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Leading the Paradigm Shift at the Nexus of Transportation Electrification and Power Grid Transformation

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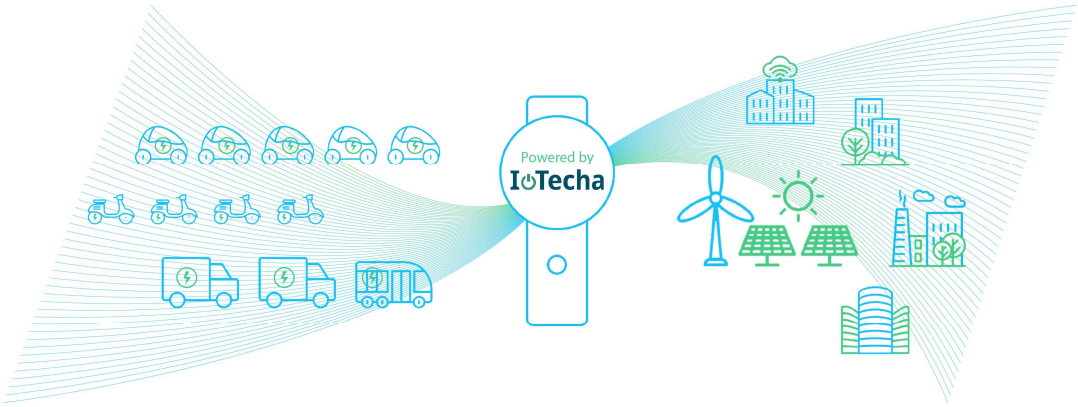
IoTecha: Leading the Paradigm Shift at the Nexus of Transportation Electrification and Power Grid Transformation



IoTecha is accelerating the Electric Vehicle Revolution by providing a comprehensive IoT.ON™ Platform for the Smart Charging infrastructure and enabling the integration of tens of millions of Electric Vehicles with the Power Grid.

- IoTecha was launched in 2016
- Our main customers are:
  - Electric utilities and distribution companies
  - Energy companies
  - Automotive OEMs
  - Infrastructure OEMs
  - Charge Point Operators (CPO)
- Founding members of the IoTecha's team are also co-inventors of the HomePlug Powerline Communication (HPGP)
- Founding members of the IoTecha's team designed ST2100 while at ST
- IoTecha's Products and services have been developed to support Combined Charging System with ISO/IEC 15118 that uses HPGP

EV Charging Challenges

The EV Market is Booming with $225 billion projected spending on over 200 new EV models in various stages of launch.

This rapid growth has highlighted several challenges:

Millions of EV's must be integrated with the power grid

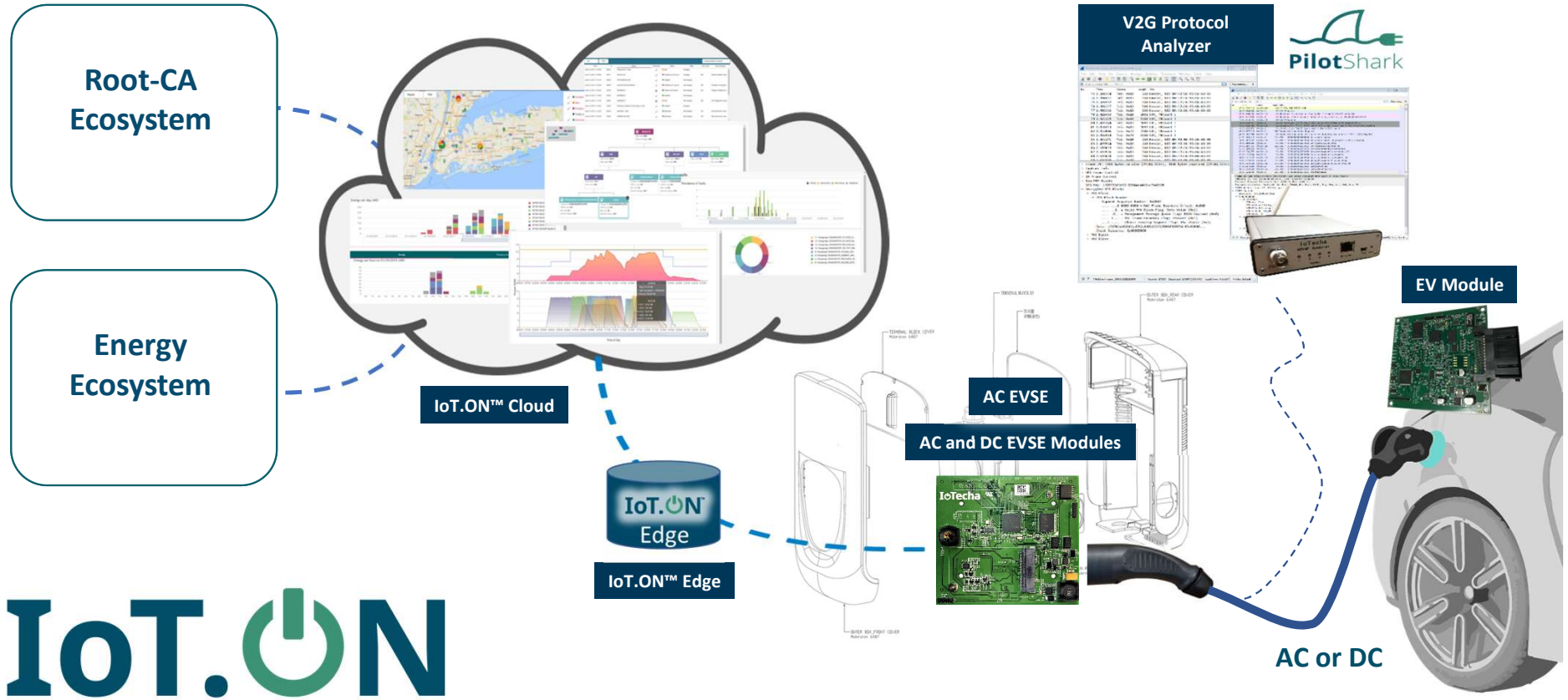
Capital expenditures associated with the deployment of the charging infrastructure must be reduced

Total cost of ownership (TCO) of charging infrastructure must be reduced

Reliability and simplicity of the charging experience is an absolute necessity

Chargers must be interoperable with 100s of different EV models

Enabling CCS with ISO/IEC 15118 Plug and Charge Ecosystem



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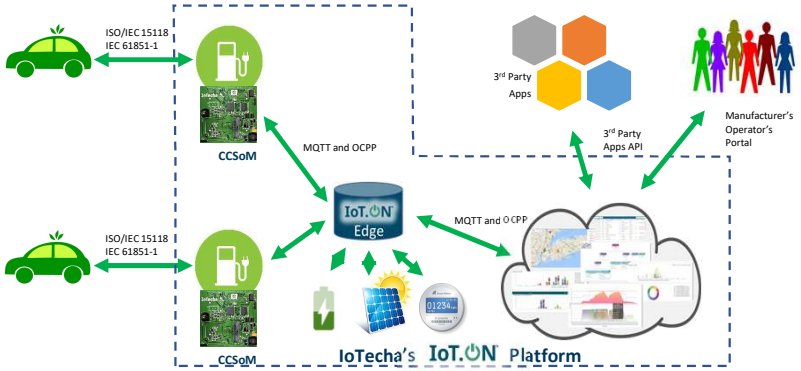
V2G Use Cases and Benefits



Consumers

- Charge at work using the lowest price
- An opportunity to earn money charging and discharging at work
- Backup power

Fleet Operators

- OpeEx reduction through the fleet operation optimization
- Smart Charging based on the EV's State of Charge
- Grid Services based on V1X and V2X capabilities

