



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
Plug-in hybrid
CO₂ emissions
Urbanization
Sustainability
Carsharing
Connected car
Battery technology
e-mobility
Automated driving
Lithium ion
Peak oil
Metropolitan areas
Climate change



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

The brand

Think Blue.

Production



25% less:



per vehicle and component part compared to 2010

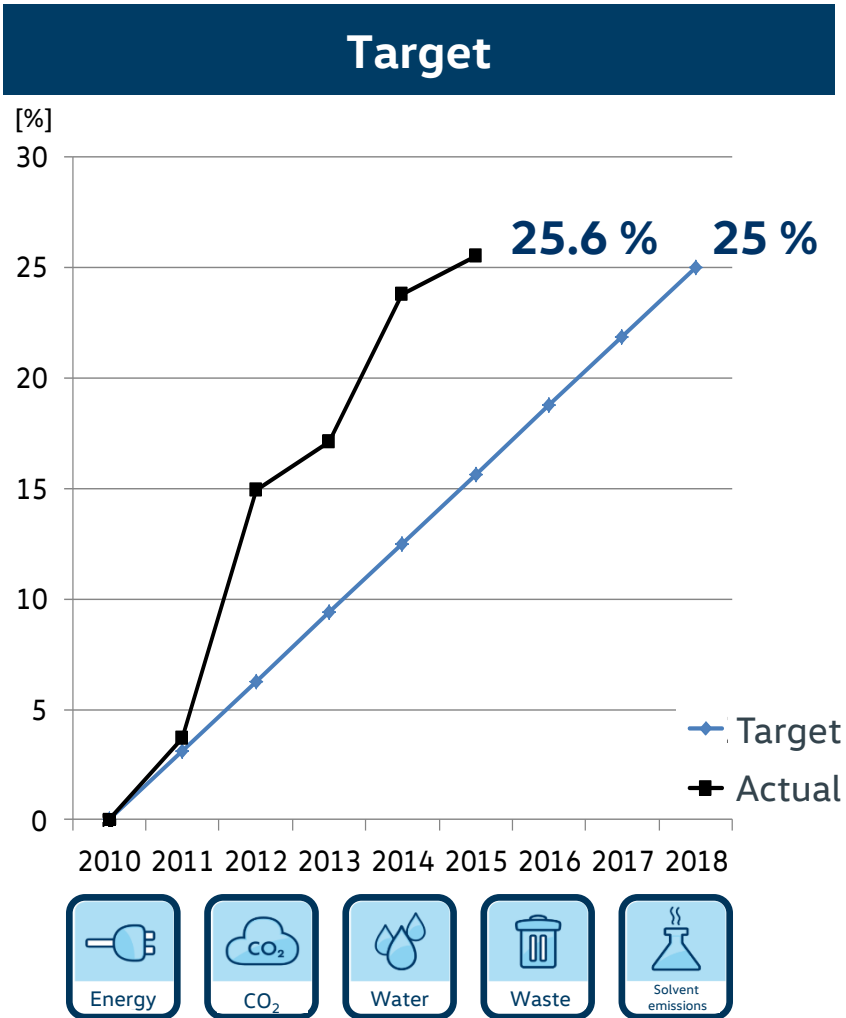
Where are we today?

2014

2016



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



- 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 CO₂ / Km

1.6 L / 100 Km*

*NEDC



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

**Top
efficiency**

2.81^{*} € / 100 km

The e-up!

The eco up!

