City of Utrecht

POLIS25
ANNUAL CONFERENCE
26-27 November 2025
Royal Jaarbeurs | Utrecht, Netherlands

Work smarter, not harder: Charging ahead with green energy for shared eLCVs in Barcelona

📌 **Thursday, 27 November 2025**
⏱️ **09:00 - 11:15**

SESSION 4F

FROM PILOT TO POLICY: SCALING URBAN FREIGHT INNOVATIONS

SPEAKERS

Àngel López, Barcelona City Council
Bruno Flinois, Clem'

FLEXEV

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Context: from TACTIC to ARIA

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TACTIC (2024): Tools for locAl Commerce logisTICs (2024)

tactic

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FACTUAL

Clem ENERGY ON THE ROAD.

Ajuntament de Barcelona

Métropole du Grand Paris

hermeneus WORLD

VANaPEDAL Green innovation since 2010

ARIA (2025): Advanced chaRging Infrastructure for the decArbonisation of urban mobility

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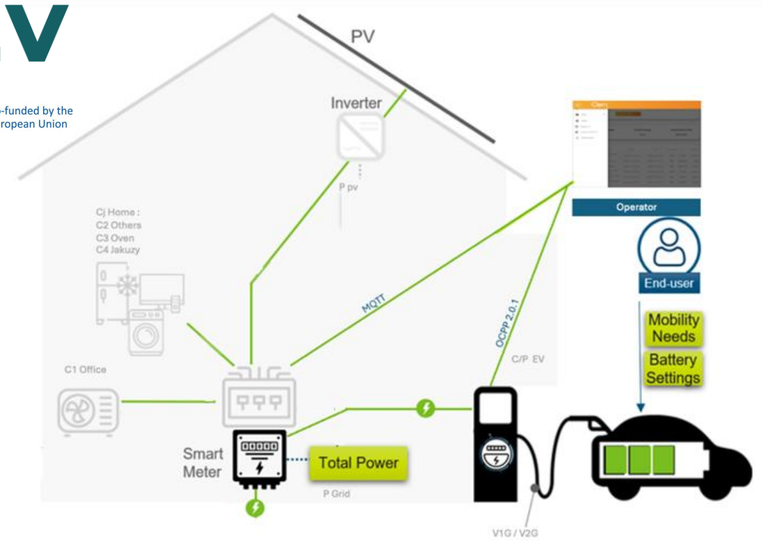

Clem ENERGY ON THE ROAD.

GoodMoovs.com

FACTUAL

Ajuntament de Barcelona

venlo

citydev .brussels

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How ARIA supports the electrification of Urban Freight

The challenge

1. Need for **more efficient** energy demand/supply management in urban mobility.

2. Pairing **EV adoption with energy microgrid management** to enhance system resilience, particularly during periods of low renewable energy generation or power outages.

Market needs

1. Growing expectations for **sustainable mobility solutions**

2. Driving the shift to **electric last-mile logistics** as cities enforce stricter LEZ regulations.

3. Companies seek cost effective alternatives to traditional diesel vans

4. Expansion of charging infrastructure connected to the microgrid

5. **Consumer shift** towards environmental and sustainable choices

Mission cities' challenges

Thanks to smart technology and V1G, **new business models** are emerging that leverage solar energy management and off-peak electricity pricing.

The implementation of **smart technologies,** such as AI and demand response systems, is necessary to **optimise charging times** on microgrids.

Effective **off-peak/solar charging solutions** require close collaboration between cities and technical partners in mobility and the energy market.

ARIA's FlexEV Smart Charging Solution

FLEXEV

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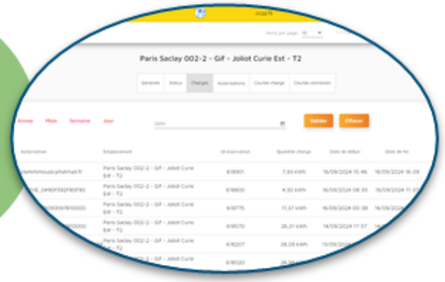
Shared mobility operations: Efficient operation of eLCVs for shared use by local businesses LSPs, and residents.
Real-time metering & analytics: Vehicles with IoT devices for tracking, booking, and usage analysis.
User platform: Mobile app and web interface for booking, managing reservations, and accessing vehicle status.

eLCV car-sharing

Charging stations: AC 7 kW and potential V2G AC 11 kW charging points in key locations (markets, parking lots).