Employers

- Provide value to employees
- Green their businesses
- Offset energy costs by allowing employees to charge and discharge based on the ToU

Energy Companies

- Grid Services based on V1X and V2X capabilities
- Attract customers by offering incentives based on participation in Grid Services

Automotive OEMs

- Reduction of the EVs TCO through the participation in Grid Services
- Attractive consumer offering

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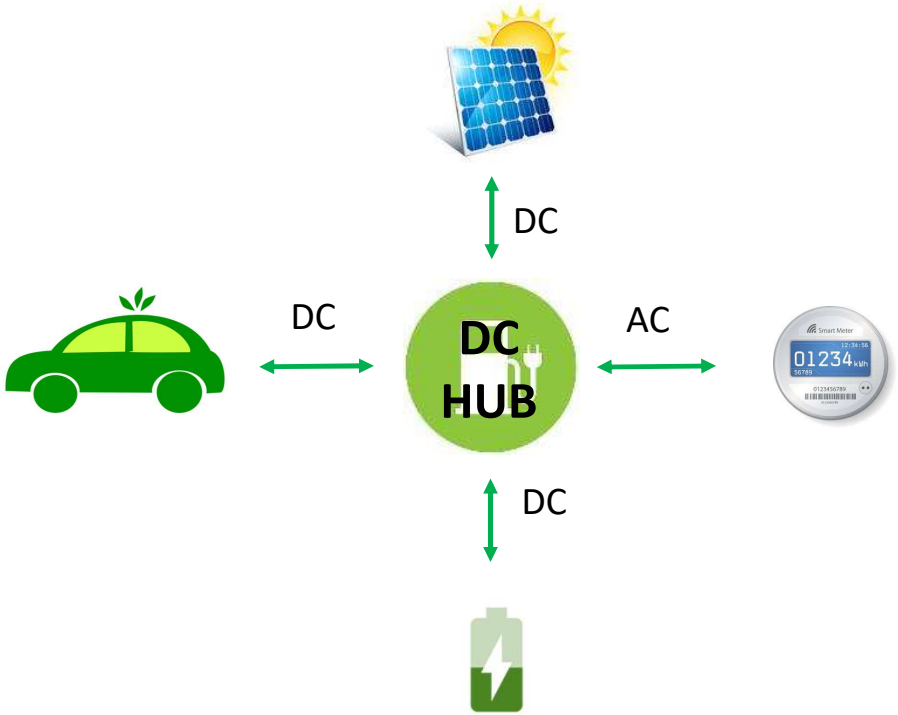
DC and AC Architectures

DC



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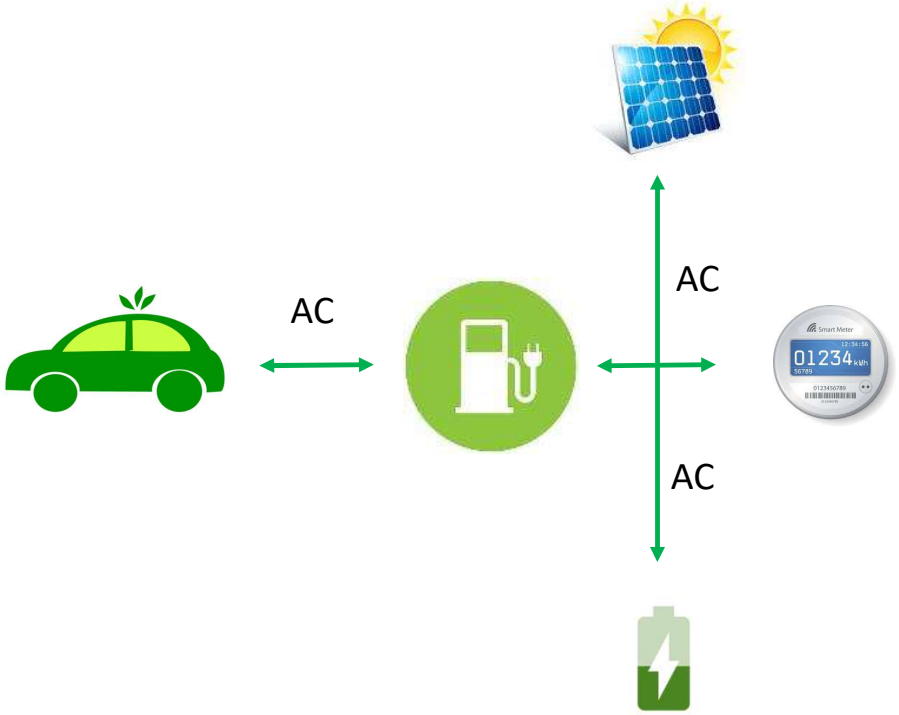


