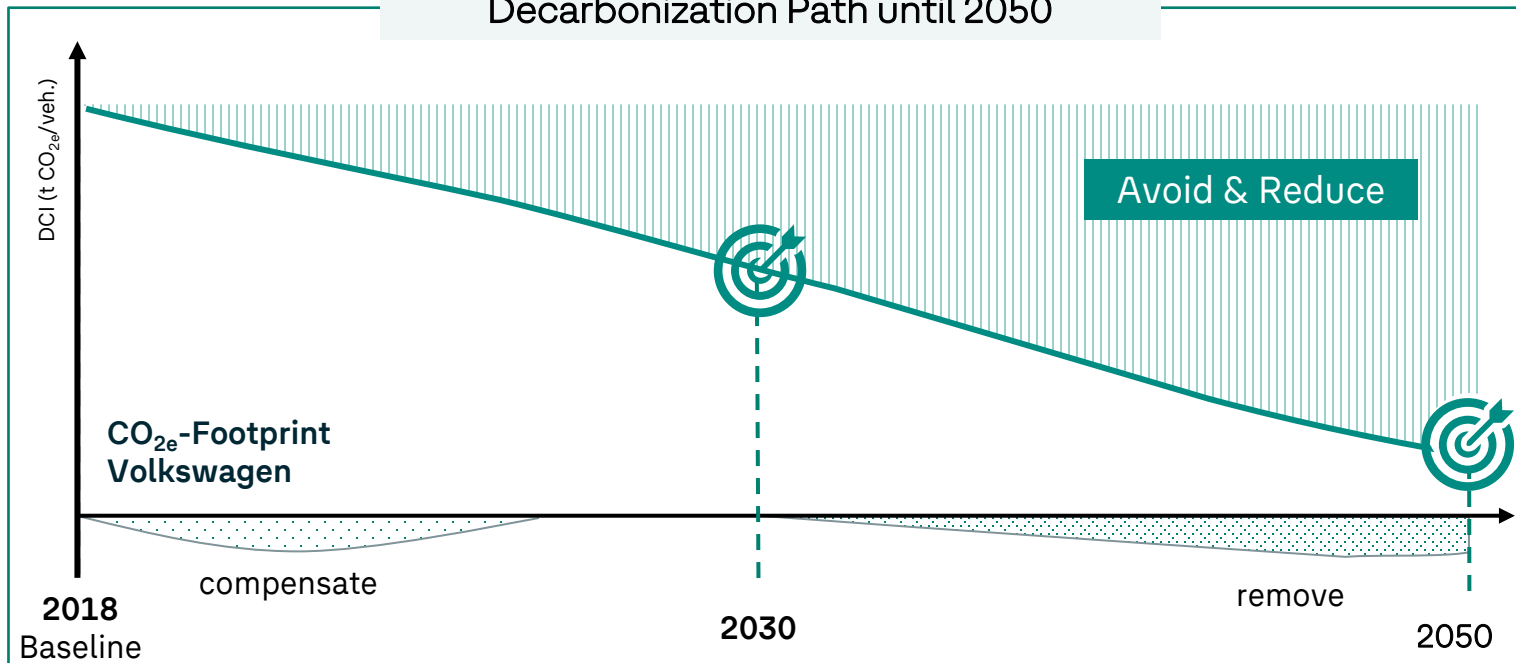
The Volkswagen group and its products to be net carbon neutral by 2050

## How we act

Group Decarbonization target






## Decarbonization Path until 2050



<sup>1</sup>Science Based Target initiative, use phase emissions reduction certified; <sup>2</sup>Decarbonization Index

# Implementation of measures reflected in improved ESG ratings

Agencies	2020	2023	Target 2025	Status
MSCI	CCC	B	BBB	
Sustainalytics <sup>1</sup>	41	26	<22	
ISS ESG	C	C+	C+	

**30% emission reduction by 2030 on track**

**'PAI'<sup>2</sup> Scorecard published**

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# Sustainable Financing as part of our DNA



We believe that Green Debt Instruments are effective tools to channel investments to projects that demonstrate climate benefits and thereby contribute to the achievement of the Paris Climate Agreement and the United Nations' Sustainable Development Goals ("UN SDGs").



