



Volkswagen



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ID. INSIGHTS

SUSTAINABLE E-MOBILITY

Keynotes:

Christian Senger

Ralf Pfitzner

Dr. Michael Liebert

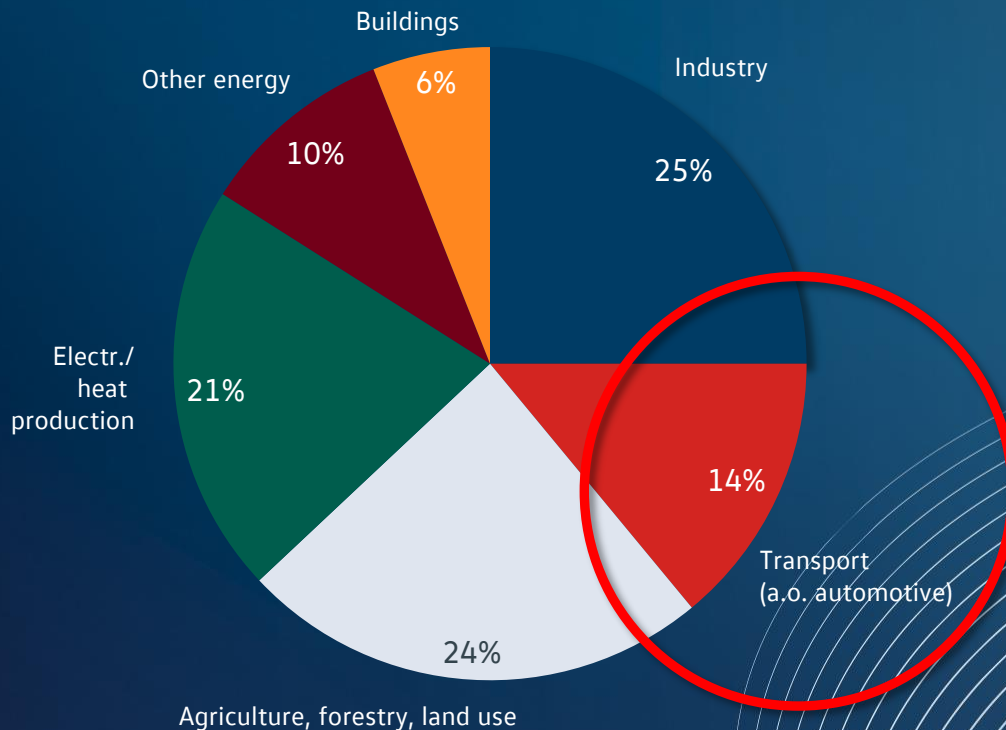
Climate protection and decarbonisation

Ralf Pfitzner

Head of Sustainability of the Volkswagen Group

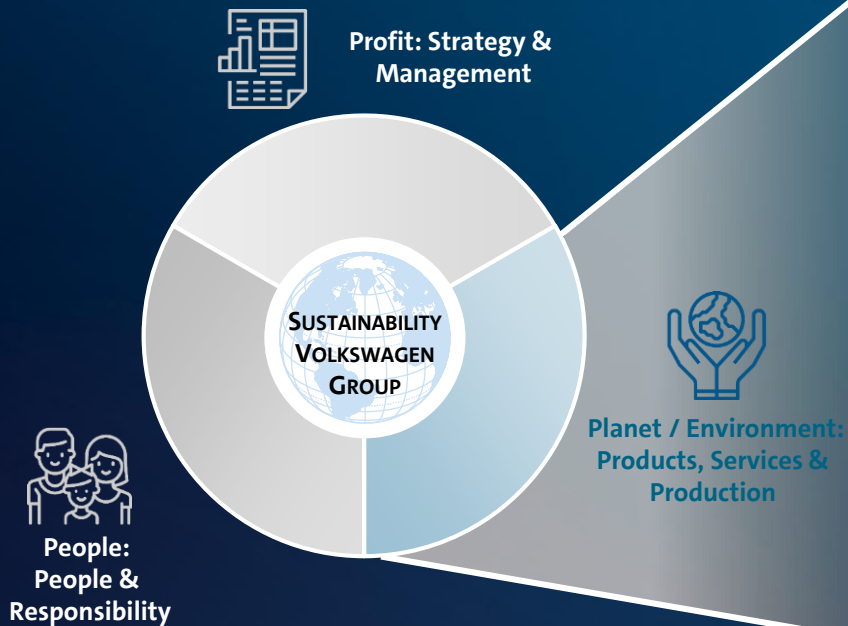
The automotive industry is part of the problem:

The transport sector accounts for 1/7 of global greenhouse gas emissions



Volkswagen is determined to be part of the solution, focusing on climate change mitigation and decarbonisation

DIMENSIONS OF SUSTAINABILITY AT VOLKSWAGEN

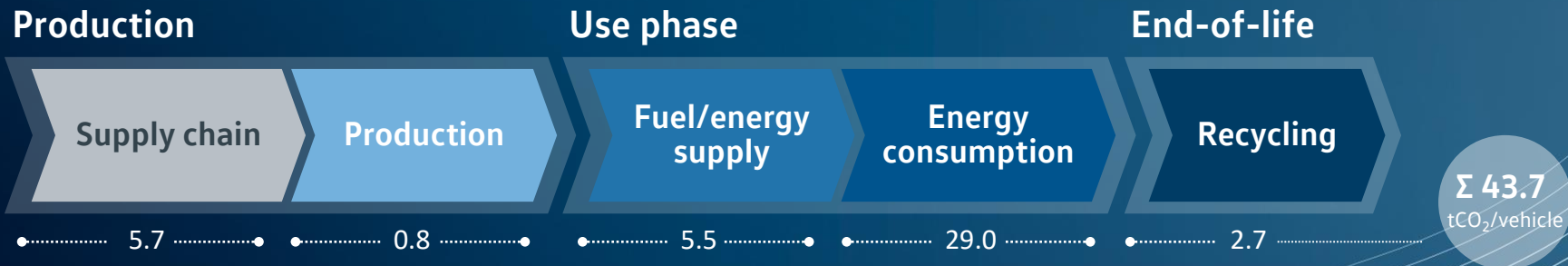


FOCUS AREA: CLIMATE CHANGE MITIGATION AND DECARBONIZATION

Why it matters to Volkswagen:

- Because of our significant influence and thus our responsibility
- Because of rising stakeholder expectations
- Because decarbonisation delivers direct business value

CO₂ matters over the entire life cycle



Our Decarbonization Index (DKI) allows to track improvements in CO₂-performance

Paris commitment needs 30% reduction goal per car by 2025

*2015 DKI t CO₂/vehicle: Average Volkswagen Group vehicle across all brands

Volkswagen addresses an entire ecosystem, goes beyond the vehicle itself

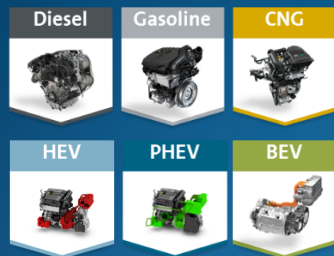


Energy transition



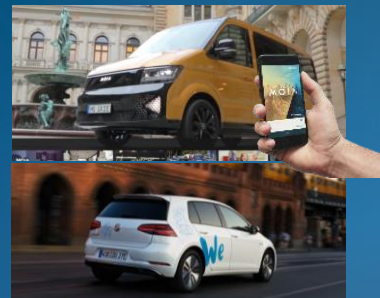
- Wolfsburg power plant conversion saves 1,5 mn tons of CO₂/year by 2022 – corresponding to emissions of 870,000 cars per year

Low-emission product



- Further reductions
- Alternative fuels
- E-offensive

Mobility services



- MOIA electric shuttles in first cities
- All-electric car-sharing Volkswagen We Share Q2/2019 in Berlin

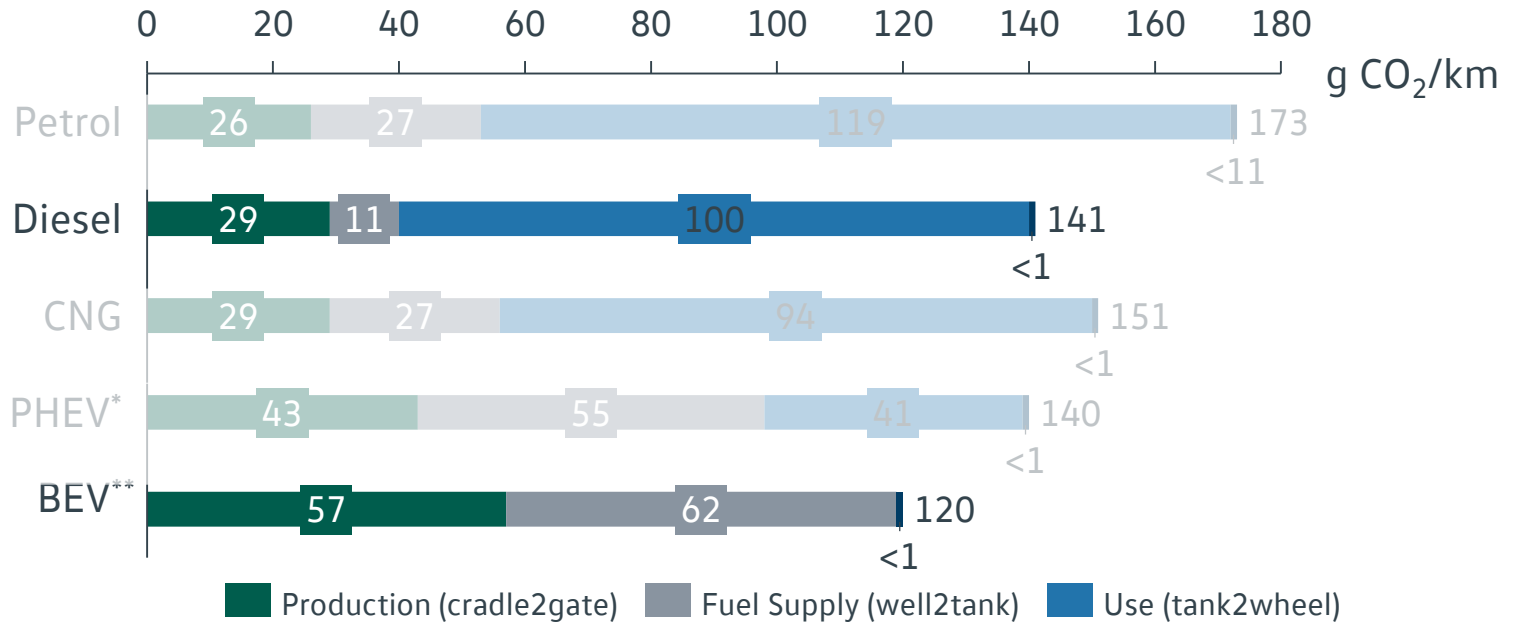
Charging infrastructure



- Elli to offer green energy, wallboxes and holistic charging solutions
- Volkswagen is part of IONITY rapid charging network

