

MOBILE AND FUEL CELL @ BOSCH

HYDROGEN ENERGY MINISTERIAL MEETING 2020
OCTOBER.14.2020

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Hydrogen Energy Ministerial Meeting 2020

Bosch at a glance



Sales revenue of **78.5 billion euros**

EBIT of **5.5 billion euros***

Of that, the Mobility Solutions sector accounts for **47.6 billion euros**

Approximately **410,000** associates around the world

R&D expenditure of **7.3 billion euros**

Approximately **68,700** associates working in R&D

*EBIT from operations

*Data of 2018

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PEM-FC | Fuel cells for a de-carbonized mobility

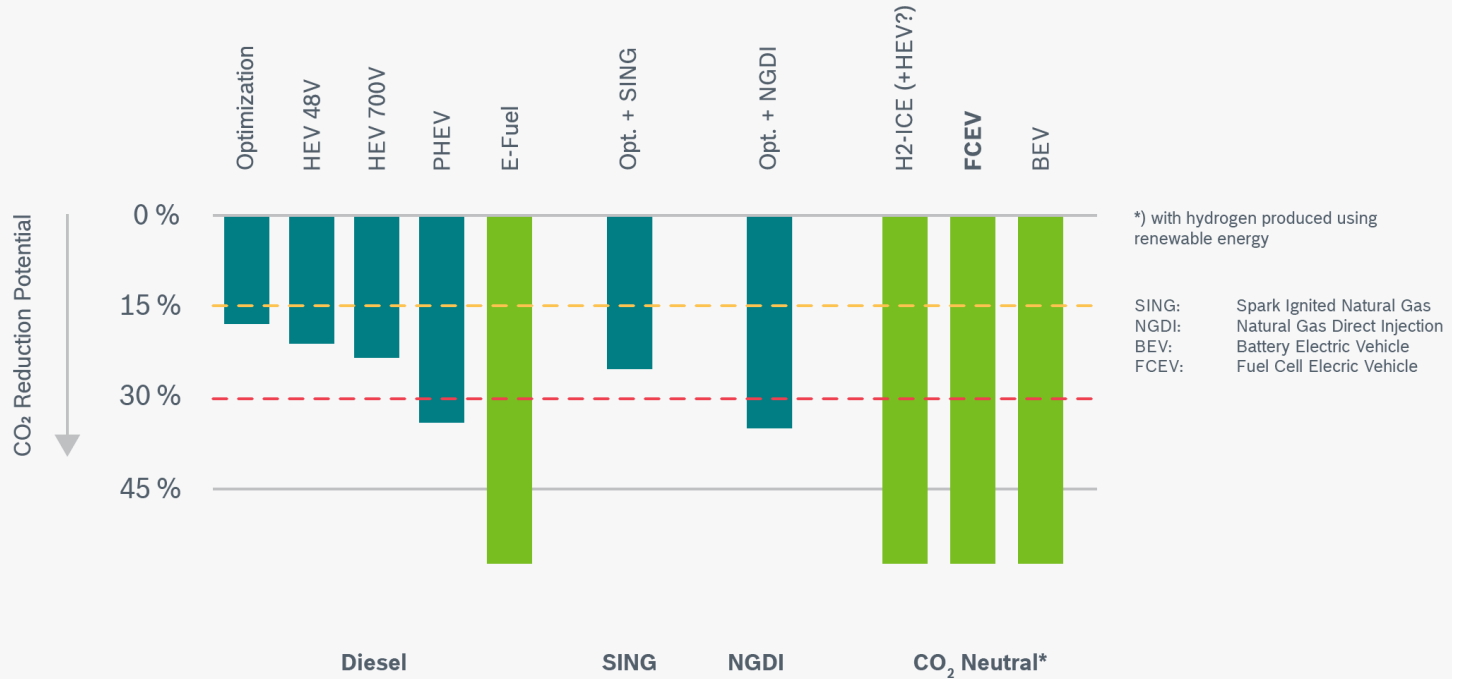


Way to CO₂ neutrality



Typical CO₂ Emission
Stuttgart-Hamburg-Stuttgart Cycle:
