



VOLKSWAGEN
FINANCIAL SERVICES
THE KEY TO MOBILITY

Green Finance Report 2025

Volkswagen Financial Services AG

November 2025

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.

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 Such statements are valid on the date of publication and can be superseded.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.

Volkswagen Group Mobility is a business division of Volkswagen AG and, as an integral part of the Group, comprises Volkswagen Financial Services AG along with its subsidiaries and affiliates (e.g. Volkswagen Bank GmbH and Volkswagen Leasing GmbH), Volkswagen Financial Services Overseas AG, Porsche Financial Services GmbH, Volkswagen Credit Inc. (USA) and Volkswagen Credit Canada Inc. – with the exception of TRATON Financial Services and Porsche Holding Salzburg.

The key business fields embrace dealer and customer financing, leasing, bank and insurance activities, fleet management, and mobility services.

The Board of Management of Volkswagen Financial Services AG reports on the Volkswagen Group Mobility business segment for Volkswagen AG as part of the financial reporting.

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Foreword

Dear Ladies and Gentlemen,

With our key objective to promote the sales efforts of the Volkswagen Group and its partners, we consider ourselves an essential contributor to the Group's transformational ambitions. Volkswagen Financial Services AG aims to play a pivotal role in supporting the transition toward battery-electric mobility.

As a wholly owned subsidiary and sales promoter of the Volkswagen Group, we are deeply committed to advancing the sustainable transformation of mobility. Our mission is to meet our customers' mobility needs through sustainable solutions across the entire vehicle lifecycle. Sustainability is therefore a fundamental pillar of our business activities. We are convinced that the long-term success of our business model depends on responsible and forward-looking actions.

Since our inaugural Green Bond transaction in September 2023, we have issued approximately €15 billion in Green Bonds by the end of October 2025, underscoring our strong commitment to sustainability.

We would like to express our sincere appreciation for your continued trust in our company, our sustainability strategy, and your support of our capital market activities.

Yours sincerely, Roman Rosenberg
Head of Group Treasury & Investor Relations
Volkswagen Bank GmbH



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Our approach: As the leading automotive financial and mobility service provider in Europe, Volkswagen Financial Services wants to actively shape the future of sustainable mobility.

Contributing to a greener future



As a **leading provider** of financial and mobility solutions, we are leading the way, **take responsibility**, and want to preserve a **planet worth living on** for future generations.



Seizing business opportunities



Sustainability opens up great **economic opportunities**, enables the development of **innovative and forward-oriented business models**, and ensures long-term **value creation** and **corporate success**.



Our sustainability strategy

- Derived from the **MOBILITY2030 corporate strategy**, which defines sustainability as one of its five core dimensions
- Based **on the principles of the Volkswagen Group** and its **regenerate+** sustainability strategy
- Sets **its own priorities** in order to position the service business of Volkswagen Financial Services **for a successful future** and to **actively** promote the **sustainable transformation of mobility**



SUSTAINABILITY

At Volkswagen Financial Services, we act in accordance with clear and unyielding principles of conduct.



Our sustainability dimensions:

We focus on four dimensions when implementing our sustainability strategy



1. Nature

We take ecological responsibility and contribute to the preservation and protection of nature.



2. Employees

We are committed to an excellent employee experience and promote a culture of appreciation, trust and continuous development.



3. Society

We assume social responsibility and advocate for a just, social, and safe society.



4. Business

We drive our business towards sustainability and actively promote the decarbonization of mobility.

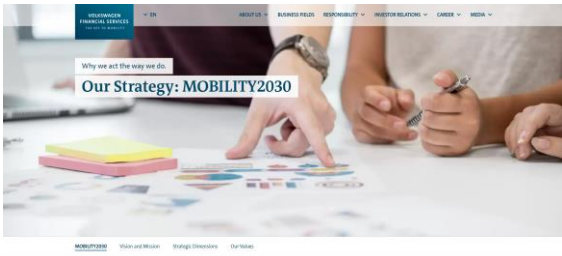
ESG relevant reports & resources



Acting and operating responsibly.
[Sustainability \(vwfs.com\)](https://www.vwfs.com/sustainability)



[Policy Statement \(vwfs.com\)](https://www.vwfs.com/policy-statement)



[MOBILITY2030 \(vwfs.com\)](https://www.vwfs.com/mobility2030)

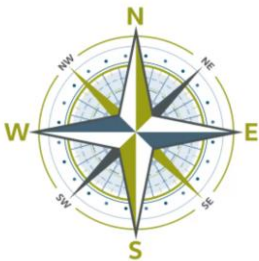


[ESG Rating \(vwfs.com\)](https://www.vwfs.com/esg-rating)

VOLKSWAGEN FINANCIAL SERVICES
ANNUAL REPORT 2024

ANNUAL REPORT
2024

[Annual Report \(vwfs.com\)](https://www.vwfs.com/annual-report)



[Code of Conduct \(vwfs.com\)](https://www.vwfs.com/code-of-conduct)

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ESG Risk Assessment

In order to identify, measure and monitor activities and exposures sensitivities to ESG Risks, covering relevant transmission channels, the current portfolio structure is analyzed to identify the main portfolios in the light of Volkswagen Financial Services Group's business model and strategy. Geographical risks for the individual portfolios are examined. This information is used to perform a relevance analysis of all ESG-risk drivers in the relevant risk types in the light of the transmission channels on the basis of qualitative expert opinions and quantitative information (materiality assessment) valid as of Q1 2025. A general risk assessment is performed for less relevant risk types. Finally, the materiality of the risk drivers is assessed in the short term (< 1 year), medium term (1 5 years) and long term (> 5 years). The materiality assessment for these risk drivers is performed as part of the Management Board's existing annual inventory process. The Volkswagen Financial Services Group has identified a few key transmission channels for physical and transitory risk drivers for the various risk types (please see table below).

