Empowering the Future.

efacec
Empowering the future

Our purpose is designing a smarter future for a better life

We do it by developing and delivering integrated solutions in the fields of energy, mobility, and environment, shaping the future of our cities, with digital connectivity always present.

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Energy
→ Transformers
→ Switchgear
→ Service
→ Automation
→ Energy

Mobility
→ Transportation
→ **Electric Mobility**

Environment
→ Environment & Industry

Cities

Digital Connectivity
→ Digital Hub

What we are:

A fully integrated solutions provider, from:

Products Manufacturing to **Systems Integration** & **O&M Services**

Our world of empowerment

We offer a comprehensive
and turnkey service, delivering
custom-made solutions according
to the specificities of each market.

We anticipate and shape the future through transformers,
switchgear, service, automation, energy systems, environment
and industry projects, transportation and electric mobility solutions.

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Empowering the future through
Electric Mobility

Electric Mobility
Presence Worldwide

Electric Mobility
Presence Worldwide

● Efacec presence

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Electric Mobility
Positioning

Efacec has a full range of products that meets all market needs, Ensuring electric vehicles are increasingly a feature of everyday life thanks to its car, motorcycle and bus chargers.

Efacec's portfolio includes private charging, public charging, quick charging, ultra fast charging solutions, always respecting its **brand image** of **quality, efficiency, and reliability,** which translates into:

→ A **broad portfolio** with diferente product lines for differen segments;

→ Constant **innovation** and numerous design patentes and registrations;

→ The ability to **customise** products and offer **high flexibility;**

Reliable engineering competences, translated into high-quality chargers

Strong product customization, allowing to adapt chargers to customers' needs

Close relationship with key stakeholders in the market (e.g., automotive manufacturers, utilities, public sector)
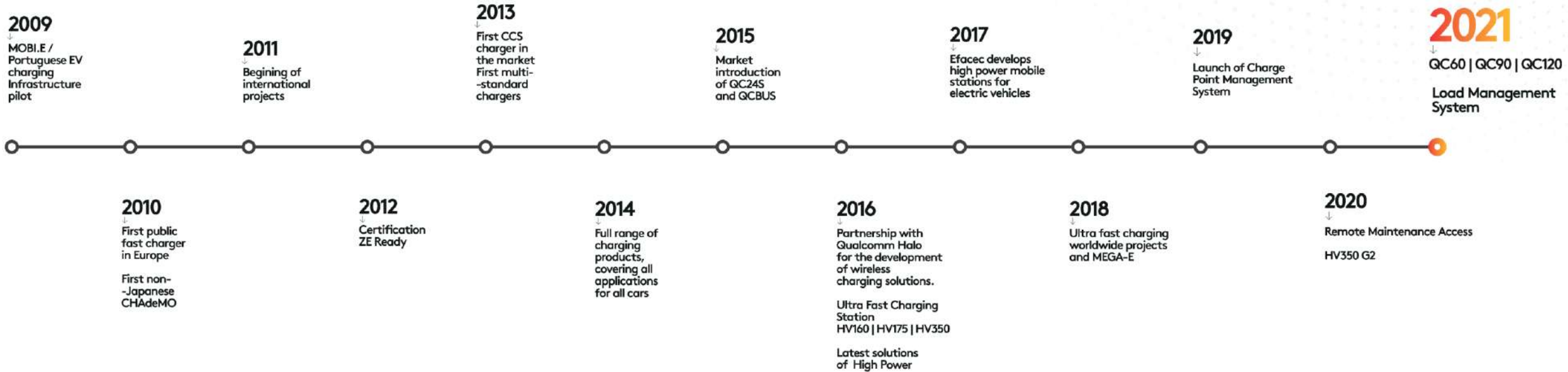
Innovation focus, leading some of the relevant disruptions in the sector (e.g., wireless)

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Electric Mobility
Milestones

World Class Leaders on EV Chargers

2009
↓
MOBI.E /
Portuguese EV
charging
Infrastructure
pilot

2011
↓
Begining of
international
projects

2013
↓
First CCS
charger in
the market
First multi-
-standard
chargers

2015
↓
Market
introduction
of QC24S
and QCBUS

2017
↓
Efacec develops
high power mobile
stations for
electric vehicles

2019
↓
Launch of Charge
Point Management
System

2021
QC60 | QC90 | QC120

Load Management
System

2010
↓
First public
fast charger
in Europe

First non-
-Japanese
CHAdeMO

2012
↓
Certification
ZE Ready

2014
↓
Full range of
charging
products,
covering all
applications
for all cars

2016
↓
Partnership with
Qualcomm Halo
for the development
of wireless
charging solutions.

Ultra Fast Charging
Station
HV160 | HV175 | HV350

Latest solutions
of High Power

2018
↓
Ultra fast charging
worldwide projects
and MEGA-E

2020
↓
Remote Maintenance Access

HV350 G2

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Electric Mobility
What we do

