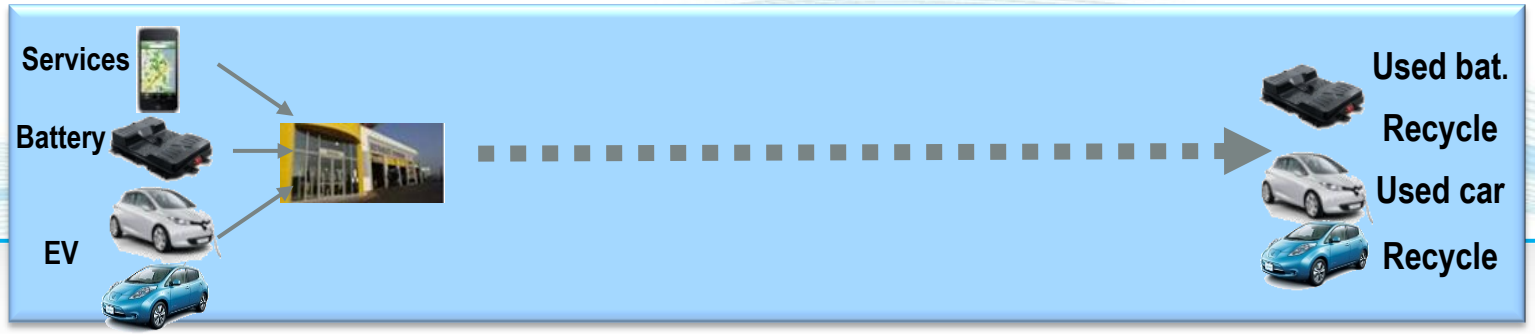
TOGETHER STRONGER

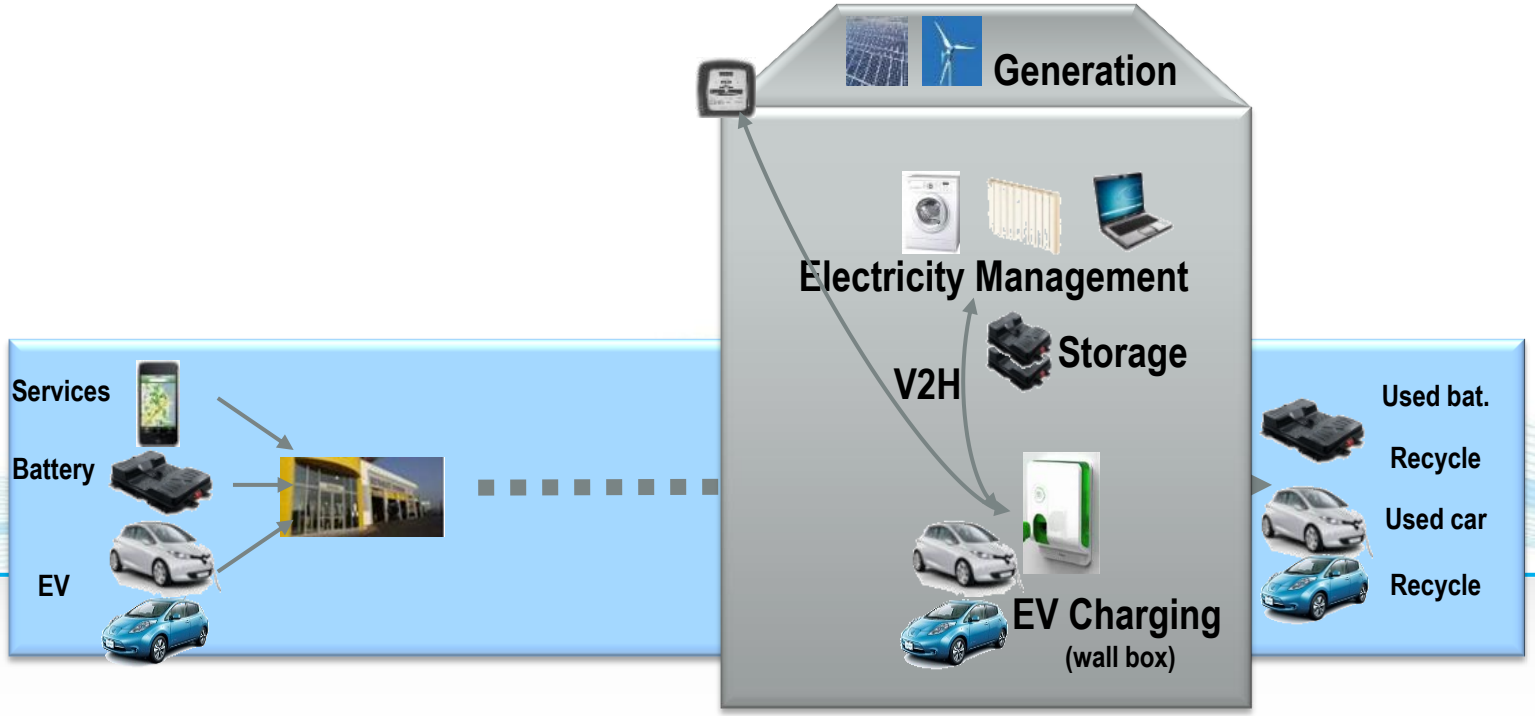
Renault-Nissan

EV for Energy Services

EV Ecosystem

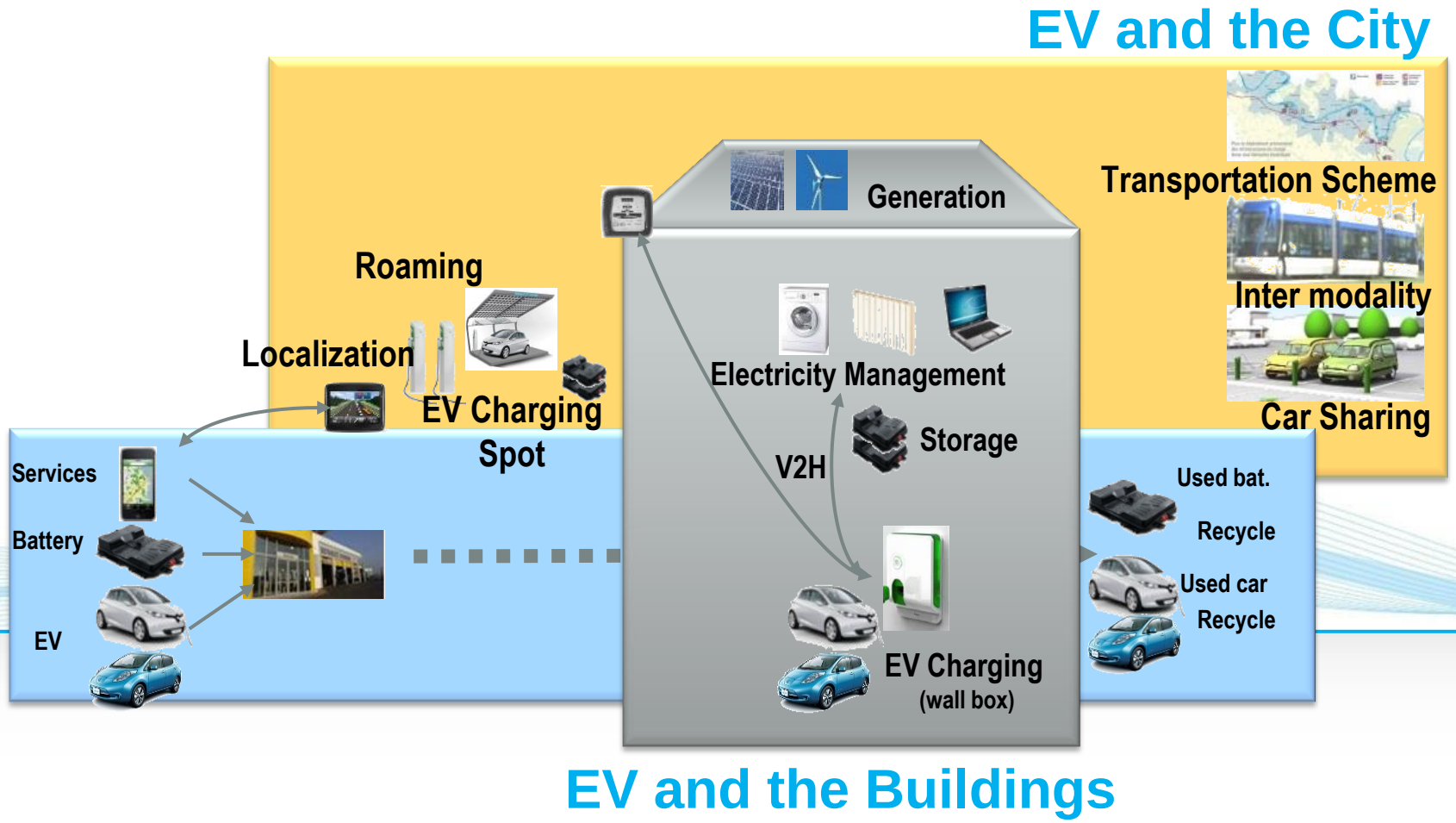


EV Ecosystem

