



CHAdemo V2G Webinar

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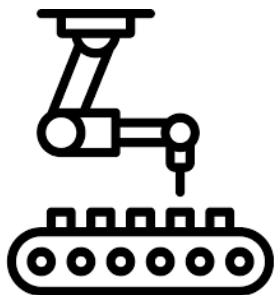


11 YEARS

MANUFACTURING EV CHARGERS

COMPANY PROFILE

OUR NUMBERS



PRODUCTION CAPACITY
100 CHARGERS / WEEK



NUMBER EMPLOYEES
40 + 20 EXTERN



EXPORTS
~70% TO 29 COUNTRIES



CAGR 2014-2020
250%



UNITS INSTALLED
10 000 CHARGING POINTS



ELECTRIC RACES
DAKAR & E-GT PARTNER



29 COUNTRIES

INTERNATIONAL PRESENCE

BELGIUM

BRAZIL

CHILE

COSTA RICA

CROATIA

CZECH REPUBLIC

DENMARK

FINLAND

FRANCE

GERMANY

HUNGARY

ITALY

IRELAND

MACAO

MALTA

MARTINIQUE

NAMIBIA

NETHERLANDS

NEW ZEELAND

NORWAY

PARAGUAY

POLAND

PORTUGAL

SOUTH AFRICA

SPAIN

SWEDEN

UAE

UK

USA



PRIVATE CHARGING



AC Chargers from 3,7kW till 22kW, including advanced features on demand, namely Access Control System through RFID, Load Speed Management or OCPP connection for remote management and consumption accounting.

AC PUBLIC CHARGING



AC Chargers from 3,7kW till 22kW, including advanced features, Smart Charging and OCPP connection for remote management.

Charging Post includes two charging sockets with Contact Less Technology and Auto Cable Detection.

FAST CHARGING



Cost effective multi-standard AC and DC fast charger from 15kW till 350kW, with Contact Less Technology, Auto Cable Detection, Smart Charging and OCPP connection.

Two Simultaneous Fast Charging sessions, capable to charge your EV or BUS in a quick way.

VEHICLE TO GRID



Our vehicle-to-grid technology convert your car on a stationary storage systems creating added value to the world of energy, helping turn our vision of an emission-free future into a reality.

Available on a 10kW, three phase AC grid connection.

V2G PUBLIC

A public uses 10kW/15kW V2G DC bidirectional charger, adapted for DSO and Ancillary Services proposes, allowing for peak shaving, load shifting, frequency regulation and power factor correction.

| PART NUMBER | MC V2G10 |
|------------------------------------|----------------------------------|
| Description | Ancillary Services V2G |
| MAIN CHARACTERISTICS | |
| Input Power | AC 3Ph 10kW |
| Output Power | DC CHAdeMO 400V 10kW |
| Controlling Interfaces | OCPP, MODBUS, V2X |
| ANCILLARY SERVICES | |
| Power factor correction capability | Software Adjustable in Real-time |
| Frequency Regulation | According to Grid Codes |
| Peak shaving and Load shifting | Time response <2 sec |
| Common Grid Codes | G98/G99, VDE AR-N 4105 , CEI |



V2G PRIVATE

The vehicle-to-grid (V2G) solution to mitigate the impact of EVs on peak demand, facilitate the integration of renewables and reduce electricity generation capacity needs. Ideal for energy communities.

Available on 6kW 1Ph and 15kW 3Ph models

| PART NUMBER | MC WBV2G6 / MC WBV2G15 |
|------------------------------------|----------------------------------|
| Description | Ideal for Energy Communities |
| MAIN CHARACTERISTICS | |
| Input Power | AC 1Ph 6kW / AC 3Ph 15kW |
| Output Power | DC CHAdeMO 400V, DC CCS (option) |
| Controlling Interfaces | OCPP, MODBUS, V2X |
| APPLICATION SERVICES | |
| Power factor correction capability | Real-time configuration |
| Frequency Regulation | According to Grid Codes |
| Peak shaving and Load shifting | Time response <2 sec |
| Common Grid Codes | G98/G99, VDE AR-N 4105 , CEI |
| EMS integration | MODBUS, OCPP |



WHY V2G

The goal of V2G technology is to fully integrate electric vehicles into the power grid

Charge when you plug.

