



## **Production and Logistics**

**A competitive advantage of the Volkswagen brand's  
production network – e-vehicles at Volkswagen**



# Automobility in the 21st century.



**Digitalization**  
Downsizing  
Hydrogen  
CO<sub>2</sub> emissions  
Plug-in hybrid  
Urbanization  
**Climate change**  
Sustainability  
Carsharing  
**e-mobility**  
Connected car  
Battery technology  
**Automated driving**  
Lithium ion  
Peak oil  
Metropolitan areas



# Think Blue.Factory. has environmentally sustainable targets for 2018.

The brand **Think Blue.**

Production



Think Blue.Factory.



**25% less:**



per vehicle and component part compared to 2010

*Where are we today?*

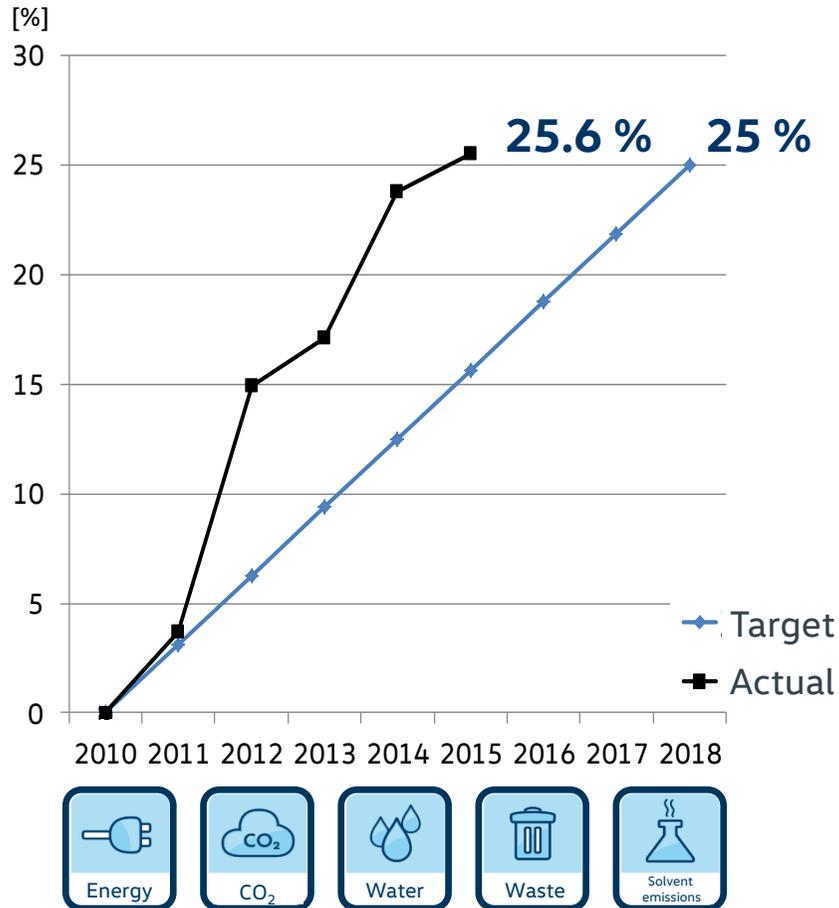
2014

2016



# Think Blue.Factory. has environmentally sustainable targets for 2018.

## Target



## Results

- > €100 million in energy costs saved
- > 30 national and international prizes (e.g. Green Tec Award)
- 9 rollouts worldwide (e.g. energy value stream mapping)
- 1,000 multipliers on the shop floor
- Global knowledge transfer in 13 plants



# Volkswagen is constantly evolving in the area of e-mobility.

Built up own competences in Research, Development and Production:

e-drive system production  
Kassel

battery production  
Brunswick

additional

400 top experts

recruited for e-traction

70,000 employees

trained in Development, Production und Service



# Increasing our competitive advantage by combining high-density energy with an efficient powertrain.

1.4 l **TSI** combustion engine

116 PS **electric motor**

charged in 2.5 h

electric range = 50 km



**218 PS**

400 Nm



**225 Km/h**

0-100 in 7.6s



**1,090 Km**

range



**37g CO<sub>2</sub> / Km**

1.6 L / 100 Km\*

\*NEDC



Increasing our competitive advantage by combining high-density energy with an efficient powertrain.

**Top efficiency**

**2.81<sup>\*</sup>** € / 100 km

The e-up!

The eco up!