We aim to increase the use of Green Debt Instruments in the coming years significantly. Our target is to base all our future Green Bond transactions on EU taxonomy aligned standards.



We want to stay in regular contact and exchange with you – our investors – on further developments in the field of sustainable and green debt instruments. We appreciate the dialogue with you and have the clear ambition to match or exceed your expectations.

# EU Taxonomy

## Introduction to the Framework<sup>1</sup>

### Activity Eligibility

The EU Taxonomy is a classification system for sustainable economic activities.

An economic activity is considered taxonomy-eligible if it is listed in the EU Taxonomy and can therefore potentially contribute to realizing at least one of the following six environmental objectives:

- 1 | Climate change mitigation
- 2 | Climate change adaptation
- 3 | Sustainable use and protection of water and marine resources
- 4 | Transition to a circular economy
- 5 | Pollution prevention and control
- 6 | Protection and restoration of biodiversity and ecosystems.

### Activity Conditions

An activity is only considered environmentally sustainable, i.e. taxonomy-aligned, if it meets all three of the following conditions:

- 1 | The activity makes a substantial contribution to one of the environmental objectives by meeting the screening criteria defined for this economic activity, e.g. level of CO<sub>2</sub> emissions for the climate change mitigation environmental objective. We are committed to the Paris Climate Agreement and align our own activities with the 1.5 °C goal. We aim to achieve net carbon neutrality by 2050.
- 2 | The activity meets the Do-No-Significant-Harm (DNSH) criteria defined for this economic activity. These are designed to prevent significant harm to one or more of the other environmental objectives, e.g. from the production process or by the product.
- 3 | The activity is carried out in compliance with the minimum safeguards, which apply to all economic activities and relate primarily to human rights and social and labor standards.

<sup>1</sup>as stated in the Group sustainability report 2022: <https://www.volkswagen-group.com/en/publications/more/group-sustainability-report-2022-1644>

# Extract of the Green Finance Framework 2022

## EU Taxonomy aligned

VW Group has established processes for **EU taxonomy reporting** (Article 8).

This report applies the EU Taxonomy Regulation including:

- ✓ **EU Environmental Objectives, the**
- ✓ **Technical Screening Criteria (TSC), the**
- ✓ **Do No Significant Harm (DNSH) criteria and**
- ✓ **Minimum Social Safeguard requirements**

## Third-Party Review

Volkswagen Group's EU taxonomy reporting (Article 8) will be **externally audited** on a **reasonable assurance basis**, as it is part of the Group Management Report. Given that the Eligible Green Portfolio **only** consists of **EU taxonomy aligned capital expenditures**, it will have been subject to this audit process.

## Eligible Assets

**ICMA Green Bond Principles Eligible Green Project Category:** Clean Transportation

**Substantial contribution to Environmental Objective:** Climate Change Mitigation

**United Nation Sustainable Development Goals:** 9.1, 9.5, 11.6, 13.1



Economic activity EU taxonomy	Allocation in the Volkswagen Group	Additional criteria and information on the Eligible Green Portfolio
3.3 Manufacture of low-carbon technologies for transport	Vehicle-related business	IFRS accounted additions to capitalized development costs <sup>1</sup> for the BEVs (Battery Electric Vehicles) and, the IFRS accounted additions to property, plant and equipment <sup>2</sup> for BEVs

<b>Exclusions</b>	<ul style="list-style-type: none"> <li>✗ plug-in hybrid electric vehicles (PHEVs)</li> <li>✗ vehicles with combustion engines</li> </ul>
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<sup>1</sup>Include all direct and indirect costs that are directly attributable to the development process (as defined in the notes to the Consolidated Financial Statements of the Annual Report)