Full range of charging solutions to Electric Vehicles

Public Charging

Private Charging
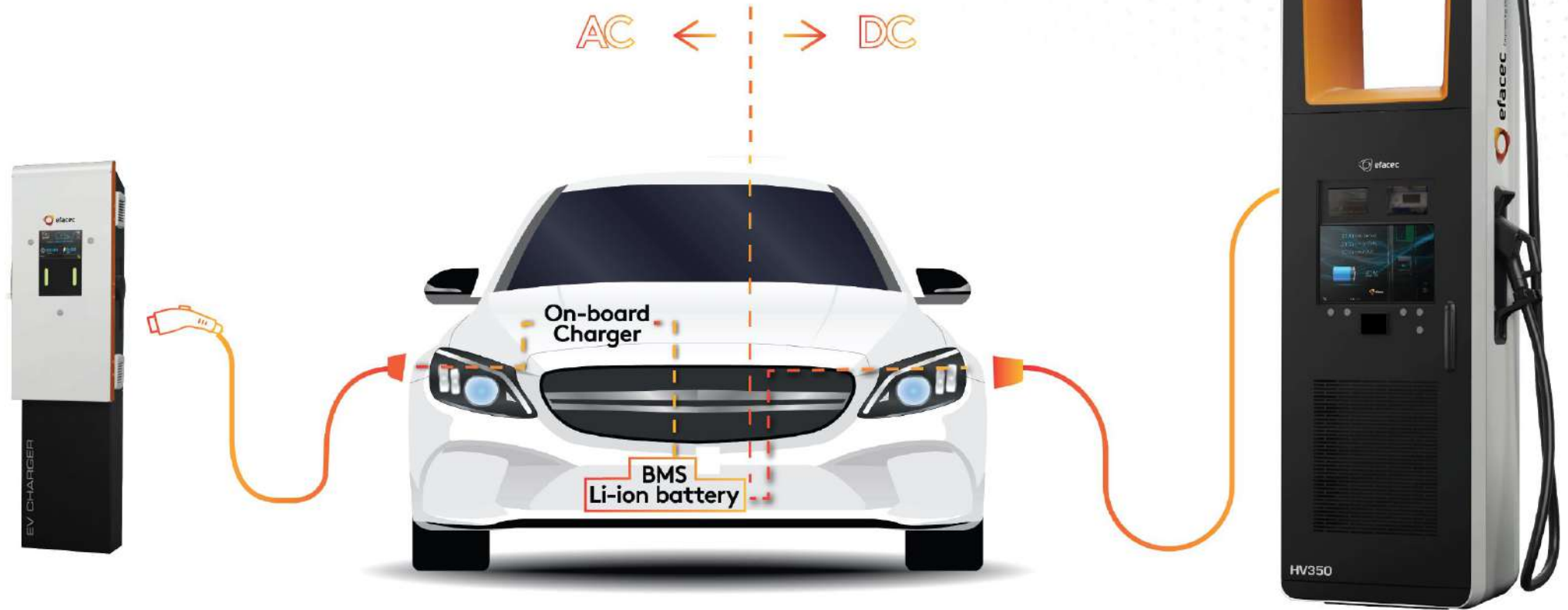
Quick Charging

Ultra Fast Charging

Bus Charging

Charge Point Management System

Integration of Electric vehicles in management systems for efficient use of electric grid infrastructure

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Electric Mobility

AC charging vs DC charging

On-board versus Off-board equipment

AC ← → DC

On-board Charger

BMS
Li-ion battery

EV CHARGER

HV350

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Electric Mobility
Portfolio and Capabilities

AC
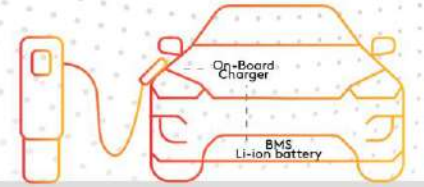
HC3
HC7
HC11
HC22

→ Easy-to-install, easy-to-use, safe and reliable solution
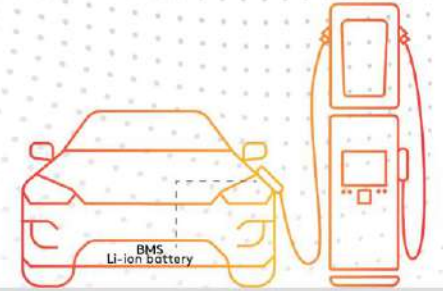→ Appealing design

PC3
PC7
PC11
PC22
PC43

→ Designed for public domain, where usage simplicity and functionality are most important
• Highly flexible cost-saving solution
• Multiple chargers in a single location

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Electric Mobility
Portfolio and Capabilities

DC

QC20
QC24S
QC45

QC40B
QC90B
QC150B
HV175
STANDALONE

QC60
QC90
QC120

HV160
HV175
HV350

→ **Fast charging stations**
- Compact
- For any CCS compatible bus

→ **High power range of chargers**
   with up to 920 V
→ **Designed to serve both long-range**
   and normal range EVS

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Electric Mobility
Portfolio and Capabilities

EV*CORE LMS*

EV*CORE*

→ Software central management system for EVS infrastructures.

→ Scalable solution, easy to configure and to monitor what is needed

→ User friendly, with intelligent alarm ease of reporting

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Electric Mobility
Private Charging

Easy to install, easy-to-use, safe and reliable solution with appealing design that fits seamlessly into your home.

→ Output power: 3,7 kVA | 7,4 kVA | 11 kVA | 22 kVA
→ AC Mode-3 charging
→ Indoor or outdoor
→ Plug type 1 | type 2, or socket
→ RFID user identification

HC3   HC7   HC11   HC22

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Electric Mobility
Public Charging

Highly flexible cost-saving solution due to its master-slave architecture that allows multiple chargers in a single location.

→ Dual output power: 3,7 kVA | 7,4 kVA | 11 kVA | 22 kVA | 43 kVA
→ AC mode-3 charging
→ Charges 2 vehicles simultaneous
→ RFID user identification
→ Standalone mode or integrated in any network with any central system

PC3 PC7 PC11 PC22 PC43

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Electric Mobility
Public Charger G3

The Public Charger is a flexible and open charging station, able to charge in a standalone mode or integrated in any network with any central system.

→ Multiple outputs (Mode-3)
→ Multiple powers (up to 2x22 kVA)
→ Versatile installation options
→ Aluminum enclosure
→ Simple plug & play instalation
→ Local and remote monitoring and control
→ Payment terminal integration
→ New HMI
→ Power Upgradable

PC11 G3   PC22 G3

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Electric Mobility
Quick Charging

The perfect solution to fast charge your EV if space is a concern, the QC24S is the most compact fast charging station.