DC and AC PoCs

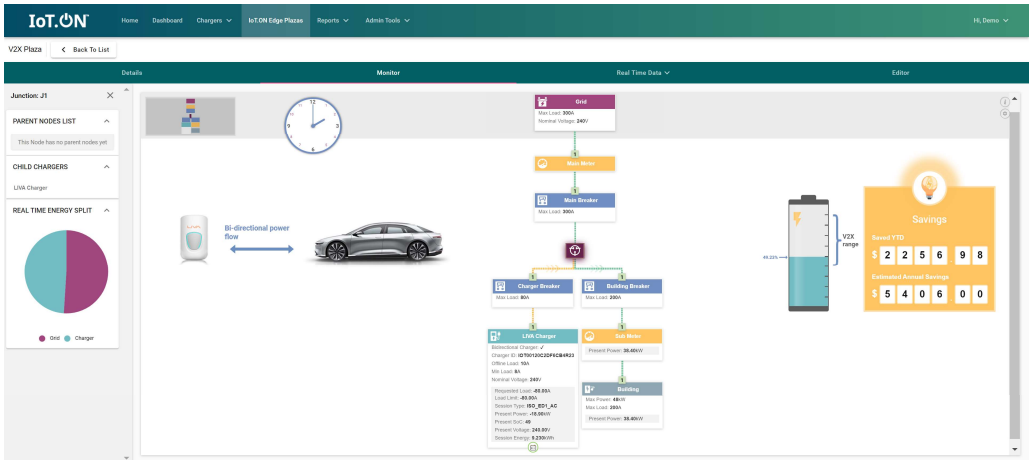
DC

23.07.20 | Ingolstadt | Modelle

Elektroauto als Teil der Energiewende: Audi forscht an bidirektionaler Ladetechnik

- Intelligente Nutzung von Elektroautos bietet großes Potenzial für Energiewende
- Bidirektionales Laden macht Zwischenspeichern von eigenem PV-Strom möglich
- Kostenoptimierung und Eigenstromversorgung setzen finanzielle Anreize