<sup>2</sup>Such as buildings, site improvements, technical equipment and machinery or other equipment and operating equipment, including special tools (as defined in the notes to the Consolidated Financial Statements of the Annual Report)

# EUR 17bn of Eligible Assets

## Taxonomy aligned Capital Expenditure

### EU Taxonomy Criteria

**Substantial contribution**  
to at least one of the environmental objectives

**Do no significant harm (DNSH)**  
to any of the other environmental objectives

**Minimum safeguards**  
comply with OECD Guidelines, UN Guiding Principles on Business and Human Rights, ILO fundamental conventions

**Economic activity is environmentally sustainable**

### Capital Expenditure - Extracts from Annual Reports for 2021 & 2022<sup>1</sup>

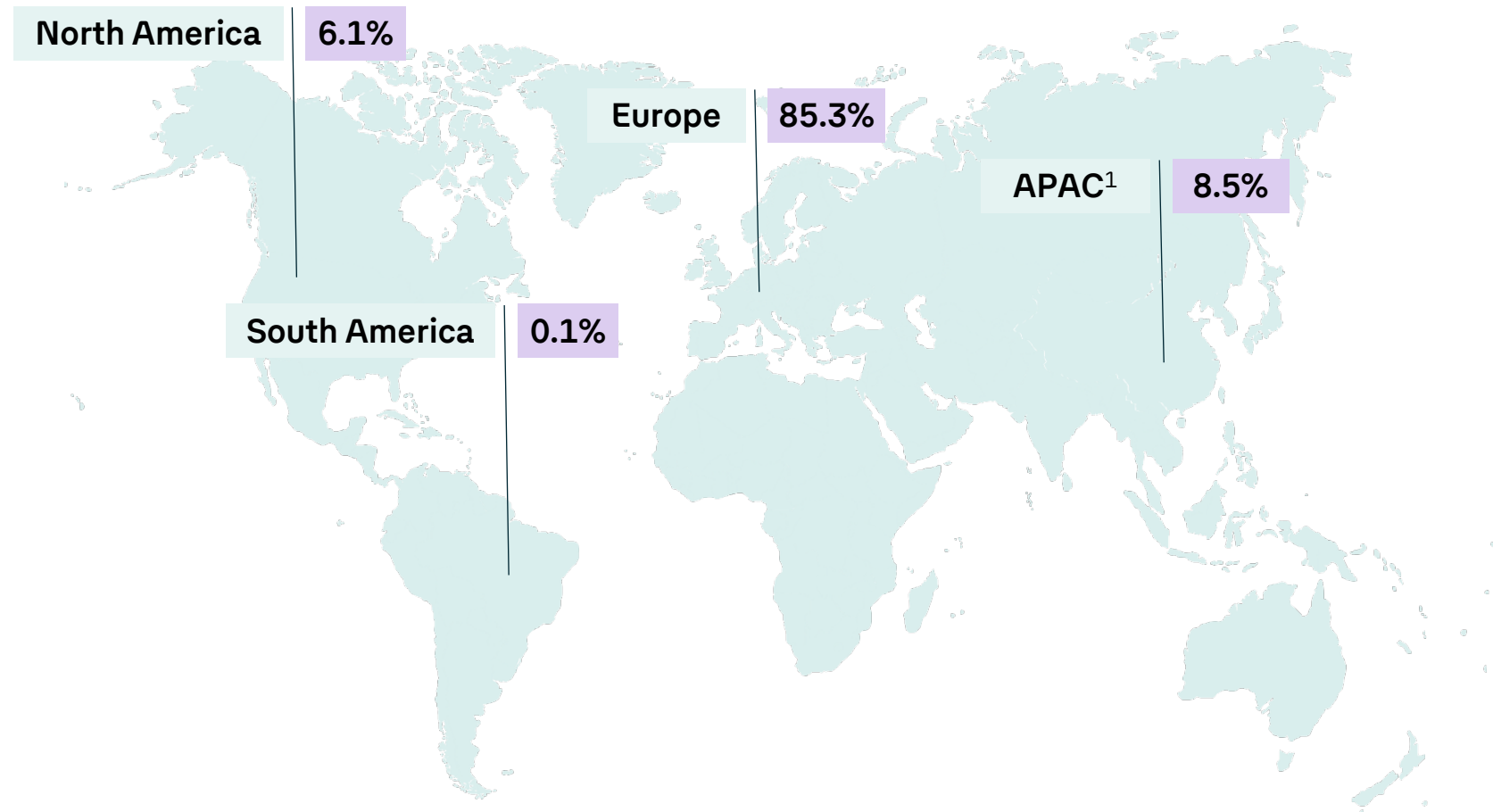
	CAPITAL EXPENDITURE		SUBSTANTIAL CONTRIBUTION TO CLIMATE CHANGE MITIGATION		COMPLIANCE WITH DNSH CRITERIA	COMPLIANCE WITH MINIMUM SAFEGUARDS	TAXONOMY-ALIGNED CAPITAL EXPENDITURE	
	€ million	% <sup>1</sup>	€ million	% <sup>1</sup>	Y/N	Y/N	€ million	% <sup>1</sup>