From the perspective of Volkswagen Financial Services Group, automotive financing Group entails mobile assets, for which physical hazards are not a dominant risk driver and therefore play only a subordinate role in the alignment of its business policy. Even so, physical risks are included in risk management. An overall assessment indicates that Volkswagen Financial Services Group is primarily exposed to transitory climate and environmental risk drivers with respect to credit, residual value and business risk in the medium and long term. The following risk drivers in particular are of relevance: carbon transition/costs, technological change, and legislation and regulatory requirements. Social and governance risks are not considered to be material for most of the risk types.

In respect of the residual value risk the currently known effects (such as announced entry bans or a higher CO2 price) have already materialized and are incorporated into the residual value forecasts. A quantification of the effects cannot be precisely determined due to the mixing with the other, much larger influencing factors.

Risk drivers for the various risk types

Risk type	Transmission channel for physical risks (based on climate and environmental risks)	Transmission channel for transitory risks (based on climate and environmental risks)
credit risk risk	Natural disasters such as droughts, floods or storms are increasing in frequency under different climate scenarios, causing significant economic damage to homes and cars, which would result in rising repair costs or total loss of assets. The solvency of counterparties would be adversely affected, particularly those operating in sectors heavily dependent on natural resources or in particularly vulnerable locations. The risk of increasing car damage could be mitigated by (car) insurance. Environmental changes and resource scarcity can lead to rising costs for car repairs and negatively impact supply chains	The solvency and the assets of counterparties could be adversely affected by changes in regulation and by the implementation of measures to reduce greenhouse gas emissions. For example, stricter standards for CO2 emissions or higher CO2 prices could lead to rising purchase and maintenance costs for cars or mean rising fuel costs. The EU regulation to only allow CO2-free new cars from 2035 can result in a possible decrease in the collateral values of used cars.
residual value risk		The prices of used cars with combustion engine technologies could be affected by the transition to a zero-emission economy, e.g. by increasing the CO2 tax and additional costs for emission certificates. Differences in European markets help to mitigate/compensate for any impact. The discussion and a possible introduction of driving bans of ICEs in inner cities of major European cities impairs the attractiveness of these vehicles with a tendency to have rather negative effects on the residual values of ICEs (opposite effects on the residual values of BEVs).
interest rate risk/other market price risk	Extreme events and long-term climate trends such as desertification and sea-level rise could trigger instabilities that affect supply chains and commodity prices, and induce volatility in market variables	Expectations regarding new regulatory frameworks, stricter CO2 guidelines or newly developed green technologies could influence the volatility of market variables such as interest rates.
liquidity risk		Evolving consumer preferences could negatively impact deposits and result in higher funding costs for the Group. The enforcement of new regulatory frameworks and stricter CO2 guidelines could affect the value of securities, which could lead to the posting of additional collateral.
operational risk	Severe weather events could affect the business continuity of the bank and its outsourcing. The well-being of employees and their ability to work and enter premises could be affected.	Legal risks can result in liability claims in the event of non-compliance with laws and regulations in the climate context.
business risk		Customer demand may change due to future regulations. This could lead to higher demand for electric cars with a simultaneous lower demand for used combustion cars.

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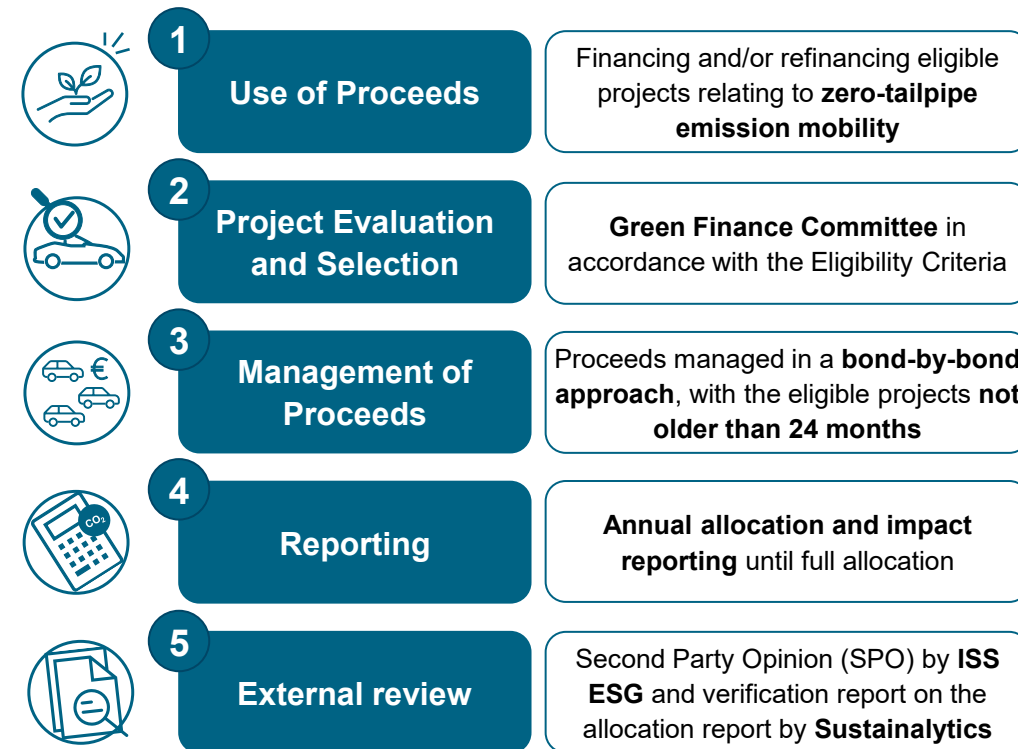
Volkswagen Financial Services AG 2024 Green Finance Framework¹

Following the latest best market practices

- In line with **ICMA GBP 2025** and **LMA/LSTA/APLMA GLP 2025**
- New vehicles by Volkswagen Group are in compliance with regulations (EC) No 715/2007, (EU) No 540/2014 and Table 2 of the Annex to Directive 2009/33/EC
- May be updated or expanded to reflect future updates of GBP, **market practices**, the **evolving regulatory landscape** or developments in VW FS's strategy



Core components of the framework



Under the Green Finance Framework, VW FS AG² has issued Green Finance Instruments³ to finance and/or refinance Eligible Financings

1. [Refinancing](#)

2. As per VW FS AG' Green Finance Framework, different entities within the VW FS AG group, including consolidated subsidiaries and special purpose vehicles used for asset-backed financings originated by VW FS AG Group will be able to issue securities under the framework. VW FS AG can determine, prior to any issuance, which entities of VW FS AG will facilitate the issuance of a Green Finance Instrument.