Eventually driver may manage scheduling and power level of the charging session

Smart charging solutions help the electric vehicle owner communicate with the power grid and manage the flow and cost of electricity.

V2G technologies provide demand response services to the power grid. This enhances the efficiency of the system during peak load time and increases the stability of the grid.

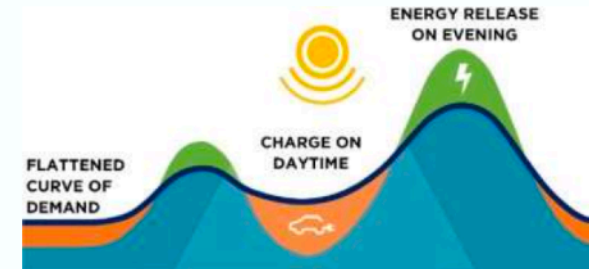
Improve the grid's capability to handle renewable power, and make renewable sources even more widely integrated and affordable.



UNMANAGED EV CHARGING



SMART EV CHARGING



VEHICLE-TO-GRID

EV act as controllable loads, to smooth demand peaks

EV can act as distributed storage, providing energy back to the Grid

EV drivers earn rewards in exchange for grid services

WHY V2G

off-peak electricity demand charging, dynamic controlled charging (V1G) and vehicle-to-grid (V2G) could mitigate the impact of EVs on peak demand, facilitate the integration of variable renewables and reduce electricity generation capacity needs.

Integrating electric vehicles with power systems can benefit both

Balancing electricity demand and supply will become an increasing challenge to ensure the smooth integration of variable renewables-based energy generation and the electrification of multiple end-use sectors.

16 000 GWh of energy that can be stored in electric vehicle batteries globally in 2030 (Sustainable Development Scenario)

800 GWh if only 5% of EV available for V2G services

V2G can turn EVs into distributed energy resources

changing a consumer of
electricity into a power provider

vehicle-to-grid (V2G) technologies could fundamentally change the dynamics by turning EVs from a consumer of electricity into a power provider, and hence part of the solution to shave peak demand.

V2G SUCCESS FACTORS

The V2G potential depends on
availability of vehicles or vehicle fleets to participate
in such services at suitable times,
consumer acceptance, and the ability for participants
to generate revenues,
as well as other technical constraints related to
battery discharge rates or myths related to impacts on
battery lifetime.
and others

V2G SERVICES AND BENEFITS

| LOAD SHAVING | ANCILLARY SERVICE | ENERGY COMMUNITIES |
|--|--|---|
| <p>When there is a surplus of energy, EVs can be given incentives to charge. And when consumption is likely to exceed production, the energy stored in electric vehicles can compensate for the peak load of the grid.</p> | <p>An ancillary mechanism to fine-tune the frequency of the grid in a small time scale, e.g., minutes or seconds.</p> <p>May not necessarily involve energy delivery but simply small power transactions.</p> <p>Can also be used as an active contributor to power factor correction.</p> | <p>Connected to EMS (Energy Management Systems) can be a complement to Stationary Storage, providing an additional free energy storage of renewable energy and increase autonomy from the outside grid.</p> |

V2G KEY LEARNINGS

most projects are still ongoing, but some core takeaways are already available:

Finding the right customers – not all types of users are suitable for V2G. Need regulation and clarify benefits proposition.

Not many EVs are V2G enabled - Not all vehicles are bidirectional from factory, maintaining battery warranty.

Targeting the right services – Propositions need to be adapted to specific context and area constraints.

Reducing HW costs – HW costs are still high. Scaling will solve.

Working together – Different connectivity standards but the same business model.

Syncing effort – push together OEMs, Energy Providers, Operators, Users

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