BEV today first choice in CO₂ over lifetime

Current Golf vs. e-Golf



Summary: Ralf Pfitzner on climate protection and decarbonisation



Decarbonisation and climate change are focus topics

We track CO₂ over the entire life cycle

Volkswagen addresses an entire ecosystem

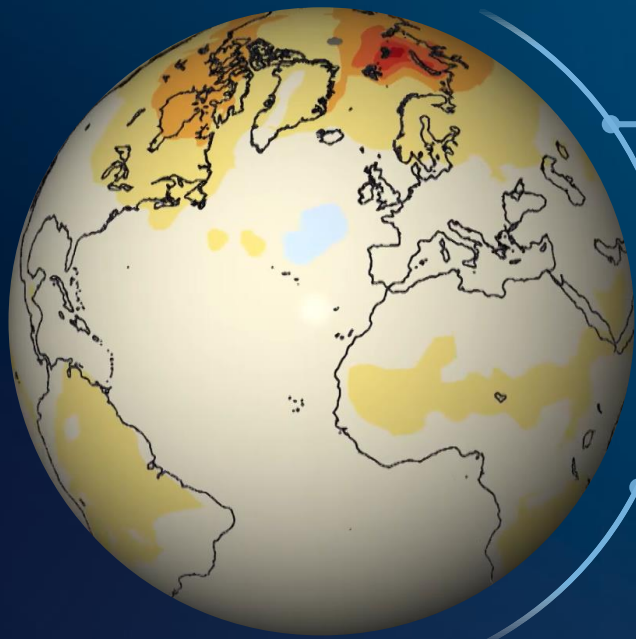
BEV and PHEV leading in overall energy efficiency

Sustainable e-mobility for all

Christian Senger

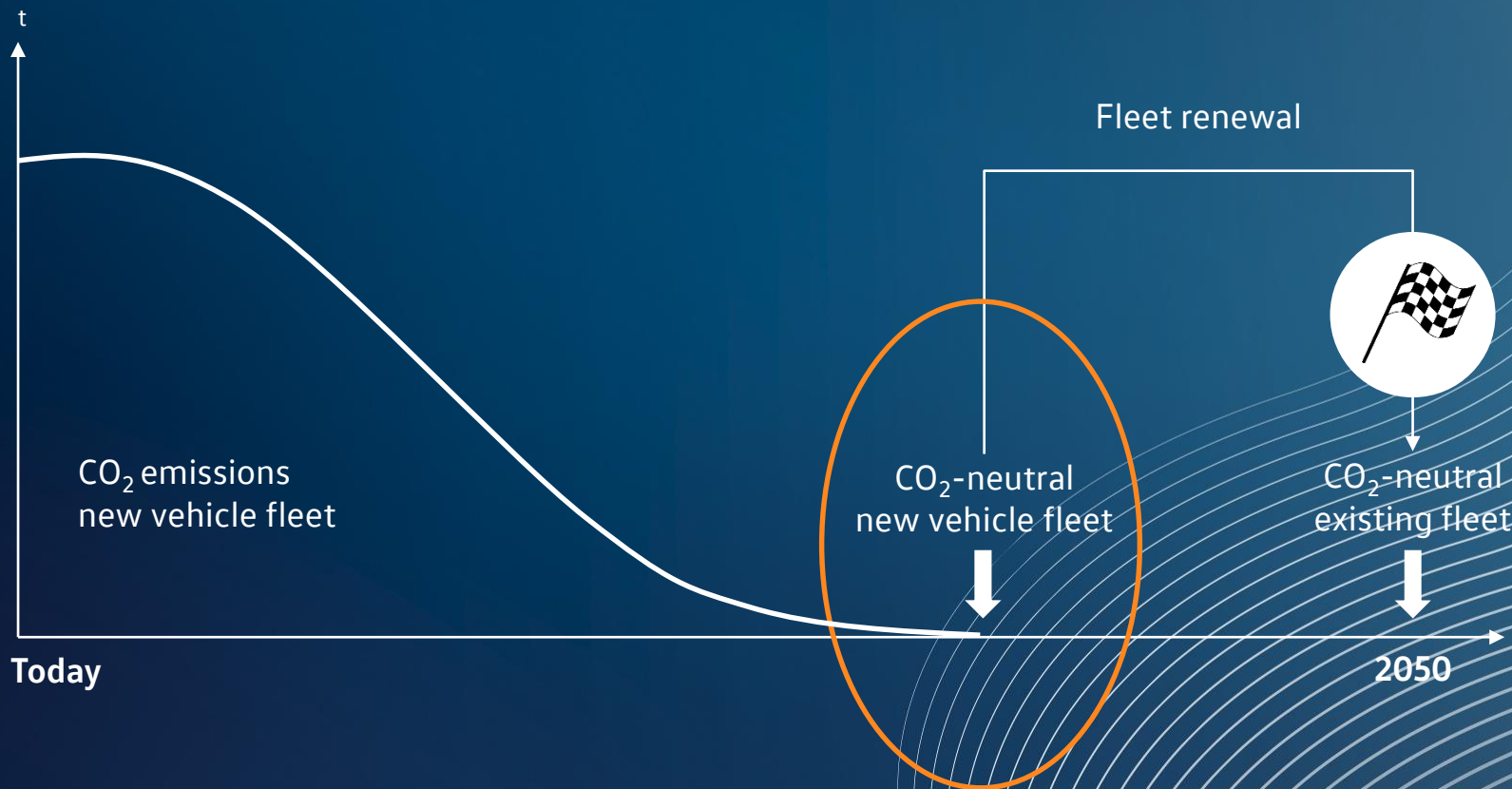
Head of Volkswagen Product Line e-Mobility