3. As per VW FS AG' Green Finance Framework, Green Finance Instruments may include but are not limited to unsecured and secured bonds (covered or asset-backed), commercial papers, Schuldscheindarlehen, bi- and multilateral bank loans, deposits, and can be of any status or seniority.

Use of Proceeds

In accordance with the bond-by-bond approach

Green Debt Instrument ¹ (issued in EUR, SEK, GBP)						Eligible Financing allocated ² (in mn EUR)			
ISIN	Value Date	Due Date	Nr. of Vehicles	Proceeds ³	ICMA Category ⁴	2022	2023	2024	Total ⁵
XS2941360963	19.11.2024	19.05.2027	26,964	1,000	Clean Transportation: Acquisition of Battery Electric Vehicles	297	713		1,010
XS2941605078	19.11.2024	19.05.2029	29,054	1,100			1,111		1,111
XS2941605235	19.11.2024	19.11.2031	15,889	650			456	200	656
XS3099828355	19.06.2025	19.06.2028	21,932	800				808	808
XS3099830419	19.06.2025	19.06.2031	20,996	700				707	707
XS3116722664	11.07.2025	11.07.2027	9,504	325				328	328
XS3117840309	14.07.2025	14.07.2031	8,108	288.45				291	291
XS3195126837	02.10.2025	02.10.2028	16,103	600				606	606
XS3195126084	02.10.2025	02.10.2029	24,478	900				909	909
XS3195124204	02.10.2025	02.10.2032	14,377	500				505	505
XS3202708049	13.10.2025	13.04.2027	1,242	45.4				45.87	45.87
Total			188,647	6,908.9					6,978

Percentage of Eligible Green Proceeds Allocated (coverage)

100%

Eligible Green Proceeds Unallocated

0 mn EUR

All figures shown in the report are rounded, so minor discrepancies may arise from additions of these amounts

¹issued by Volkswagen Financial Services AG or its subsidiaries

²as defined in the Volkswagen Financial Services AG Green Finance Framework, September 2024. As of the date of this report, VW FS AG has not reported any of the financial assets (against which the proceeds of any Green Bonds have been allocated) as formally environmentally sustainable (aligned) within the meaning of Art. 3 EU Taxonomy in its statutory reporting pursuant to Art. 8 of Regulation (EU) 2020/852 (EU Taxonomy).

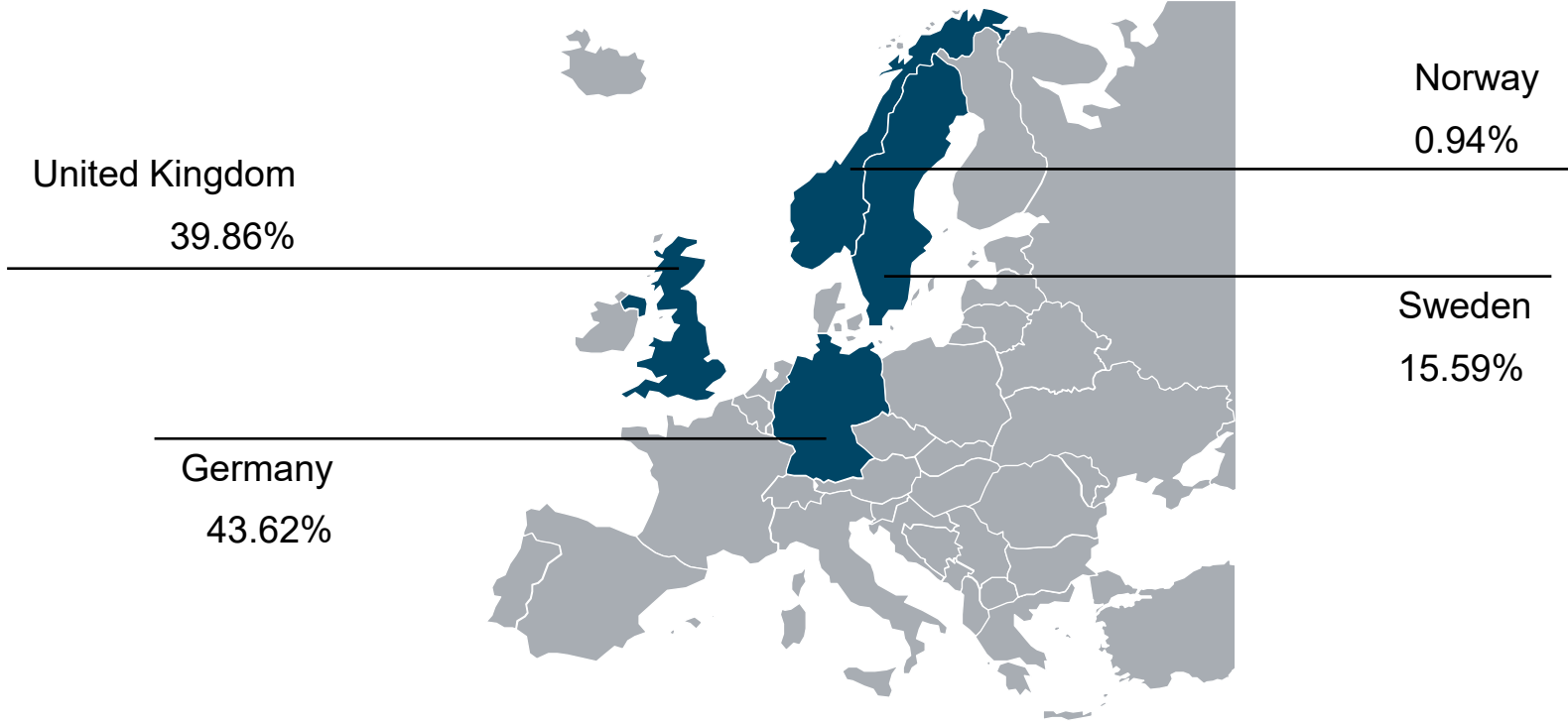
³In mn EUR - figures based on EZB exchange rate on the respective value date of the issuance