V1G & V2G capabilities: V1G in Brussels/Barcelona and V2G in Venlo, exploring energy return to the microgrid.

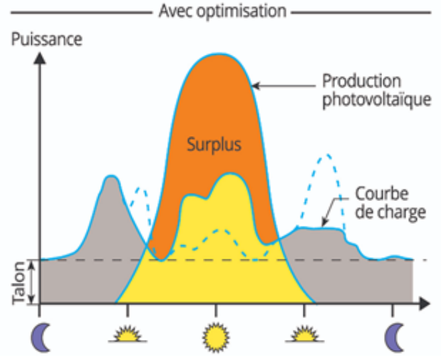
Advanced energy management

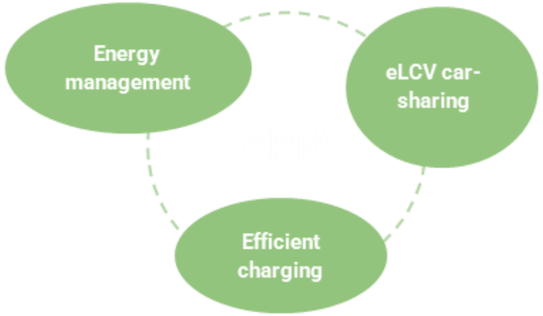


Machine learning optimisation: Adapts vehicle usage to energy constraints, optimising energy consumption and supply balance.

Smart charging: AI-supported system adjusts charging times and rates based on real-time energy availability, demand, and price signals.

Smart & cheaper charging





Why this technology:

- **lower costs of exploitation.**
- **higher revenues on the energy transition investment**

ARIA's FlexEV CPO & HEMS together in one seamless solution

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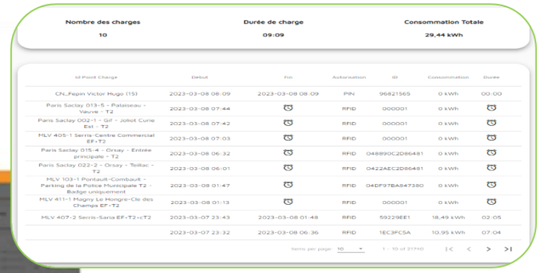
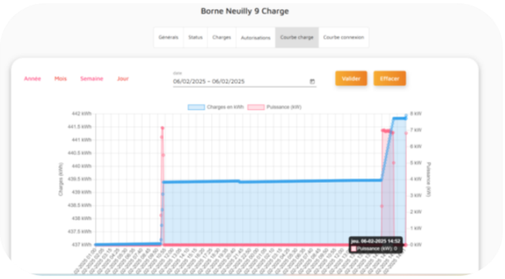
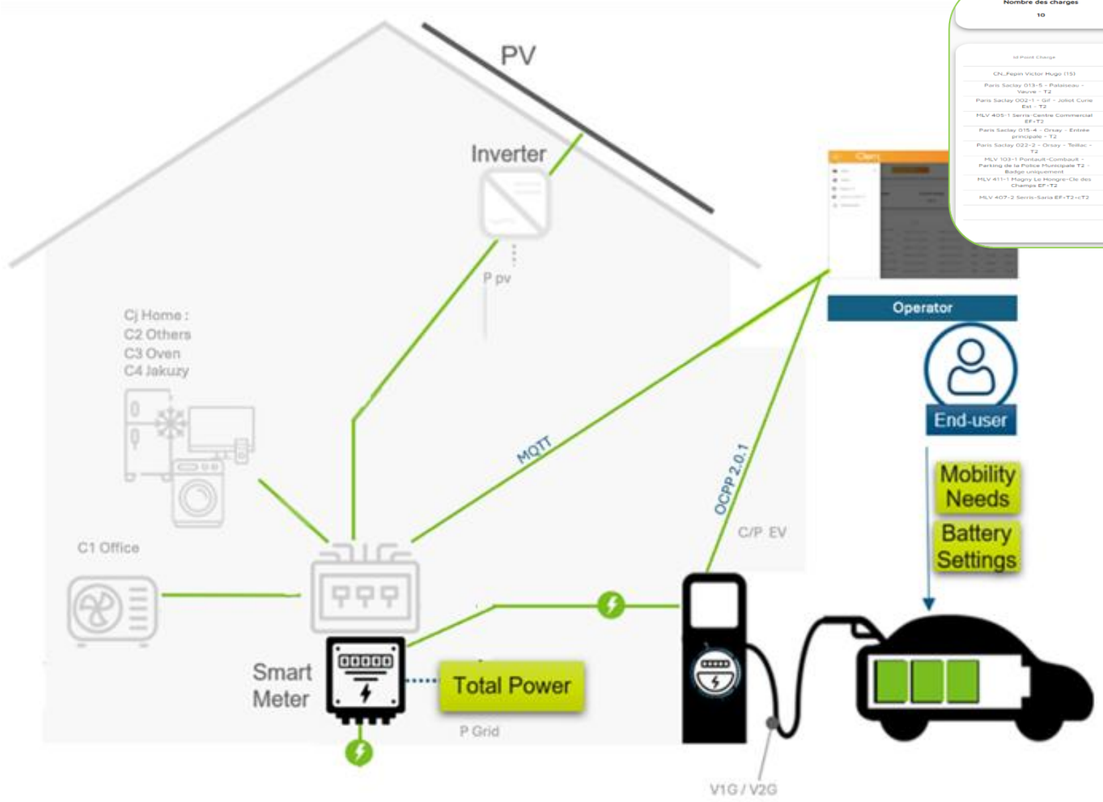
Infrastructure supervision platform