1.26 Ton CO₂

HD Long-haul Truck – Baseline: Diesel 2019



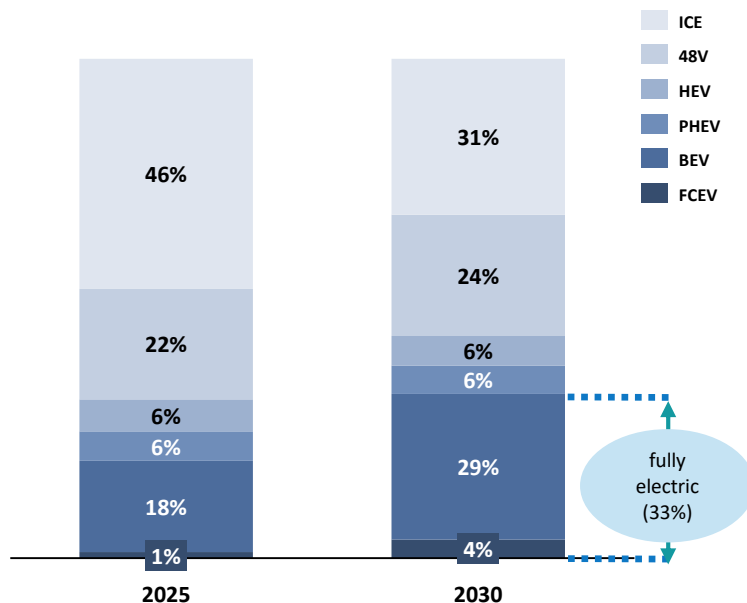
Paths showing potential to fulfil EU CO₂ legislations.
E-Fuels and Fuel Cell powertrain are emission free solutions.

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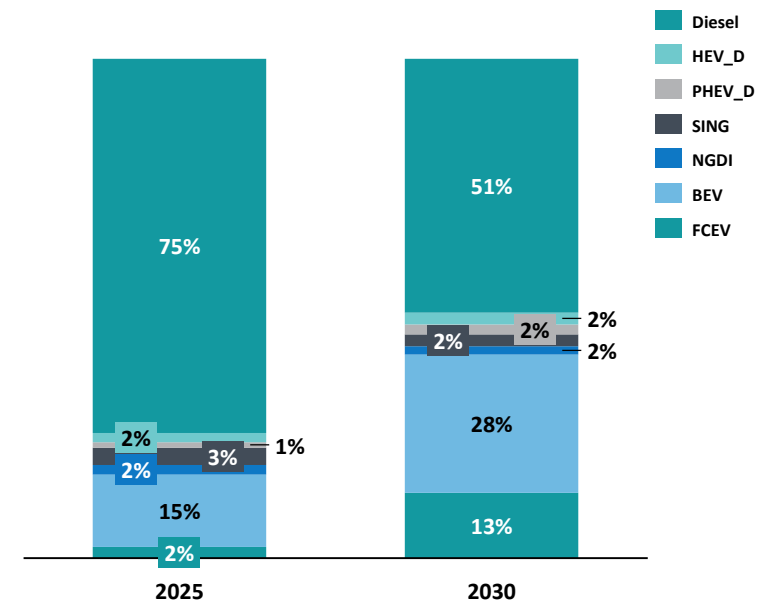
Fuel Cell EV | Important pillar in a diversified powertrain portfolio



New vehicles PC incl. LCV < 6t worldwide



New vehicles HD, MD & Heavy Bus > 6t



Vision for 2030
(new vehicles, worldwide)

PassCar + LCV:
1/3 fully electric and t/o 12% will be FCEV

CV HD, MD:
13% equipped with FCEV powertrain

ICE keeps significant share

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PEM-FC | Convenient and exciting solution for numerous e-mobility use cases