⁴International Capital Market Association: Green Bond Principles

⁵VW FS AG has decided to allocate 101% of the proceeds to the respective issuance

Use of Proceeds

Regional split of eligible capital expenditure allocated



Use of Proceeds

Split by brand of eligible capital expenditure allocated

Issuances			Brands													
ISIN	VW		VW LCV		AUDI		SEAT		SKODA		Porsche		CUPRA		Others	
	Balance	Contracts	Balance	Contracts	Balance	Contracts	Balance	Contracts	Balance	Contracts	Balance	Contracts	Balance	Contracts	Balance	Contracts
XS2941360963	301,752,741.84 €	10,933	14,834,304.38 €	910	267,159,819.18 €	6,218	533,683.14 €	48	75,677,791.97 €	2,467	180,307,252.93 €	1,836	63,998,504.04 €	1,961	105,741,705.06 €	2,591
XS2941605078	343,706,961.92 €	11,730	16,306,961.82 €	832	362,680,409.74 €	7,853	558,051.39 €	74	98,882,454.33 €	3,432	156,870,503.82 €	1,655	52,967,611.47 €	1,598	79,041,749.11 €	1,880
XS2941605235	179,148,949.85 €	5,488	8,917,391.73 €	427	260,541,558.15 €	5,319	328,708.52 €	32	60,150,290.95 €	1,782	89,693,067.91 €	984	30,640,575.61 €	961	27,092,173.37 €	896
XS3099828355	304,733,954.79 €	9,549	23,178,660.23 €	907	264,445,536.01 €	5,386	252,873.10 €	26	83,756,669.55 €	2,413	44,222,390.64 €	552	58,079,401.22 €	2,073	29,348,087.88 €	1,026
XS3099830419	338,069,498.36 €	11,171	22,496,612.75 €	571	136,352,566.32 €	2,781	185,739.32 €	20	98,711,809.01 €	2,808	19,307,231.15 €	246	78,014,435.62 €	2,861	13,890,145.75 €	538
XS3116722664	148,381,277.30 €	4,705	6,020,619.69 €	172	75,879,510.56 €	1,579	75,263.85 €	8	44,750,517.62 €	1,306	10,484,904.74 €	148	34,765,776.67 €	1,279	7,911,514.32 €	307
XS3117840309	109,049,843.45 €	3,363	6,245,424.33 €	160	83,273,972.95 €	1,689	166,577.83 €	19	31,211,502.46 €	928	15,554,394.63 €	199	36,796,629.06 €	1,370	9,057,476.84 €	380
XS3195126837	261,663,815.65 €	7,427	34,296,925.96 €	738	120,993,173.04 €	2,391	131,261.26 €	16	94,181,535.75 €	2,641	15,851,601.85 €	192	73,434,065.04 €	2,515	5,450,650.40 €	183
XS3195126084	356,882,565.53 €	10,407	55,601,624.20 €	1,179	173,342,785.31 €	3,584	195,519.90 €	26	155,501,537.25 €	4,393	50,454,701.54 €	645	95,400,309.80 €	3,396	21,675,518.82 €	848
XS3195124204	192,384,454.38 €	5,939	21,166,491.07 €	473	112,753,780.72 €	2,463	122,687.30 €	20	87,190,011.94 €	2,590	22,279,318.89 €	286	52,859,310.25 €	1,944	16,257,174.31 €	662
XS3202708049	19,096,522.97 €	562	4,984,538.53 €	102	8,503,436.19 €	173	15,019.52 €	2	7,961,170.85 €	221	- €	0	5,301,806.30 €	178	11,413.92 €	4

Use of Proceeds

Split by model type of eligible capital expenditure allocated

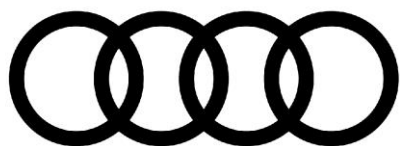


Issuances								
ISIN	Crafter		Golf		ID.Buzz		Up	
	Balance	Contracts	Balance	Contracts	Balance	Contracts	Balance	Contracts
XS2941360963	415,222.14 €	14	5,811,719.32 €	524	34,083,608.79 €	1,312	9,314,065.24 €	571
XS2941605078	222,117.14 €	8	4,425,351.64 €	434	64,319,324.80 €	1,859	8,456,648.52 €	540
XS2941605235	285,847.71 €	13	1,583,456.94 €	147	59,941,187.34 €	1,538	3,783,568.53 €	252
XS3099828355	188,460.38 €	9	1,344,905.30 €	151	58,178,161.75 €	1,722	1,948,389.32 €	161
XS3099830419	208,738.89 €	7	769,778.57 €	77	38,065,872.52 €	945	1,709,217.72 €	123
XS3116722664	- €	0	263,597.46 €	29	15,645,216.19 €	405	791,815.89 €	53
XS3117840309	114,321.35 €	3	274,653.72 €	33	15,015,893.05 €	384	589,599.49 €	53
XS3195126837	30,644.38 €	3	378,337.81 €	39	38,482,440.12 €	838	1,408,246.90 €	124
XS3195126084	- €	0	552,708.39 €	70	75,864,421.94 €	1,718	1,825,485.88 €	161
XS3195124204	21,840.34 €	1	708,723.37 €	74	30,979,488.19 €	720	1,464,042.22 €	118
XS3202708049	- €	0	23,438.98 €	2	4,984,538.53 €	102	260,935.09 €	18

