

Implementation Plan for the CO_{2e} Production Target 2040

Volkswagen Group

Description considering the EmpCo requirements regarding the commitment, target pathway, measures, resources, risks and progress monitoring.

The implementation plan is subject to ongoing monitoring. In the event of material changes to the underlying assumptions, framework conditions or findings, the implementation plan may be adjusted.

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1 Objective and Scope

Target: The Volkswagen Group is pursuing the target confirmed by the Group Board of Management to reduce the sum of absolute Scope 1 and Scope 2 emissions (market-based) from all production sites by at least 90% by 2040 compared with 2018.

1.1 Environmental Commitment

On November 8th 2023, the Group Board of Management confirmed the voluntary corporate target for the Volkswagen Group to reduce absolute Scope 1 and Scope 2 emissions (market-based) from production sites by at least 90% by 2040 compared with 2018. The target is aligned with the SBTi standard criteria used for this purpose, without claiming SBTi validation. At the same time, the measures intended to achieve the target were commissioned for consideration in the planning rounds. Budget and measure approvals are granted within the respective responsible planning and decision-making processes.

1.2 Scope and Accounting Logic

Dimension	Definition
Accounting boundary	Volkswagen Group, production
Emissions scope	Absolute production emissions Scope 1 and Scope 2
Base year	2018

Dimension	Definition
Base-year emissions	9.03 million t CO ₂ e
Target year	2040
Target level	-90% compared with 2018
Status achieved in 2025	Approx. -60%

1.3 Calculation and Recalculation Logic

Annual determination of production-related Scope 1 and Scope 2 emissions using the market-based method at consolidated Group level.

Documentation of the activity data used, emission factors, methodology changes and control steps.

Recalculation of the base year and time series in the event of material changes to the consolidation scope, methodology, data quality or identified errors.

Versioned bridge calculation between actuals, 2040 forecast, measure contributions and target value.

1.4 Character of the Document

This implementation plan informs consumers about a voluntary corporate target and the measures planned to achieve it. It is not the transition plan pursuant to the sustainability reporting requirements (Articles 19a and 29a of Directive 2013/34/EU, ESRS E1-1) and does not replace it. It does not establish any third-party rights or obligations of conduct beyond statutory requirements; statutory requirements for vehicles remain unaffected. Statements regarding future developments are based on assumptions and planning that may change.

2 Baseline and Target Pathway

In the base year 2018, 9.03 million t CO₂e were emitted within the accounting boundary. The interim target for production-related Scope 1 and Scope 2 emissions is an absolute reduction of 50.4% by 2030 compared with the 2018 base year; this target was validated by the SBTi (Science Based Targets initiative). In mathematical terms, this corresponds to an emissions level of 4.5 million t CO₂e. A further internal milestone is a reduction of 70% by 2035. Savings forecasts, measurement and verification procedures, as well as annual and cumulative CO₂e impacts are documented in an IT tool.

Point in time	Emissions	Reduction vs. 2018	Status / function
2018	9.03 million t CO ₂ e	0 %	Base year
2025	3.6 million t CO ₂ e	approx. 60.0%	Actual value
2030 interim target	4.5 million t CO ₂ e	50,4 %	Scope 1 and Scope 2 interim target
2035	2.7 million t CO ₂ e	70%	Internal milestone
2040 Forecast	2.1 million t CO ₂ e	approx. 76.5%	Planning status; above target value
2040 target	0.9 million t CO ₂ e	90,0 %	10% of the base year
Target gap	1.2 million t CO ₂ e	Approx. 13.5% of the base year	Forecast minus target value

3 Quantified Impact Logic of the Measures

The allocation of the target gap to technology clusters shown here reflects the current planning status. Actual contributions depend in particular on technology maturity, infrastructure, energy availability, implementation timing, investment decisions, cost development and regulatory framework conditions. The allocation does not constitute a guarantee of the respective measure impact or target achievement.