Passenger Cars

Attractive UX-factors in long-distance use cases

- ❑ FCEV can provide a solution for zero tail-pipe emissions in all applications for long distance use cases
- ❑ FCEV can remove range anxiety barrier in e-mobility applications
 - Refueling time in 3min
 - Driving range above 500km



Commercial Vehicles

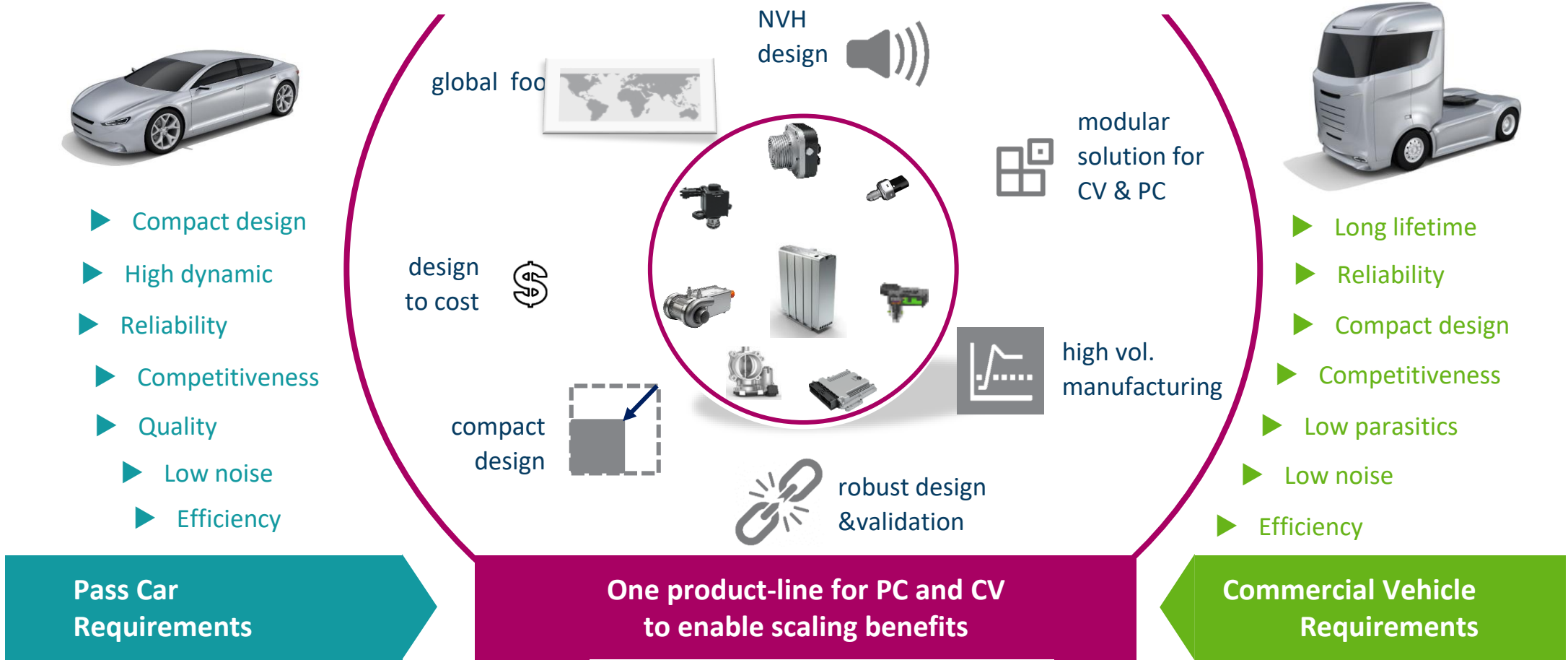
Weight- and space optimized e-mobility with potential for attractive TCO-case

- ❑ FCEV might be the only viable option for HD long-haul e-mobility
- ❑ In many use-cases and based on attractive Hydrogen costs FCEV will be able to offer attractive Total-Cost-of-Ownership