<b>2022</b>								
Economic activities								
<b>A. Taxonomy-eligible activities</b>	<b>48,873</b>	<b>99.6</b>	<b>16,943</b>	<b>34.5</b>	<b>Y</b>	<b>Y</b>	<b>16,943</b>	<b>34.5</b>
Vehicle-related business								
3.3 Manufacture of low-carbon technologies for transport	48,786	99.4	16,917	34.5	Y	Y	16,917	34.5
of which additions to capitalized development costs for BEVs					Y	Y	4,415	9.0
of which additions to property, plant and equipment for BEVs					Y	Y	5,398	11.0
<b>2021</b>								
Economic activities								
<b>A. Taxonomy-eligible activities</b>	<b>53,596</b>	<b>99.2</b>	<b>14,437</b>	<b>26.7</b>	<b>Y/N</b>	<b>Y</b>	<b>14,165</b>	<b>26.2</b>
Vehicle-related business								
3.3 Manufacture of low-carbon technologies for transport	53,531	99.1	14,437	26.7	Y/N	Y	14,165	26.2
of which additions to capitalized development costs for BEVs (passenger cars and light commercial vehicles)	-	-	-	-	Y	Y	3,504	6.5
of which additions to property, plant and equipment for BEVs (passenger cars and light commercial vehicles)	-	-	-	-	Y	Y	3,760	7.0



