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EV CHARGING CHALLENGES

WELCOME TO THE FUTURE
OF ELECTRIC MOBILITY.

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MOBILITY IS CHANGING

Global urban populations are expanding.

Governments are working with car manufacturers to implement smart services and ride sharing by encouraging the use of electric vehicles.

There will be 20% market share for Evs in the total of all vehicles produced by 2025.

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FUTURE OF MOBILITY

Connected	Autonomous	Shared	Electrical
			

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ELECTRIC MOBILITY

EU: 95g/km CO2 fleet targets effective in 2020
China: EV quota, corporate average fuel consumption (CAFC) limit and incentives
US: nº of ZEV participating states growing

Regulation and Incentives

Falling battery prices enable TCO parity in certain segments / markets today
Advancing battery technology enables ranges of more than 350 miles/560 km per full charge

Battery Technology

E-Mobility Industry **Dynamics**

Infrastructure rollout accelerates
Electric grid not a short-term bottleneck
Seamless charging experience not yet a given

Charging Infrastructure

EV model offer rising – 400+ new models expected by 2025
Overall market penetration still low at ~2.5%

Consumer Demand

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EV CHARGING CHALLENGES

Charging Infrastructure

There are two main immediate challenges for future-ready EV Charging infrastructure:

1. Building enough charging stations for all EV coming to the road in next coming years

2. Having the electric grid capacity to support EV Charging power needs

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EV CHARGING CHALLENGES

1- BUILDING ENOUGH CHARGING STATIONS

Charging Infrastructure

It is already being reported some congestion around EV charging stations.

There could be 35 million EVs alone in the US by the year 2030.

- Which means a need of close to 2 million public chargers
- Which means that 380 EV charging points will need to be installed each day over the next eight years!

In the EU alone, up to 6.8m public charging points will be required by 2030

By 2035 we could have 130 million electric vehicles in Europe

- Which means a need of close to 65 million chargers in total
- Around 85% installed in residential areas, and 4% on public highways

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EV CHARGING CHALLENGES

2- GRID CAPACITY

Charging Infrastructure

Can the electric grid support the EV revolution?

The short answer is "not without investing in electric grid infrastructure."

- Alone in the US, investment in the range of $75–125 billion will be needed by 2030 to serve 20 million electric vehicles.
- European power network can only support about 100 million electric vehicles of the planned 130 million by 2035.

Smart EV Charging

Smart EV Charging is the ANSWER

- The key to making the power grid more stable is Smart EV Charging management, which stands for intelligent management of EV charging that doesn't destabilize the power grid or overload it.

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EV CHARGING CHALLENGES

Smart EV Charging

- Energy Management / Power-Balancing
  - Grid
  - Hub
  - Charger
- Vehicle-To-Grid (V2G) technology

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EV CHARGING CHALLENGES

Smart EV Charging Plus

- Digitalization
  - Plug&Charge (ISO 15118)
  - Payments
  - Roaming
  - Connectivity

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EV CHARGING CHALLENGES

Smart EV Charging Plus

- 1.000V Charging Voltage
  - Simpler product manufacturing
- DC Metering
  - MID certification

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EV CHARGING CHALLENGES

Some More Challenging Improvements

- Pricing model
  - Power Balancing?
  - Charging station financing and ownership
- Remote maintenance service
  - Remote Monitorin
  - Predictive and prescriptive maintenance.


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THANK YOU!!
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