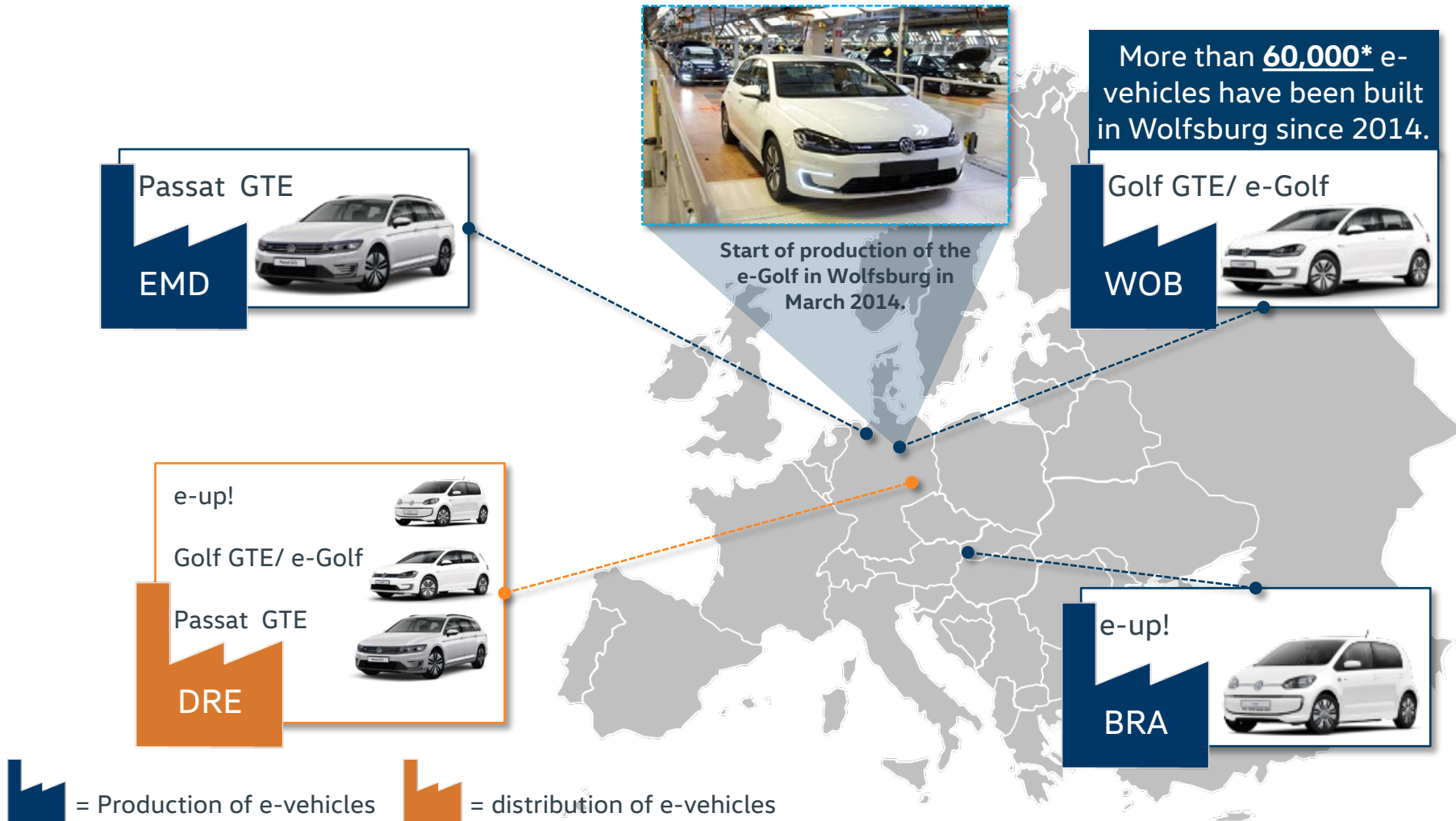
600 km
range



*Based on an electricity price of 0.24 € per kWh



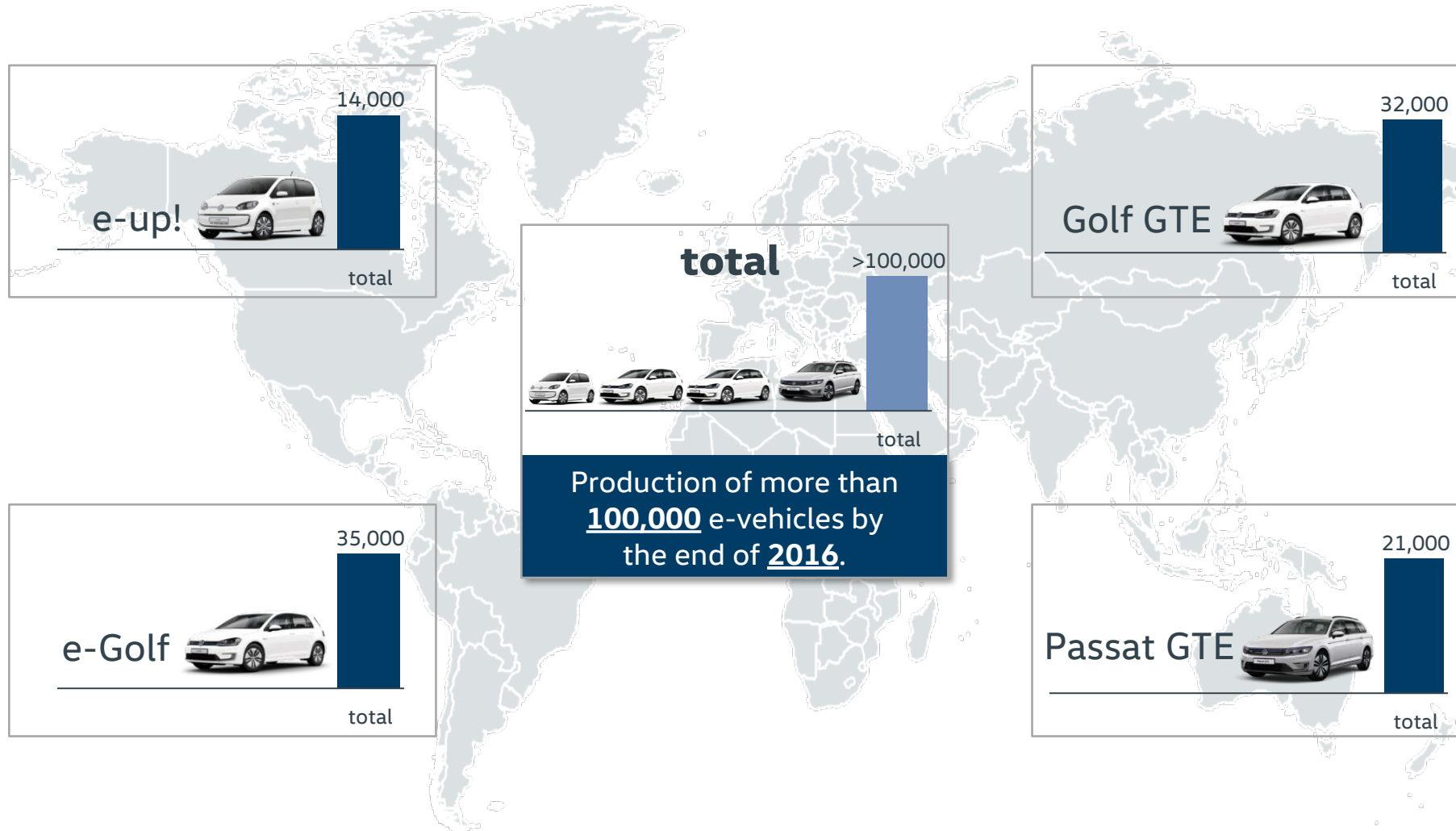
Three Volkswagen brand plants in Europe already produce our e-vehicles.



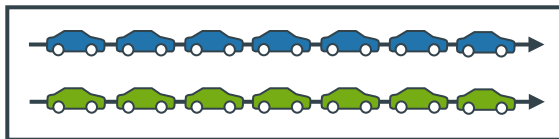
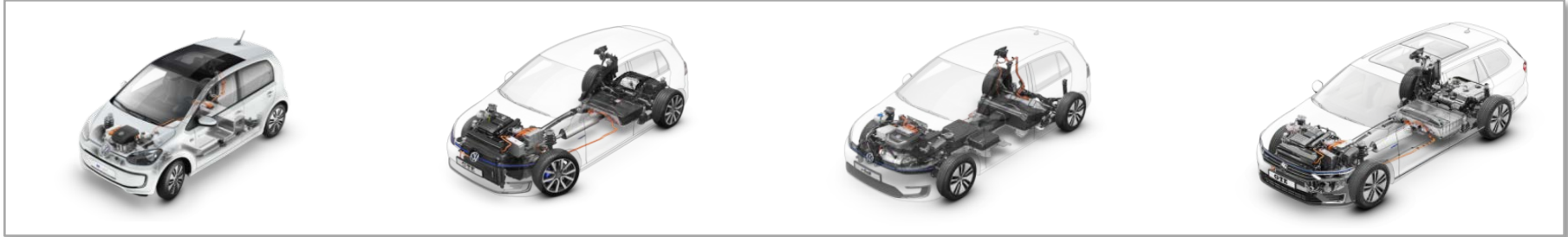
*Status week 34/ 2016



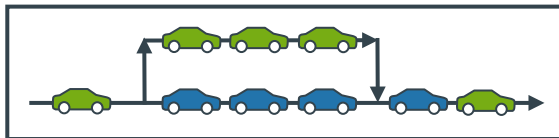
Positive volume trend in the e-vehicle portfolio – more than 100,000 vehicles by the end of 2016.



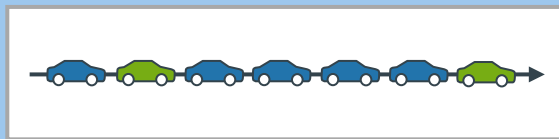
Competitive advantage from producing ICEs and BEVs on the same line.



BEVs in **parallel** to ICEs.



BEVs as a **bypass** on the same line as ICEs.



BEVs and ICEs **integrated** in the **same line**.

