

## Electrification - Introduction The wide world of electromobility from Bosch



More than **2,500,000** 

... electric and hybrid cars fitted with Bosch components are on the world's roads.



## Hybrid Technology from Bosch

... was used in the world's first parallel hybrid vehicles.



than 90

...electromobility series production projects for passenger cars have already been realized by Bosch.

We deliver core components such as electric motors, power electronics or complete drive units to customers worldwide.



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We provide **electric powertrain solutions** for **all vehicle classes**: comprehensive, scalable, and flexible.



Systems for **light electric vehicles** and **electric bikes** 



Electromobility for passenger cars



Electromobility for commercial vehicles

Bosch is helping electromobility achieve a quick breakthrough. We help manufacturers to reduce their development times and launch their products faster.

### Global drivers for electrification

#### Three main drivers:

- Emission regulations for road traffic getting tighter
- **Driving bans** for combustion engines in inner cities, urbanization
- Subsidies and incentive policies

   (e.g. to push "New Energy Vehicles" in CN or EU)





## Electrification trends & market

Restricted emission legislation

Predicted regional driving bans for ICE

Strong push for EVs due to country specific

### Trends radar



Acceptance for EV increasing

EV fits to use-cases (e.g. 2<sup>nd</sup> car, for commuters, city-EV)

**Environmental awareness** 



Focus on electro mobility

Inhouse vs. buy-shares

C-OEM becoming global players

Cooperation of trad. OEMs

Covid-19 impacts business heavily



**BEV integration** trend (eAxle & Charger-Converter

New E/E Architecture



Native BEV platforms become mainstream

Technology enables continuous progress (e.g. **SiC**)

**400 V** mainstream / **800 V** trend after 2025 (fast charging)



China future main FV-market

EV share growing esp. in Europe

Battery costs decrease 10-20 % per year year

subsidies

Cost driven market

Increase of charging points for EVs





Strong competition in EL with **high cost pressure** 

Pressure towards restructuring, consolidation & cooperation

New entrants out of other industries entering the market



### Bosch electrified powertrain Electrification at powertrain systems (PC/LCV)

In 2030, around **3 million** newly registered passenger cars and light commercial vehicles will be powered by fuel cells.

#### Fuel cell

Long-distance electric transport for deliveries into urban areas

Diesel has a 15 % CO<sub>2</sub> advantage over comparable gasoline systems.

At least **67%** of all new vehicles will still be powered by a diesel or gasoline powertrain in 2030, with or without hybrid technology.

#### **Vehicles with ICEs**

More economical and eco-friendly in regular long-distance operation



In 2030, around **35** % of all newly registered passenger cars and light commercial vehicles will feature fully electric drive systems.

#### **Battery**

The home of the electric car is the city

Electric motors with efficiency of up to 98% enable efficient and dynamic driving.

By 2030, almost **50**% of the passenger cars and light commercial vehicles with internal-combustion engines will feature partially electric drive systems.

Hybrid
Efficient and dynamic thanks to

Renewable synthetic fuels

Important component of the future mobility mix

Around 50 % of the vehicles that will be on the road in 2030 have already been sold – most of them with gasoline or diesel engines.

100% of all vehicle with ICEs could be run carbon-neutrally with renewable synthetic fuels.

Consumption up to 15 % lower with the 48-volt system.





## Invented for life

is the compass for everything we do.

## Vision becomes reality

We believe in sustainable mobility through powertrain electrification.

We offer a comprehensive and flexible portfolio of electrification components and systems - costs attractive innovations for a global mass electrification



# THANK YOU