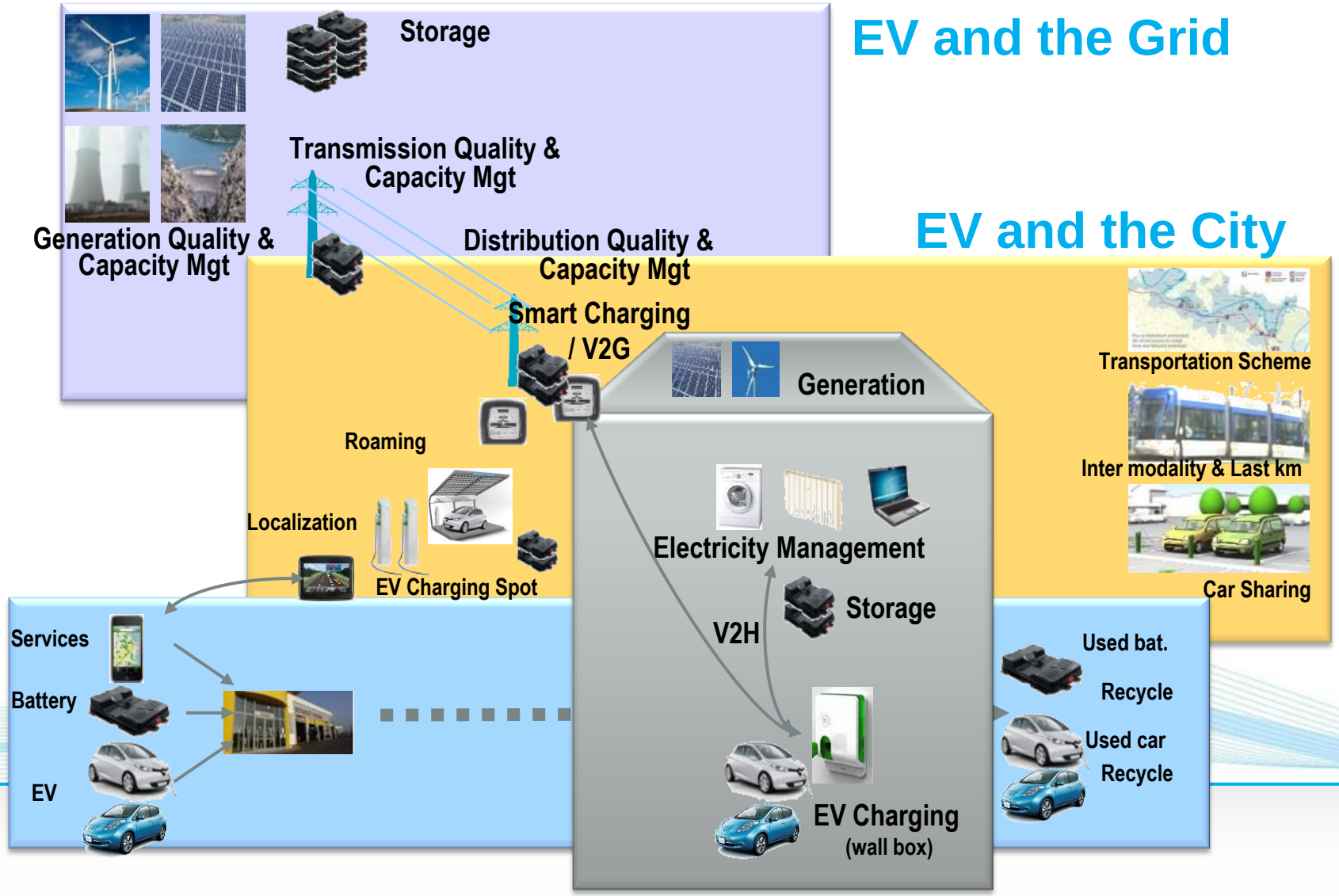


EV and the Buildings

EV Ecosystem

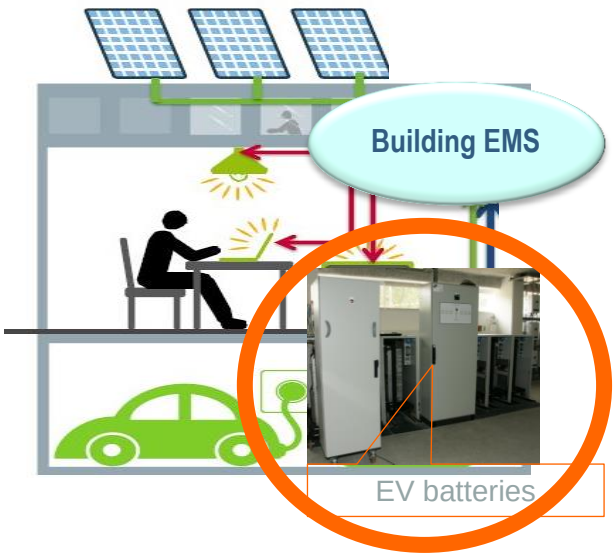


EV Ecosystem



Renault - Nissan main objectives

- **Integration of R-N EVs in**
  - Buildings
  - Districts