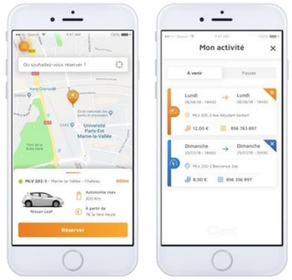
Energy Management Platform



Cost & Load Optimiser Dashboard



End-user platform



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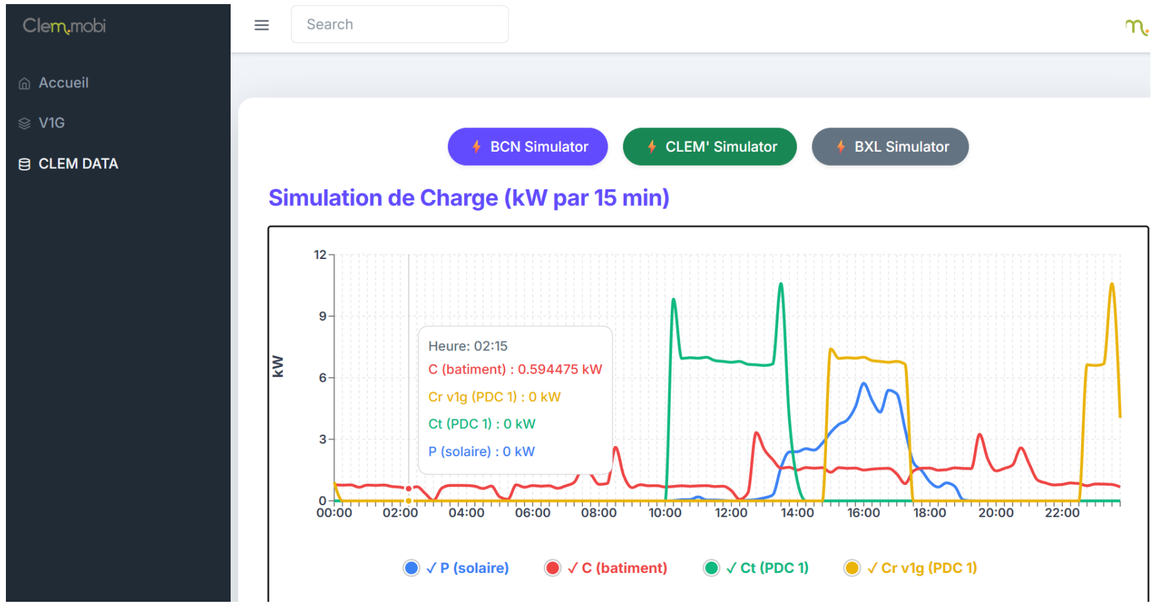
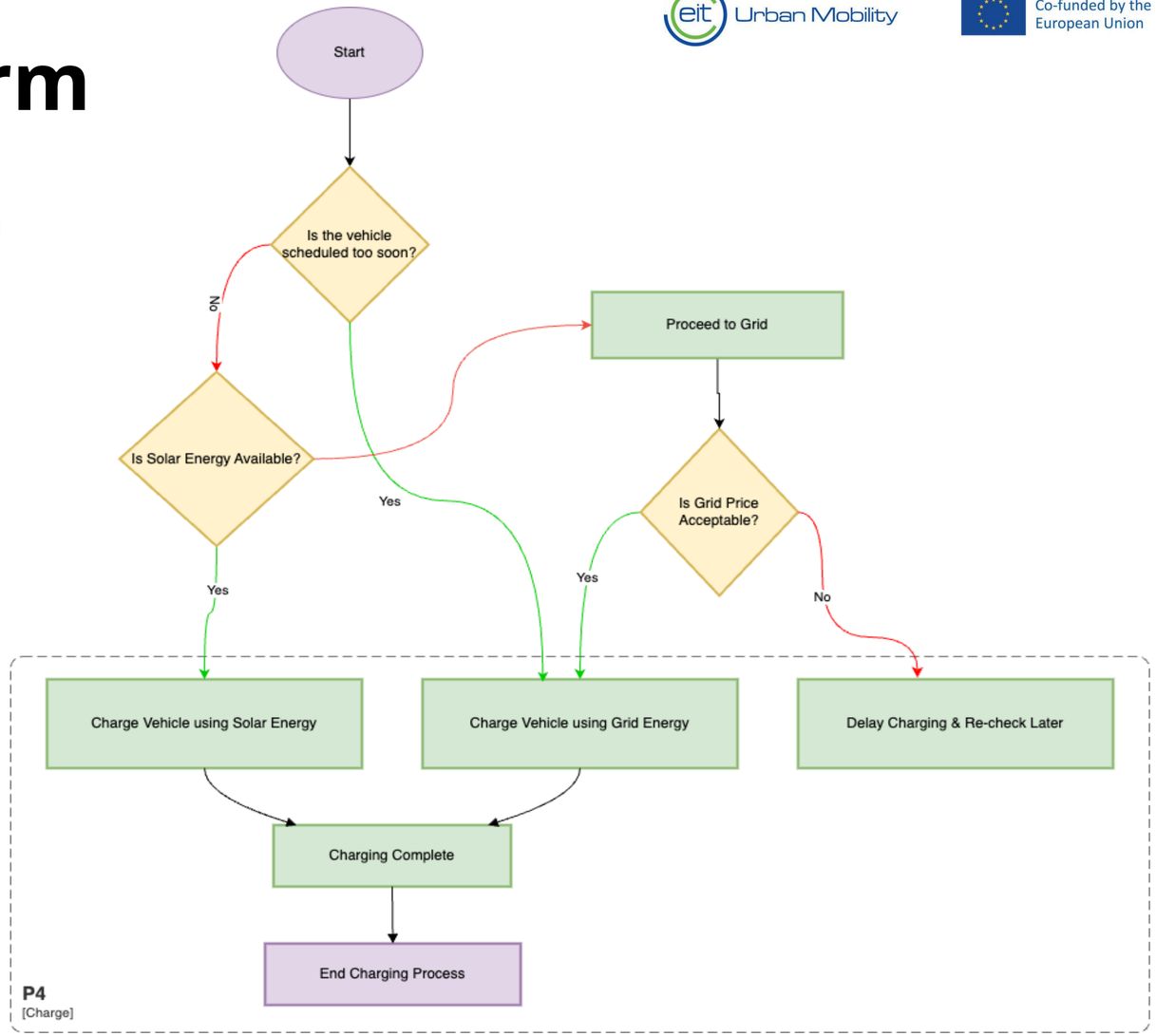
How does FlexEV work?
Energy Management Platform

Smart-powered energy management system based on a self-optimising algorithm that **autonomously plans the charging of eLCVs when electricity prices are low and solar production is high.** It ensures that charging is not only efficient and economical but also environmentally friendly.





How does FlexEV work?
Cost Savings Dashboard

The tool presents the **savings and net capacity optimisation supported by FlexEV through a cost reduction algorithm**, which is a powerful cost analysis engine designed to evaluate the full spectrum of energy costs and optimise accordingly.

