

WELCOME TO THE GERMAN PANEL @ EVS29

The German Perspective on E-Mobility



June 20, 2016

Montreal, Canada

Agenda - German Panel @ EVS29

The German Perspective on E-Mobility

1

Macroeconomic Framework

-E-Mobility in Germany - Entering the Market Ramp-up Phase - Rico TROST

2

E-Mobility in Practice

-Key Findings of German Showcase Region for Electric Mobility - Michael RUPRECHT

-Saxony as a Model Region in Germany for connected electric mobility - Cathleen KLOETZING and Ronny PETERSOHN

3

Charging Infrastructure Integration

-E-Roaming in Germany & the EU: From isolated charging stations to a nation & European Union wide network - Sven LIERZER

MACROECONOMIC OVERVIEW

E-MOBILITY IN GERMANY – ENTERING THE MARKET RAMP-UP PHASE

Rico Trost
Manager Investor Consulting
Transportation Technology

rico.trost@gtai.com
www.gtai.com



Leading Provider of Automotive Technology

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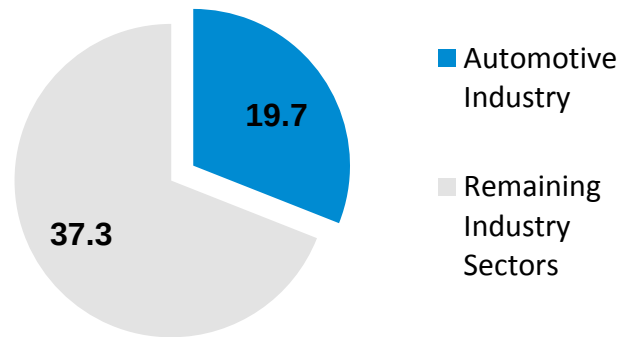
EUR 404 billion turnover — Largest Industry in Germany

Over **40 percent** of
global **premium car**
production



One in five cars
worldwide carries a
German brand

Internal R&D investments (2014, in billion €)



21 of top 100 supplier companies are **German**

**Europe's number one
automotive market**

30 percent of all manufactured passenger cars
20 percent of all new car registrations

41 automobile assembly and engine
production plants

100,000 of the total 792,500
employees work in **R&D**

35 percent of Germany's **internal R&D expenditures** come from the automotive industry

Automotive Mega Trends

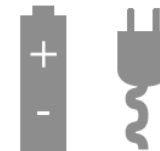
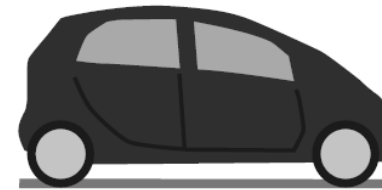
E-Mobility as game changer of the industry

