

## What users want

With the spread of public and private electric mobility, there is a growing need for **Energy Management Systems (EMS)** for the recharging of vehicle fleets inside parks, capable of **modulating the charging power** of each vehicle to ensure:

- **The management of peak loads to optimize the energy costs of recharges**
- **The balance of charges based on user-customizable priority criteria to cope with limited power availability**

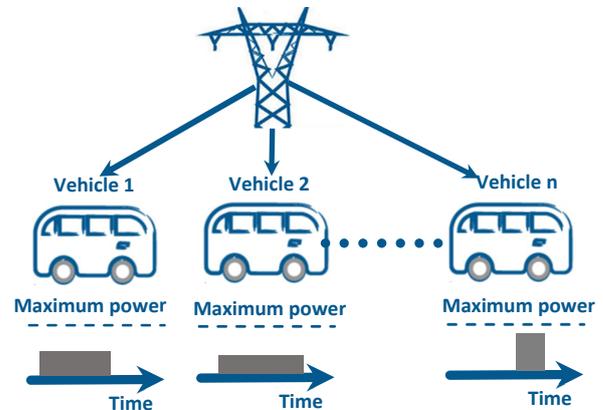
## How standard EMS work

Standard EMS perform a **static modulation**, "spreading" the recharge of each vehicle on the available time window, thanks to the use of power values lower than the maximum usable

### PROBLEM

*The power profile for each vehicle is fixed on the basis of predetermined characteristic curves which do not take into account the real efficiency performance of the specific charger/battery set, with consequent energy waste*

### TRADITIONAL STATIC MODULATION

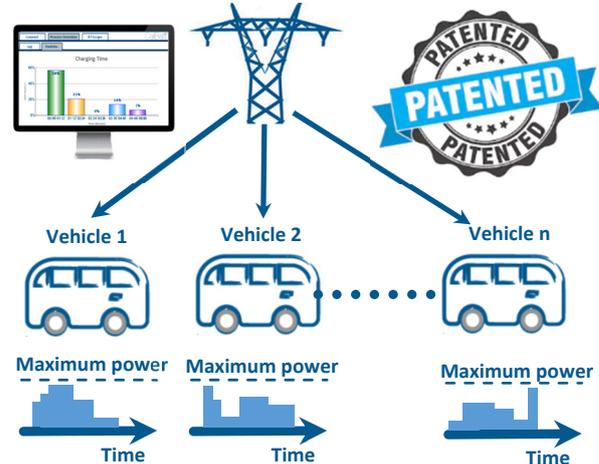


## MaeStor: the revolutionary EMS

MaeStor is the EMS based on the **patented CalBatt technology** for the **characterization and real-time prediction** of the efficiency performance of each specific charger/battery set. Thanks to this unique feature, MaeStor is able to perform a **"what-if"** analysis to determine the instantaneous efficiency related to each admissible charge power value, and consequently perform an optimized dynamic modulation of the charging power for each vehicle in the fleet.

*This allows to obtain "tailor-made" recharging profiles that guarantee the real cost optimization every day, while respecting all the user constraints*

### CALBATT DYNAMIC MODULATION



Patents EP2709202, EP2746797 e US201314029304

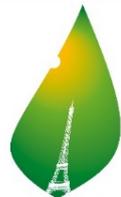
## Unique benefits

- **Optimum balance of charges:** optimized combination, from the point of view of energy costs, of the priority criteria set by the user (charging time, required autonomy at the departure, variable energy tariffs, production profiles of renewables)
- **Predictive maintenance:** accurate predictions regarding the degradation of batteries and charging stations
- **Flexible:** it can be integrated into any type of architecture (SCADA, etc.) and with different communication protocols
- **Scalable:** able to adapt the optimization algorithm to changing operating conditions (new vehicles, changes in electricity tariffs, installation of photovoltaic panels, installation of storage systems as an additional energy reserve, etc.)

### CalBatt

CalBatt technology was born in internationally recognized labs of University of Calabria. Since its beginning, the Company has always been fully committed to R&D, receiving several awards for its innovation:

- **2013:** Enel validates on-field and awards CalBatt technology
- **2014:** CalBatt is in the top 10 most innovative companies at Munich Cleantech Conference
- **2015:** CalBatt is recognized as one of the Italian excellence in green technology presented at COP 21 Paris Conference
- **2016:** CalBatt receives from European Commission the "Seal of Excellence" reserved for Companies with most innovative technologies in the world
- **2017:** CalBatt launches its technology for the industrial e-mobility market, rapidly becoming the benchmark for energy efficiency and collaborating with international Energy Service Companies to bring efficiency in e-mobility
- **2018,** CalBatt starts strategic partnerships for smart electric vehicle charging infrastructures



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