E-STATION

2 ALGORITHM PROFIT

CHARGING COST

-

SMART CHARGING COST

=

PROFIT A

SUBSCRIPTION AND INVESTMENTS
FOR CHARGING COST (INCREASE WITH EV ENHANCEMENT)

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SUBSCRIPTION AND INVESTMENTS
FOR SMART CHARGING COST (INCREASE WITH EV ENHANCEMENT)

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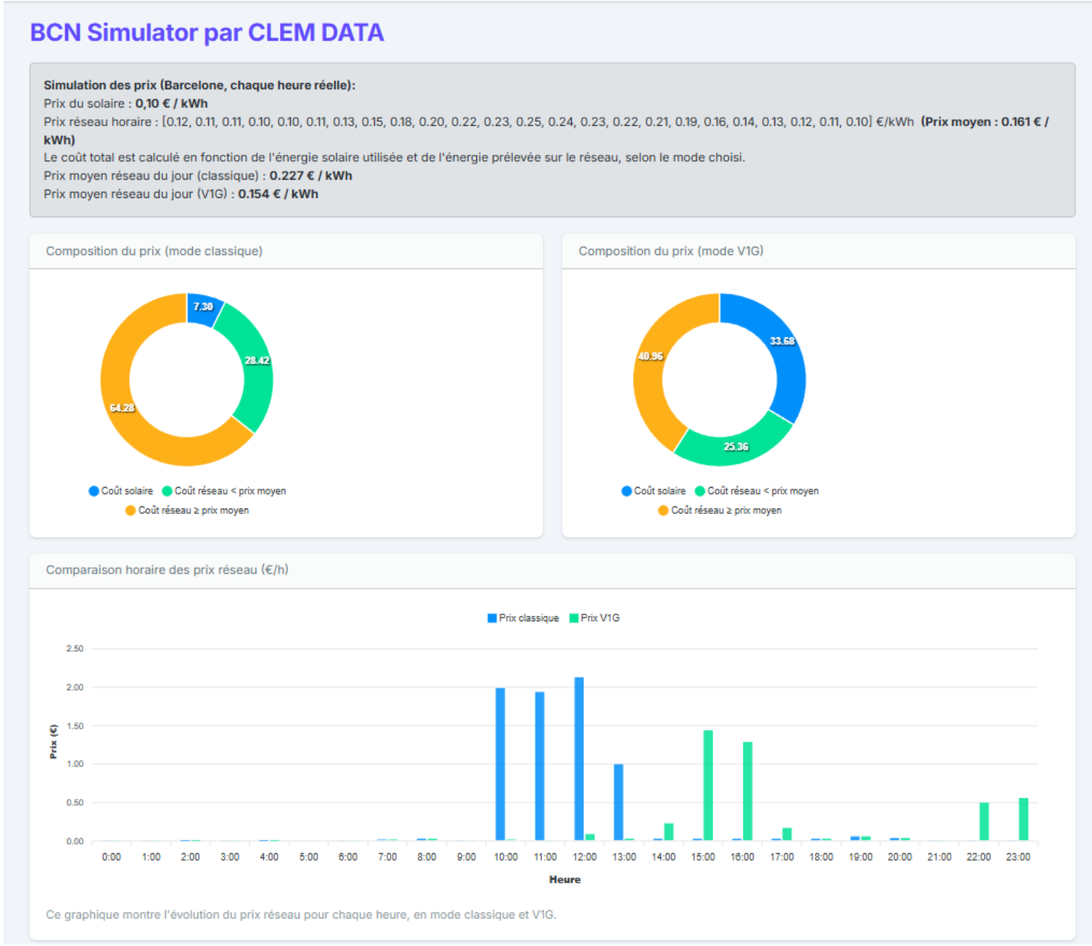
PROFIT B



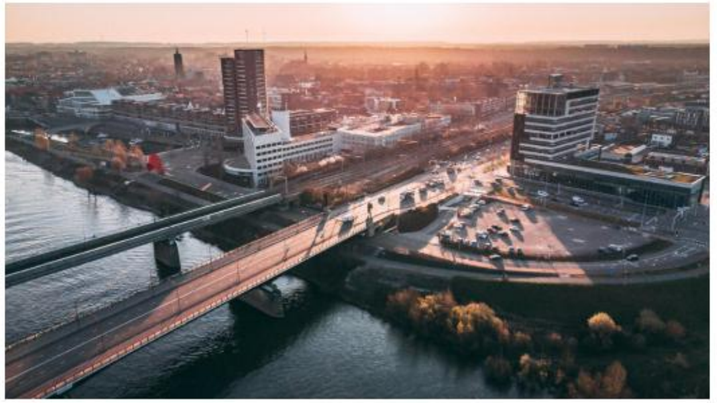
ARIA Pilot cities for FlexEV

BARCELONA - MERCAT DE PROVENÇALS

End users: Local market stall vendors

Functionalities:

- 1 shared electric van
- 2 charging points with V1G capability
- Charging station directly connected to solar production API
- Clem's user-friendly app with FLEXEV



VENLO CITY COUNCIL

End users: Employees of the Municipality

Functionalities:

- 12 shared electric vans
- V1G capable charging station
- GoodMoovs' user-friendly app with FLEXEV

BRUSSELS - ANDERLECHT BUSINESS PARK

End users: local companies in the business park area

Functionalities:

- 1 shared electric van
- 2 charging points with V1G capability connected to real time solar production API
- Clem's user-friendly app with FLEXEV

Spotlight on Barcelona & FlexEV

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BARCELONA - MERCAT DE PROVENÇALS

End users: Local market stall vendors

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- **1 shared electric van**
- **2 charging points with V1G capability**
- **Charging station directly connected to solar production API**
- **Clem's user-friendly app with FLEXEV**

Ajuntament de Barcelona

MERCAT DE PROVENÇALS

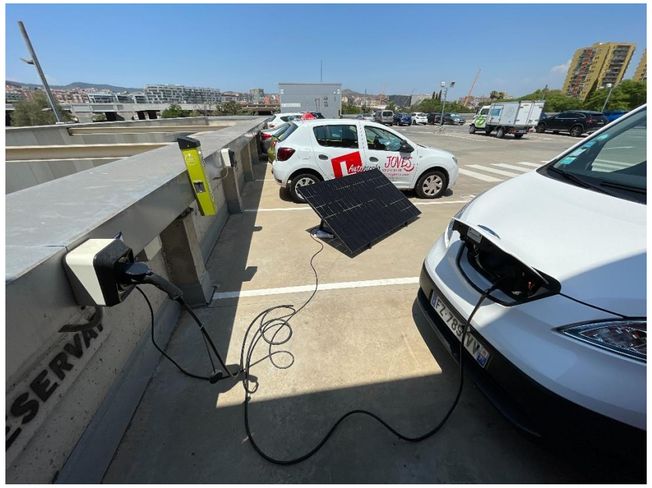
FACTUAL Clem

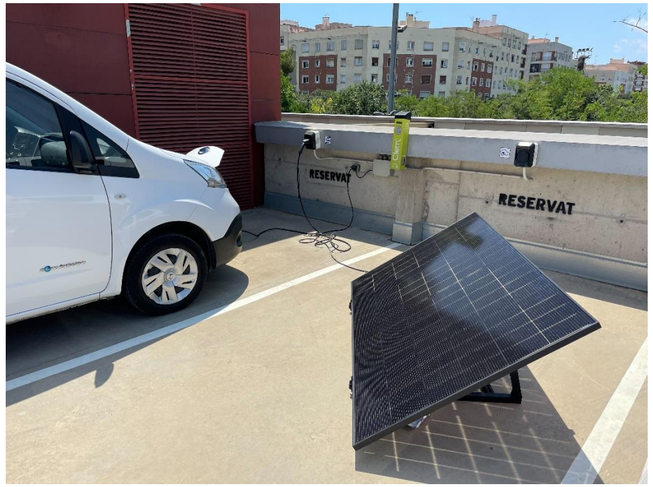
KEY STATS

>50 V1G charging sessions

30% estimated charging cost savings

B2B regular users of the Mercat





Lessons learned from the Barcelona Pilot

Charging with the FlexEV algorithm will bring:

- more than 30% on charging cost savings, thanks to solar and off-peak prices

- 35% on peak shavings, shifting from charging priority to building consumption priority

Today, the Mercat de Provençals car park has 120 spaces and no chargers and welcomes only one or two EVs a day. By 2035, it will need to supply 120 EVs to meet European expectations: peak of 840 kW!
FlexEV can make this transition both technically feasible and financially acceptable for property owners, Mercat de Provençals as an example

For the Logistic operators:

Optimization of the logistic routes.

Reduction of delivery costs.

Aggregation of the demand.

For the City:

Create liveable urban spaces.

Improving of air quality.

Reduction of congestion.

For the Commerce and local markets:

Digitalisation and modernisation.

Real time delivery services.

Flexibility and green delivery solutions.

For the User:

Real time responsive service.

Flexibility.

Increase accessibility to local and high quality products.

Thank you for your attention!

For more information:

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CITIES AND REGIONS FOR TRANSPORT INNOVATION

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