Connection & Automation



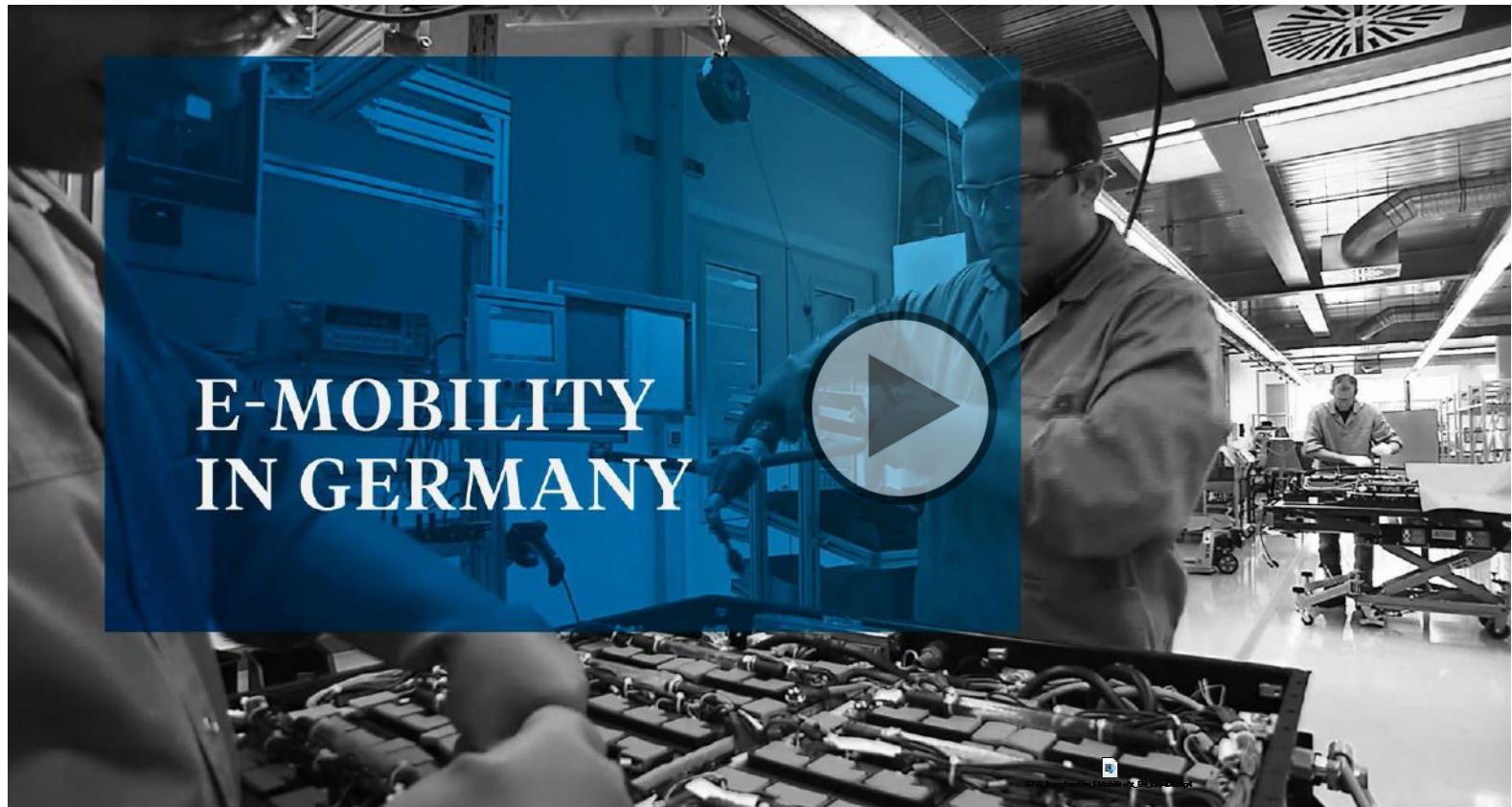
- Real-Time Data
- Infotainment
- Parking Assistant
- Autonomous Drive
- C2X
- Fully Automated
- Smart Infrastructure
- Digitalization

Electrification & Efficiency



- Battery
- Plug-in Hybrids
- REV
- Battery Density
- AC/DC
- Energy Efficiency
- Fuel Cell
- CO₂ reduction

