Volkswagen’s Approach to Sustainability and Decarbonization

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Sustainability @ Volkswagen covers a broad range of topics - Decarbonization, Integrity, Sustainable Supply Chains, Transforming the Workforce are among most material ones.
Transport Sector accounts for 14% of global GHG Emissions
In the EU, transport is the only sector with emissions increase since 1990

Source: IPCC 2014, EEA 2018
Volkswagen will be part of the solution, our focus is on climate change mitigation and decarbonisation.

**Why it matters to Volkswagen:**

- Because of our significant influence and commitment to responsible action (1% of global CO₂ emissions affected by our passenger car portfolio)
- Because of rising stakeholder expectations
- Because decarbonization delivers direct business value
E-mobility is the only way forward to achieve climate targets

- Increase share of future technologies – Focus E-Mobility
- Implementation of further measures to become CO₂ neutral

Our Target: CO₂ neutral fleet by 2050
A group wide target of 30% CO₂e reduction/vehicle over lifecycle for Volkswagen Group was decided - in line with the Paris Agreement.

**VOLKSWAGEN GROUP BASELINE 2015: Ø CO₂e-EMISSIONS/VEH. (LIFECYCLE)**

1) Decarbonization index (DKI), 2) target derived based on method by Science Based Target according to 2°C target, 3) Passenger cars including light duty vehicles.
E-mobility transformation is reflected in our corporate planning.
The decarbonisation target will be achieved via three pillars:
1. Reduce CO₂;
2. Convert fossil to renewable energy;
3. Compensate the rest.

1. Effective and sustainable CO₂ reduction
2. Switch to renewable energy sources for power supply
3. Compensate remaining emissions that cannot be avoided
To reach our decarbonisation target measures along the entire value chain are required.
Primary energy demand is lowest with BEVs

<table>
<thead>
<tr>
<th>PRIMARY ENERGY REQUIREMENT IN WH/KM FOR LIFECYCLE</th>
</tr>
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<tbody>
<tr>
<td><img src="#" alt="Graph" /></td>
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### THE MODEL OF THE ENERGY BALANCE LIFECYCLE

- **Vehicle development**
- **Vehicle production**
- **Fuel production**
- **Fuel consumption**
- **Recycling**

Example: A-Segment 200.000 km, CO₂ emissions & energy over lifecycle of vehicle and fuel

1) not fully comparable with energetic base, not CO₂ neutral
ID.3 as first showcase for decarbonization along the value chain

Objective

- CO₂-neutral production incl. supply chain
- Zero-emission vehicles
- VW supply promise
- Vision: 100% CO₂-neutral e-mobility
- Customer offering
- 100% green power in high-power charging network EU
- Elli Green power contracts for home-charging
- Offers for CO₂-free use phase
- CO₂-neutral hand-over to customer in retail
BEV today already first choice in CO₂ over lifetime – example current Golf class car

Source: Volkswagen K-CEGU 2019, "Klimabilanz Antriebe"; Compact Car (Golf-class), LCA, use phase acc. to WLTP, 200,000 km life
Customers and markets must still be prepared for e-mobility

Vision of CO₂ neutral mobility

Commitment to the goals of the Paris Climate Agreement

CO₂ neutral existing fleet in 2050

Portfolio transformation at all brands

2017 2025 2030

Customers & Markets

Customers
- Customer readiness
- Public awareness
- Positive image

Markets
- Supportive regulations
- Financial incentives
- Sufficient Charging Infrastructure

Public awareness

Positive image

Supportive regulations

Financial incentives

Sufficient Charging Infrastructure
Decarbonization: We address an entire ecosystem and go beyond the vehicle itself

Supporting the Energy transition
- Conversion of Wolfsburg power plant, saving 1.5 mn tons of CO₂ by 2022, corresponding to emissions of 870,000 cars per year
- Volkswagen with 37% renewable energy in manufacturing (as of 2017)

Lower emission products
- Further emission reductions
- Alternative fuels (e.g. Audi e-gas)
- Extended portfolio of electric vehicles

Charging infrastructure
- Joint venture for rapid charging network in place
- ELLI, offering home charging with green electricity
- Electrify America
- Lidl & Tesco cooperation