<sup>1</sup>Extracts from Volkswagen Group annual reports; for the full table & details please see Annual Report 2022 (p.215) and Annual Report 2021 (p.174)

# Taxonomy aligned Capital Expenditure in 2021 and 2022

## Allocation by Region



<sup>1</sup>Including China

# Our Green Bond Portfolio

Fully allocated towards Eligible Assets/Projects

## Our Green Bond Portfolio

ISIN	Framework	Due Date	Coupon (%)	Amount (m)
XS2234567233	2020	09-22-2028	0.875	1,250
XS2234567662	2020	09-23-2032	1.250	750
XS2491738352	2020	03-28-2025	3.125	750
XS2491738949	2020	09-28-2027	3.750	750
XS2554487905	2022	11-15-2025	4.125	1,000
XS2554488978	2022	02-15-2028	4.250	750
XS2554489513	2022	05-15-2030	4.375	750
XS2604697891	2022	03-29-2026	3.875	1,000
XS2604699327	2022	03-29-2029	4.250	750
XS2675884576	2022	perpetual	7.500	1,000
XS2675884733	2022	perpetual	7.875	750

3,500  
€m

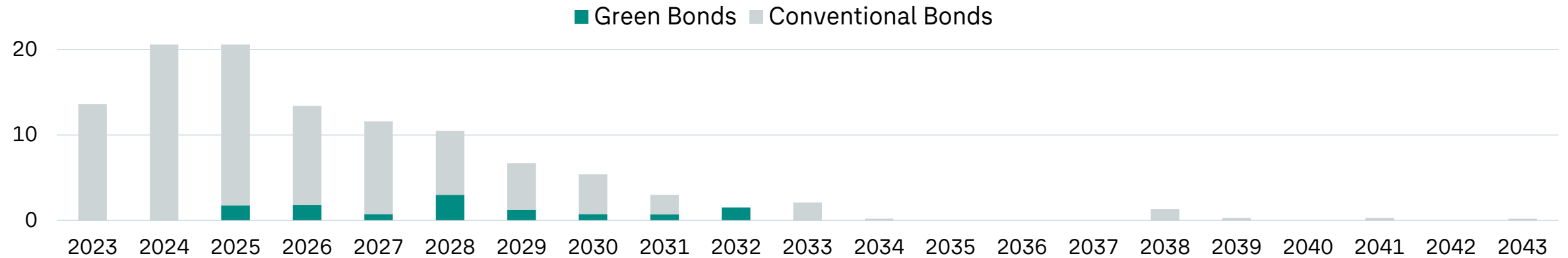
Bonds issued under Volkswagen Group's Green Finance Framework 2020  
Fully Allocated towards Eligible Green Project Portfolio 2017-2020

6,000  
€m

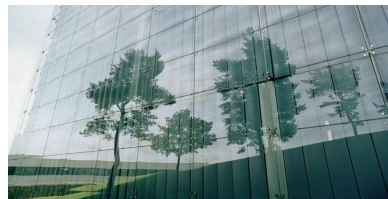
Bonds issued under Volkswagen Group's Green Finance Framework **2022**  
Fully Allocated towards Eligible Green Portfolio 2021-2022

# Volkswagen Group is a well-established issuer in the Green Bond market

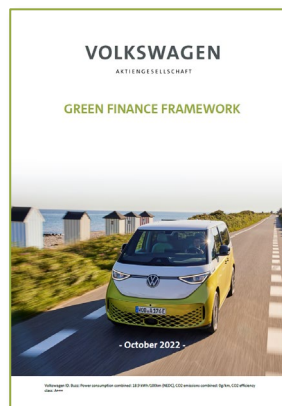
## Green Bond Maturity Profile<sup>1</sup>



## Further Information on Volkswagen's Green Bonds



Volkswagen Group - ESG Figures (including PAI Indicators)  
[volkswagenag.com](https://www.volkswagenag.com)



Volkswagen Group - Green Finance Framework 2022  
[volkswagenag.com](https://www.volkswagenag.com)



Volkswagen Group - Green Finance Framework 2022 - Second-Party Opinion.pdf  
[volkswagenag.com](https://www.volkswagenag.com)

<sup>1</sup> Includes all outstanding bonds from the Volkswagen Automotive Division (hybrids shown on first call dates) and Financial Services Division, as of 09/23

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# Life Cycle Assessment

## Methods and independent verification

### Life Cycle Assessment (LCA) based on DIN EN ISO 14040 and DIN EN ISO 14044

We are currently particularly observing the global warming potential as impact category that converts certain environmental impacts into CO<sub>2</sub> equivalents. Volkswagen AG commissioned TÜV NORD CERT Prüf- und Umweltgutachtergesellschaft mbH as an independent external body to carry out the critical review of this LCA study in accordance with the applicable standards DIN EN ISO 14040 and DIN EN ISO 14044. In accordance with the standard, the manufacturing phase from raw material extraction, the use phase comprising passenger transportation over 200,000 km in the WLTP driving cycle and the dismantling for recycling (without battery system) were used as framework. The environmental impacts were assessed via a special software including a database with average upstream chain values. For selected parts like the battery cells separate analyses were carried out.



With regard to the state of the art of LCAs, it should be noted that the calculation methods for LCAs in the automotive industry are subject to constant further development. Amongst others generic data and assumptions are increasingly being replaced by vehicle- and company-specific data, thus future calculations may lead to significant deviations from previous LCA values. Therefore LCAs are to be understood as a status at the time of execution (snapshot of the respective assumptions), do not represent a guaranteed product property in a legal sense and are not suitable for comparisons with LCAs from other car manufacturers. Respective harmonizing EU standards are expected to be published in 2025.

