



# Roadmap-E

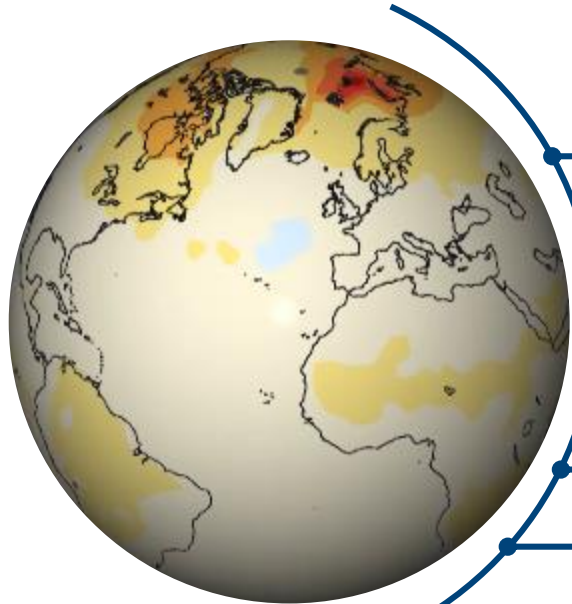
Dr. Andreas Lassota



Wolfsburg, June, 23rd

# THE WORLD IN CHANGE.

*We are committed to the climate targets of the Paris Agreement.*



Paradigm Shift in Progress.

" Well below 2 degree target " is guideline and scale.

The vision of CO2-neutral mobility is firmly anchored.

Change is underway across all brands.

Realignment of the company

Redistribution of resources





**Sustainable  
Mobility for all.**

## ID.3: BALANCING CO2-NEUTRAL

*Emission values are reduced throughout the entire value chain.*



0 CO<sub>2</sub>

Supply  
chain

100% green electricity in battery cell production and compensation in the rest of the supply chain

Production

100 % green electricity at the Zwickau plant

Use

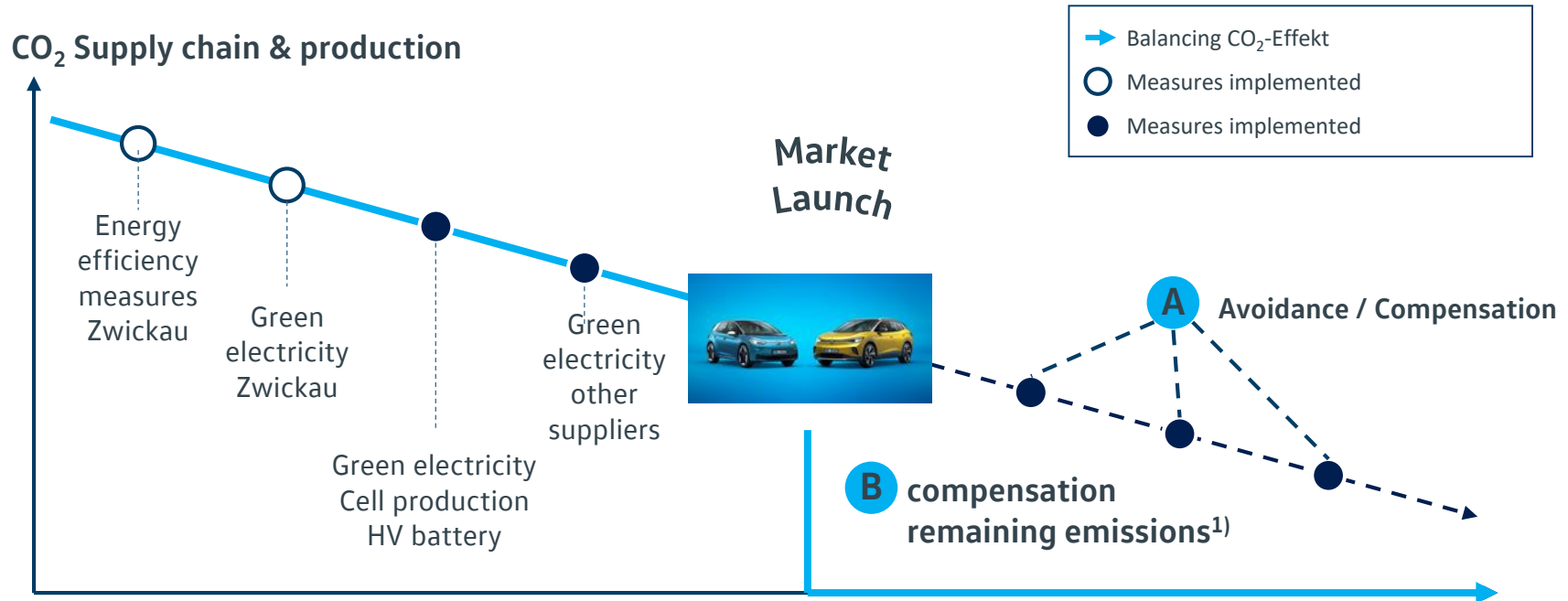
100 % Volkswagen Naturstrom by Elli

Recycling

Second life / closed loop recycling

# CO<sub>2</sub> EMISSIONS ARE CONTINUOUSLY REDUCED

*Remaining emissions are compensated.*



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



# CO<sub>2</sub> EMISSIONS ARE CONTINUOUSLY REDUCED

*Why is Volkswagen so consequently towards e-mobility and not for hydrogen cars?*