→ Output power DC: 24 kW
→ CCS standard
→ Standalone mode or integrated in any ne network with any central system
→ Front panel can have custom graphics, nelogos and colors to have the overall ne nelook of customer's brand and ne ne ne neintegration environment

QC24S

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Electric Mobility
Quick Charging

A cost-effective charging station that charges your electric vehicle in a short period of time, depending on the EV's battery capacity.

→ Output power DC: 25 kW | AC: 22 kVA
→ Multi-standard: CHAdeMO, CCS and AC
→ RFID user identification
→ Standalone mode or integrated in any network with any central system

QC20

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Electric Mobility
Quick Charging

Topmost of fast chargers, It can charge any brand of electric vehicles.

→ Output power DC: 50 kW | AC: 22 or 43 kVA
→ Multi-standard: CHAdeMO, CCS and AC
→ DC and AC simultaneous charging
→ RFID user identification
→ Standalone mode or integrated in any nenetwork with any central system

QC45

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Electric Mobility

QC60 | QC90 | QC120

QC60   QC90   QC120

Our New Line of fast Chargers All-in-One Platform, with Power Range from 60kW up to 120kW, are compatible with all EV´s in the Market, complying with CCS, CHAdeMO and AC Protocols.

→ Multiple standards
→ Multiple outputs (up to 3 DC outputs)
→ Simultaneous charging in all outputs
→ Load balancing
→ Ready for PnC
→ High efficiency: > 95%
→ Compact and simple plug & play installation
→ Standalone or network integration
→ Local and remote control and monitoring
→ C4 corrosion protection.

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Electric Mobility

QC60 | QC90 | QC120

Maintenance Access

DC charging up to 3 cars simultaneously

DC Meters

Compact Solution

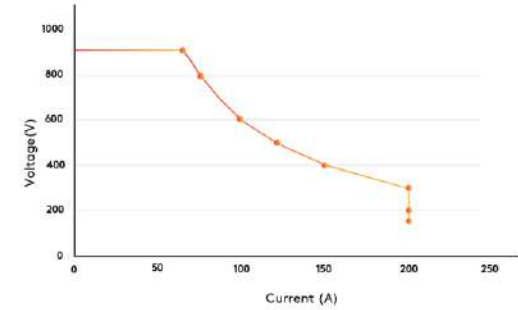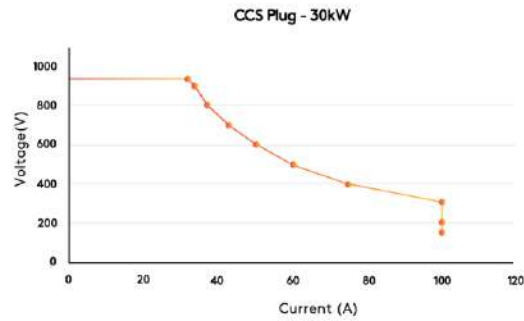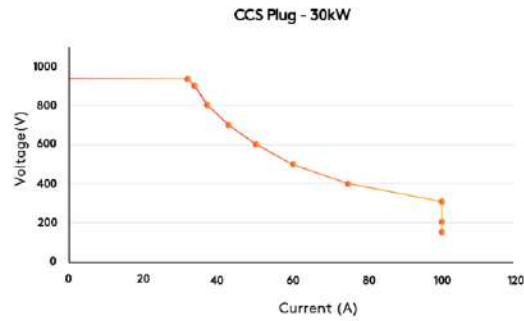Upgradable from 60 kW to 120 kW

LMS Integration

efacec

QC60

Electric Mobility
QC60

CCS + CCS + AC 43kVA

30kW DC

30kW DC

Up to 43kVA AC

60kW DC

Up to 43kVA AC

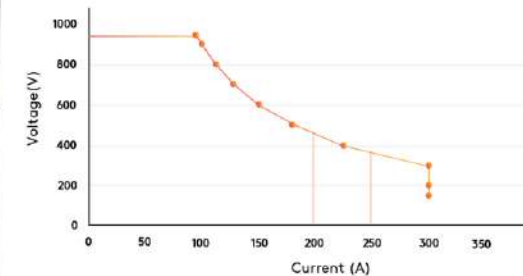### CCS Plug - 30kW
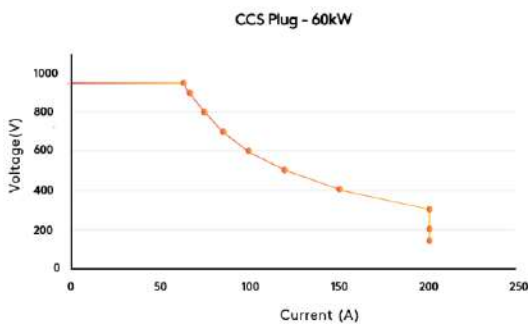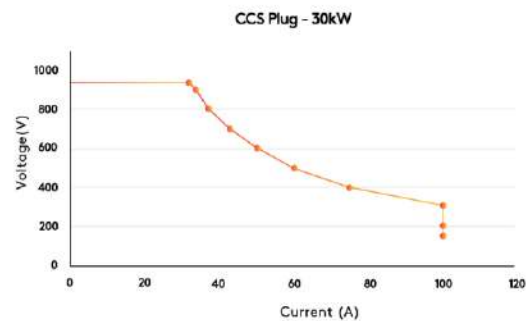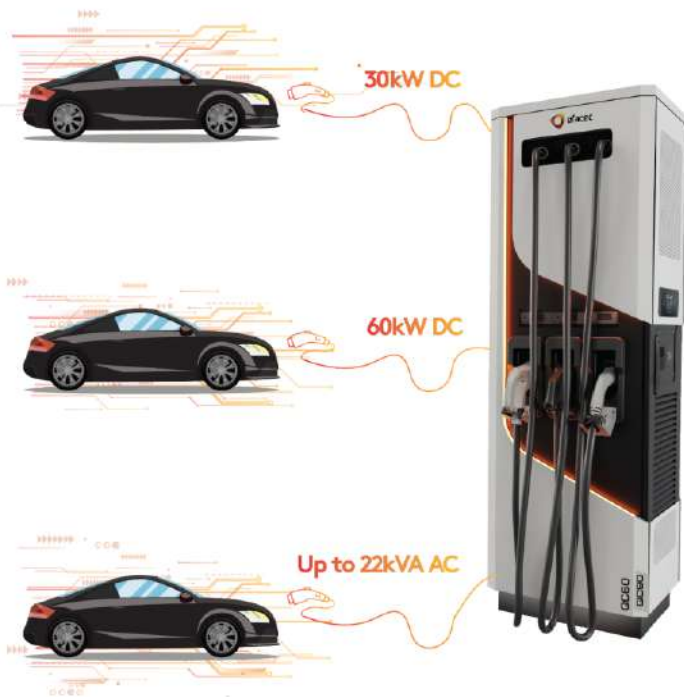