  - Grid
  - ➔ Smart Charging / V2G



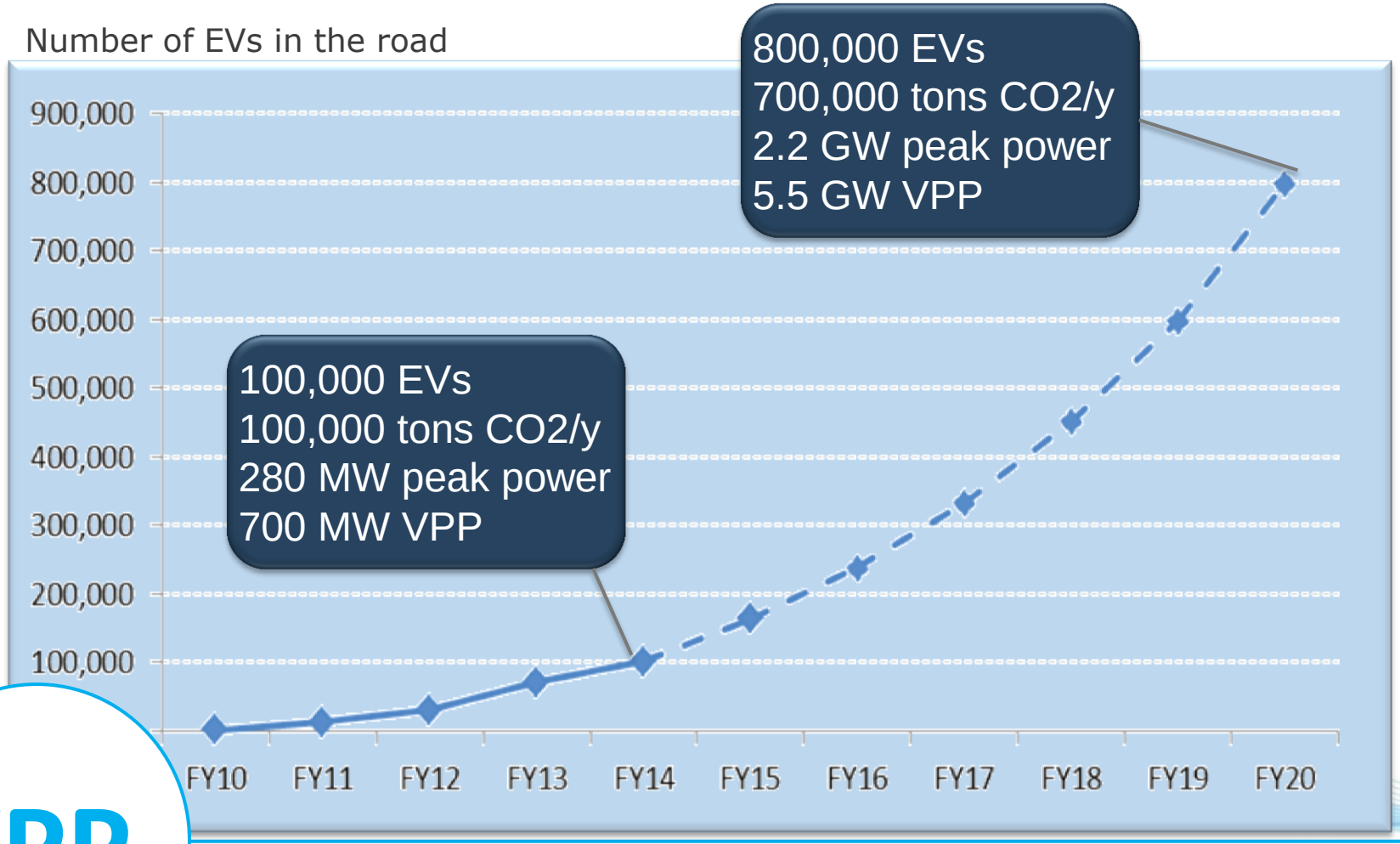
Technical solution

Using R-N EV batteries

- **Getting best values for EV batteries**
  - ➔ Co-developing storage solutions using R-N batteries