Movie: E-Mobility in Germany

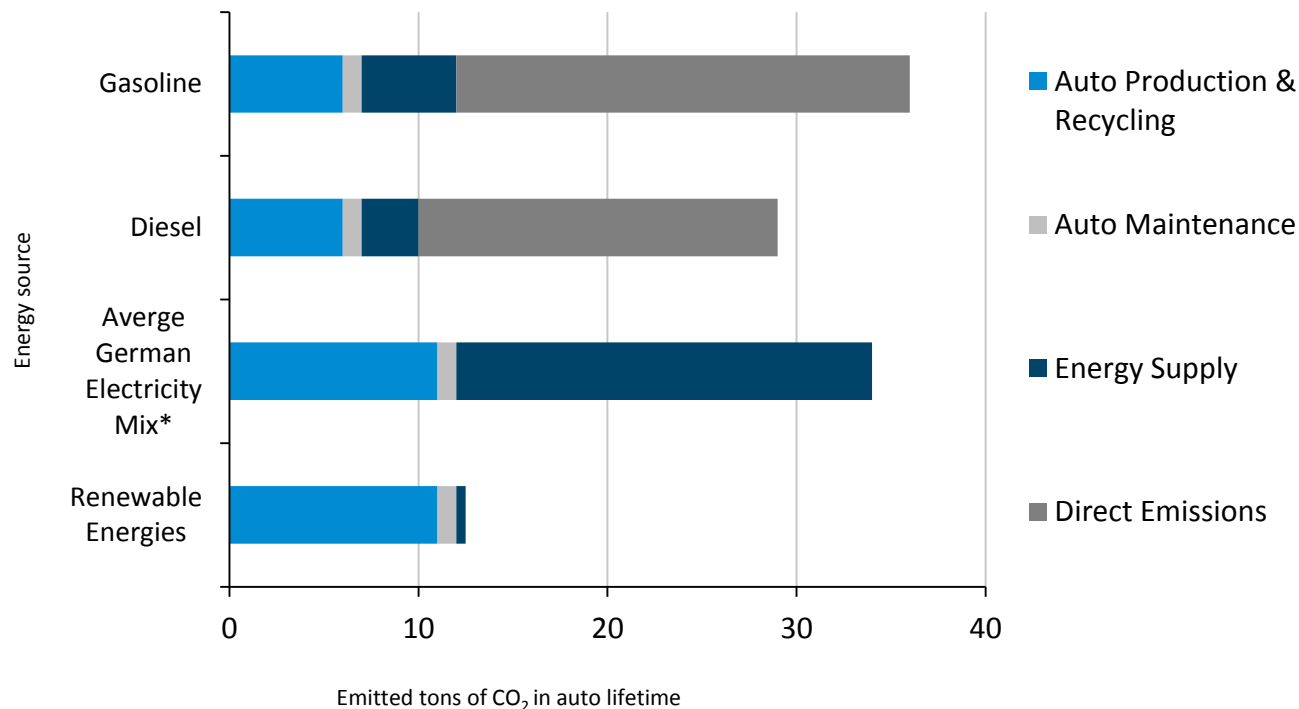


From Energy Transition to Mobility Transition

Carbon footprint evaluation

Comparison of a vehicle's lifetime carbon footprint

Model calculation for vehicles with different propulsion systems



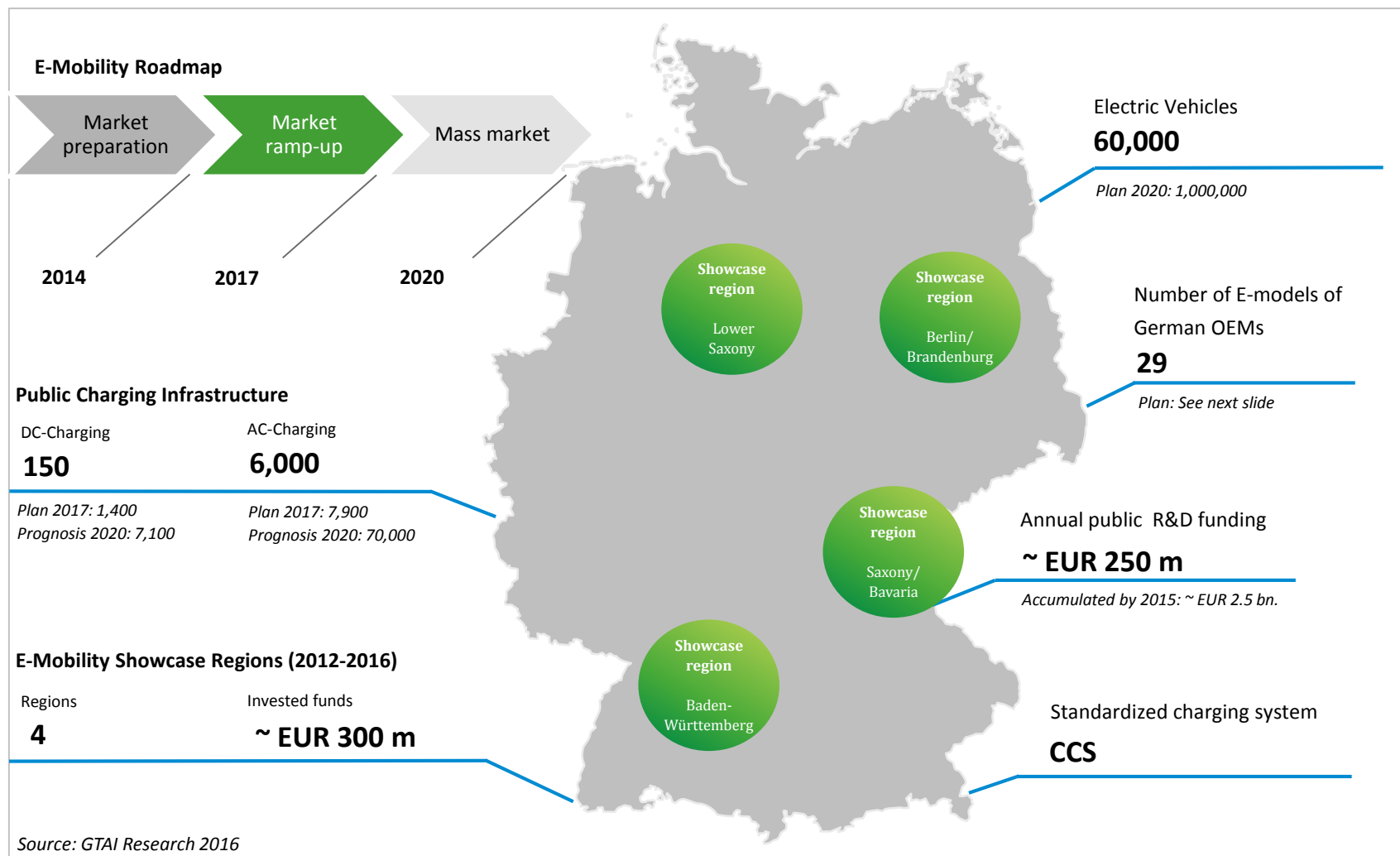
The sustainable reduction of greenhouse gasses requires a change to renewable energies