CCS Plug - 30kW

Electric Mobility

QC90

CCS + CCS + AC 22kVA

Electric Mobility

QC120

CCS + CCS + AC 22kVA

60kW DC

60kW DC

Up to 22kVA AC

120kW DC

Up to 22kVA AC

CCS Plug - 60kW

CCS Plug - 60kW

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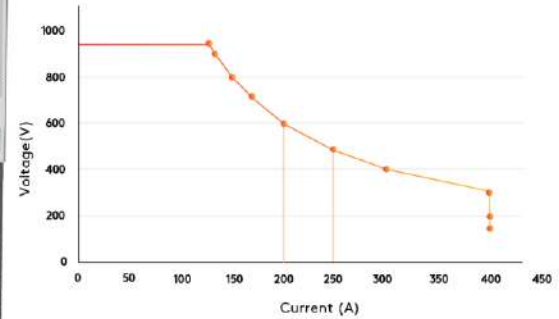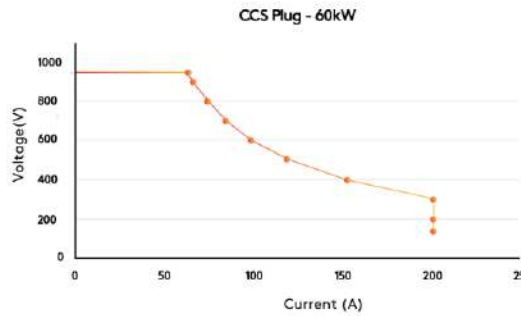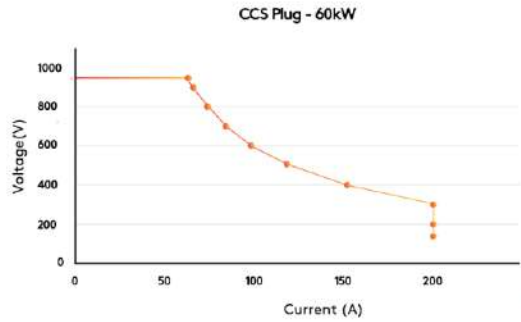
Electric Mobility
Quick Charging

Safe and Robust Charging Station for any CCS compatible Bus. A step ahead on the sustainability path integrated in any network with any central system.

→ Different power outputs available: 40 kW, 90 kW and 150 kW
→ CCS Standard
→ Mode-4 charging
→ RFID user identification
→ Standalone mode or integrated in any network

QC40B QC90B QC150B

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Electric Mobility
HV175 Standalone

This HV charging station is able to charge electric vehicles including buses with battery voltages up to 920 Vdc and up to 200A, compliant with Combined Charging System (CCS) standard with power levels up to 160kW.

→ Charge any compatible vehicle with CCS standard
→ Combo DC output (Mode-4)
→ Built-in communications (2G/3G/4G(LTE))
→ High efficiency >95%
→ Standalone or network integration (OCPP or proprietary protocol)
→ Indoor / Outdoor (IP54)

HV175 STANDALONE

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Electric Mobility
HV175 Standard Kiosk

The HV175 Standard Kiosk Charger power electronics unique design results in top tier specifications for conductive DC fast charging, such as high-power output with an industry best power factor and efficiency.

→ Multiple standards (CCS, CHAdeMO and AC type 2)
→ Multiple outputs
→ AC and DC simultaneous charging
→ Mode-3 and Mode-4 charging
→ High efficiency >95%
→ Standalone or network integration (OCPP or proprietary protocol)
→ Built-in communications (2G/3G/4G(LTE))
→ Indoor / Outdoor (IP54)

HV175

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Electric Mobility
HV160

The HV160 is an excellent choice for a high power configuration that will deliver up to 160 kW to EVs with different battery voltage.

→ Charge any compatible vehicle with CCS standard
→ Output voltage up to 920 V
→ Combo DC output (Mode-4) / Option CHAdeMO
→ TFT color display
→ Network integration (OCPP or proprietary protocol)
→ Built-in communications (2G/3G/4G(LTE); LAN; Wi-Fi)

HV160

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Electric Mobility
HV350 Premium Kiosk

The High Power range of chargers with up to 920V is designed to serve both long range and normal range EV

→ Nominal output power: 160 kW | 320 kW
→ Multiple standards (CCS and CHAdeMO)
→ Multiple outputs
→ DC simultaneous charging on the HV350 model
→ Scalable solution for higher power range (from 160kW to 320kW)
→ Mode-4 charging
→ Standalone or network integration (OCPP or proprietary protocol)
→ High efficiency >95%
→ Built-in communications (2G/3G/4G(LTE)
→ Indoor / Outdoor (IP54)

HV350

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Electric Mobility

HV175 G2

The HV175^{G2} Charger power electronics unique design results in top tier specifications for conductive DC fast charging, such as high-power output with an industry best power factor and efficiency.