Volkswagen is committed to the climate goals of the Paris Agreement

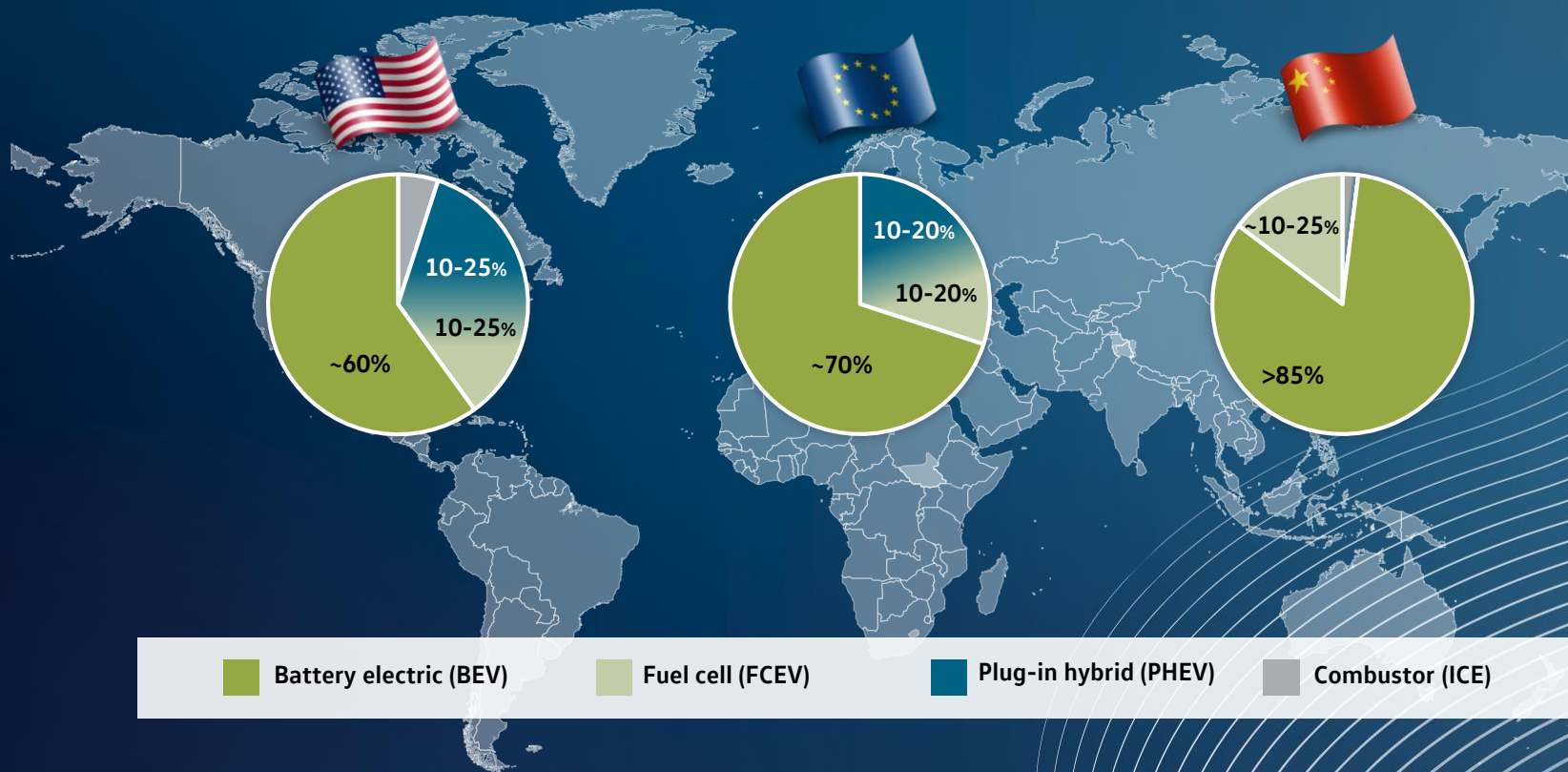


- **Paradigm shift** already underway ✓
- “Well below 2°C goal” is **guideline** and **benchmark** ✓
- Vision of **CO₂-neutral mobility** is firmly anchored ✓
- **Transformation** is underway at all brands ✓
- Realignment of **governance** ✓
- **Redistribution** of resources ✓

We are acting early to lay the groundwork for meeting the climate goals



There will be massive changes in our drivetrain portfolio by 2040



Volkswagen has launched the most extensive e-offensive in the global automotive sector



Goal: Electrification of the entire model portfolio

2025 ▼

- 25% of new Group vehicles will be powered solely by electricity
- 50 BEVs + 30 PHEVs.

2030 ▼

- At least one electric version of each of the Group's > 300 models.



Roadmap 



Volkswagen is driving forward e-mobility like no other volume manufacturer



> **50** New fully electric vehicles by 2025

~ **30** Billion € invest by 2023

~ **15** Million MEB vehicles in the first wave

1st wave



Mission E Cross Turismo



ID. Buzz



e-tron GT



ID. Vizzion



Vision E



ID. Neo



e-tron Sportback-Konzept



Taycan



ID. Crozz

Volkswagen will achieve major economies of scale by producing MEB vehicles worldwide



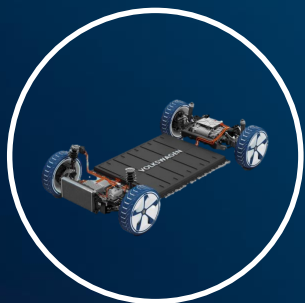
Eight e-sites to be set up worldwide by 2022:



The Volkswagen brand's e-offensive is based on three strategic pillars



Low Costs



Consistently generating economies of scale by Group-wide use of MEB electric platform.

Strong Benefits



Exploiting the full potential of e-mobility by developing a completely new product family.

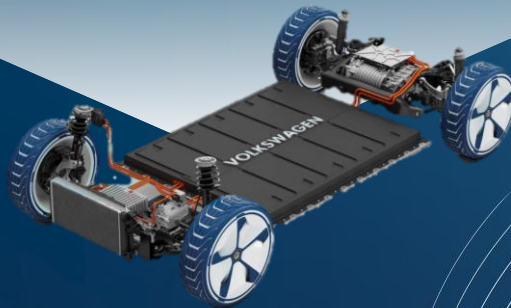
Modern Lifestyle



Networking hardware, software and services for contemporary and modern mobility solutions.

The MEB electric platform is the technological and economic backbone of the e-offensive

By 2022, we will be offering pure electric models in all relevant vehicle segments.