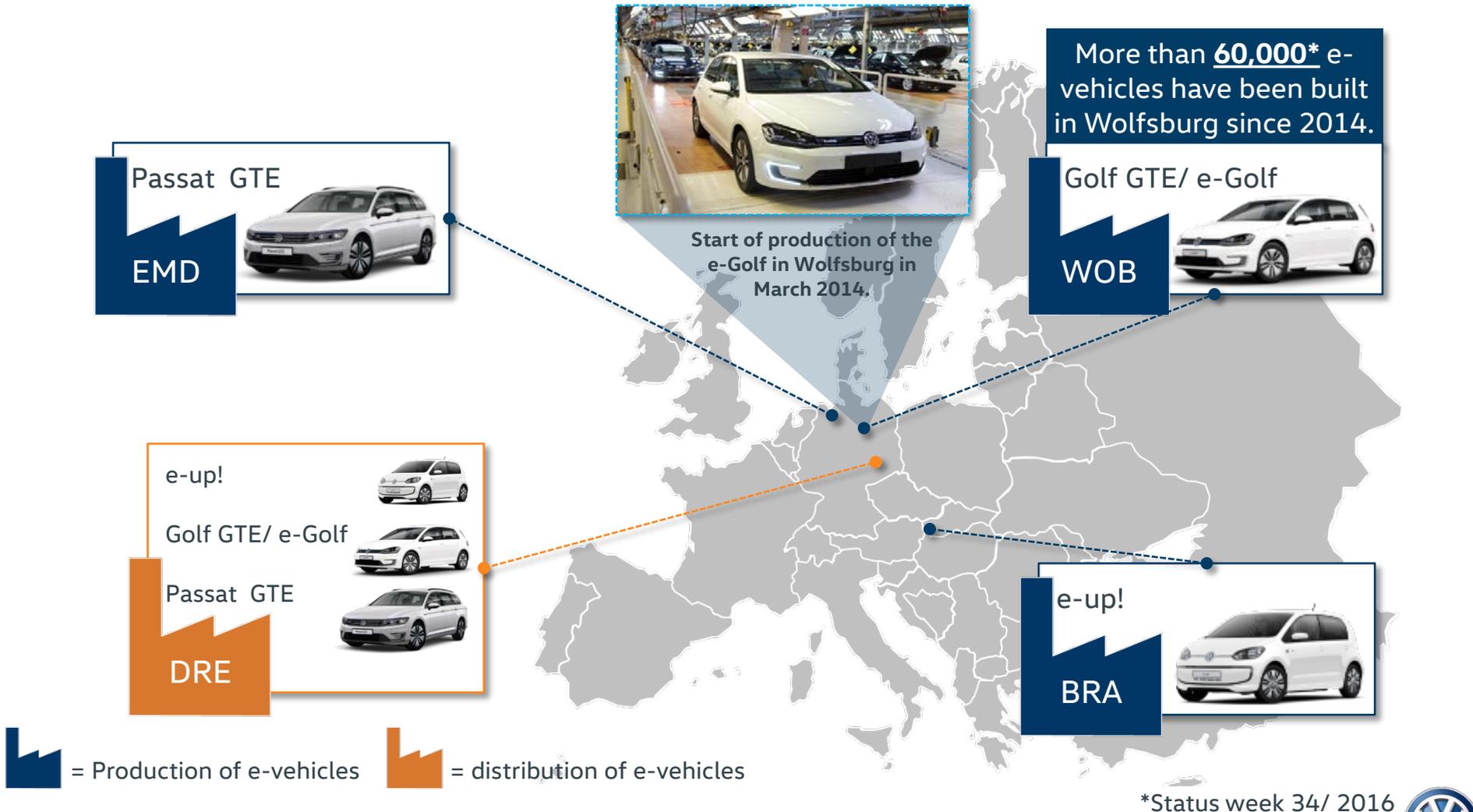
**600** km  
range



\*Based on an electricity price of 0.24 € per kWh



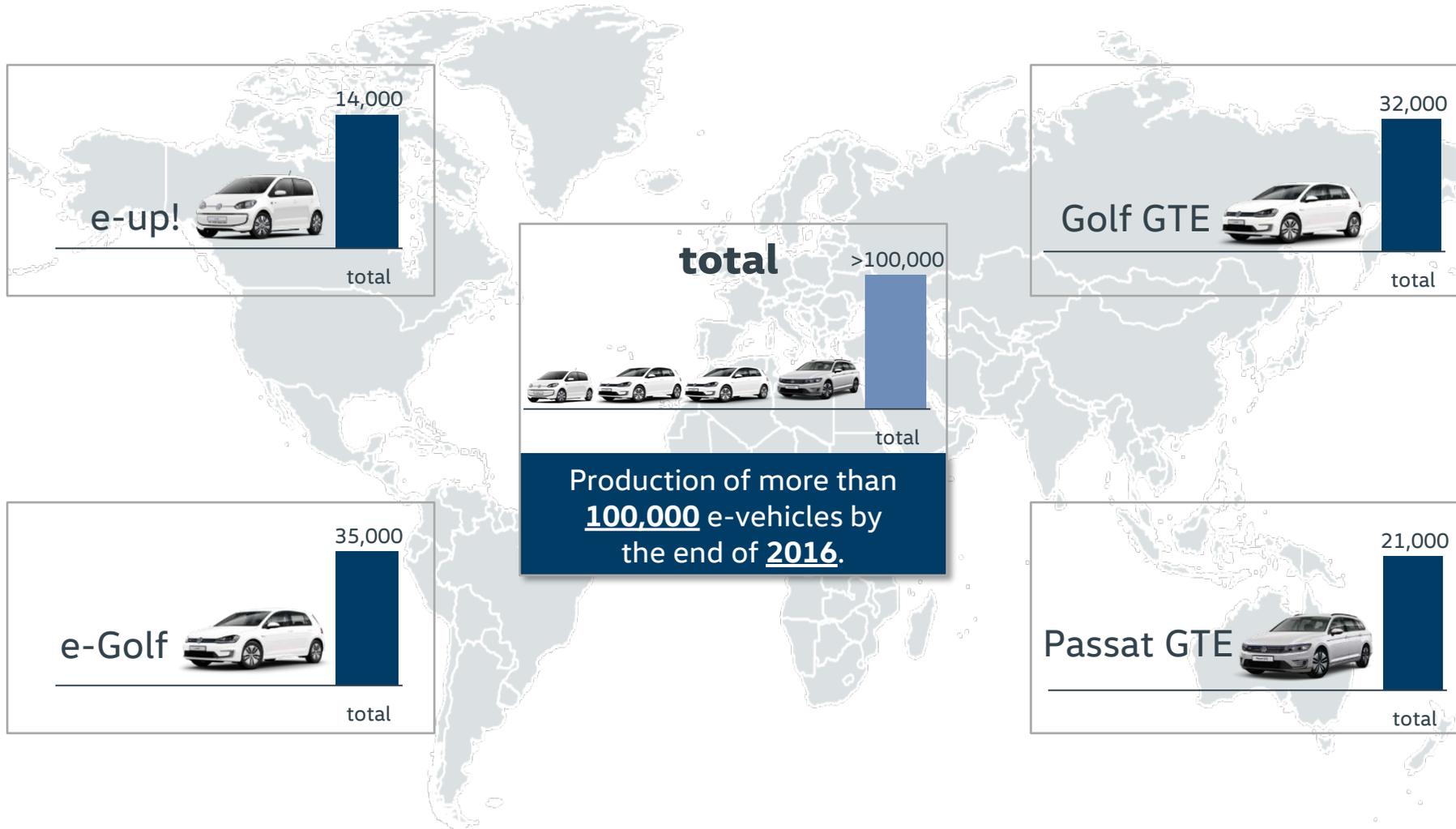
# Three Volkswagen brand plants in Europe already produce our e-vehicles.



\*Status week 34/ 2016



# Positive volume trend in the e-vehicle portfolio – more than 100,000 vehicles by the end of 2016.



# Competitive advantage from producing ICEs and BEVs on the same line.



 ICE (Internal Combustion Engine Vehicle)  BEV (Battery Electric Vehicle)



# Manufacturing strategy

**Verbrenner**  
Diesel, Benzin, Ethanol



» from bumper to bumper «



# MPB allows standardization with regard to production process and resources.

## Product



- modular system
- standardized engineering principles

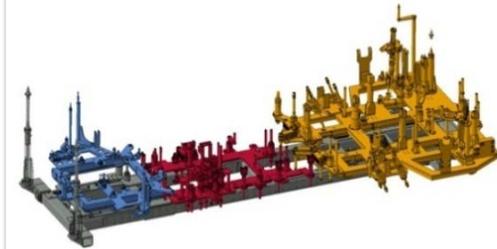


## Production Process



- standardized joining and assembly sequences

## Resources



- modularly designed resources
- standardized plants

» Standardized production processes in the Modular Production Matrix (MPB )