# Life Cycle Assessment

## Statement on current use of LCAs

### Re-evaluation of LCA Data

The 2023 Green Finance Report presents the Life Cycle Assessment (LCA) of the ID.7<sup>1</sup> as the most recent model within the ID-Family on the basis of the current LCA calculation methods at the time of publication. The LCAs of the ID.3 and ID.4, which were featured in previous Green Finance Reports, are not disclosed in this particular report due to changes in the calculation methods. However, it is planned to incorporate the LCAs of these models in future Green Finance Reports, once they have been evaluated based on the current calculation methods.

<sup>1</sup>Consumption: 16.3 - 14.1 kWh/100 km and CO<sub>2</sub> emissions: 0 g/km

No consumption and emissions values are available under NEDC for this vehicle, only under WLTP. Information on fuel consumption and CO<sub>2</sub> emissions, shown in ranges, depends on the selected vehicle equipment.

# ID.7 Pro

## CO<sub>2</sub>e-emissions by life cycle phases



To actively shape climate-conscious mobility, it is critical to regard all phases of a vehicle's life cycle. Therefore on the one hand we are working on the reduction of the CO<sub>2</sub>-emissions generated during the production phase at the supply chain hotspots. Respective examples are the cell production for the battery system with green electricity or CO<sub>2</sub> optimized aluminum parts. On the other hand the ID.7 is the first MEB model with a completely new, highly efficient drive generation that not only enables long ranges but also a reduced use phase energy demand. In addition during the vehicle's use phase, drivers themselves have a great leverage for avoiding CO<sub>2</sub>-emissions: by charging the vehicle with green electricity.

### Overview LCA ID.7 Pro

**Vehicle:** ID.7 Pro, 210 kW, 82 kWh (gross)

**Configurations:** standard (std.) / maximum (max.), market Germany, model year '24

**Functional unit:** passenger transportation over 200,000 km in WLTP test cycle

**System boundaries:** production in Europe (not site-specific), avg. logistics Emden

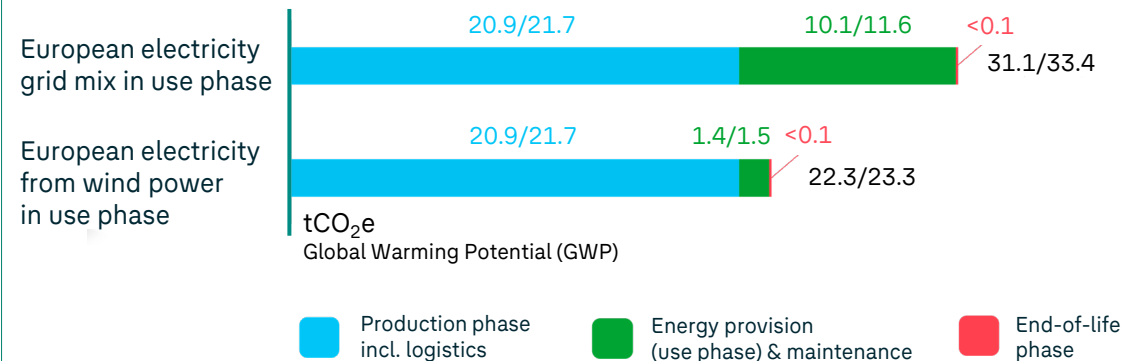
**WLTP energy consumption (std. / max.):** 14.1 kWh / 16.3 kWh per 100 km