*Electricity generated from coal, oil and gas (56%), Renewable Energies (~17%), Nuclear energy (~23%), Others (~5%)

Source: Federal Ministry for the Environment (2010); Germany Trade and Invest Research (2015)

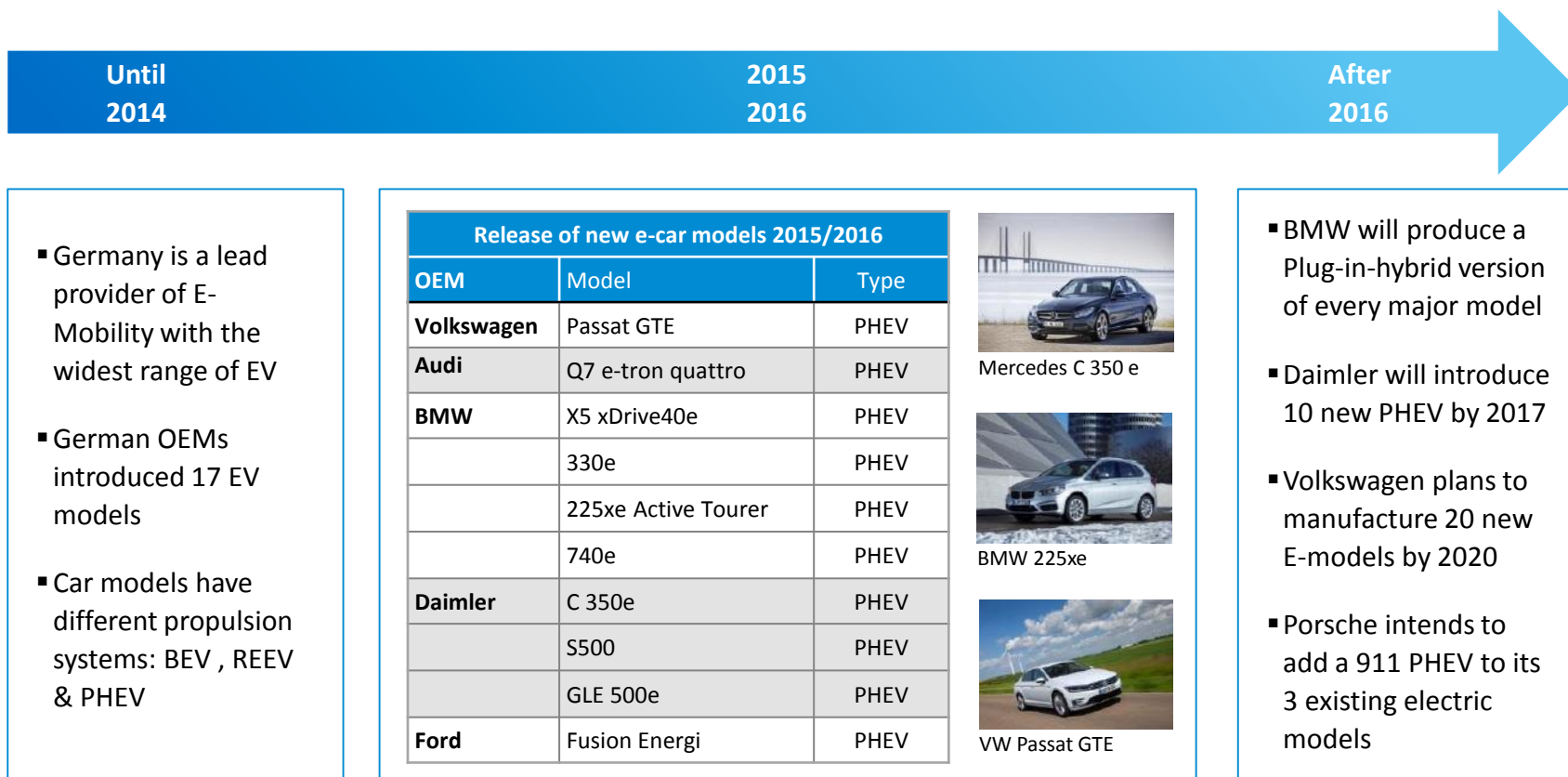
The German – Status quo

E-Mobility in Numbers (Q1/2016)