## Electric vehicles with a clear advantage in primary energy demand



Source: VW Newsroom



Hydrogen however has as well advantages (range, fast charging, no heavy battery inside the car) and offers the potential in the long run for big cars / commercial vehicles.

But it has a key disadvantage: **The transformation from renewable primary energy in usable energy for the powertrain comparatively inefficient.** In analogy, around 2-3 times more „wind turbines“ would be needed as for battery electric vehicles.

Furthermore hydrogen is until now not ready for the mass market, for the convenient usage it lacks an according infrastructure.



# ELECTROMOBILITY FOR ALL :

*With the introduction of the Volkswagen ID. At the end of 2019, a new era begins.*



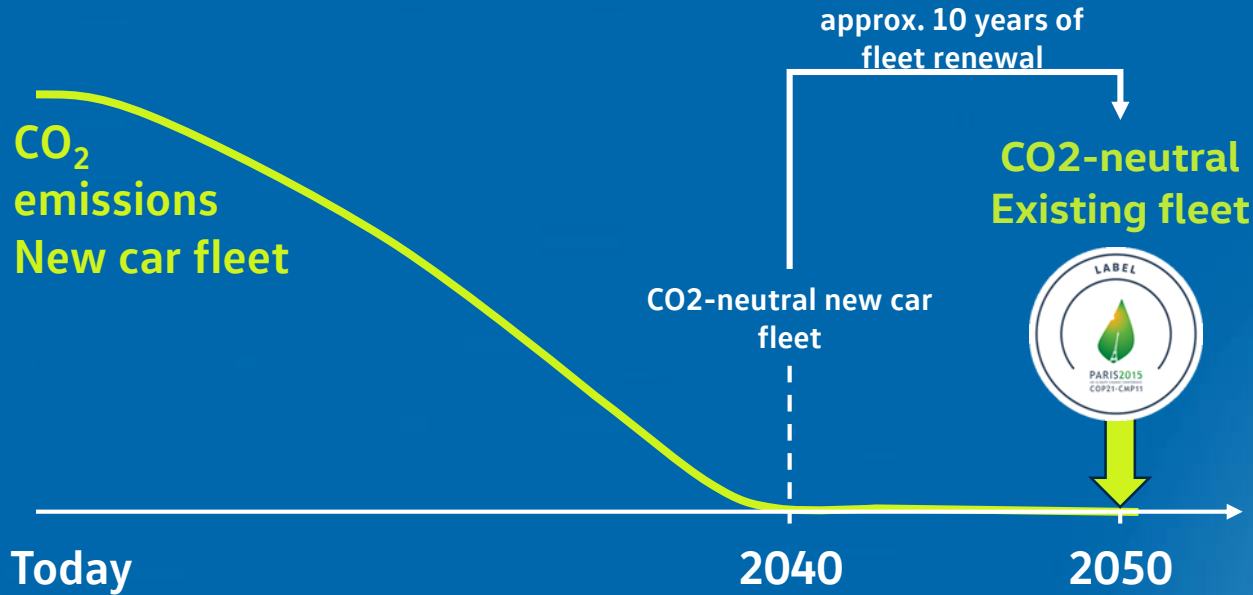


**Volkswagen  
invests in  
E-mobility.**



# ROADMAP-E

*For a climate-neutral existing fleet in 2050, we must set the course.*



# ROADMAP-E

*We have launched the most extensive e-offensive in the global automotive sector.*

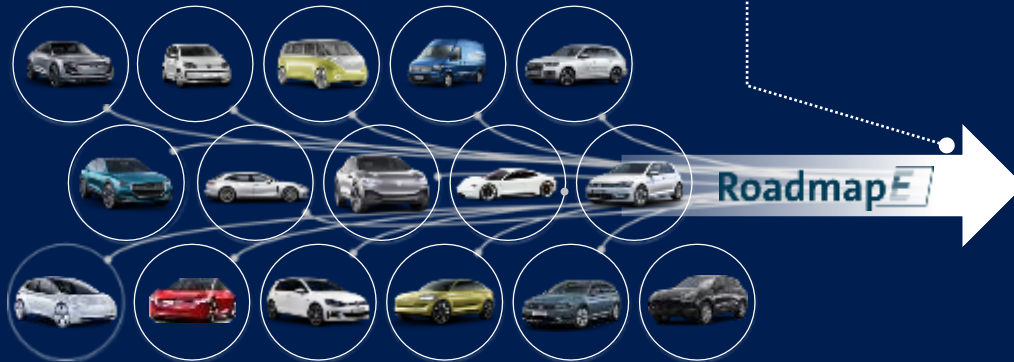
## Goal: Electrification of the entire model portfolio

2028 ▼

- 25% of the new Group vehicles will be powered exclusively by electricity.
- 70 BEVs + 30 PHEVs.