V2G
endesa
Enel
CONNECT HERE
V2G
VEHICLE 2 GRID

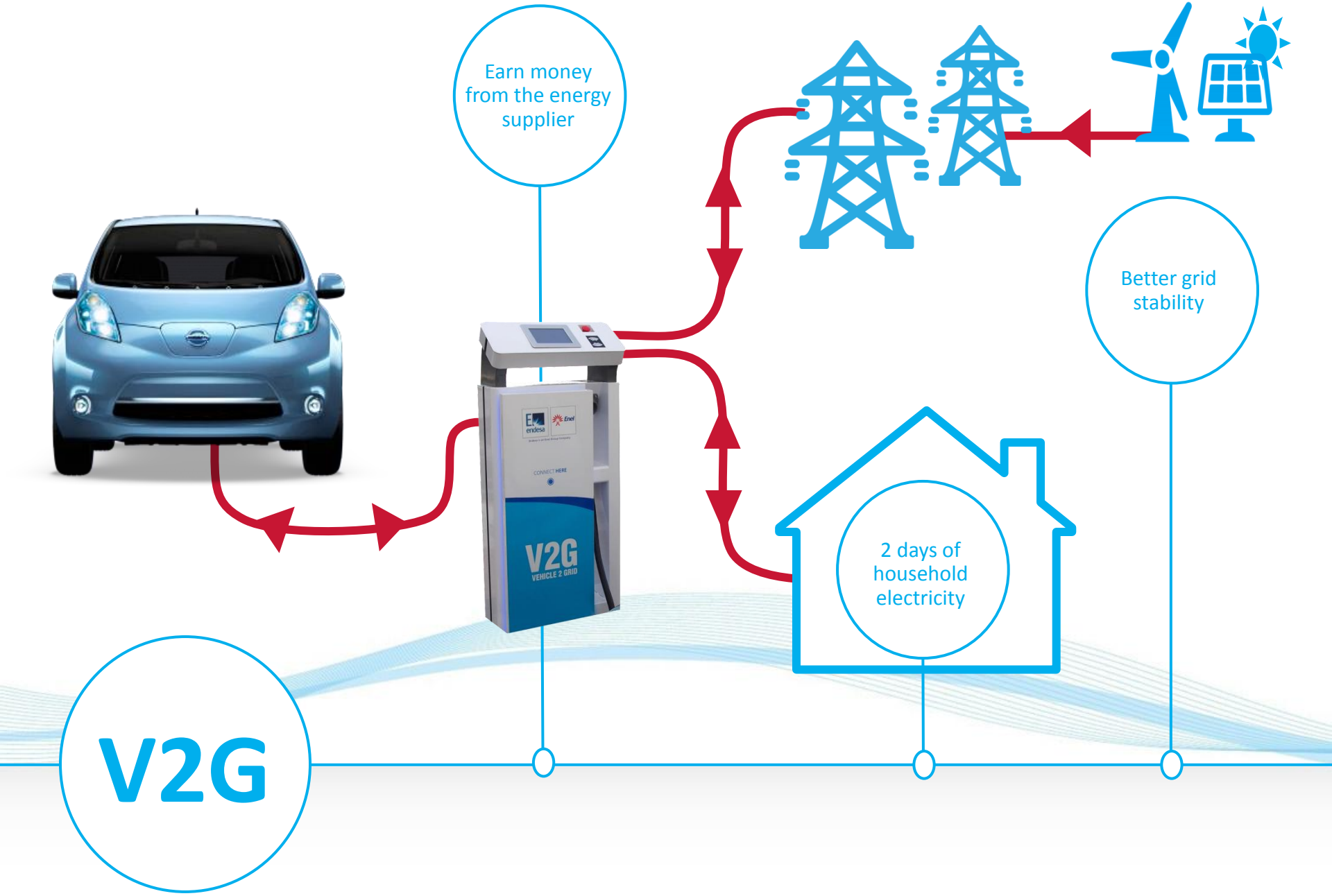
EV Impact in Electricity Grid



VPP

V2H

10%


Earn money from the energy supplier
Better grid stability
2 days of household electricity
V2G
V2G
VEHICLE 2 GRID
endesa
Enel
CONNECT HERE

FASTO V2G 10 OUTDOOR

Vehicle To Grid Solutions

Fasto V2G 10 is an electric vehicle charging and discharging equipment with 10kW DC power.

DESCRIPTION

Fasto V2G 10 outdoor bidirectional charging equipment is based on CHAdeMO protocol. It was designed to provide energy to the vehicle and supply energy to the grid or to a building, allowing to get benefits from different grid applications: Time shift, Power balancing and Power quality support. With **Fasto V2G 10 outdoor** you may store energy in your vehicle and use it later, getting benefits in terms of energy costs, CO2 optimization, autonomy, or demand profile faltering.