→ Charge any compatible vehicle with CCS standard
→ Output voltage up to 920V
→ Combo DC output (Mode-4) / Option CHAdeMO
→ TFT color display
→ Network integration (OCPP or proprietary protocol)
→ Built-in communications (2G/3G/4G(LTE)

HV175 ^{G2}

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Electric Mobility
HV350 G2

HV350 G2

Efacec developed a new and innovative solution that fits all features of this emerging market. The HV350^{G2} is a High Power Ultra Fast charging solution.

→ Fits all CCS vehicles
→ Mode-4 charging
→ HV350 ^{G2} = 2 x HV175 ^{G2}
→ Liquid cooled cable
→ 500A continuous current
→ Simultaneous charging options
→ Eichrecht option (in process of certification)
→ Load Managment System (LMS) integration via MODBUS TCP / IP
→ Smart charging via OCPP 1.6
→ Legal backdoor for maintenance optional
→ Over the air update

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Electric Mobility
Load Management System (LMS)

LMS Integration

Adaptable to each
installation (site)

CPMS integration
with OCPP

HMI web based

Concept off feeder
and transformer
power management

Dynamic management
with smart meters

HV350

Electric Mobility
PC- Payment Methods

Other payment options

QRcode

→ Under request

CCV

→ Under request

EV CHARGER
22 kVA

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Electric Mobility