Technology lever	Share	Allocated target gap [million t CO ₂ e]
Energy efficiency	21,7 %	0,26
Heat pumps	34,9 %	0,42
Biofuel switch	5,5 %	0,06
Fuel switch to H ₂ / syngas	29,9 %	0,36
Direct electric heating	8,0 %	0,10
Total	100,0 %	1,2

4 Measures Programme

4.1 Energy Efficiency

Site- and process-related efficiency programmes including cross-sectional technologies, process optimization and building efficiency. Examples include demand-based ventilation and lighting of halls, new production technologies and efficient media supply.

4.2 Heat Pumps

Electrification of suitable heat applications and integration of usable waste heat sources.

Evidence regarding heat demand, coefficient of performance, electricity demand, grid connection, investment window and economic viability is prepared as part of transformation plans.

4.3 Biofuel Switch

Use only where availability, origin and sustainability quality have been verified.

Price, volume and supply chain risks as well as alternative scenarios are reviewed regularly.

4.4 Fuel Switch to H₂ / Syngas

Use for high-temperature processes and power plant applications that are difficult to electrify will be reviewed in future and planned in stages.

Technology maturity, infrastructure, origin, volumes, costs and regulatory requirements are relevant criteria for using the technology.

4.5 Direct Electric Heating

Electric furnaces, dryers and other thermal processes are assessed and already used selectively in investment and retrofit windows.

Grid capacity, load management, electricity origin and life-cycle costs must be demonstrated.

4.6 Standardised Measure Sheet

An internal IT tool is used to track CO₂ measures. The planned measures are recorded there on a rolling basis; the current operational planning horizon is approximately five years. The following information is included for each measure:

Mandatory field	Content
Identification	Measure ID, technology cluster, site/unit, asset reference
Responsibility	Owner, project management, technical approval
Schedule	Planning start, approval, order placement, commissioning, start of effectiveness
Impact	Annual/cumulative MWh and t CO ₂ e impact, interactions

Mandatory field	Content
Finance	CAPEX, OPEX, budget year, planning round, approval and funds commitment status
Evidence	Data source, calculation, M&V method, evidence link

5 Milestones and Deliverables

Timing	Milestone	Evidence / Result
08/11/2023	Target confirmation and planning mandate	Final Board of Management minutes
Annually	KPI closing and bridge calculation	Actual vs. target pathway, forecast, data quality report
Annual planning round	Measures and budget update	Project list, CAPEX/OPEX, approval status
2030	Start of post-2030 implementation phase in accordance with Board mandate	Approved project roadmaps and provisions
2035	2040 interim review	Remaining gap, technology maturity, substitute measures
2040	Target closing	Max. 0.9 million t CO ₂ e and externally auditable evidence chain

Note: The 2035 interim review serves as an internal review of the target pathway and of the relevant market, regulatory, scenario and resource assumptions regarding achievement of the 2040 target. It does not constitute a separate external target commitment.

6 Resources and Responsibilities

The presentation of budget frameworks, planning rounds and resources does not constitute a resource commitment beyond the approvals granted in each case. Where measures or resources have not yet been finally approved or committed, this is taken into account as planning uncertainty and disclosed when the target pathway is updated.

Function	Core responsibility
Group Environment Production	Target, methodological framework, consolidation, progress report, data collection, controls, emissions calculation, approval of statements in other languages for brand communication
Brands / production entities / sites	Budget planning, project roadmaps, implementation, data reporting, adoption of the wording for the production target
Volkswagen Power Plant	Procurement of renewable electricity and alternative fuels in Germany
Finance	Planning rounds, CAPEX/OPEX, economic viability assessment
Communications	Provision of the implementation plan on the Volkswagen homepage – sustainability strategy
External expert	Independent initial review and regular progress review; after final approval, results are to be made accessible together with audit scope, date and any limitations.

Foreign-language versions and brand-specific adaptations are reviewed for substantive consistency and contextual accuracy before publication. Any reference or precedence clause does not replace this substantive review.