2030 ▼

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



# DELIVERIES E-CARS

*ID.3 will be handed over to the customer climate neutral on the balance sheet*

## The new ID.3: **balance sheet CO<sub>2</sub>-neutral**

Emission values are reduced along the entire value chain



zero CO<sub>2</sub>



+ Unavoidable emissions are offset by  
investments in climate protection projects.

Source Volkswagen

Source: VW Newsroom

- The ID.3 will be produced completely CO<sub>2</sub>-neutral on the balance sheet as the first car worldwide, and will be therefore handed over to the customer without a so-called „CO<sub>2</sub>-backpack
- The energy intensive battery cell production of the ID.3 is for example done with 100% green energy
- Currently unavoidable emissions in the whole production process of the ID.3 are offset by investments in climate protection projects

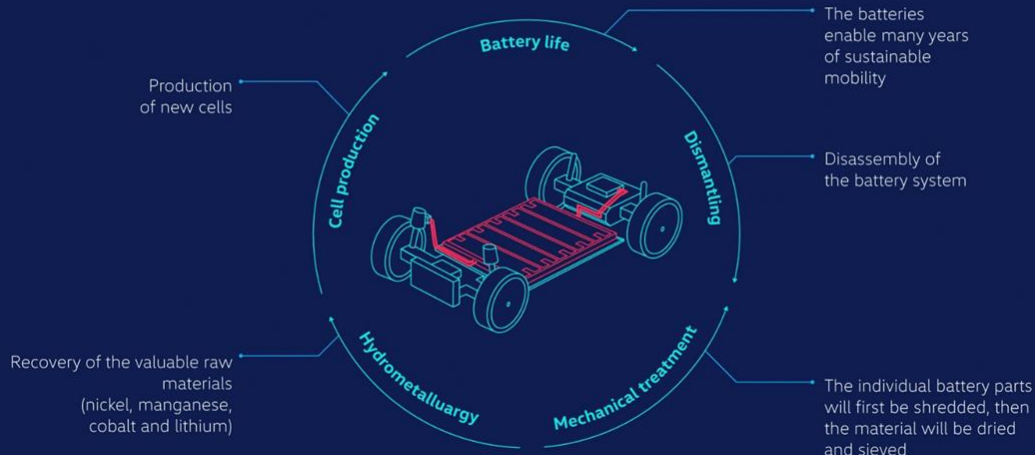


# DELIVERIES E-CARS

## *Closed loop Battery-Recycling – battery usage after End-of-Life*

### Closed loop Battery-Recycling

Circular economy as a goal



Source Volkswagen Group

Source: VW Newsroom

A battery **recycling pilot-site** is currently built in Salzgitter.

**End-of-Life-batteries**, which cannot accumulate sufficient energy any more because of their age, will be used to generate a new raw material (black powder) for the cathodes of the batteries.

