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EV Charging infrastructure

How to make public chargers future proof

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Main points covered



Global EV Charging Infrastructure networks

- Learn from the Shells and BPs of the future

Electric vehicles

- What's coming

Safety and quality

- EU electrical safety standards

Remote service

- Uptime and handling downtime

Trends in charger authorisation

- RFID, Phone Apps and credit card/NFC readers

ABB in over 100 countries, 140K FTE, \$45B+ turnover

Power systems and EV charging



DC Fast Chargers

- Terra systems



Energy storage

- B.E.S.S.



eBusses

- Subsystems & charging



Substations

- Power systems



DC wall boxes

- AC charger range

ABB's future-proof solutions work together seamlessly throughout the whole value chain



Grid Automation

- SCADA & Ventyx



Charging Network Services

- Galaxy services



Building Automation

- KNX, energy mgnt.



Components

- DIN rail & distribution boards



Renewable Integration

- HVDC, solar, wind

Successful global EV rapid charging networks

Thousands of ABB stations installed since 2010



Clever - Denmark

- Nation wide network of >150 DC fast chargers in Denmark



Norway, Bergen

- World's biggest public rapid charger station with 14 chargers



NRG EVGo - USA

- Network of > 160 DC fast chargers covering California



Northumberland CC

- 20 rapid multi standard EV chargers. UK's most reliable



Fastned - Netherlands

- Nation wide network of 200 DC fast chargers in Netherlands



Northern Ireland

- First province wide network now with multi standard



Also Asia, Australia, Austria, Azerbaijan, Belgium, Canada, Chile, Colombia, Croatia, Czech, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Italy, Japan, Lithuania, Malaysia, Mexico, Norway, Poland, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand and Turkey.

Charging partner for global automotive OEM's

Important for future proofing and reliability

KIA - DC fast chargers at dealers

BMW - R&D partners
- DC fast chargers at dealers

VW - R&D partners
- DC fast chargers at dealers

Ferrari - R&D partners
- DC Wallbox

Audi - R&D partners

Ford - DC charging testing & R&D

TOYOTA - R&D partners

GM - DC charging testing & R&D

DONG FENG - R&D partners
- DC fast chargers at dealers
- Cooperation Dong-Feng

NISSAN - R&D partners
- DC wall box for Denza EV

HONDA - R&D partners

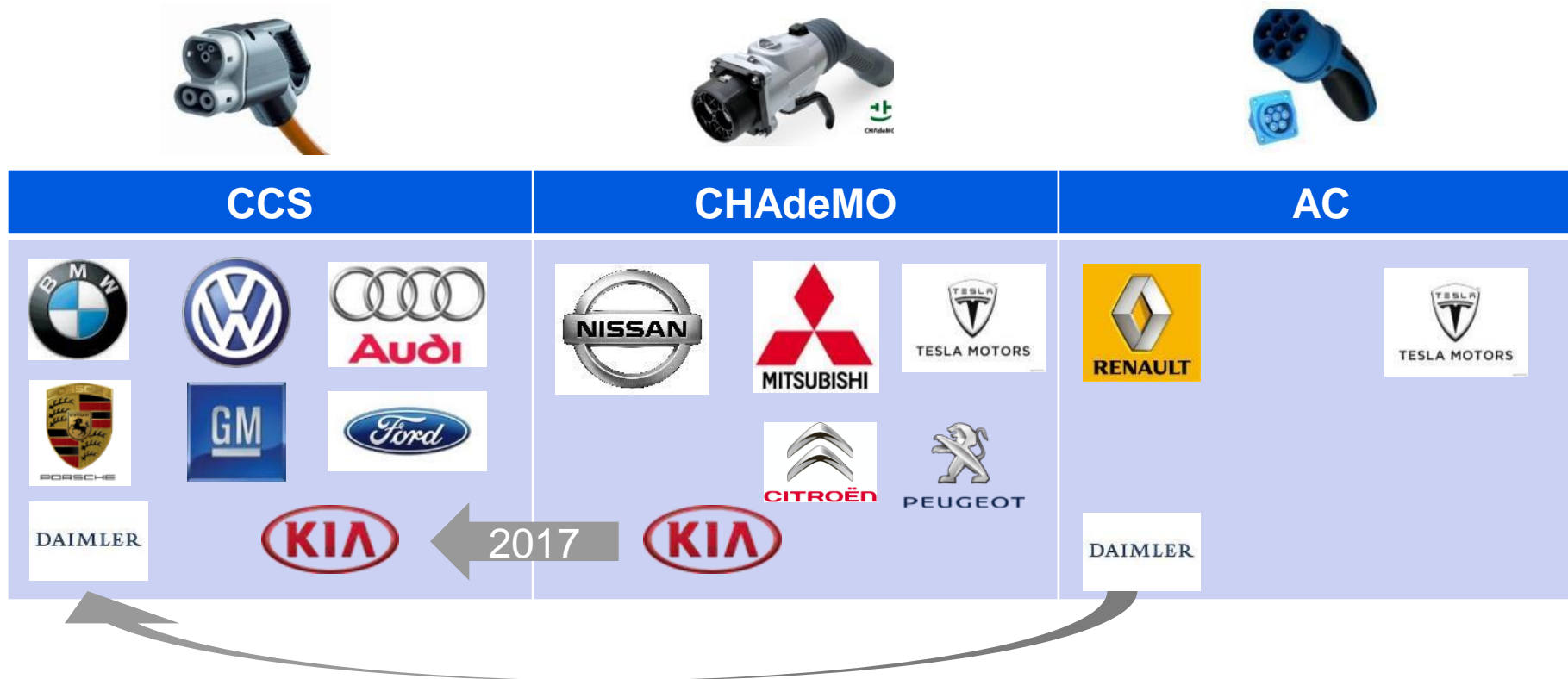
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DAIMLER