PC – Payment Methods

Other payment options

QRcode
→ Under request

CCV
→ Under request

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EV CHARGER

Electric Mobility
QC45 – Payment Methods

Other payment options

Ingenico
→ Under request

CCV
→ Under request

Payter
→ Under request

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FAST CHARGER
50-500 Vdc
QC45

Electric Mobility
HV - Payment Methods

Other payment options

Nayax
→ Under request

CCV
→ Under request

Payter
→ Under request

QRcode
→ Under request

Ingenico
→ Under request

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Electric Mobility
Charging Power

3 – 7 kVA	11 – 22 kVA	24 - 50 kW	60 – 160 kW	160 – 350 kW

HC3 HC7
PC3 PC7

HC11 HC22
PC11 PC22

QC20
QC24S
QC45
QC40B

QC60
QC90
QC120
QC90B
QC150B

HV160
HV175
STANDALONE
HV175
HV350

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Electric Mobility

Home | Work Place	Metropolitan | Highway	Long Distance Highway

300 km	240 km	240 km	240 km
2 – 12 Hours *	< 30 min * *	10 min * *	5 min * *
3 – 22 kW	50 kW	150 kW	350 kW
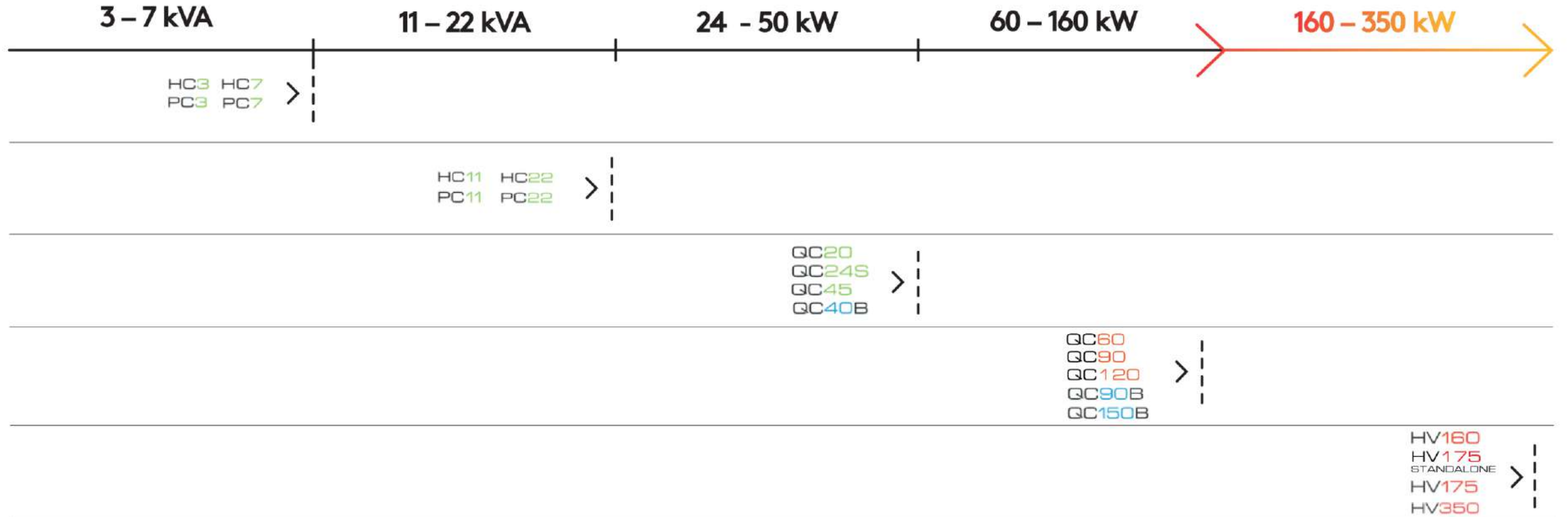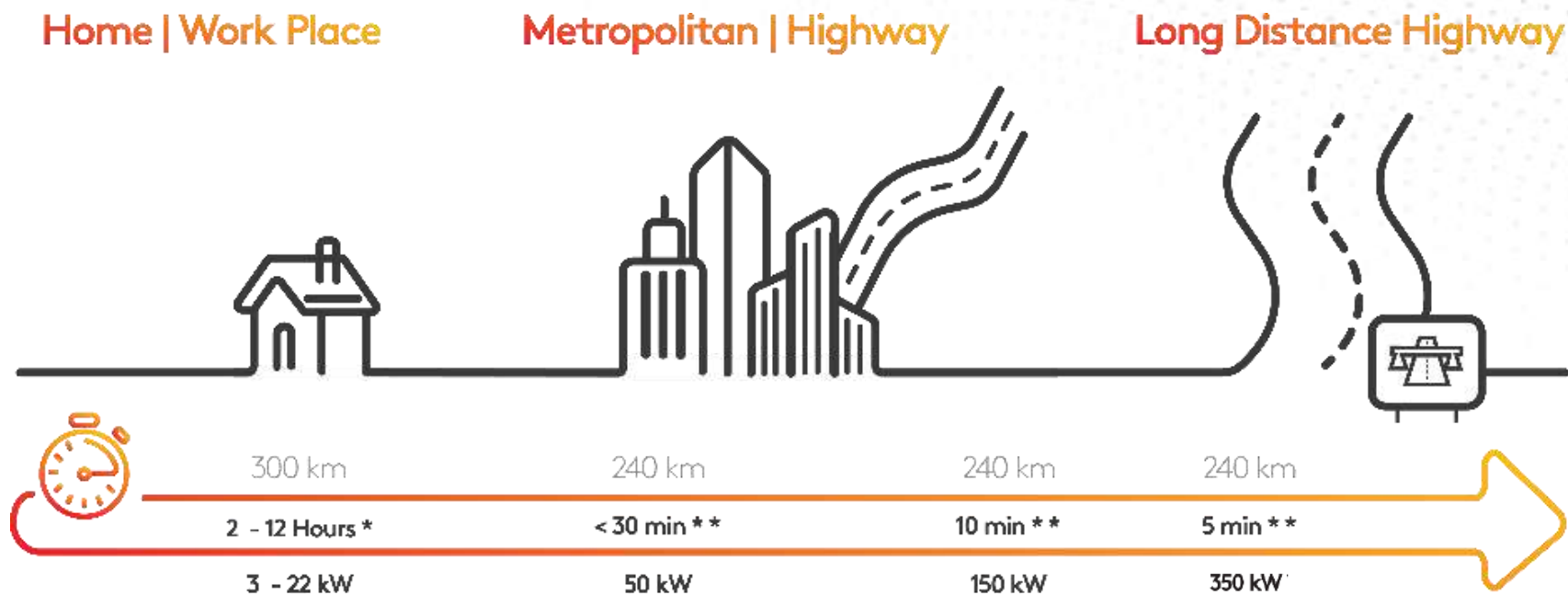
Battery Capacity: 40 kWh
Battery Range: 300 km
* Starting Charge Level: 20% | Target Charge Level: 100 %
** Starting Charge Level: 20% | Target Charge Level: 80 %