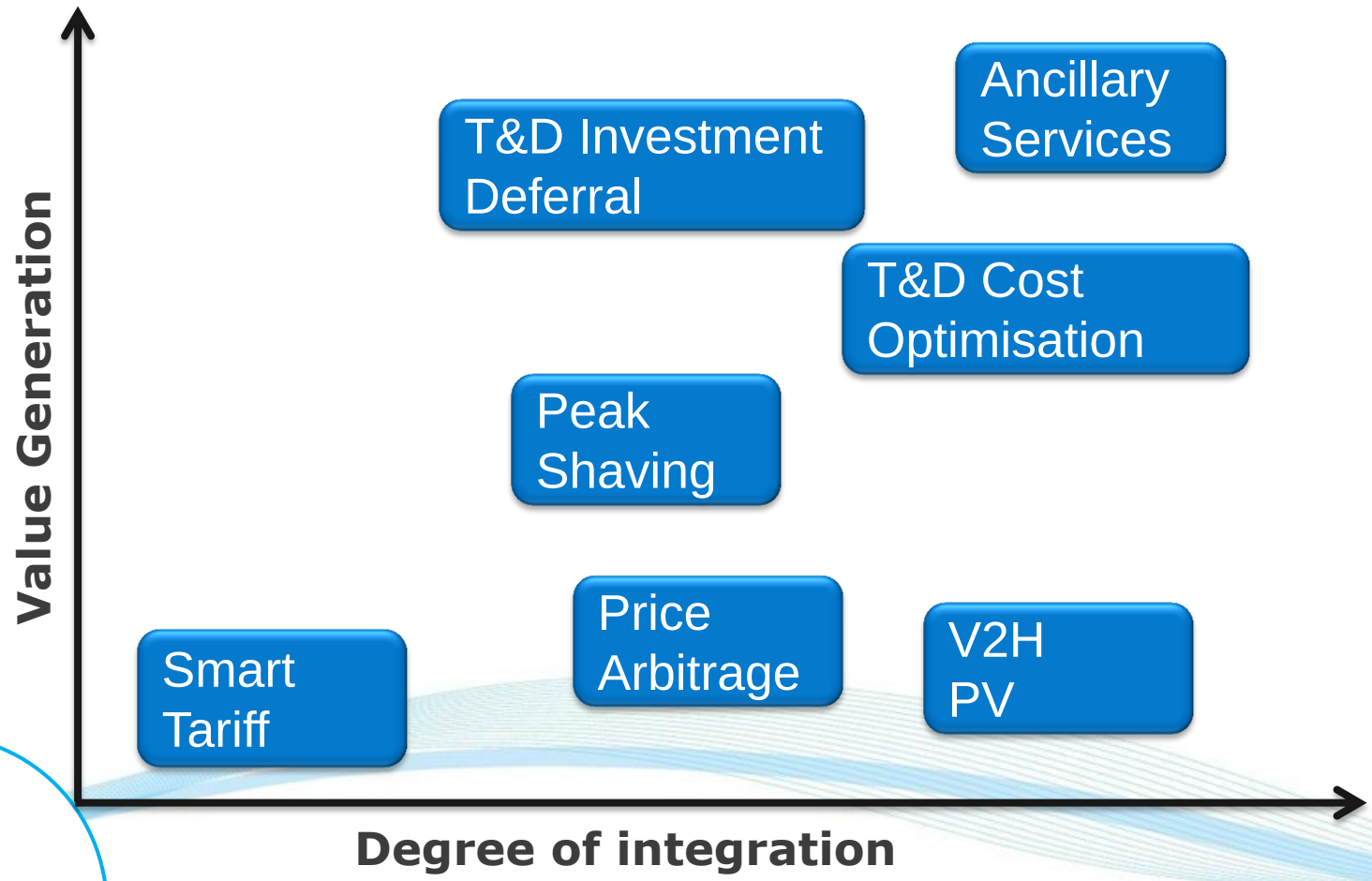
In addition the equipment has the possibility to be managed remotely and integrated into e-mobility backend or in-building control systems according to context and business model. All these features along with international standards compliance makes **V2G 10** an absolutely suitable product to any environment.

It is equipped with a full color touch screen that informs the user about the charging process and the status of the charger. Moreover, the enclosure can be customized to create a branded look.