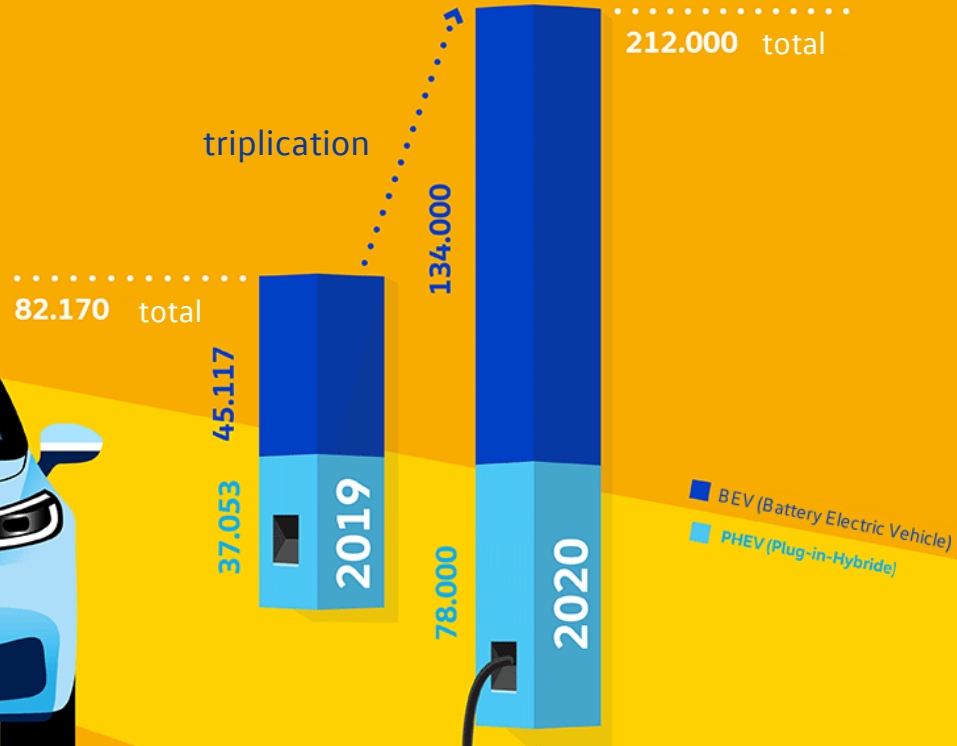
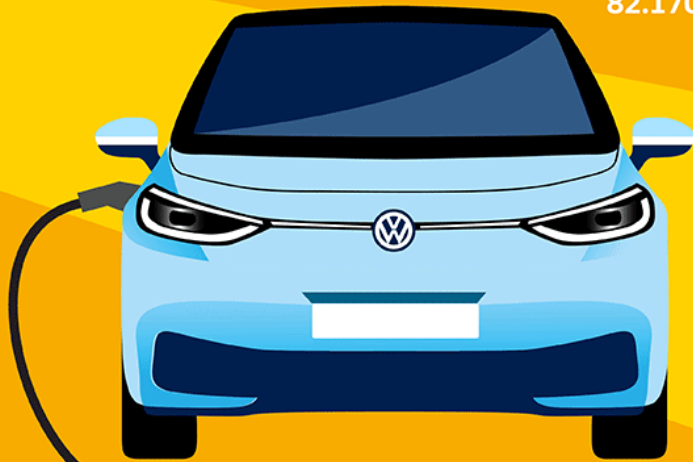
However the group expects a noteworthy recirculation of batteries for recycling in industrial standards at the end of the 2020s.



# DELIVERIES E-CARS

*Volkswagen brand triples deliveries of all-electric vehicles in 2020*

Sales figures  
E-cars 2020  
Volkswagen brand\*



\*Source: Volkswagen internal data

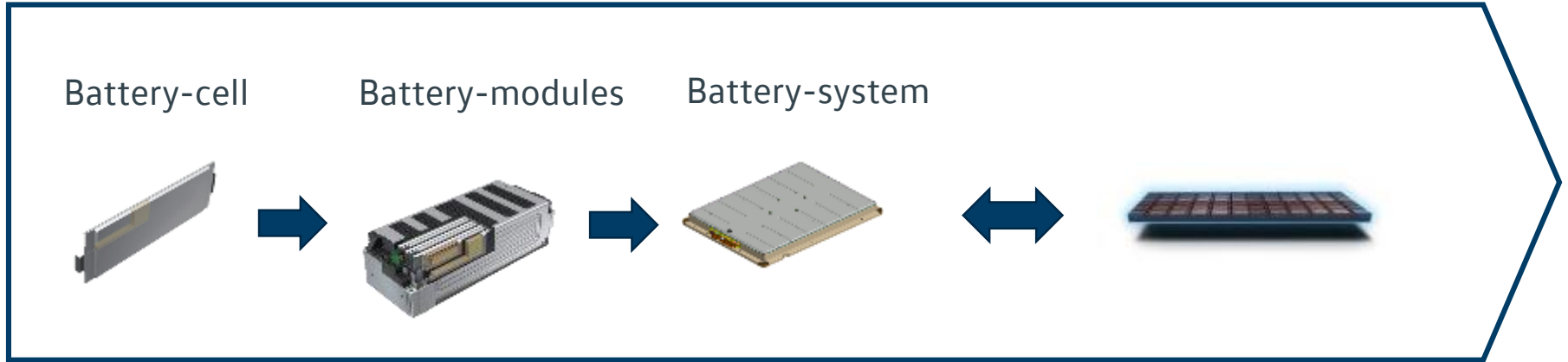




**ID. Family  
based on the new  
MEB platform.**

# AN INNOVATIVE CELL TECHNOLOGY

*Basis for the modular electric drive system.*



Warranty conditions for battery:

8 years

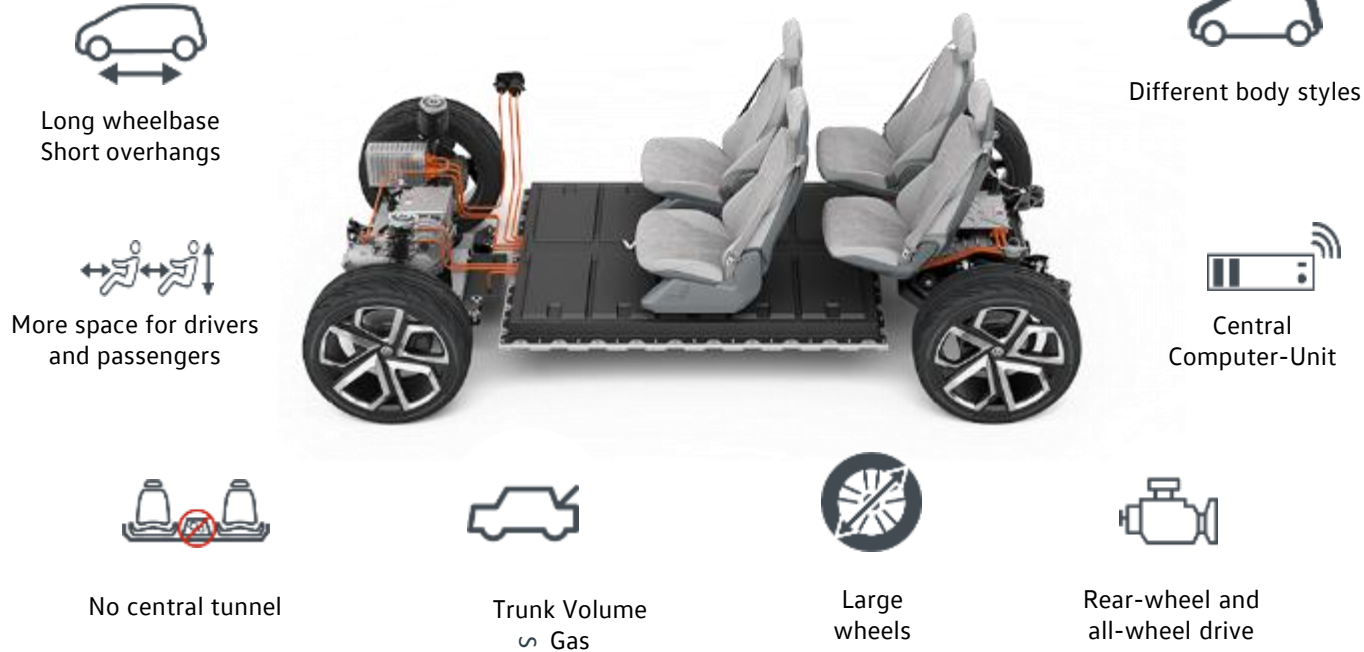
160.000 km

70% remaining capacity



# MEB IS BUILT AROUND THE BATTERY

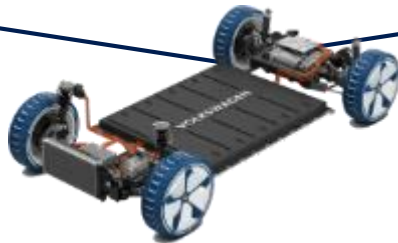
*With the MEB electric construction kit, Volkswagen is making full use of the possibility of e-mobility.*





# MEB AS A MULTI-BRAND PLATFORM

*Scalable and flexible for the most important regions.*



# THE ID. FAMILY

*In the most popular body styles and sizes.*

More to come ...