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Electric Mobility
Charge Point Management System

Plug2Me
WhiteLabel
For clients

CMS PORTAL
EVCORE

Mobile App
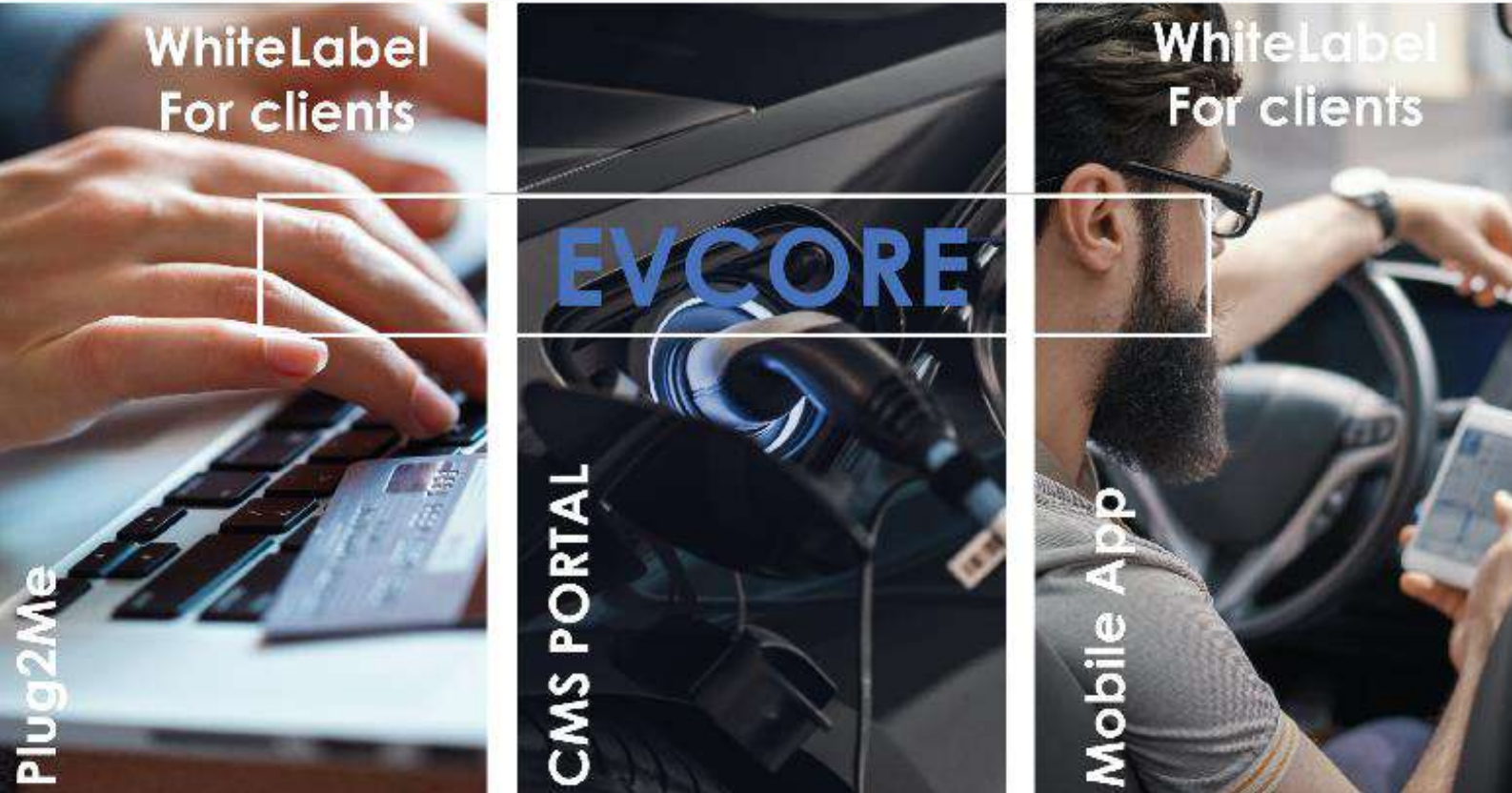WhiteLabel
For clients

The perfect solution to charge your vehicle from operations, through billing to customer experience

→ Function as an "EV charge point ☐ddmanagement system" or as a "Charge Point ddOperator" or both and it can all ddcommunicate with any other required 3rd ddparty systems.

→ 3 layers: 2 layers of end experience that can ddbe whitelabel (Plug2me web Portal and ddMobile Apps Android and iOS) and 1 layer ddof CMS Central Management System.

→ Compatible with various payment gateway dd (Lemon Way, Braintree and Mango Pay) ddand billing Systems.

EVCORE

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Electric Mobility
Service

EV Charging networks are long-term investment that require being cared and protected to take the most out of it.

Proper installation, maintenance and original spares availability are the basis to achieve our customers long term goals.
Efacec can maximise the uptime and life spam of its customers charging networks by providing the following services:
→ Installation and commissioning - Commissioning services to confirm proper handling, installation, operation and safety prior to making the stations publicly available.
→ Customer tailored Service Agreements (SA), according our customers' needs and long-term goals.
→ Training for users and maintenance crews.

→ Preventive Maintenance Plans guaranteeing that only the most qualified personals are taking care of your investment.
→ Repairs – factory repairs service and interventions
Technical support – remote support for monitoring
→ Extensions, retrofits and upgrades
→ Consulting – identifying opportunities to improve equipment performance
End of life services
→ Training
→ Spare parts

Commissioning   **Training**   **Service Level Agreement**   **Preventive Maintenance**

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Management System + User Interface

eHUB Digital Energy-Hub

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Smart Building with **Demand Side Management**

Micro-Wind Generation

Self-Sustainable Public Lighting

Photovoltaic Generation

Digital Substation + Storage System

EV Conductive Charging (DC & AC)

EV Inductive Charging (Wireless)

Electric Mobility

Flagship Projects

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Electric Mobility
Flagship Project

CREOS, Luxembourg

→ 88 ultra-fast charging stations spread over 19 stations, installed in the service areas .

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Electric Mobility
Flagship Project

Q8 petrol station, Netherlands

→ Efacec provided ultra fast and fast charging solution to Tango petrol station in Netherlands.

→ 2 HV175 + 1 QC45

→ [Media](#)

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Electric Mobility
Flagship Project

ARAL / BP, Germany

→ Ultra fast and public chargers to 6 BP/ARAL sites. Each site consists of 2 HV350 and 1 Public Charger.

→ 2 HV350 (CCS+CHAdeMO) + 1 Public Charger 22 kVA

→ Media

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Electric Mobility
Flagship Project

Allego / Shell, United Kingdom

→ Ultra fast and and fast chargers for Shell petrol stations in London. A newly developed and certified standard enables payment via EMV (Europay, Mastercard, Visa) with just a touch (NFC).

→ HV160 + QC45

→ Media

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Electric Mobility
Flagship Project

Porsche Mobile Station, Germany

→ Mobile Station consisting of a 20" adapted marine container with 2 HV350 and 1 QC45 with CHAdeMO, CCS-1 and AC22, including auxiliary intrusion, detection and fire fighting systems.

→ 2 HV350 + 1 QC45

→ Media

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Electric Mobility
Flagship Project

Transport for London / Siemens, United Kingdom

→ Fast chargers to charge the electric taxis in the United Kingdom

→ 33 QC45

→ Media

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Electric Mobility
Flagship Project

MOL Group, Hungary, Slovenia, Croatia

→ Fast and ultra fast chargers for key transport corridors..

→ 56 QC45 + 2 HV175

→ Media

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Electric Mobility
Flagship Project

EVCE Power, Azores, Portugal

→ Fast and normal chargers.

→ 16 QC45 + 16 Public Charger

→ Media

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Electric Mobility
Flagship Project