Electric for all: The launch of the Volkswagen ID. at the end of 2019 marks the start of a new era



Concept Car

The ID. is trimmed to reduce CO₂ along the entire value chain – and achieve a climate-neutral balance



0 CO₂

Supply chain

Production

Use

Recycling

100 % green power in battery cell production

100 % green power at Zwickau factory

100 % Volkswagen Naturstrom via Elli

Second life / closed loop recycling

Consistent reductions in CO₂ emissions in production and supply chain



1) Through certified projects – e.g. VCS (Verified Carbon Standard) or REDD+ (reducing emissions from deforestation and forest degradation)
Concept Car

Offerings for CO₂-neutral use throughout the entire life cycle



From today's perspective, electric vehicles are the best way to achieve effective climate protection

Eco-balance over life cycle 2020



In a nutshell: Volkswagen is making the car climate-neutral



“Well below 2°C” is the **yardstick** for our actions

Biggest e-offensive worldwide launched

Attractive and affordable **electric cars for all**

MEB is strong basis for major economies of scale

The ID. marks the **start of a new era** in 2019

First car in the world with a **CO₂-neutral balance**



Volkswagen

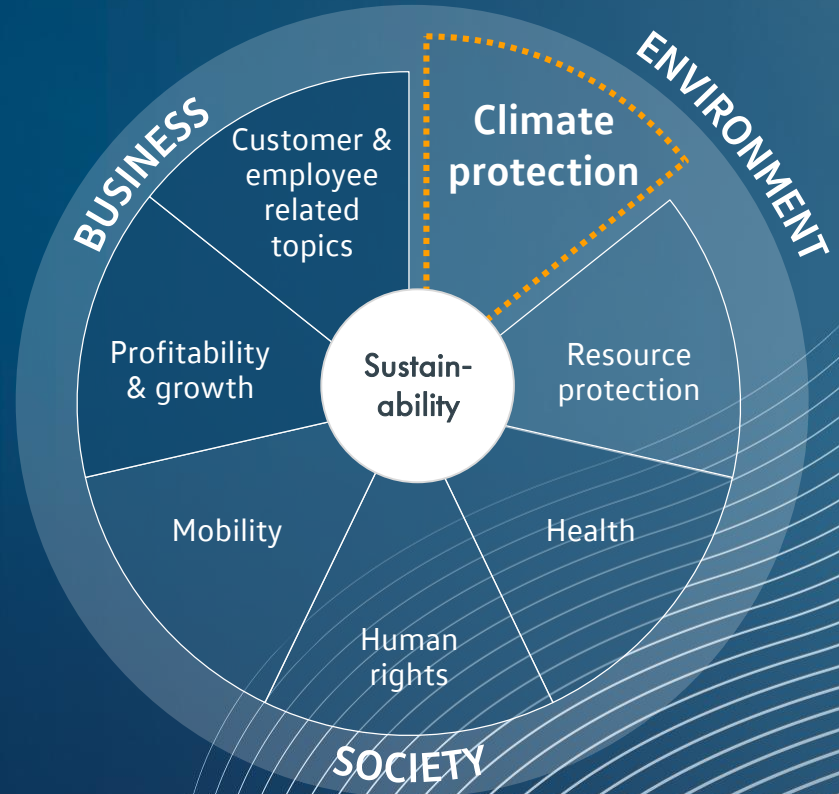
How to make the ID. carbon neutral

Dr. Michael Liebert

Head of Sustainability VW Passenger Cars

For Volkswagen, sustainability covers a multitude of measures

» Sustainability considers and harmonizes business, environmental and social aspects «



Sustainability dimensions

Sustainable CO₂ optimization addresses the entire life cycle of a vehicle



Production

Supply chain

Production

Use phase

Fuel/energy supply

Fuel consumption

End-of-life

Recycling

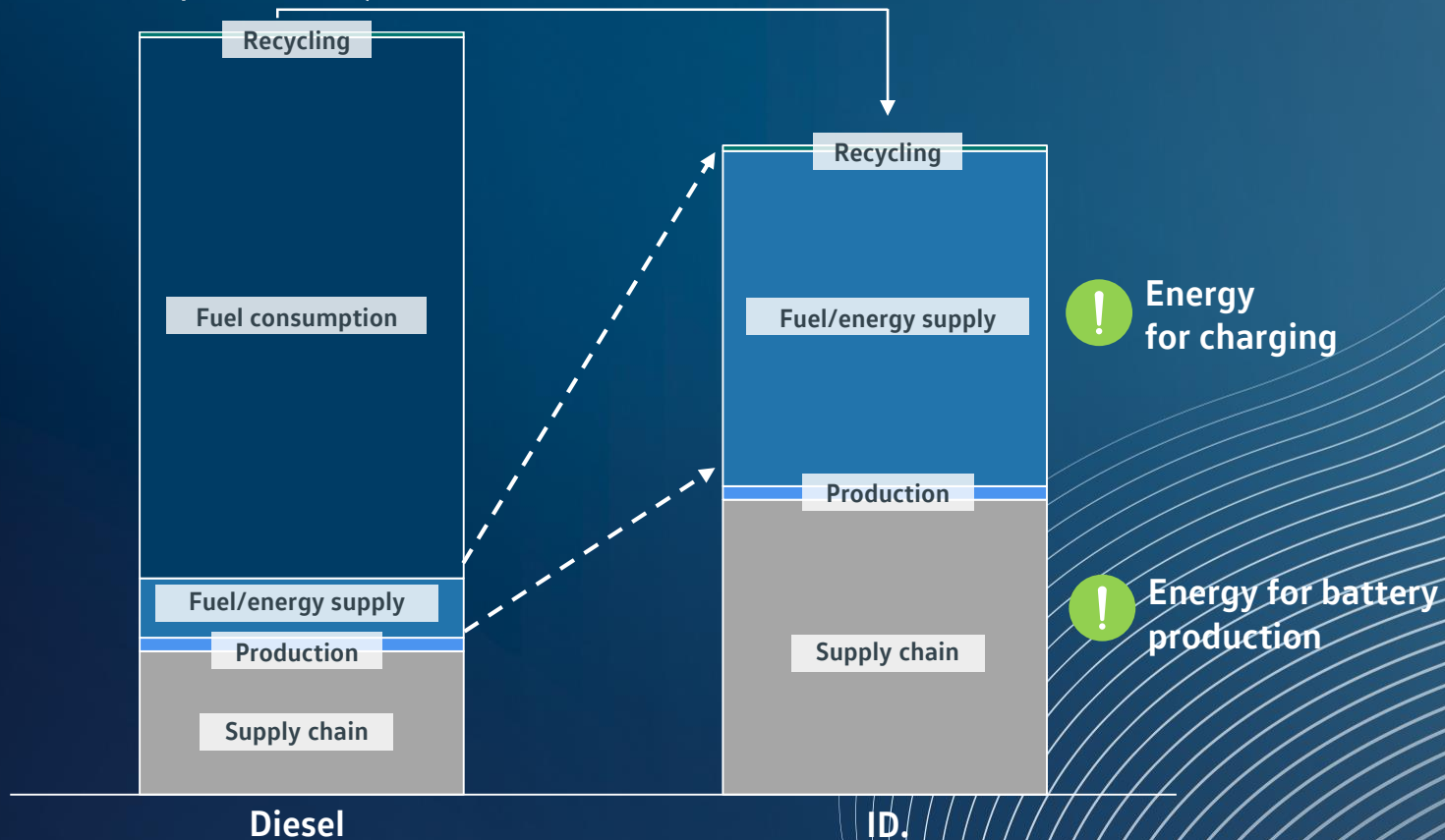
CO₂ optimization measures throughout the entire life cycle