Electric Vehicles and Virtual Power Plants

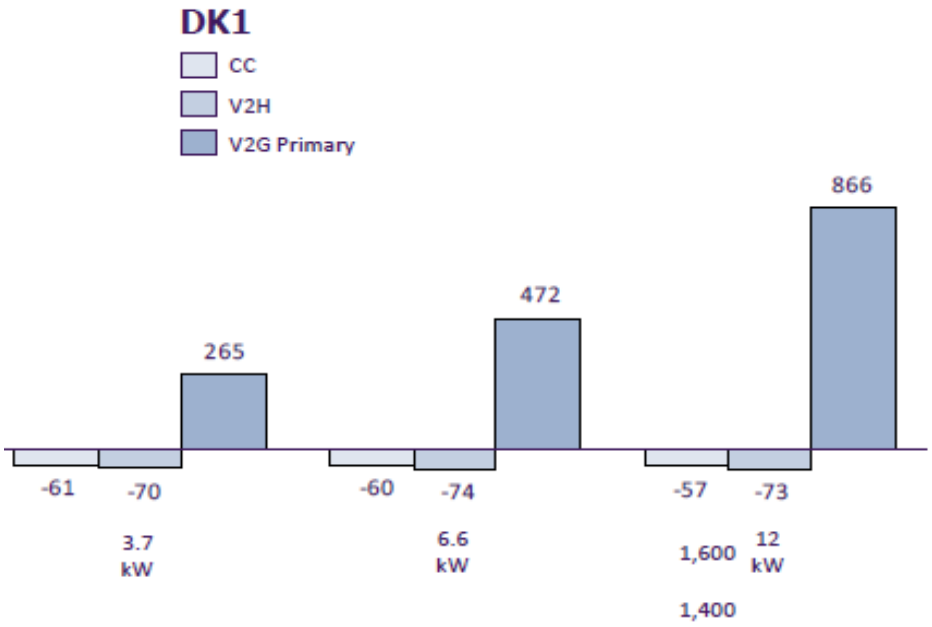
V2G

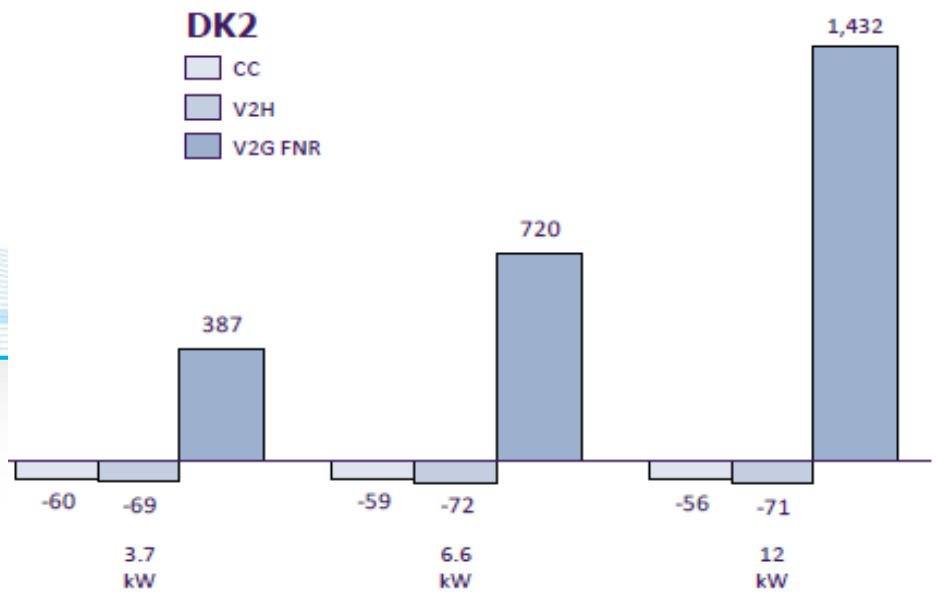
Value Generation Streams

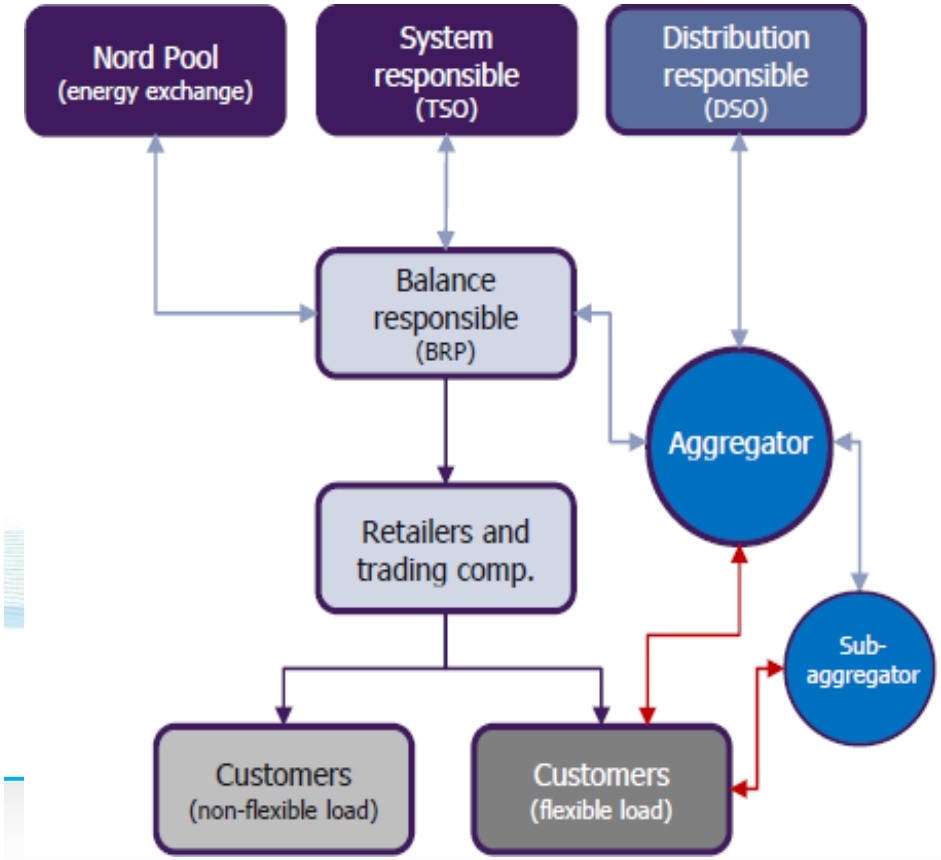


€?

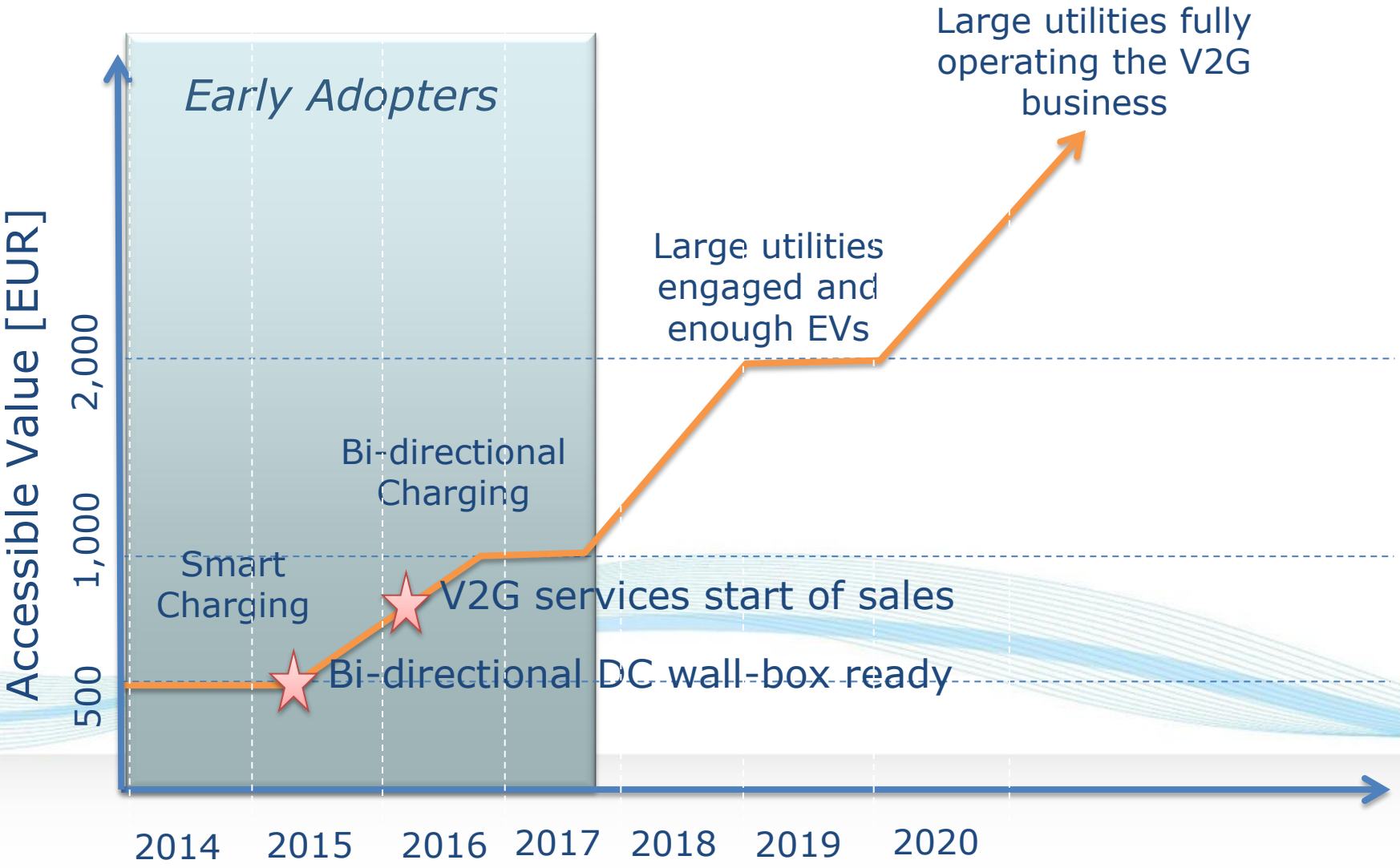
Annual 1,432 € earnings confirmed by INSERO E-MOBILITY