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



Manufacturing strategy

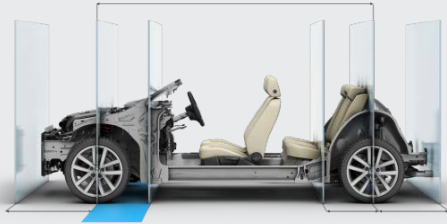
Verbrenner
Diesel, Benzin, Ethanol



» from bumper to bumper «

MPB allows standardization with regard to production process and resources.

Product



- modular system
- standardized engineering principles

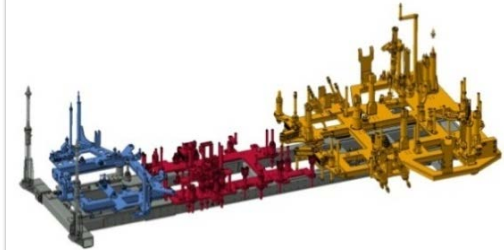


Production Process



- standardized joining and assembly sequences

Resources



- modularly designed resources
- standardized plants

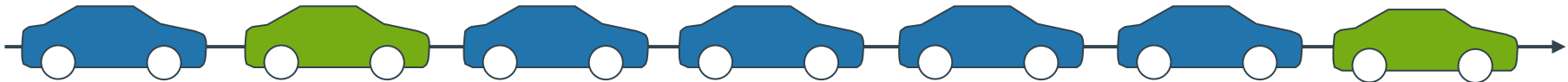
» Standardized production processes in the Modular Production Matrix (MPB)

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

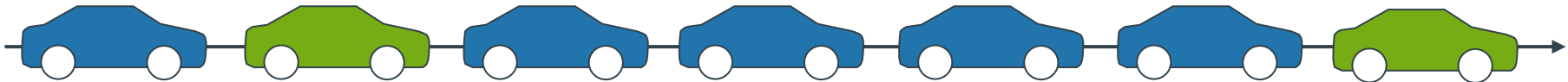


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...and **Volkswagen** did it...

*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.

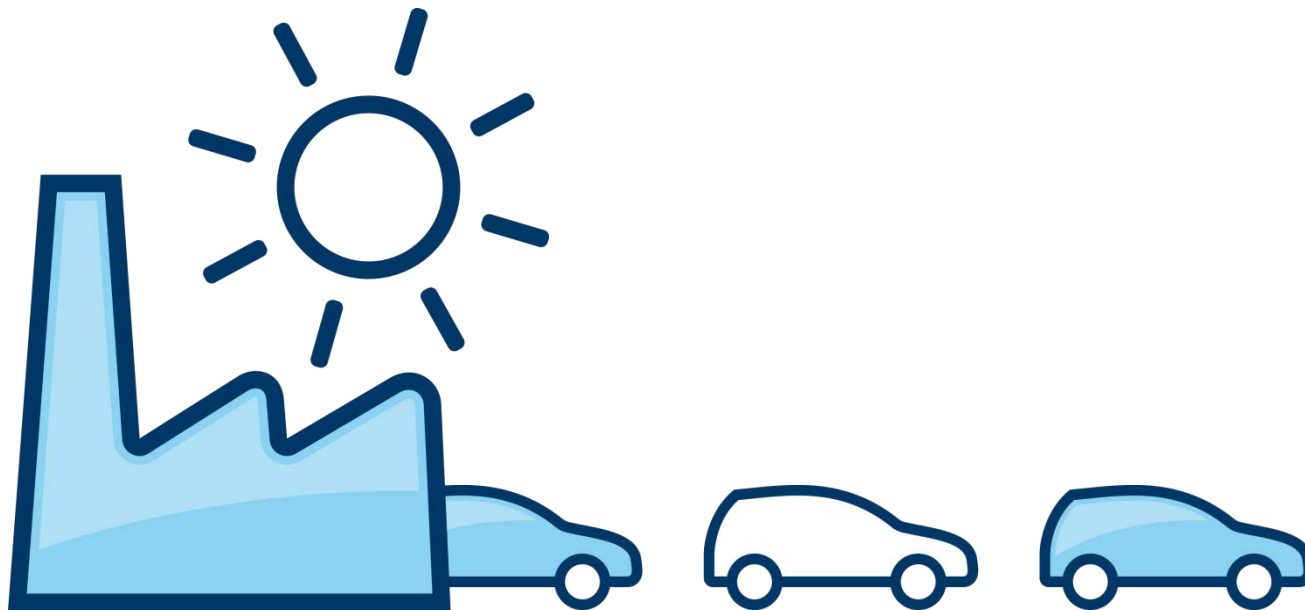
1. History Lane – a journey through time to present-day electric & hybrid vehicles
2. Innovation Lane – a glimpse of the future

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!