Key priority: Avoidance & reduction
(Focus on core business)

Complementary: Compensation
(Non-avoidable emissions only)

Battery production and charging are key levers for the CO₂-neutrality of the ID.

(tCO₂/vehicle before optimization)

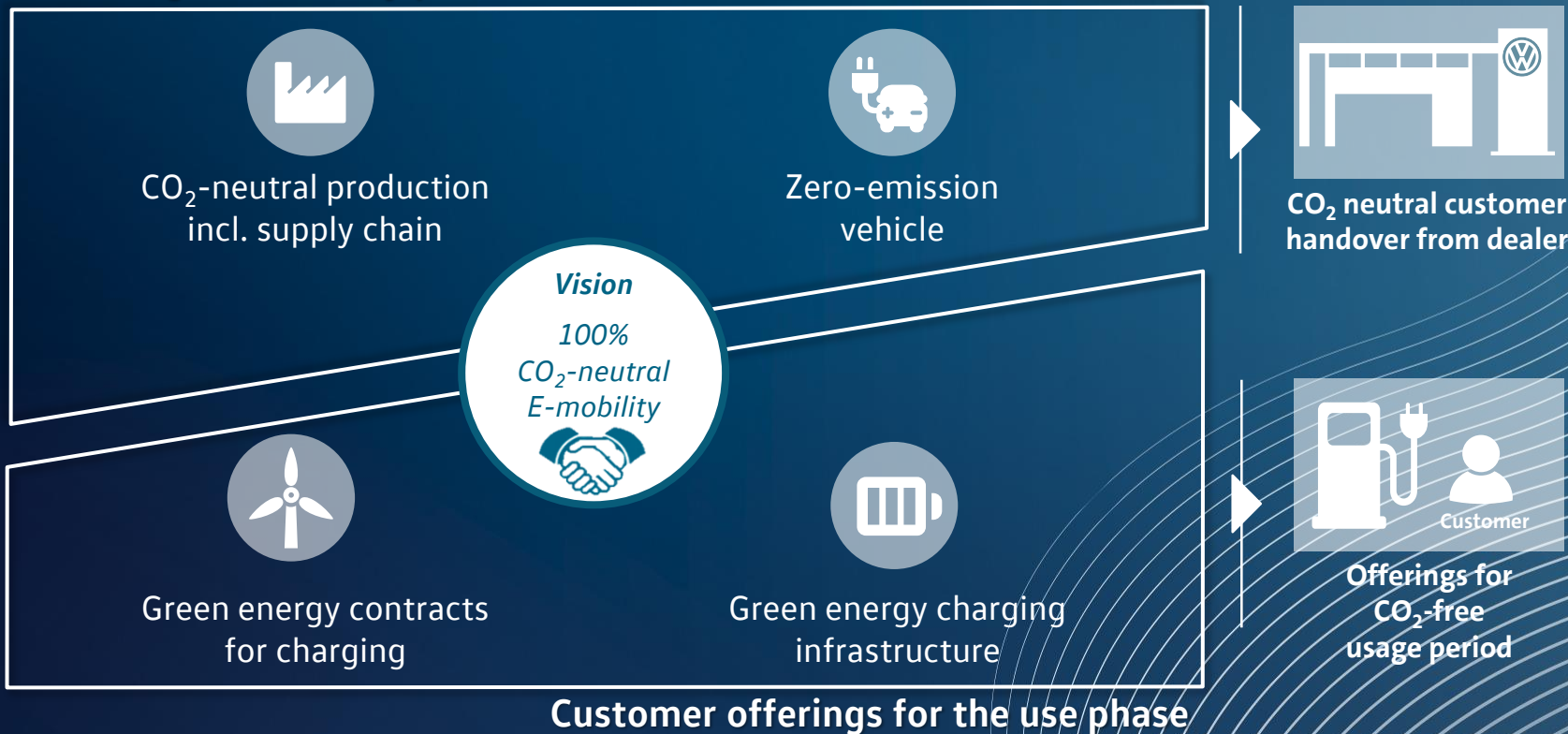


Our vision is 100% CO₂-neutral E-mobility

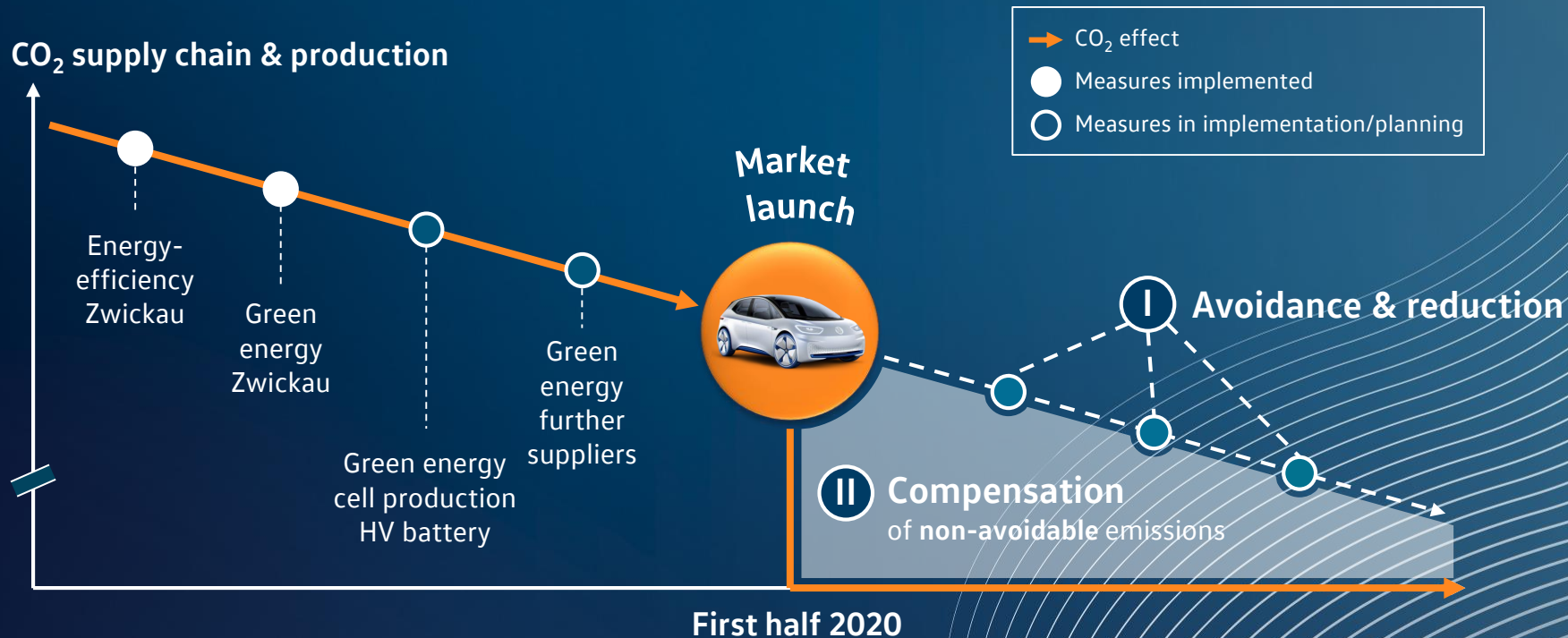
Decarbonisation concept



Volkswagen's delivery promise



The ID. made in Zwickau will be CO₂-neutral at handover to our customers