**Maintenance:** tires, brake pads and disks, starter batteries, wiper blades

**End-of-life phase:** dismantling (without battery), no credits for recovery (cut-off)

**Critical Review:** TÜV NORD CERT, date of validity statement: 2023-10-04

### CO<sub>2</sub>e-emissions ID.7 Pro (std. / max.)



# ID.7 Pro

## LCA methodology



### Software, Data Basis and Scope

#### Software

- Sphera LCA for Experts version 10.7.0.183

#### LCA database and data sets

- Sphera LEAD database content version 2023.1 with extension databases and data-on-demand datasets, respective VW Group mapping list
- VW Group datasets: final assembly, paint shop, press-quenched steel, tires, vehicle windows, recovery, printed circuit boards, high-voltage battery cell
- Logistics via VW logistic system (only GWP)

#### Calculation Rules

- DIN EN ISO 14040/44
- VW Group LCA Guidelines version 2.0 and VW Group LCA Manual version 8.0

#### Scope

- According to the life cycle approach the system boundaries comprise the entire product life span (from production to use phase and end-of-life). Emissions from further scope 3 categories like business travel, employee commuting, franchises etc. as defined in the greenhouse gas protocol are not covered and are considered for the calculation of the VW group KPI "Decarbonization Index".



### Input variables

#### Production phase

- Vehicle configurations in dominant market with standard equipment and with additional equipment for maximum weight
- Supply chain and in-house production in Europe (not site-specific)
- Battery: one traction battery over lifetime
- Application of reduction measures on part level confirmed by respective validation reports and validity statements

#### Use Phase

- Energy provision: European electricity data of 2019 (the most current data available in the applied Sphera LEAD database)
- Energy consumption: Worldwide Harmonized Light Vehicles Test Procedure (WLTP) for 200,000 km
- Maintenance: tires, brake pads and disks, starter batteries, wiper blades

#### End-of-life

- Generic vehicle segment specific model for dismantling without battery system and without credits for recovery (cut-off approach)



### Verification

- Critical Review by TÜV NORD CERT: validity statement from 2023-10-04 (Audit Report No. 3535 8226) for LCA background report from 2023-09-23



With regard to the state of the art of LCAs, it should be noted that the calculation methods for LCAs in the automotive industry are subject to constant further development. Amongst others generic data and assumptions are increasingly being replaced by vehicle- and company-specific data, thus future calculations may lead to significant deviations from previous LCA values. Therefore LCAs are to be understood as a status at the time of execution (snapshot of the respective assumptions), do not represent a guaranteed product property in a legal sense and are not suitable for comparisons with LCAs from other car manufacturers. Respective harmonizing EU standards are expected to be published in 2025.

# ID.7 Pro

## LCA methodology - glossary

### **CML methodology**

The Life Cycle Impact Assessment (LCIA) and the characterization model are based on the CML methodology (as of August 2016), which has been developed at the University of Leiden at the Centrum voor Milieukunde Leiden (CML) in the Netherlands. With this methodology, the assessment of environmental impact potentials is based on accepted scientific models.

### **Critical Review**

Process described in ISO 14044 intended to ensure consistency between a life cycle assessment and the principles and requirements of the International Standards on life cycle assessment as described in ISO 14040, carried out by an independent expert.

### **Cut-off approach**

For the secondary materials emerging from vehicle recovery processes at the end of life, no credits are issued within the life cycle assessment. Only the expenditures and emissions of the recovery processes are considered. For vehicles with a high-voltage battery, the end of life of the battery including thermal deactivation and shredding is not assessed.

### **Global Warming Potential (GWP)**

The global warming potential describes the emission of greenhouse gases, which lead to an increase of the heat absorption of solar radiation within the atmosphere and thus can contribute to climate change, e.g. an increase of global average temperatures. The reference substance for the global warming potential is carbon dioxide. All other greenhouse gases (e. g. CH<sub>4</sub>, N<sub>2</sub>O, SF<sub>6</sub>) are projected to carbon dioxide in terms of their impact on global warming (CO<sub>2</sub> equivalents or CO<sub>2</sub>e).