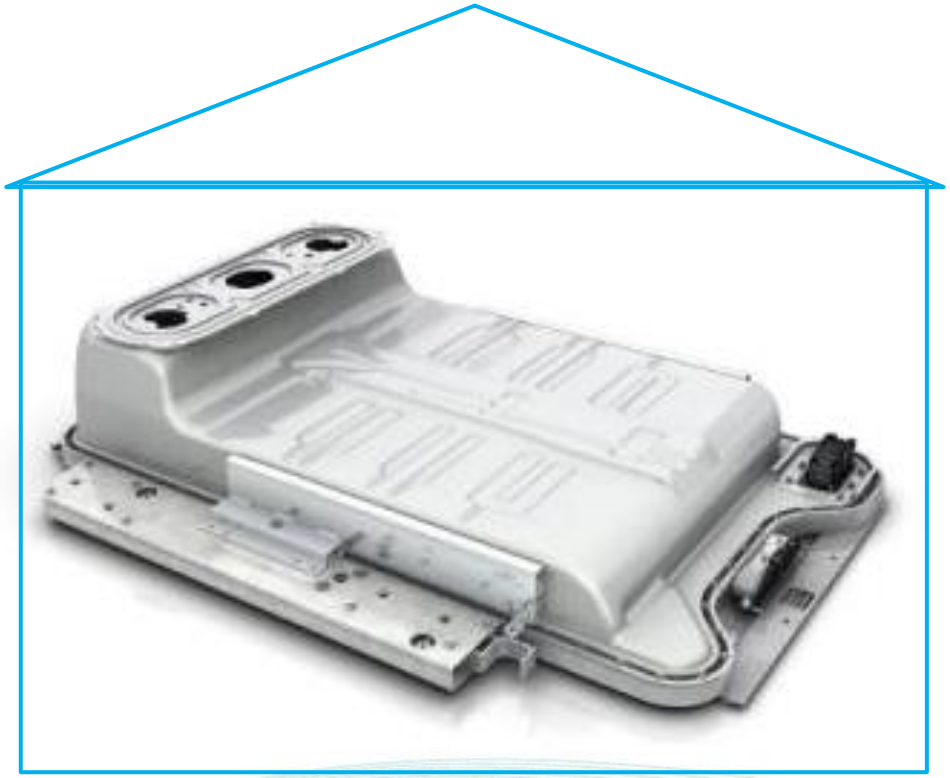






V2G development roadmap





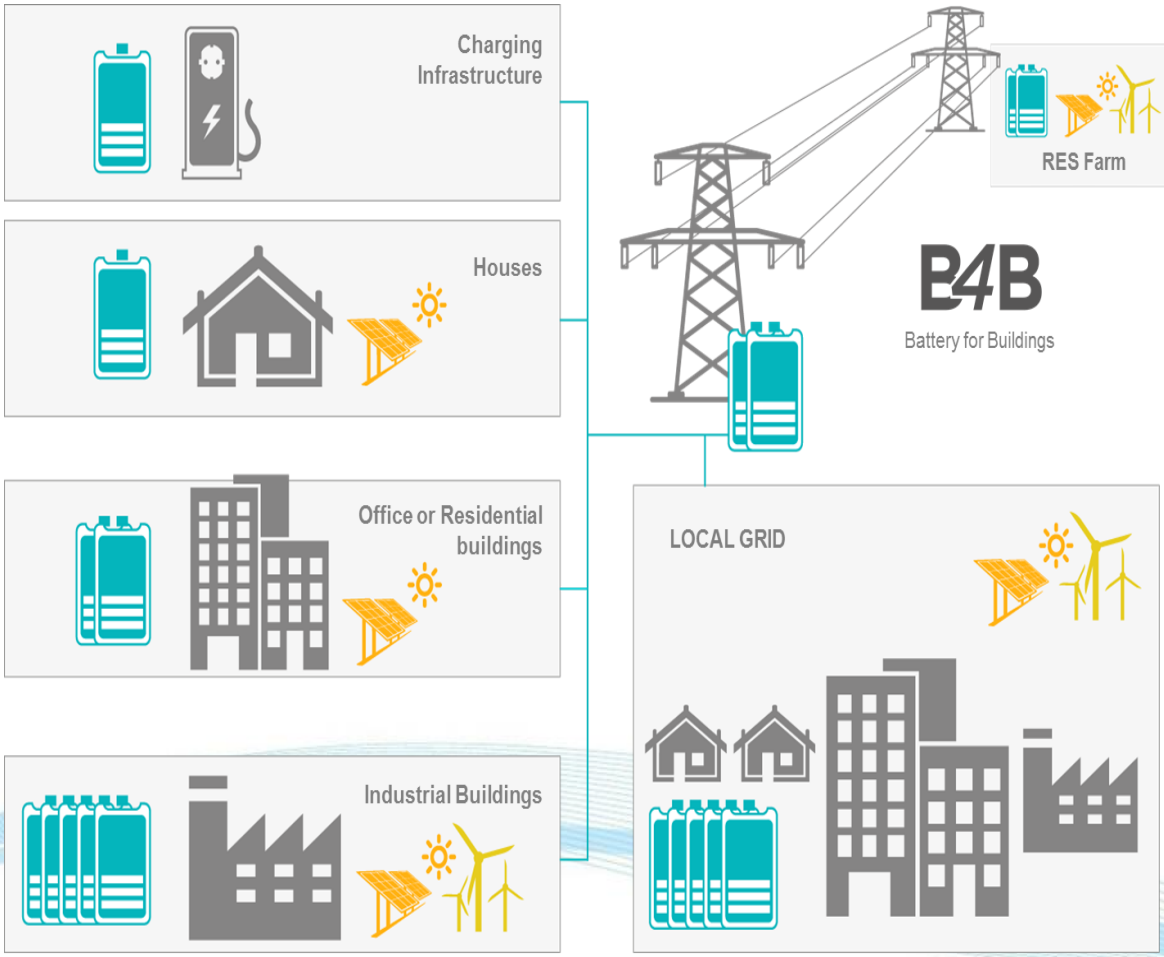
B4B

Renault – Nissan ~60 000 batteries

- **R-N owner of the most important stock of EV Batteries in the world (1st & 2nd Life)**