We focus on climate projects with the highest quality standards

Focus

Additional, measurable and certified climate effects
Social and ecological impacts
Geographical proximity to global Volkswagen locations

Project types



Reforestation
in tropical
climate zones



Protection of
tropical forests



Household-related
CO₂ avoidance
through social projects



Renewable energy
projects

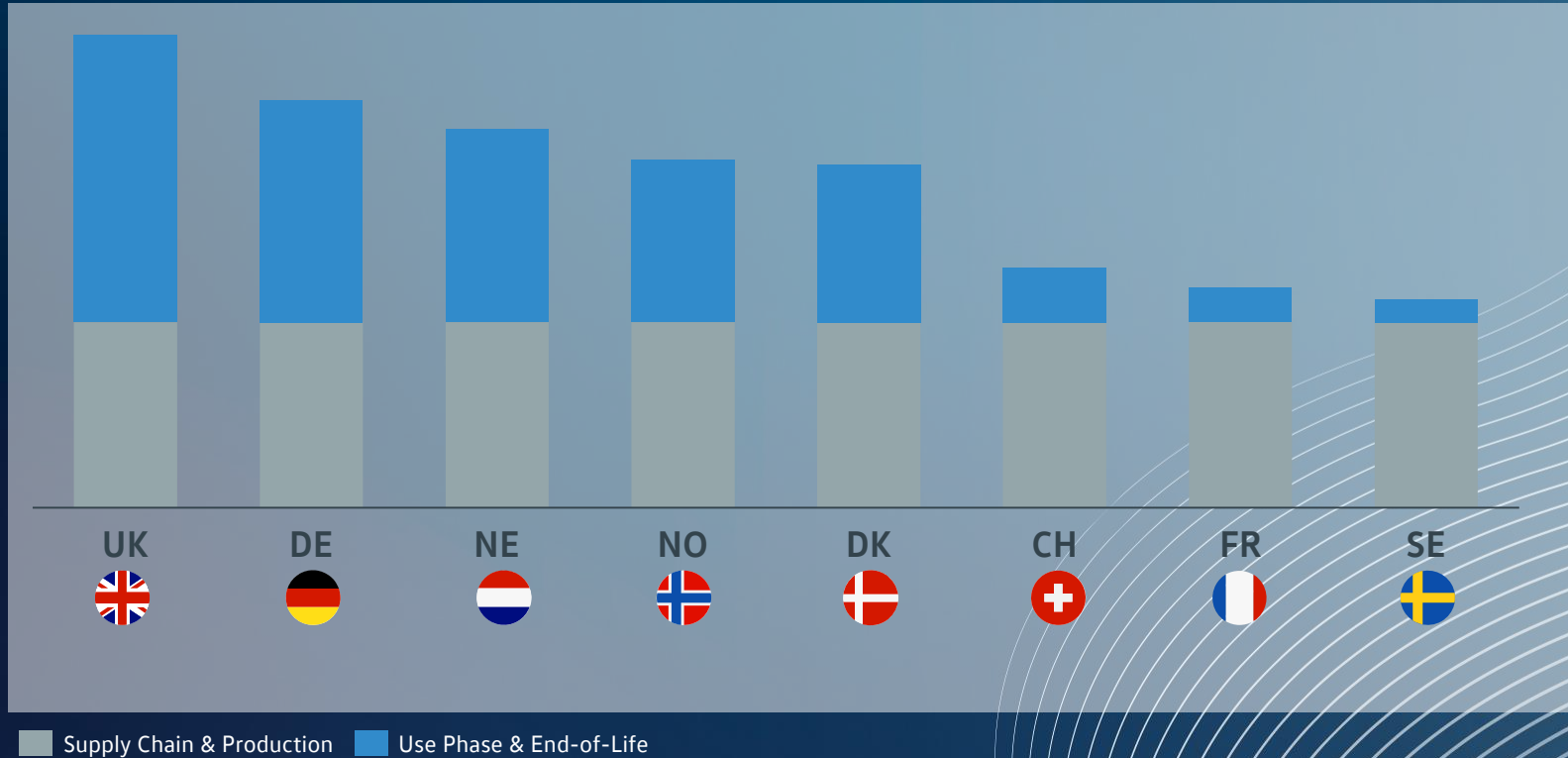
Use phase optimization requires joint efforts