Issuances								
ISIN	ID.3		ID.4		ID.5		ID.7	
	Balance	Contracts	Balance	Contracts	Balance	Contracts	Balance	Contracts
XS2941360963	104,922,624.68 €	4,156	118,677,009.38 €	4,020	42,690,907.03 €	1,218	- €	0
XS2941605078	92,158,403.29 €	3,705	144,596,505.16 €	4,489	45,159,566.65 €	1,488	- €	0
XS2941605235	34,805,385.23 €	1,456	67,410,299.76 €	1,943	18,483,021.62 €	501	1,598,563.87 €	54
XS3099828355	102,391,029.85 €	3,895	91,327,040.23 €	2,756	61,400,287.38 €	1,465	10,844,878.78 €	274
XS3099830419	191,098,287.33 €	6,898	83,341,596.93 €	2,588	20,999,461.81 €	532	24,209,154.15 €	558
XS3116722664	64,677,961.10 €	2,346	41,774,595.31 €	1,292	11,165,389.64 €	317	20,007,615.94 €	430
XS3117840309	28,435,780.78 €	1,066	35,336,165.00 €	1,134	8,332,936.06 €	237	27,174,441.07 €	611
XS3195126837	50,422,297.72 €	1,851	86,146,063.60 €	2,524	14,215,474.48 €	359	101,543,408.32 €	2,342
XS3195126084	78,825,214.72 €	2,960	106,406,714.58 €	3,220	25,653,753.44 €	652	121,506,003.25 €	2,759
XS3195124204	50,615,905.68 €	1,951	49,743,235.61 €	1,651	14,249,002.14 €	385	64,495,839.13 €	1,479
XS3202708049	4,053,365.62 €	146	5,604,174.93 €	174	1,336,021.74 €	35	7,818,586.62 €	187

Use of Proceeds

Split by model type of eligible capital expenditure allocated



Issuances						
ISIN	E-Tron		Q4 E-Tron		Q8 E-Tron	
	Balance	Contracts	Balance	Contracts	Balance	Contracts
XS2941360963	111,353,384.11 €	2,392	129,085,693.58 €	3,325	26,720,741.48 €	501
XS2941605078	86,115,293.43 €	1,844	148,325,017.01 €	3,644	128,240,099.30 €	2,365
XS2941605235	51,266,038.66 €	1,166	114,495,940.18 €	2,607	94,779,579.30 €	1,546
XS3099828355	76,125,197.42 €	1,515	114,249,698.45 €	2,640	74,070,640.14 €	1,231
XS3099830419	37,189,450.19 €	691	58,287,640.42 €	1,446	40,875,475.71 €	644
XS3116722664	19,514,986.27 €	400	32,794,470.71 €	810	23,569,408.50 €	368
XS3117840309	22,555,537.81 €	401	40,930,491.52 €	964	19,787,943.62 €	324
XS3195126837	56,607,150.47 €	976	40,244,786.20 €	1,009	24,011,587.66 €	404
XS3195126084	60,548,387.87 €	1,164	73,491,494.96 €	1,763	39,175,983.29 €	655
XS3195124204	28,612,970.56 €	577	55,163,817.36 €	1,400	28,976,992.80 €	486
XS3202708049	4,622,299.31 €	80	3,146,587.71 €	80	734,549.17 €	13

SKODA

Issuances				
ISIN	Citigo		Enyaq	
	Balance	Contracts	Balance	Contracts
XS2941360963	581,165.43 €	43	75,096,626.54 €	2,424
XS2941605078	720,213.73 €	85	98,159,887.99 €	3,346
XS2941605235	272,984.63 €	30	59,877,306.32 €	1,752
XS3099828355	150,367.07 €	19	83,606,302.48 €	2,394
XS3099830419	178,221.77 €	28	98,533,587.24 €	2,780
XS3116722664	50,892.09 €	9	44,699,625.52 €	1,297
XS3117840309	67,045.86 €	8	31,144,456.60 €	920
XS3195126837	62,158.75 €	12	94,116,796.23 €	2,628
XS3195126084	169,300.57 €	24	155,332,236.68 €	4,369
XS3195124204	164,688.85 €	18	87,025,323.09 €	2,572
XS3202708049	10,950.00 €	1	7,950,220.85 €	220

Use of Proceeds

Split by model type of eligible capital expenditure allocated



Issuances		
ISIN	Mii	
	Balance	Contracts
XS2941360963	533,683.14 €	48
XS2941605078	558,051.39 €	74
XS2941605235	328,708.52 €	32
XS3099828355	252,873.10 €	26
XS3099830419	185,739.32 €	20
XS3116722664	75,263.85 €	8
XS3117840309	166,577.83 €	19
XS3195126837	131,261.26 €	16
XS3195126084	195,519.90 €	26
XS3195124204	122,687.30 €	20
XS3202708049	15,019.52 €	2

Issuances		
ISIN	Taycan	
	Balance	Contracts
XS2941360963	180,307,252.93 €	1,836
XS2941605078	156,870,503.82 €	1,655
XS2941605235	89,693,067.91 €	984
XS3099828355	44,222,390.64 €	552
XS3099830419	19,307,231.15 €	246
XS3116722664	10,484,904.74 €	148
XS3117840309	15,554,394.63 €	199
XS3195126837	8,454,909.66 €	97
XS3195126084	33,148,679.18 €	420
XS3195124204	22,279,318.89 €	286
XS3202708049	- €	0