Efficient Drive

With a total of 40 EV worldwide, 29 are from German OEM's



Source: NPE; Germany Trade and Invest Research (2016) List of car models is not intended to be exclusive

Public support for E-Mobility in Germany

Overview of public measures and incentives



Cash incentives

- Total incentive volume: EUR 1.2 bn
- Purchase bonus of EUR 4,000 for PEVs & EUR 3,000 for PHEV (just for cars up to EUR 60,000)
- Costs of bonus are split between automotive industry & the government (EUR 600 m each)



Tax incentive

- All PEVs are exempt from motor vehicle tax for 10 years
- Employees, who are allowed to charge their vehicles at workplaces without cost are exempted from income tax for the benefit



Charging Infrastructure

- Investment of EUR 300 m for expansion of public charging infrastructure from 2017 to 2020
- EUR 200 m for DC-Charging (5,000 new stations) and EUR 100 m for AC-Charging (10,000 new stations)



R&D funding

- Around EUR 250 m annually
- Plan to set up a new R&D program for battery cell production (*Resolution in May 2016*)



Government spending

- Provision of EUR 100 m for public procurement of e-vehicles (until 2020)
- Goal: 20% e-vehicle share in public fleet by 2020



Road traffic measures

- Authorized Use of Bus Lanes for Electric Vehicles
- Special Parking Places for Electric Vehicles
- Suspension of restricted entry access for electric vehicles

□ Recently resolved by German government (May 2016)

Contact Project Manager

GTAI looks forward to assisting you

Europe

Berlin Headquarters

Mr. Oliver Seiler
Director
Mechanical & Electronic Technologies
 T. +49 30 200 099 400
 oliver.seiler@gtai.com

Mr. Stefan Di Bitonto
Senior Manager
Transportation Technologies
 T. +49 30 200 099 401
 stefan.dibitonto@gtai.com

Ms. Peggy Görlitz
Senior Manager
Machinery & Equipment
 T. +49 30 200 099 602
 peggy.goerlitz@gtai.com

Mr. Max Milbredt
Manager
Electronic Technologies
 T. +49 30 200 099 408
 max.milbredt@gtai.com

Dr. Rainer Müller
Senior Manager
Lightweight
 T. +49 30 200 099 410
 rainer.mueller@gtai.com

Mr. Rico Trost
Manager
Transportation Technologies
 T. +49 30 200 099 405
 rico.trost@gtai.com

Ms. Claudia Grüne
Manager
Machinery & Equipment
 T. +49 30 200 099-430
 claudia.gruene@gtai.com

Mr. Jérôme Hull
Senior Manager
Machinery & Equipment
 T. +49 30 200 099 602
 jerome.hull@gtai.com

North America

Chicago Office

Mr. Emilio Brahmst
Director Chicago, USA
 T. +1 312 377 6130
 F. +1 312 377 6134
 emilio.brahmst@gtai.com

New York Office

Mr. Claus Habermeier
Director New York, USA
 T: +1 212 584 9715
 F: +1 212 262 6449
 claus.habermeier@gtai.com

San Francisco Office

Ms. Angelika Geiger
Director San Francisco, USA
 T: +1 415 248 1246
 F: +1 415 627 9169
 angelika.geiger@gtai.com

Washington, D.C. Office

Omar Oweiss
Director Washington DC, USA
 T. +1 202 629 5713
 F. +1 202 629 5711
 omar.oweiss@gtai.com

Asia-Pacific

Beijing Office

Mr. Jonathan Schoo
Director Beijing, China
 T. +86 10 6539 6729
 F. +86 10 6590 6167
 jonathan.schoo@gtai.com

Shanghai Office

Mr. Markus Hempel
Director Shanghai, China
 T. tbd.
 F. tbd.
 markus.hempel@gtai.com

Tokyo Office

Mr. Iwami Asakawa
Representative Tokyo, Japan
 T. +81 3 5275 2072
 F. +81 3 5275 2012
 iwami.asakawa@gtai.com