### **Greenhouse Gas Protocol (GHG Protocol)**

A partnership between the World Resources Institute and the World Business Council for Sustainable Development providing accounting and reporting standards, sector guidance and calculation tools for emissions reporting. It establishes a comprehensive, global, standardized framework for measuring and managing emissions and divides emissions into three scopes: scope 1 - direct GHG emissions (of company), scope 2 - electricity indirect GHG emissions, scope 3 - other indirect GHG emissions

### **ISO 14040/44**

ISO 14040 and ISO 14044 define the standard for an ISO-compliant Life Cycle Assessment (LCA). ISO 14040 provides the 'principles and framework' of the standard, while ISO 14044 provides an outline of the 'requirements and guidelines'.

### **Life Cycle Assessment (LCA)**

LCA addresses the environmental aspects and potential environmental impacts (e.g. use of resources and environmental consequences of releases) throughout a product's life cycle from raw material acquisition through production, use and end-of-life treatment (i.e. cradle-to-grave). An LCA study consists of the phases (1) goal and scope definition, (2) inventory analysis, (3) impact assessment and (4) interpretation.

### **Sphera LCA for Experts**

The software LCA for Experts (common name: GaBi, "Ganzheitliche Bilanzierung") from Sphera is a LCA modelling and reporting application. The content databases include many raw materials and processes in every phase from extraction to end-of-life across the supply chain.

### **Worldwide Harmonized Light Vehicles Test Procedure (WLTP)**

The WLTP is a globally harmonized standard for determining the levels of pollutants, CO<sub>2</sub> emissions and fuel consumption of traditional and hybrid cars, as well as the range of fully electric vehicles.

The specified fuel consumption and emission data are determined in accordance with the measurement procedures prescribed by law. 1 January 2022, the WLTP test cycle completely replaced the NEDC (New European Driving Cycle) test cycle and therefore no NEDC values are available for new type approved vehicles after that date. This information does not refer to a single vehicle and is not part of the offer but is only intended for comparison between different types of vehicles. Additional equipment and accessories (additional components, tyre formats, etc.) can alter relevant vehicle parameters such as weight, rolling resistance and aerodynamics, affecting the vehicle's fuel consumption, power consumption, CO<sub>2</sub> emissions and driving performance values in addition to weather and traffic conditions and individual driving behavior. Due to more realistic testing conditions, fuel consumption and CO<sub>2</sub> emissions measured according to WLTP will in many cases be higher than the values measured according to NEDC. As a result, the taxation of vehicles may change accordingly as of 1 September 2018. For further information on the differences between WLTP and NEDC, please visit [www.volkswagen.de/wltp](http://www.volkswagen.de/wltp). Further information on official fuel consumption data and official specific CO<sub>2</sub> emissions for new passenger cars can be found in the "Guide to fuel economy, CO<sub>2</sub> emissions and power consumption for new passenger car models", which is available free of charge from all sales dealerships and from DAT Deutsche Automobil Treuhand GmbH, Hellmuth-Hirth-Str. 1, D-73760 Ostfildern, Germany and at [www.dat.de/co2](http://www.dat.de/co2).

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# ESG relevant reports & sources of information



[www.volkswagenag.com](http://www.volkswagenag.com) > sustainability > reporting

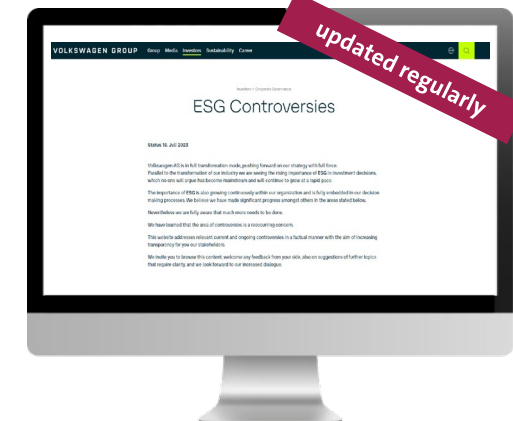


[www.volkswagenag.com](http://www.volkswagenag.com) > sustainability > reporting

“The Green Finance Framework consistently links our corporate objective of carbon neutrality in 2050 with our financing strategy.”



**Green Finance Report**  
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