Mega E

→ **High power EV charging**

Infrastructure in Europe
- 322 ultra-fast charging stations
- 27 e-charging hubs

→ Media

Electrify America, USA

→ Ultra fast charging for the electric vehicle charging network across the USA

→ 300 HV350 / HV160

→ Media

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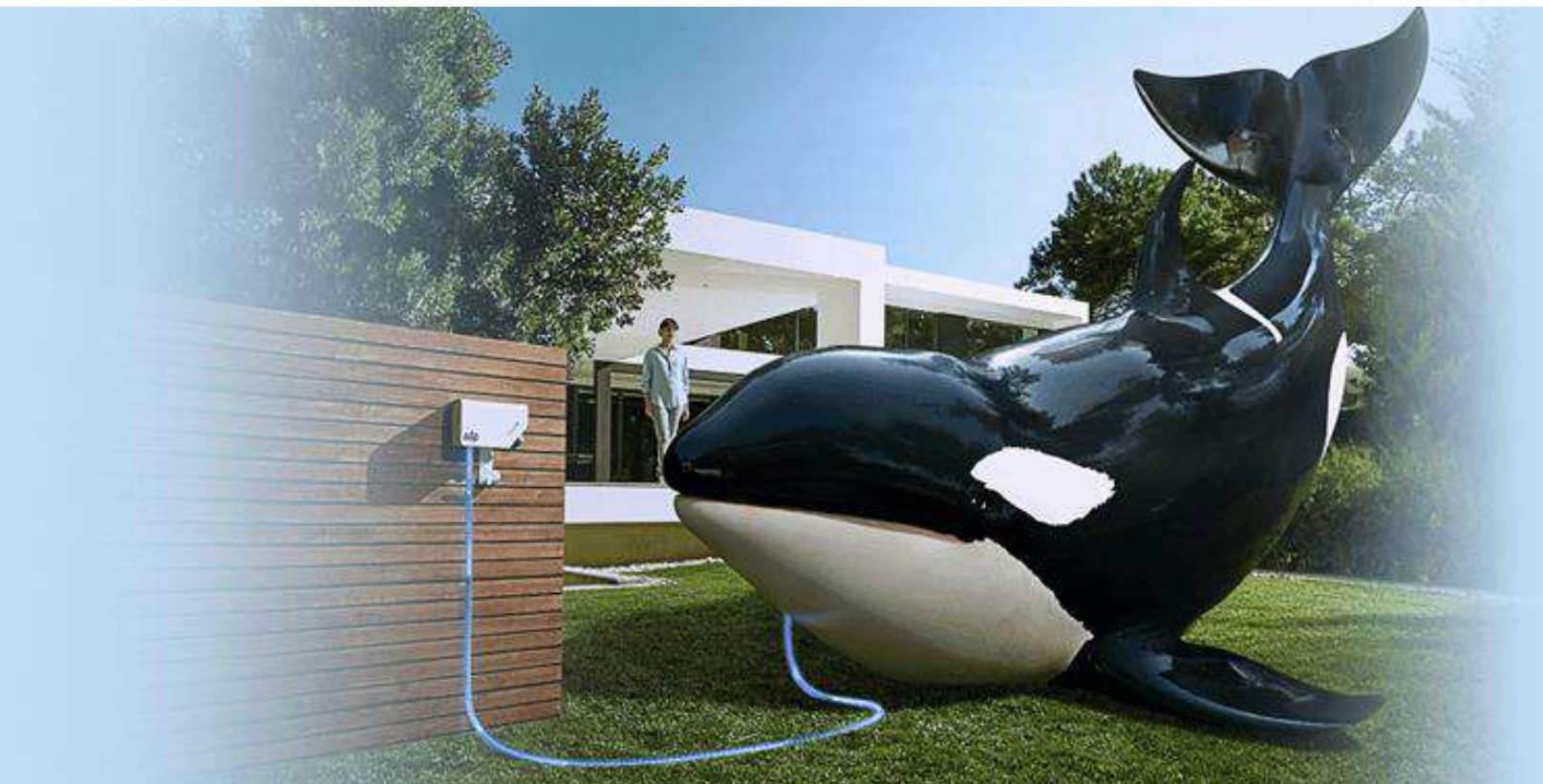
Electric Mobility
Flagship Project

EnBW, Germany

→ 95 quick chargers to be installed in the Baden-Württemberg region with some specific customizations namely, a credit cart payment terminal (CCV), easy access for users with reduced mobility, plug AC into the DC circuit and class B EMC

→ 95 QC45 (CHA+CCS+A22S)

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Electric Mobility
Flagship Project

EDP, Portugal

→ Partnership with EDP to supply Homechargers for homes and condominiums.

→ HC Re:dy | HC Movtz | MOVTZ Standalone

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Electric Mobility
Flagship Project

GALP and Nissan, Portugal

→ Galp and Nissan installed 20 new quick charging point for electric vehicles in Portugal

→ Public Charger + QC45

→ [Media](#)

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Electric Mobility
Flagship Project

LIDL, Portugal

→ Quick charging stations for Lidl supermarkets in Portugal

→ 59 QC45

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Electric Mobility
Flagship Project

FEWA, Dubai

→ Public Chargers and QC45 with CPMS Evcore system for installation and monitoring at several sites in the city of Dubai and surrounding areas.

→ 25 Public Charger 22 kVA + 7 QC45 + CPMS EVcore

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Electric Mobility
Flagship Project

Porsche

→ High power EV charging
  Ultra fast chargers for test and
  R&D centers

→ High power EV charging HV350

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Electric Mobility
Flagship Project

Portugal

Guimarães

→ Client: Municipality of Guimarães
→ Place of Installation: Central Bus Station, Portugal
→ Equipment: QC150B

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Electric Mobility
Flagship Project

Sweden

→ Client: Garo
→ Place of Installation: Ystad
→ Equipment: QC150B

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Electric Mobility
Flagship Project

Turkey

→ Client: TEMSA
→ Place of Installation: Turkey
→ Equipment: QC90B

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Electric Mobility
Flagship Project

USA

Livermore

→ Client: Gillig
→ Place of Installation: Livermore, USA
→ Equipment: QC90B

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Electric Mobility
Flagship Project

Thailand

→ Client: Polytechonology Co
→ Place of Installation: Thailand
→ Equipment: QC90B

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Electric Mobility
Flagship Project

Germany

→ Client: Porsche and IAV
→ Place of Installation: Germany
→ Equipment: QC150B

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Electric Mobility
Flagship Project

United Kingdom
London

→ Client: Siemens / Alexander Dennis / Transport
   For London
→ Place of Installation: London, United Kingdom
→ Equipment: QC40B

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Electric Mobility
Flagship Project

United Kingdom
London

→ Client:
→ Place of Installation: Bristol, United Kingdom
→ Equipment: QC40B

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