Mumbai Office

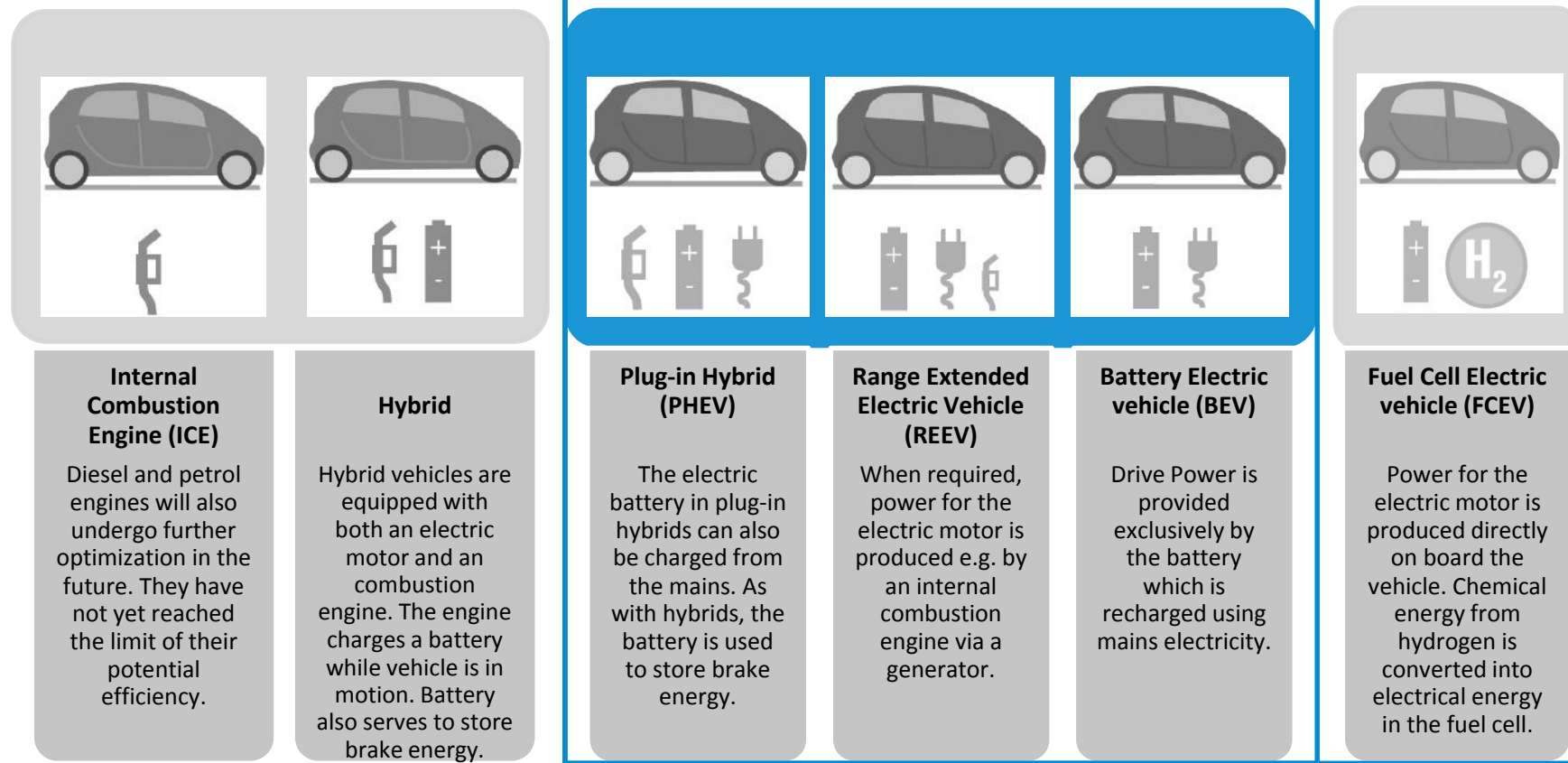
Ms. Cleona James
Assistant Mumbai, India
 T. +91 22 6665 2181
 F. +91 (22) 6665 2179
 cleona.james@gtai.com

Considered EV-Technologies

Central Goal 2020: In total one Million PHEV, REEV and BEVs on German roads

Electric vehicles in general

Electric vehicles considered by the NPE



Source: National Electric Mobility Platform (2012); Germany Trade and Invest Research (2016)