Other Models

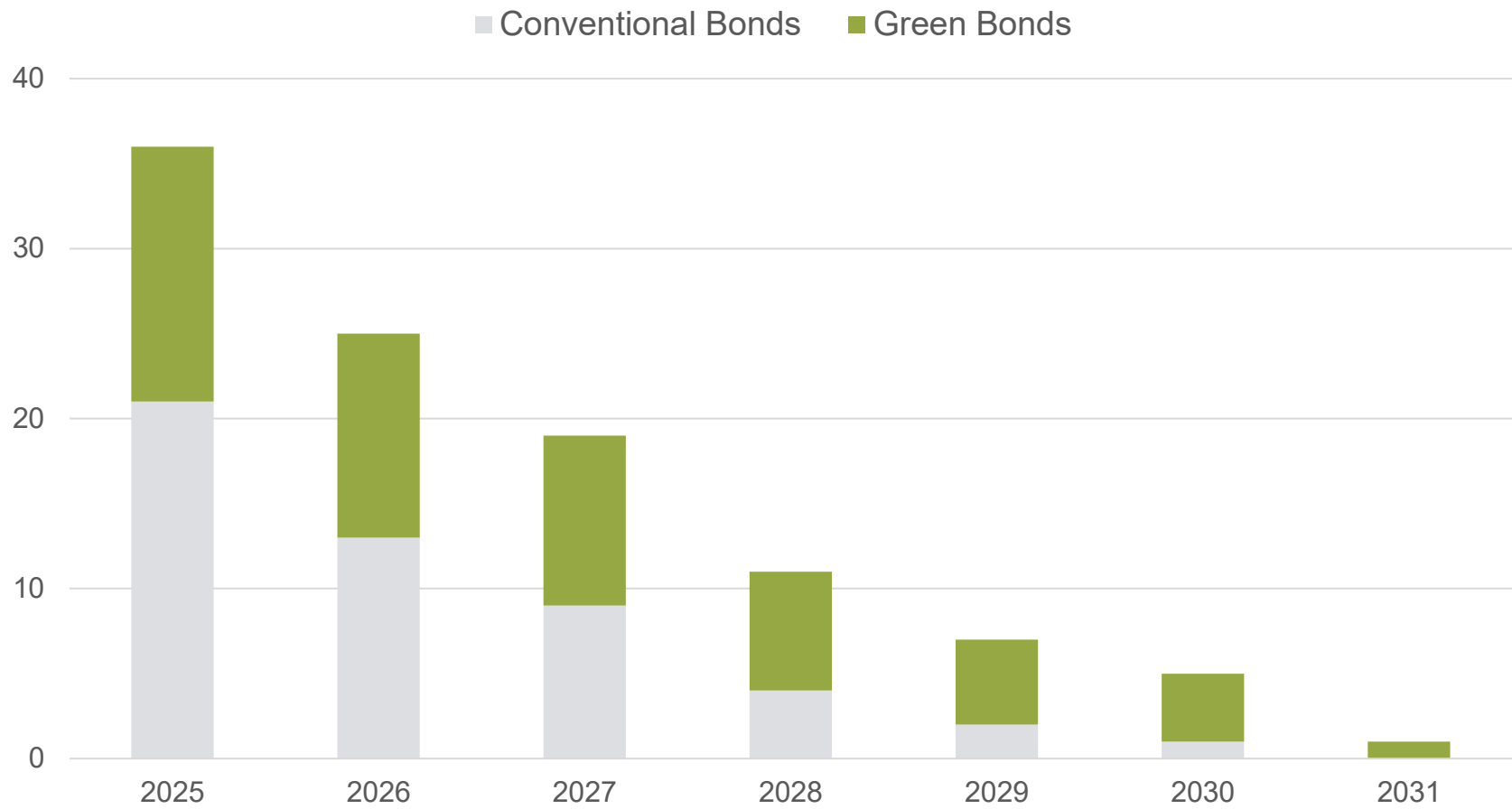
Other models from VW Group which are not separately are included here as well

Issuances		
ISIN	Born	
	Balance	Contracts
XS2941360963	63,998,504.04 €	1,961
XS2941605078	52,967,611.47 €	1,598
XS2941605235	30,640,575.61 €	961
XS3099828355	58,079,401.22 €	2,073
XS3099830419	78,014,435.62 €	2,861
XS3116722664	34,719,228.38 €	1,278
XS3117840309	36,796,629.06 €	1,370
XS3195126837	63,021,426.39 €	2,245
XS3195126084	89,361,975.10 €	3,255
XS3195124204	51,882,081.07 €	1,921
XS3202708049	4,223,147.17 €	149

Issuances		
ISIN	Others	
	Balance	Contracts
XS2941360963	106,413,594.71 €	2,619
XS2941605078	79,720,108.26 €	1,920
XS2941605235	27,267,183.96 €	907
XS3099828355	29,637,549.90 €	1,049
XS3099830419	14,054,148.95 €	552
XS3116722664	8,034,413.14 €	314
XS3117840309	9,078,954.11 €	382
XS3195126837	26,726,039.01 €	636
XS3195126084	46,996,682.60 €	1,262
XS3195124204	18,507,272.25 €	718
XS3202708049	1,090,073.05 €	33

Volkswagen Financial Services increased Green Bond issuance ratio

Outstanding bond volume in bn EUR¹



¹Figures based on the issuance of Volkswagen Financial Services AG and its subsidiaries

Agenda

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Foreword

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Sustainability at VW FS AG

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ESG Risk Assessment

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Allocation Report

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Impact Report

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 CO₂ 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 at the end of 2025.