**ID.3**

SOP '19

**ID.4**

SOP '20

**ID.4 GTX**

SOP '21

**ID.5**

SOP '21

**ID. BUZZ**

**ID. VIZZION**

**ID. ROOMZZ**

**A-Entry  
B-SUV  
(...)**



# Scalable and flexible for the most important regions.

*The ID. DNA.*

**ICONIC  
DESIGN**



**INSPIRING  
DIMENSIONS**



**INTELLIGENT  
DATA**



**INFINITE  
DRIVE**



**INTUITIVE  
DEVICE**



AFFORDABLE / LONG RANGES / FAST CHARGING TECHNOLOGY / GOOD RESIDUAL VALUES

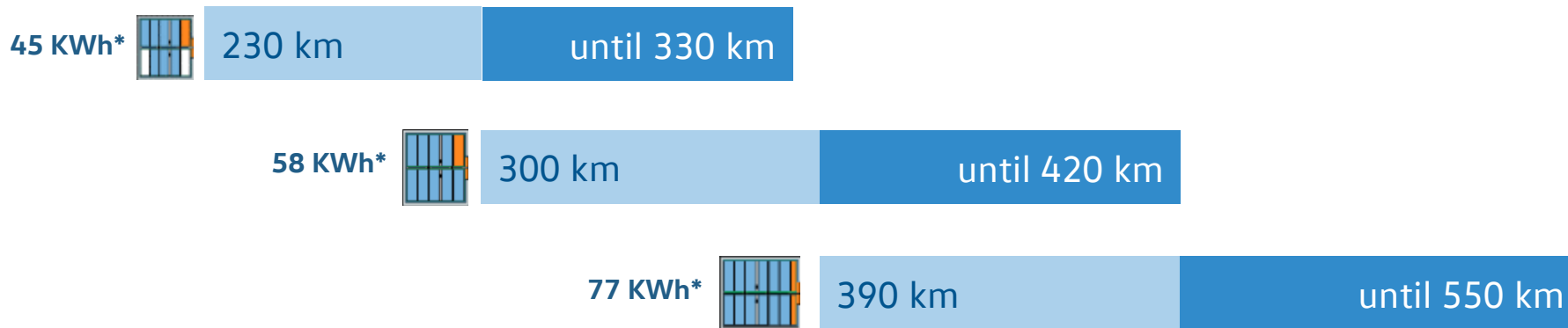


# SCALABLE RANGES

*Real ranges depend on various factors.*

## Practical customer reaches

In practice, the actual range differs depending on driving style, speed, use of comfort/auxiliary consumers, outside temperature, number of passengers/payload, and topography. Depending on the usage profile, 80% of the drivers will still be able to drive between 230 and 330 km for the smaller battery variant (45 kWh, net), between 300 and 420 km for the medium battery variant (58 kWh, net) and between 390 and 550 km for the largest battery variant (77 kWh, net) without re-charging.



\* usable



# HOLISTIC CHARGING STRATEGY

*Volkswagen is active in the area of all charging options.*



**Home**

50% of use cases



**Work**

25% of use cases



**Public**

20% of use cases



**Highway**

5% of use cases

**Measure**

- Affordable VW Wallbox
- Foundation of the VW subsidiary Elli

- Fleet Consulting
- Equipment of the Charging infrastructure at VW production sites

- Equipment of the dealer Charging infrastructure

- IONITY Joint Venture

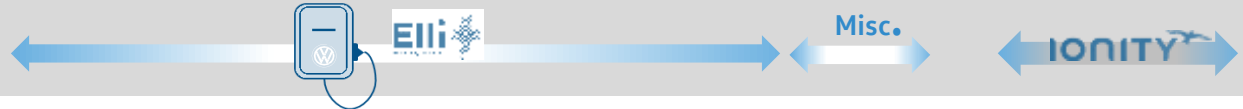
**Green electricity option**



**Mobility Service Provider**  
(Find, Charge, Pay)



**Charging point operator**



# HOLISTIC CHARGING STRATEGY

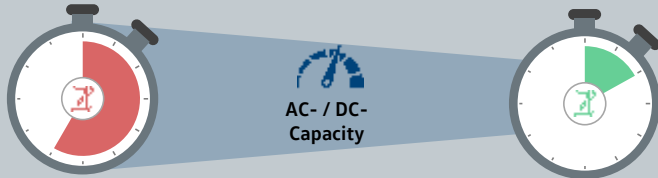
*increasing charging power (=>reduction of charging time), ramp-up of the charging infrastructure*