Mobility Services
- MOIA electric shuttles in first cities
- All-electric car-sharing Volkswagen We share Q2/2019 in Berlin
Supply Chain Sustainability – managing risks along three defined priority areas

<table>
<thead>
<tr>
<th>Raw material</th>
<th>Trader</th>
<th>Component</th>
<th>Directed part</th>
<th>Assembly</th>
<th>Vehicles</th>
</tr>
</thead>
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### Long-term goals
- Commitment to 2°C goal
  - Green electricity in HV-battery cell production
  - ID.3
  - Closed loop

### Current activities
- Measures for all high-risk raw materials
  - Identification of smelters (high-risk materials)
  - Raw Materials Observatory
  - Hackathon

### Sustainability Rating
- Supplier assessments
- Supplier audits
- Supplier events worldwide
Improve basic principles and success factors for supply chain management

- **Transparency** within sub-supply chains
  Pilot projects with IBM & Minespider
- **Transparency on sustainability performance of suppliers**
  Introduction of S-Rating
- **Harmonisation** of standards and tools
  Pilot on audit standards for direct suppliers and mining companies, uniform CO2 data
- **Cross-industry initiatives and cooperations**
  Engagement in initiatives like DRIVE Sustainability, Responsible Minerals Initiative or Global Battery Alliance
Sustainability in the Supply Chain: We want to be a Driving Force

**GLOBAL BATTERY ALLIANCE**
- Setting standards to ensure the social and environmental sustainability for battery materials.
- Platform for exchange and on-the-ground work.

**RESPONSIBLE MINERALS INITIATIVE**
- Develop and standardize certification systems for cobalt, tantalum, tungsten, tin & gold.
- Offering training materials for upstream actors in the supply chain.

**DRIVE SUSTAINABILITY**
- Develop and standardize risk assessment tools (questionnaires, raw mat. observatory).
- Develop and conduct trainings and educational products / tools.

**ALUMINIUM STEWARDSHIP INITIATIVE**
- Global sustainability standard for aluminum.
- Apply to all stages of the aluminum value chain from raw material extraction to recycling.

We engage actively in initiatives in order to trigger broad supply chain improvements. Develop & introduce tools and standards. Do joint risk assessments. Design & conduct trainings.
We are strengthening external stakeholder relations. Group Strategy’s stakeholder dialogue series provides a holistic format for discussions with key opinion leaders.
Sustainability Council as critical advisor to the Group Board of Management

Topics
- Sustainable Mobility and Environmental Protection
- Social Responsibility and Integrity
- Future of Work and Digitalization

Tasks
- Strategic Counseling of the BoM
- Strengthening Sustainability Management
- Bridge to Stakeholders
- Expertise and Initiatives

Projects
- Transformation Towards Sustainable Transport Systems – Next Generation Policies
- Open Source Lab for Sustainable Mobility
- Forecast-based Financing – Combat Climate Change Impacts in Asia-Pacific
We have a strong sustainability network – Sustainability as part of Group Strategy since 2018
Communication on Sustainability: Sustainability Report and Sustainability Magazine Shift

**Sustainability Report**
Includes the combined separate non-financial report and fulfils the requirements of the HGB (German Commercial Code) and the German CSR Directive Implementation Act.
GRI Standards (comprehensive level)

**Shift Magazine**
How can Volkswagen – after the Diesel Crisis - talk about sustainability again without fear of ridicule?
Shift, which complements our traditional Sustainability Report, is an initial answer.

**FOCUS: ESG, facts, figures, regulation, GRI / UN SDGs**

**FOCUS: conflicting goals, change /crisis, outlook**

1) GRI = Global Reporting Initiative | SDG = Sustainable Development Goals
Decarbonisation is our key sustainability priority @Volkswagen Group

Our ambitious decarbonisation program covers the entire life cycle.

**Clear priorities are set:** avoid & reduce CO₂-emissions, compensate non avoidable emissions

Supply chain Sustainability is essential for a resilient supply chain and our reputation

Stakeholder Engagement is important in our industry’s transformation

**Sustainability reporting and communication:** Ensuring transparency to stakeholders