Key stakeholders by life cycle phase



National energy mix optimization is a crucial political factor

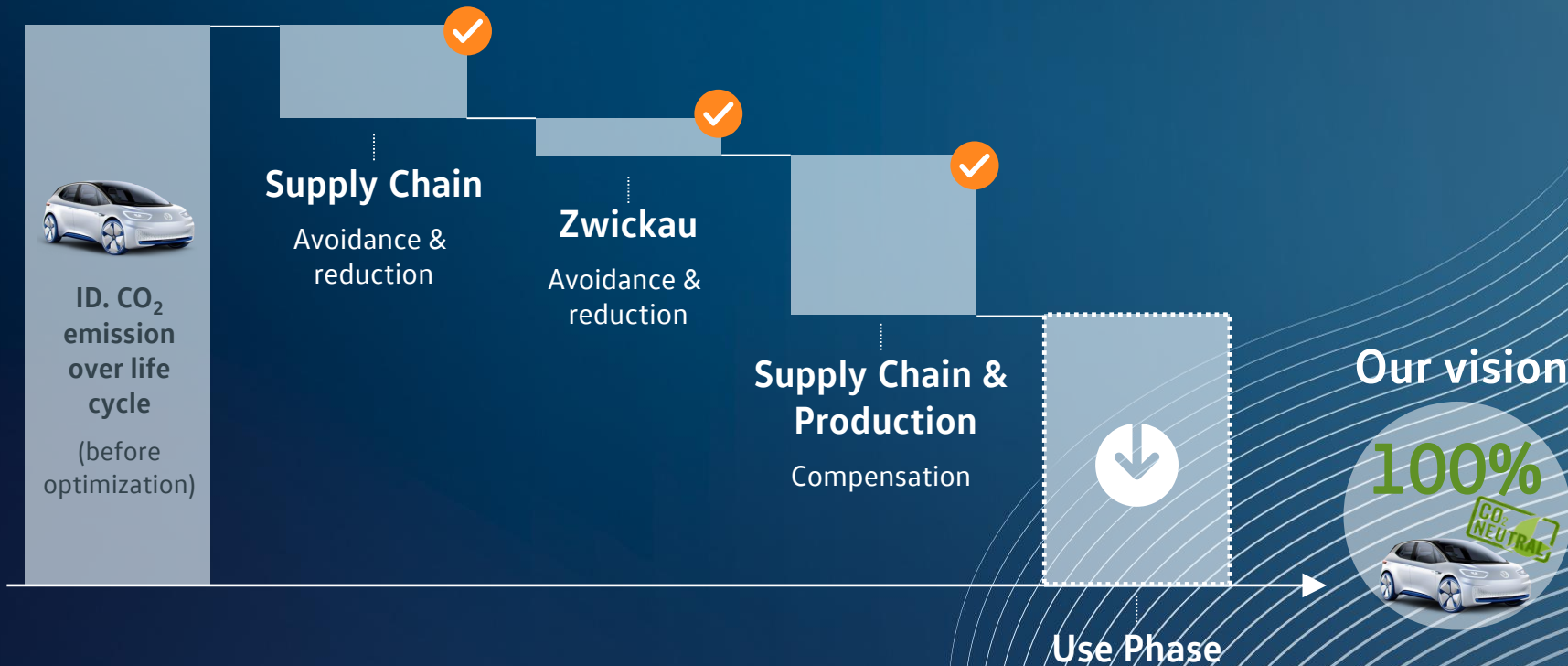
Life cycle emissions based on average national energy mix
(tCO₂/vehicle before optimization)



Volkswagen focuses on green energy across all charging scenarios



Significant steps taken on the path towards a CO₂-neutral ID. tCO₂/vehicle



Summary: Michael Liebert on how to make the ID. CO₂-neutral



Decarbonisation is our sustainability priority for climate protection

Our vision: 100% CO₂-neutral e-mobility

We ensure a CO₂-neutral handover of the ID. to the customer

We focus on CO₂ avoidance and reduction in the core business – compensation as an additional measure

We recommend and actively support green energy in all charging scenarios

More than 50% of life cycle emissions have been already addressed – many long-term measures will be tackled

Climate protection

a MARATHON not a sprint.