AC



Made possible by Combined Charging System (CCS) with ISO/IEC 15118 V2G

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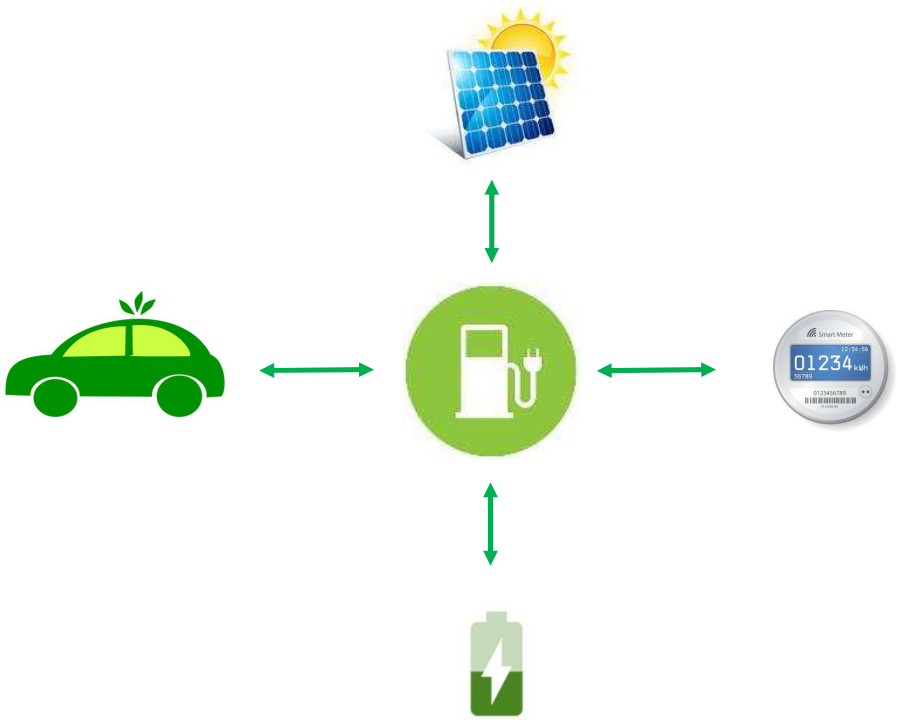
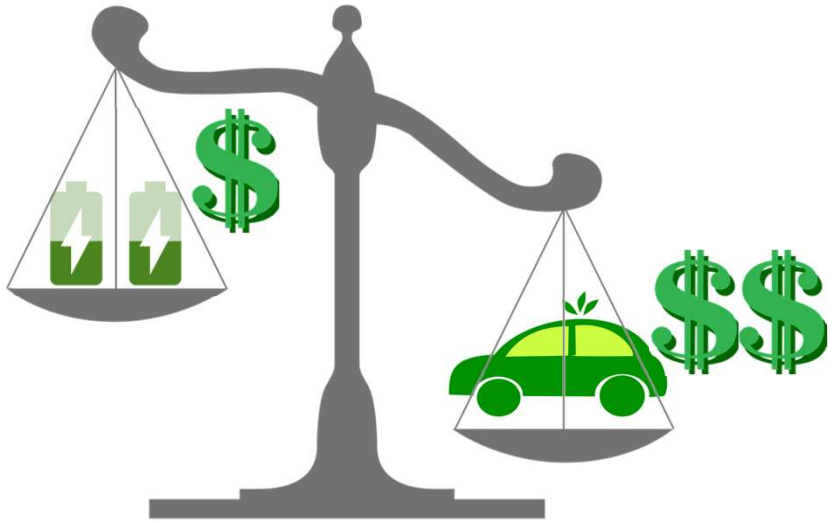
Making the TCO of an EV More Attractive

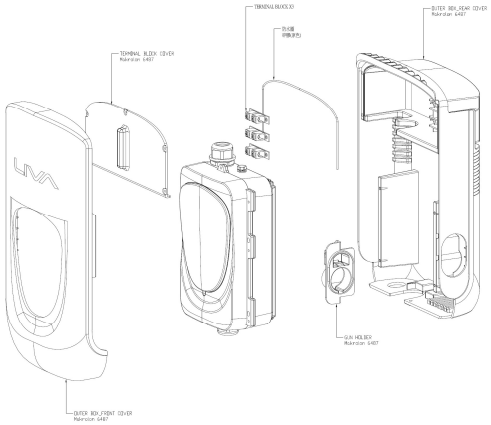




Rebalancing of the investment between Battery Storage and EV improves the attractiveness of an EV's TCO
Intelligent communication enabled by CCS (ISO/IEC 15118) makes it possible!

IoTecha's Modular AC ISO/IEC 15118 Charger

- 19.2 kW (80A) Combined Charging System (CCS)
- ISO/IEC 15118 with Plug-n-Charge
- Remote Charger Management
- RFID/NFC
- Realtime Energy Management
- Charging Scheduling
- OCPP 1.6J and MQTT
- Cloud-based Web Service API
- Wide range of connectivity options (Ethernet, WiFi, 4G/LTE)



Thank you!

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