## Temporal

Charging power or times

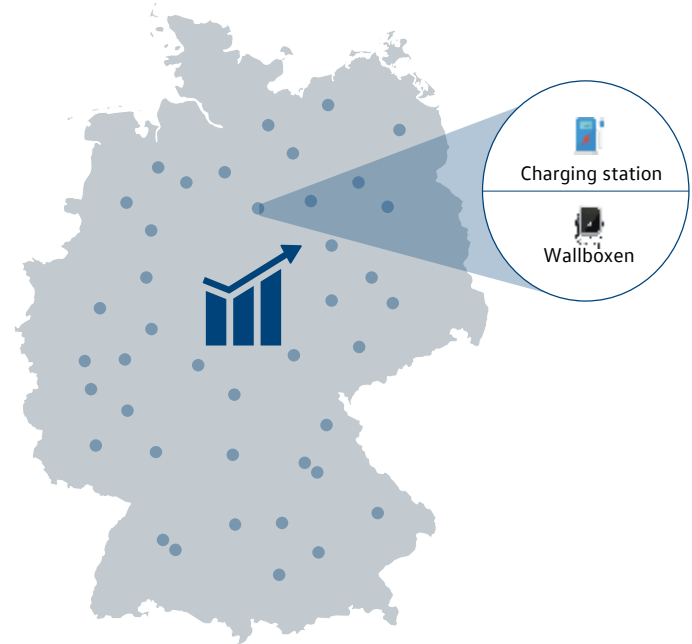


Shorter loading times due to higher loading power



## geographical

Expansion of charging infrastructure



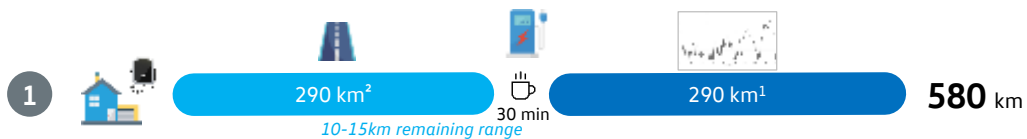
# HOLISTIC CHARGING STRATEGY

Long distances : longer ranges and fast loading times

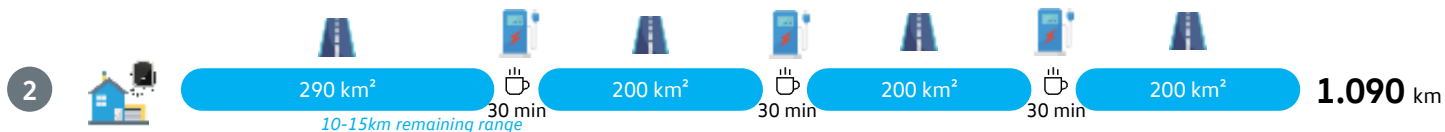


ID.3 Pro  
420km WLTP

## Connection range WLTP



## Connection range highway



100 kW  
DC

Charging times and connection ranges with 100kW DC charging. Amount of energy consumed approx. 38 kWh under WLTP charging conditions. Connection ranges depending on consumption or different driving profiles.

<sup>1</sup> Forecast range for driving through the cycles according to the Worldwide harmonized Light vehicles Test Procedure (WLTP) on the roller dynamometer (no series status). WLTP range values for production vehicles may vary due to equipment.

<sup>2</sup> Practical customer reach at moderate highway speed





**Volkswagen is  
driving  
digitalization  
forward.**



# DIGITALIZATION

*Investments in digitalization and partnerships*



# THE CAR OF THE FUTURE IS 100% DIGITAL:

*The customer ID as an enabler for the digital car.*

## Car



## Customer ID



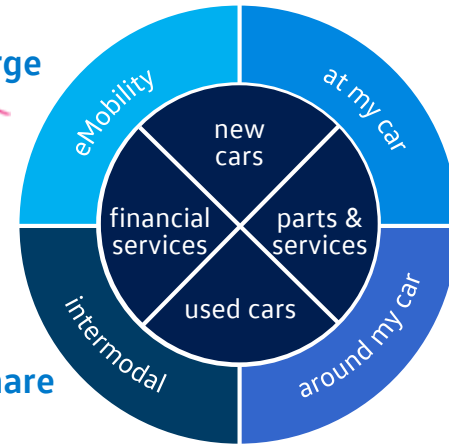
Entry into both worlds

## Ecosystem

We Charge

IONITY

We Share



We Connect





**The new offer  
structure  
makes buying a  
car easy and fun.**

# ID. FIRST MOVERS CLUB

## Landing Page



## Facebook Page



## Facebook Group



## Future Community



### ID. First Movers Club

Exclusive club for ID.3 first movers from 13 markets  
PreBookers who have decided to preserve the vehicle with missing functionalities  
Get a monetary benefit and membership in the club

### Objective

- ✓ Fast and binding answers
- ✓ Active Communication
- ✓ Close to the customer and at the same eye level
- ✓ Direct customer feedback

### User Interaction

- Networking with other ID.3 drivers and VW experts
- Participation in photo challenges and sharing of UGC
- Meeting of other ID.3 drivers and VW experts on site

### Community Management

- Process integration of all affected VW departments
- Active support by a team of CM (Mon.-Fri. 9am-8pm)
- 1<sup>st</sup> Level Support: 6h  
2<sup>nd</sup> Level Support: 48h\*

### Future Community

Expansion of the ID. First Movers Club and migration to another platform  
Integration into the Volkswagen ecosystem using the existing IT architecture  
Step-by-step implementation of new features and services



Go-Live in KW 37.5/2020



Customers share their experiences



130.000 Total activities  
750 activities per day



3.300 total amount of members  
1.950 aktive members per day

Concept in coordination and development

\*Regular response time. May vary depending on complexity and involvement of other departments (technical and legal).



# START INTO A NEW ERA

## ID.3

„The future belongs to electric driving.  
And VW is supplying the car for this  
future. With the ID.3, we are taking  
electromobility out of the niche.“

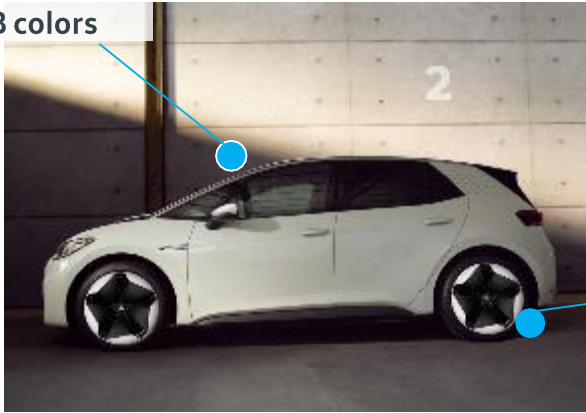
**Herbert Diess,**  
CEO Volkswagen Group



# HIGHLIGHTS

## ID.3

Exclusive MEB colors



Large rims  
18" - 20"

Exterior package



Black roof

AR-HUD with remote range



Ambience lighting

Large display  
10"



Natural voice control

App Connect



# SECOND MEMBER OF THE ID. FAMILY

## ID.4

„We will produce and sell the ID.4 in Europe, China and the USA.“

Ralf Brandstätter,

Chairman of the Brand Volkswagen Vhd.