7 KPI and Monitoring System

KPI	Frequency	Management purpose
Absolute production emissions Scope 1+2 [t CO ₂ e]	annually	central target KPI
Reduction vs. 2018 [%]	annually	target pathway and external statement
2040 forecast [t CO ₂ e]	annually	early warning and residual-gap management
Measure impact [t CO ₂ e/a and cumulative]	annually	impact controlling
Energy savings [MWh/a]	annually	efficiency management
CAPEX/OPEX and budget status	annually	financing and implementation status
Project milestones	annually	schedule and implementation risk
Data/methodology changes	event-driven	comparability and recalculation

7.1 Control Loop in the Event of Deviations

In the event of material deviations, the impact on published statements is also reviewed. A concept and escalation plan are in place; in addition to thresholds, this concept also includes escalation bodies and possible substitute measures for recalculating the forecast. If necessary, the implementation plan and related communication are updated.

Step	Requirement
1. Identify	Identify deviations in actuals, forecast, project progress or budget
2. Analyse	Document cause, magnitude, timing effect and interactions
3. Assess counter-measures	Compare countermeasures by impact, cost, timing and risk
4. Decide	Approve corrective actions via the production board members of the brands and, if necessary, via the Group Board of Management
5. Update	Version the forecast, measure register, budget and evidence chain on an ongoing basis
6. Report	Transparently present the impact on target pathway, statement and publication

8 Risks, Scenarios and Deviation Management

Risk	Early indicator	Countermeasure	Review trigger
Biofuel availability and sustainability	Contract coverage, price, proof of origin	Prioritise electrification; alternative volumes/suppliers	material volume/price deviation
H ₂ /syngas infrastructure and costs	Grid and supply projects, offers, TRL	Pilot gates, substitute technologies, flexibilisation	supply or schedule risk
Power grid and connection capacity	Grid studies, connection deadlines, peak loads	Grid planning, load management, own generation	connection not on schedule
Technology maturity and investment cycles	TRL, asset age, retrofit windows	Lock-in review, technical standards	investment with impact beyond 2040
CAPEX/OPEX deviation	Budget status, cost forecast	Prioritisation, reassessment, funding/financing options	budget limit exceeded
Regulatory change	Legislation and national implementation	Scenario and measures update	new binding requirement
Data/methodology change	Recalculation trigger, control deviation	transparent recalculation and review	material change or error

8.1 Scenarios

Scenario	Definition	Management response
Base case	Project portfolio achieves the annual target pathway	implementation according to plan and annual update
Technology/infrastructure downside	Material projects are delayed or deliver a lower impact	Substitute measures, acceleration of alternative levers, escalation
Energy/cost downside	Alternative energy carriers or electricity are not available in plannable volumes or at acceptable costs	Increase electrification and efficiency share, update procurement scenarios
Methodology/scope change	Recalculation changes base year, actuals or target pathway	complete bridge calculation and renewed approval of relevant statements

9 External Validation

The implementation plan for the forward-looking statement on the CO₂e Production Target 2040 was validated in September 2026 by the independent external expert TÜV NORD CERT GmbH in accordance with the TN-CC 020 audit standard. The validation covered the traceability, documentation and verifiability of the underlying assumptions, targets and measures as well as the resource, financing and monitoring processes at the time of the audit.

Based on the audit performed, no indications were identified that the forward-looking environmental claim at the time of the audit was not based on traceable, documented and verifiable foundations or contradicted the applied audit criteria.

The validation was carried out based on the information available at the time of the audit and within the framework of a sample-based audit procedure with a limited level of assurance. It does not constitute confirmation or a guarantee of future target achievement. Responsibility for implementing the implementation plan and achieving the climate target remains with Volkswagen AG.

The calculation of Scope 1 and 2 emissions (market-based) from production, or selected underlying methodological and data components, is reviewed by Ernst & Young as part of the annual report audit.