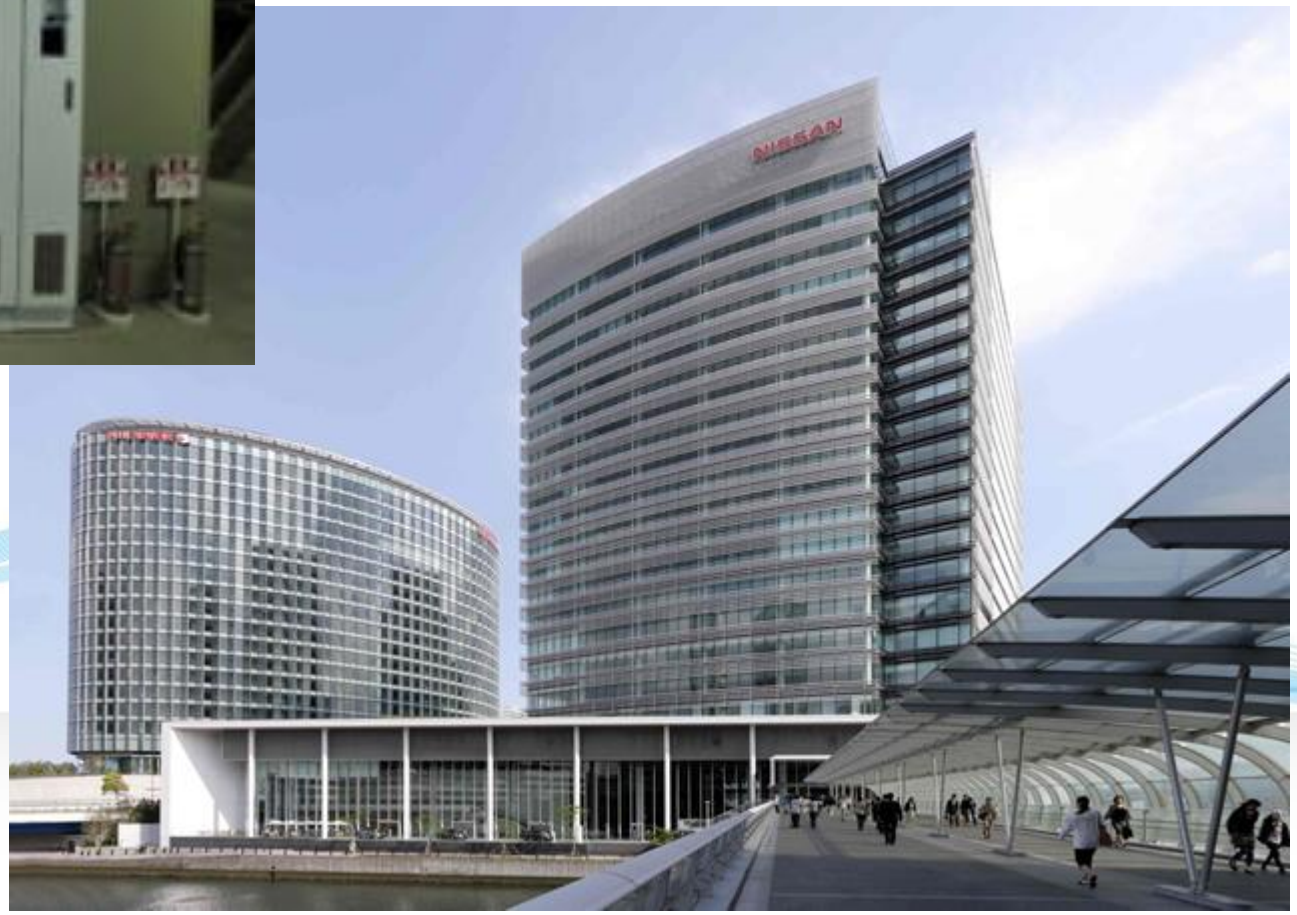
B4B

Batteries 2nd Life opportunities



B4B

Nissan head quarters (PV + Bat.)



Smart Solabo

Osaka container

The First Large scale system : Leaf used 24 Packs = 400kWh

- Used Battery recovered from Taxi as it is
- Multi-Channel BMS
- Used Battery Variability Control
- Solar Power (1MW) Fluctuation mitigation

1MW Mega solar

12 Packs / Container

B4B project (Batteries for Buildings)

Challenger Building

- Bouygues Construction HQ; 3,200 employees; 60,000 m²
- Energy consumption reduced by 10 (310 kWh/m²/y to 31 kWh/m²/y) thanks to new insulation, geothermal systems, solar farm (25,000 m²; 1,992 MWh/y)

6 batteries from Kangoo (Zoe, Leaf, NV200 in future)
Storage capacity: 66 kWh (if 2nd life) – 144 kWh (if new)
Specs: 400 V, 3 ph, 50 Hz
Input power: 18 kW Output power: 72 kW
Scalable system


BOUYGUES

The main challenge is to reduce / eliminate barriers for feeding energy back to the grid

Influencing Groups	Influencers	Area of influence
Regulators	French Energy Regulatory Commission (CRE) Ofgem Bundesnetzagentur ACM	• Approval to **feed electricity back to the grid** (similar to PV) • Metering and high voltage safety rules
Transmission System Operators	Le réseau de l'intelligence électrique (RtE) National Grid Tennet, Amprion, 50Hertz, Transnet BW Tennet	• Stationary assets prequalification • Rules on reserve power – the market to bid with vehicle swarms
Distribution System Operators	Competitive market (e.g. 900+ DSOs in Germany)	• Balance group management, metering and special grid tariffs for EVs

Thanks for you attention