# HIGHLIGHT EQUIPMENT

## ID.4





# THIRD MEMBER OF THE ID. FAMILY

## *ID.4 GTX*

„Electric driving is simply fun - with the ID.4 GTX, we are once again following up on sportiness and dynamics. The most emotional member of the ID. family to date shows that electromobility and sporty top performance are not mutually essential.“

**Ralf Brandstätter,**  
Chairman of the Brand Volkswagen Vhcl.



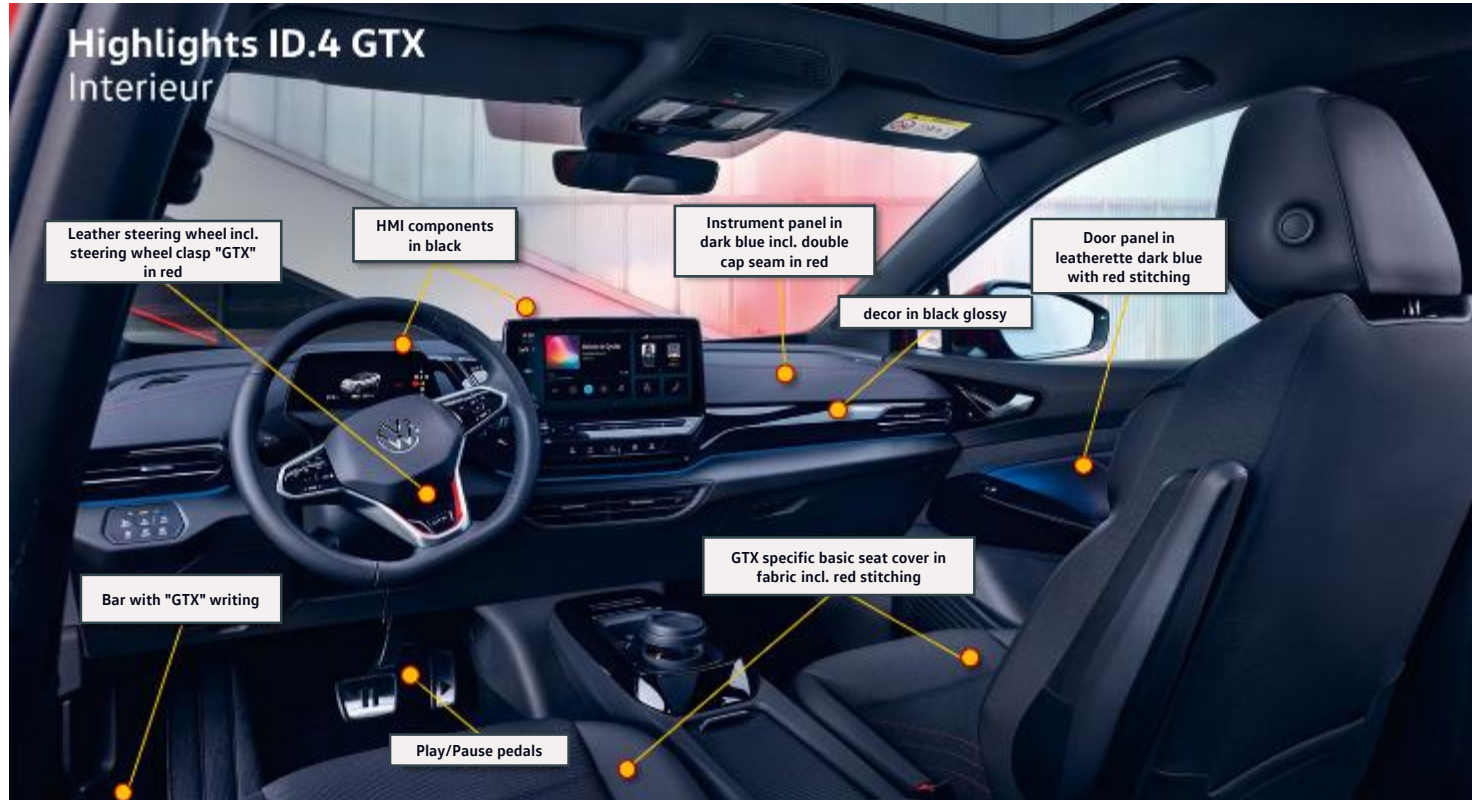
# HIGHLIGHT EQUIPMENT

## ID.4 GTX



# HIGHLIGHT EQUIPMENT

## ID.4 GTX



Freedom to move. For a better life.  
Volkswagen.