Rapid Charging Standards

The motoring brands behind the charging standards



- Daimler - Today AC-charging 11/22 kW (Smart ED / B-Class). Indicated DC (CCS) right for future
- Citroen & Peugeot – CHAdeMO licence finished. Expect to move to European CCS standard
- Tesla – 22kW AC and proprietary Super Fast DC

Safety and quality

Conformity to applicable European and UK standards



- **LVD** (Low Voltage Directive)
 - “... safe for humans, animals and its environment under normal conditions and so called single fault conditions”
- **EMC** (Electro Magnetic Compatibility): The EMC directive means in essence: "You will not disturb and you will not be disturbed”
- **CHAdEMO v1.0**
 - Ensures better safety, reliability and EMC
- **Conformity verified by an accredited 3rd party**
 - Certificates from an accredited test house

Connecting infrastructure

3 key areas for future proofing



GRIDPOINT



- Demand response
- Distribution system management
- Using alternative energy sources



Integration platform (APIs)

- Authentication and billing
- Subscriber management
- Operational B2C services



- Hardware and software
- Charge(r) management
- Charge(r) maintenance



Remote charger management

Keep the customer happy

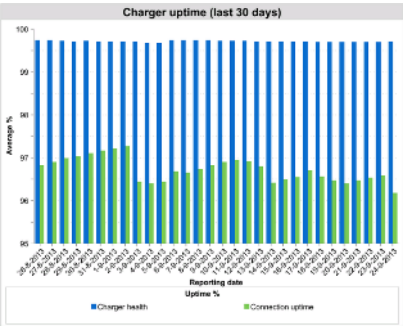
Uptime

X

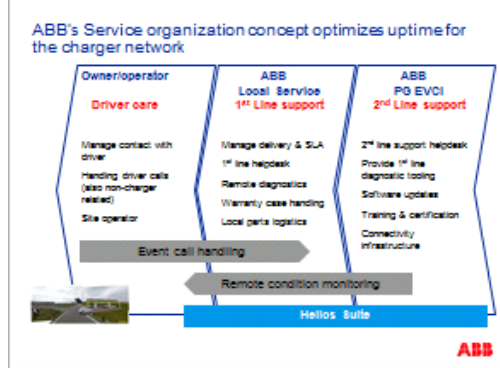
How do we handle down time

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Customer Satisfaction



Intrinsic product quality



Availability parts & support
Fast response & resolution
Progress Information



Back office payment authorisation

Trends in authorisation payment methods

SMS

A blue and white speech bubble icon representing a text message.


SmartPhone APP

A hand holding a smartphone, illustrating the use of a mobile application for payment authorization.

RFID Card

A hand holding a purple RFID card near a control panel with buttons labeled 'START', 'STOP', and 'EMERGENCY STOP'.

Credit/debit NFC card

A credit/debit card being used for payment at an ABB charging station, with a close-up of the NFC payment terminal.

What makes a reliable and futureproof charger?

In conclusion

Built by a company working closely with the major motor manufacturers

Meets all EU & UK safety standards Conformity verified by an accredited 3rd party

Able to work with different back offices, remotely serviceable and ready for demand response

High operational uptime and issue resolution via remote services

Multiple Authorisation possible including credit card and NFC reader



Power and productivity
for a better world™