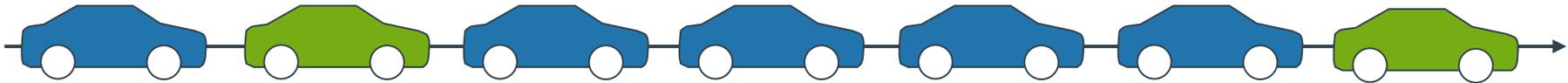


# Securing the consistent integration of e-vehicles into the production process.

Qualification of  
18,000 employees\*  
in production.

Increasing flexibility  
in line with customer  
requirements.

Reduction of the  
costs and investments.



\*at EMD, BRA and WOB

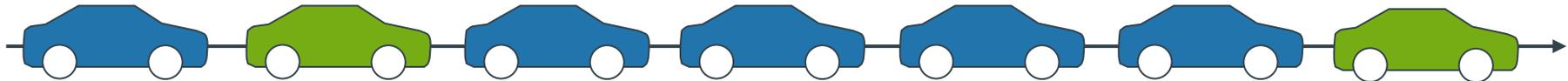


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...and **Volkswagen** did it...

\*at EMD, BRA and WOB



# Strategic outlook on the future showroom of mobility – Gläserne Manufaktur Dresden.



**At least 18 exhibition vehicles on the showroom floor.**

1. History Lane – a journey through time to present-day electric & hybrid vehicles
2. Innovation Lane – a glimpse of the future

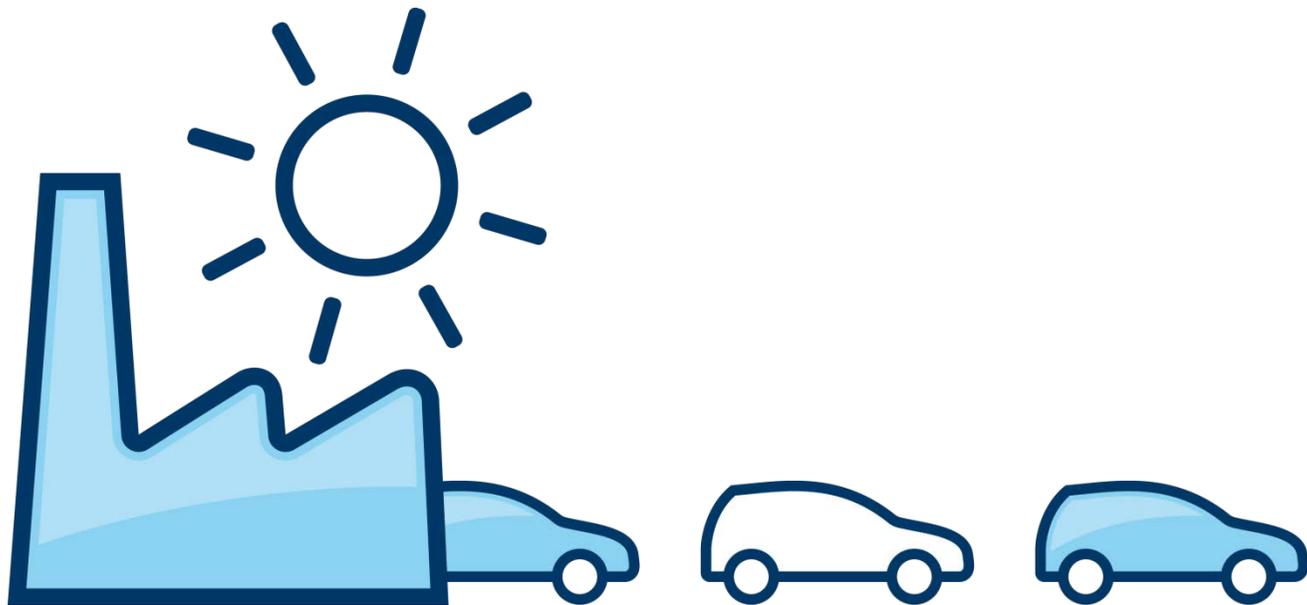


# We looking forward to welcoming you...



More than 20 interactive exhibits for e-mobility, digitalization and advanced driver assistance systems in the "Gläserne Manufaktur Dresden"





**Thank you for your attention!**