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One Product-Line for PC and CV



Pass Car Requirements

- ▶ Compact design
- ▶ High dynamic
- ▶ Reliability
- ▶ Competitiveness
- ▶ Quality
- ▶ Low noise
- ▶ Efficiency

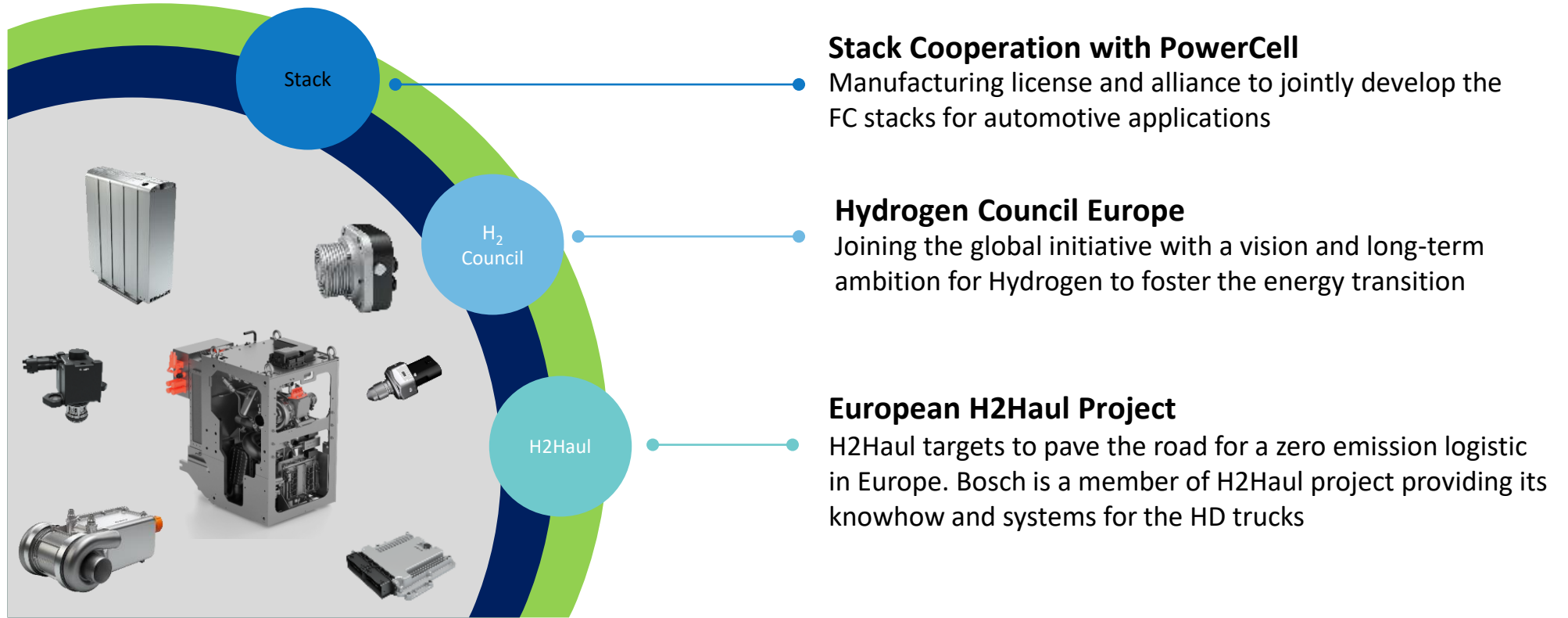
One product-line for PC and CV to enable scaling benefits

Commercial Vehicle Requirements

- ▶ Long lifetime
- ▶ Reliability
- ▶ Compact design
- ▶ Competitiveness
- ▶ Low parasitics
- ▶ Low noise
- ▶ Efficiency

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FC Cooperation | Examples



Partnerships in a global Fuel Cell network