Example of ID.4 and Tiguan LCA Comparison

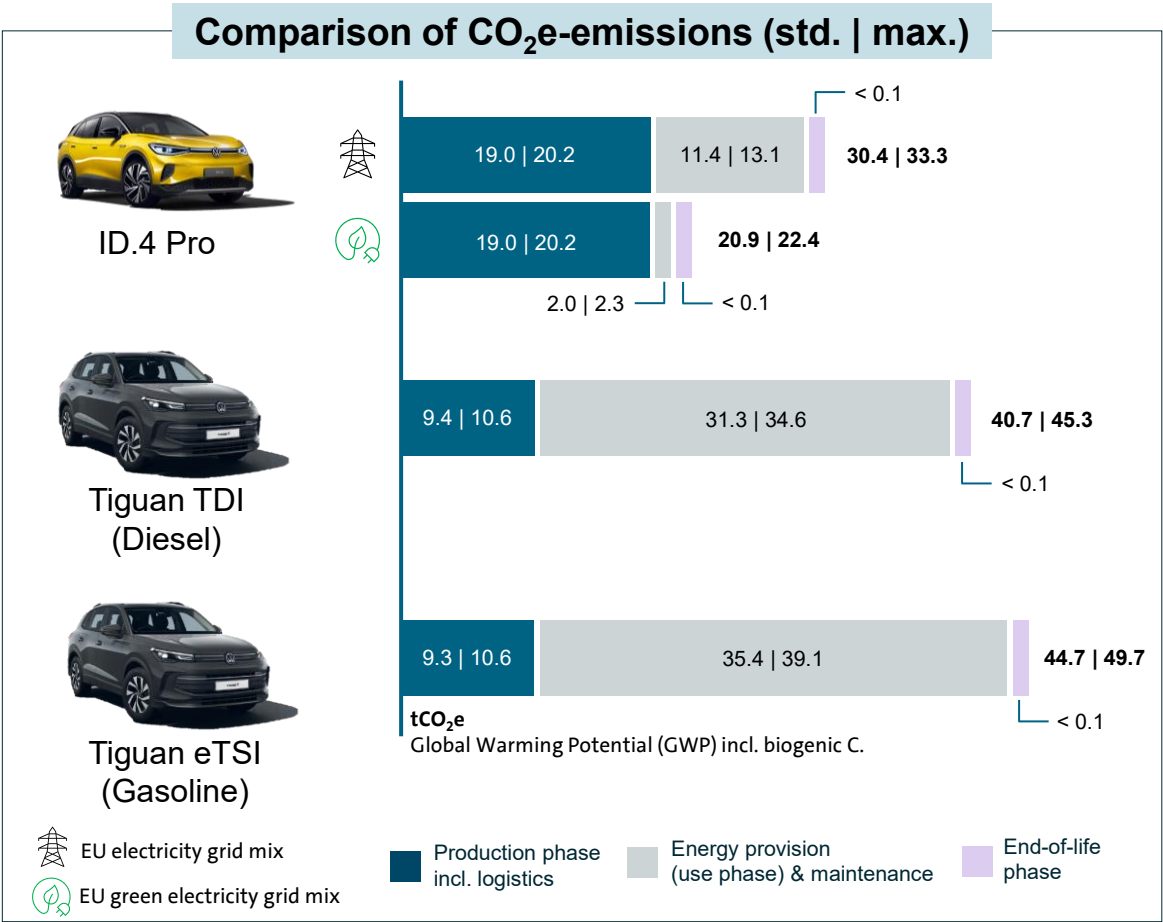
CO₂e-emissions by life cycle phases

Overview LCA ID.4 Pro & Tiguan			
	ID.4 Pro 210 kW 82 kWh ³	Tiguan 2.0 TDI 110 kW ⁴ DSG	Tiguan 1.5 eTSI 110 kW ⁵ DSG
Configurations ¹	standard (std.) maximum (max.), market Germany, MY 24		
Functional unit	200,000 km passenger transportation in WLTP test cycle		
System boundaries	production in Europe (not site-specific)		
	avg. logistics Zwickau & Emden	avg. logistics Wolfsburg	
WLTP energy / fuel consumption ²	16.0 18.4 kWh per 100 km	5.3 5.8 liter per 100 km	6.2 6.8 liter per 100 km
Maintenance	tires, brake pads and disks, starter batteries, wiper blades, additionally for Tiguan engine oil and AdBlue in case of TDI		
End-of-life phase	dismantling (without battery), no credits for recovery (cut-off)		
Critical Review	TÜV NORD CERT, Audit Report No. 3535 7825		

All figures shown in the report are rounded, minor discrepancies may arise from addition of these amounts

¹standard configuration: standard equipment in representative line | maximum configuration: one feasible parameter set for additional equipment for maximum weight ²values rounded to first decimal place

Information in accordance with 1999/94/EC for the German market as of May 2025: ³energy consumption combined 17.4 - 15.7 kWh/100 km; CO₂ emissions combined 0 g/km; CO₂ class: A ⁴fuel consumption combined 5.8 - 5.3 l/100 km; CO₂ emissions combined 153 - 139 g/km; CO₂ class: E; ⁵fuel consumption combined 6.5 - 5.8 l/100 km; CO₂ emissions combined 148 - 133 g/km; CO₂ classes: E-D; specific models from model year 2024 with different consumption value spans used in the LCA calculation are no longer available for sale



Example of ID.7 Tourer and Passat LCA Comparison

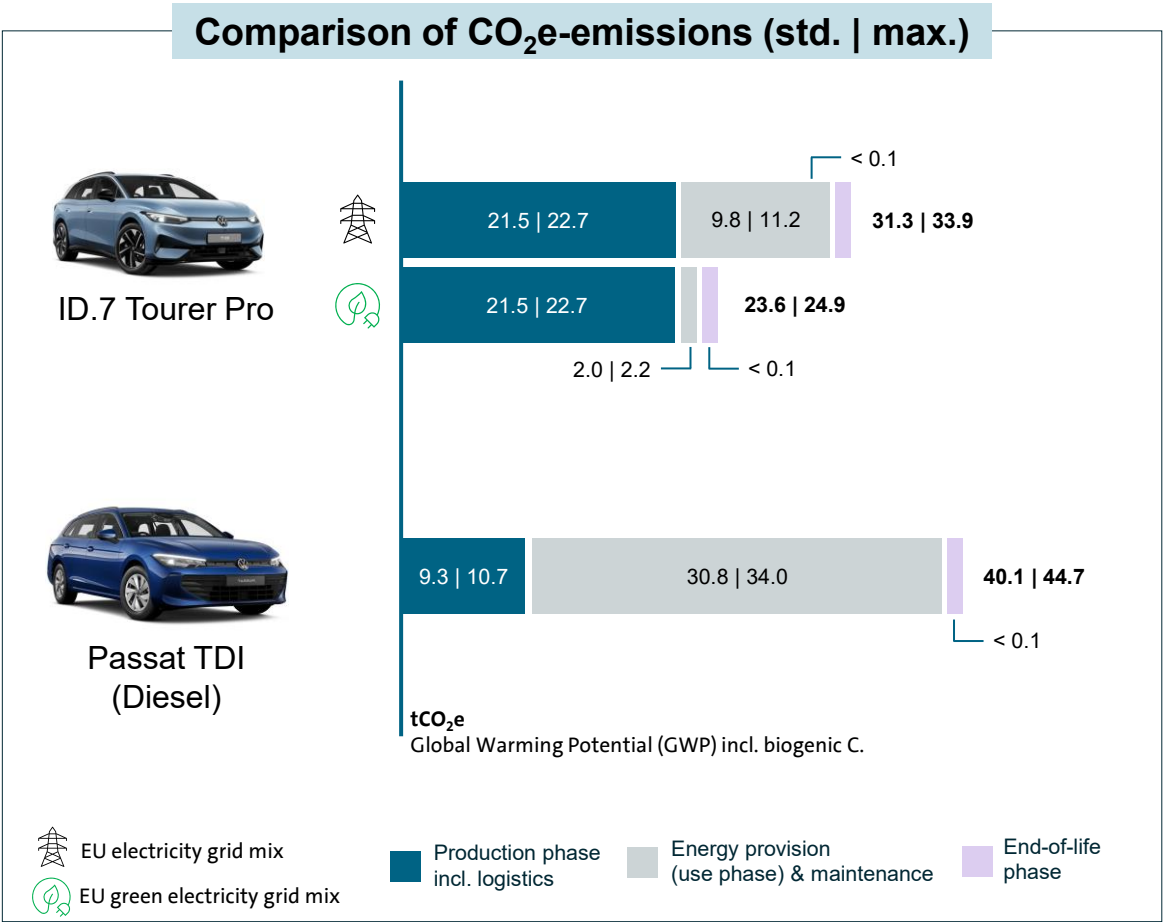
CO₂e-emissions by life cycle phases

Overview LCA ID.7 Tourer Pro & Passat		
	ID.7 Tourer Pro 210 kW 82 kWh ³	Passat 2.0 TDI 110 kW ⁴ DSG
Configurations ¹	standard (std.) maximum (max.), market Germany, MY 24	
Functional unit	200,000 km passenger transportation in WLTP test cycle	
System boundaries	production in Europe (not site-specific)	
	avg. logistics Emden	avg. logistics Bratislava
WLTP energy / fuel consumption ²	14.5 16.8 kWh per 100 km	4.9 5.4 liter per 100 km
Maintenance	tires, brake pads and disks, starter batteries, wiper blades, additionally for Passat engine oil and AdBlue	
End-of-life phase	dismantling (without battery), no credits for recovery (cut-off)	
Critical Review	TÜV NORD CERT, Audit Report No. 3539 8485	

All figures shown in the report are rounded, minor discrepancies may arise from addition of these amounts

¹standard configuration: standard equipment in representative line | maximum configuration: one feasible parameter set for additional equipment for maximum weight ²values rounded to first decimal place

Information in accordance with 1999/94/EC for the German market as of May 2025: ³energy consumption combined 16.5 - 14.4 kWh/100 km; CO₂ emissions combined 0 g/km; CO₂ class: A; ⁴fuel consumption combined 5.4 - 4.9 l/100 km; CO₂ emissions combined 143 - 130 g/km; CO₂ class: E-D; specific models from model year 2024 with different consumption value spans used in the LCA calculation are no longer available for sale



ID.4 and Tiguan

LCA methodology



Software, Data Basis and Scope

Software

- Sphera LCA for Experts version 10.7.1.28

LCA database and data sets

- Sphera LEAD database content version 2023.2 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 in representative line and with one feasible parameter set for additional equipment for maximum weight
- Supply chain and in-house production in Europe (not site-specific)
- Battery: one traction battery (if applicable) covering the functional unit
- If applicable inclusion of reduction measures on part level confirmed by respective validation reports and validity statements

Use Phase

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

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 Audit Report No. 3535 7825



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 at the end of 2025.

ID.7 and Passat

LCA methodology



Software, Data Basis and Scope

Software

- Sphera LCA for Experts version 10.8.0.14

LCA database and data sets

- Sphera LEAD database content version 2024.1 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 3.0 and VW Group LCA Manual version 9.0

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 in representative line and with one feasible parameter set for additional equipment for maximum weight
- Supply chain and in-house production in Europe (not site-specific)
- Battery: one traction battery (if applicable) covering the functional unit
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Use Phase

- Energy and fuel provision: European electricity, gasoline and diesel datasets of 2020 (the most current data available in the applied Sphera LEAD database)
- Energy and fuel consumption: Worldwide Harmonized Light Vehicles Test Procedure (WLTP) for 200,000 km
- Maintenance: tires, brake pads and disks, starter batteries, wiper blades, if applicable engine oil and AdBlue

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 Audit Report No. 3539 8485



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 at the end of 2025.

ID.4, ID.7, Tiguan and Passat

LCA methodology – glossary

CML methodology and IPCC methodology

The Life Cycle Impact Assessment (LCIA) and the characterization model for the ID.4 and the Tiguan LCA are based on the CML methodology as of August 2016. For the ID.7 and the Passat LCA the more recent IPCC AR 6 methodology is applied. The IPCC AR6 is the sixth major climate assessment report, developed over several years by scientists worldwide and released between 2021 and 2023. The respective methodology and its characterization model for the assessment of environmental impact potentials thus incorporates current insights into atmospheric chemistry, radiative forcing, and climate feedbacks.

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 independent experts.

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. CH₄, N₂O, SF₆) are projected to carbon dioxide in terms of their impact on global warming (CO₂ equivalents or CO₂e). GWP values including biogenic carbon (biogenic C) basically consider the uptake of greenhouse gases from the atmosphere by respective processes.

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 - energy related 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) and respective comparative LCAs. 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, CO₂ emissions and fuel consumption of traditional and hybrid cars, as well as the range of fully electric vehicles.

Information in accordance with 1999/94/EC:

The figures for fuel consumption, power consumption, CO₂ emissions and electric range were determined in accordance with the legally required "Worldwide Harmonized Light Vehicles Test Procedure" (WLTP) in accordance with Regulation (EC) 715/2007. Additional equipment and accessories (add-on parts, tyre format, etc.) can change relevant vehicle parameters, such as weight, rolling resistance and aerodynamics, and influence a vehicle's fuel consumption, power consumption, CO₂ emissions, electric range and mileage values in addition to weather and traffic conditions as well as individual driving behaviour.

**VOLKSWAGEN
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Thank You!

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