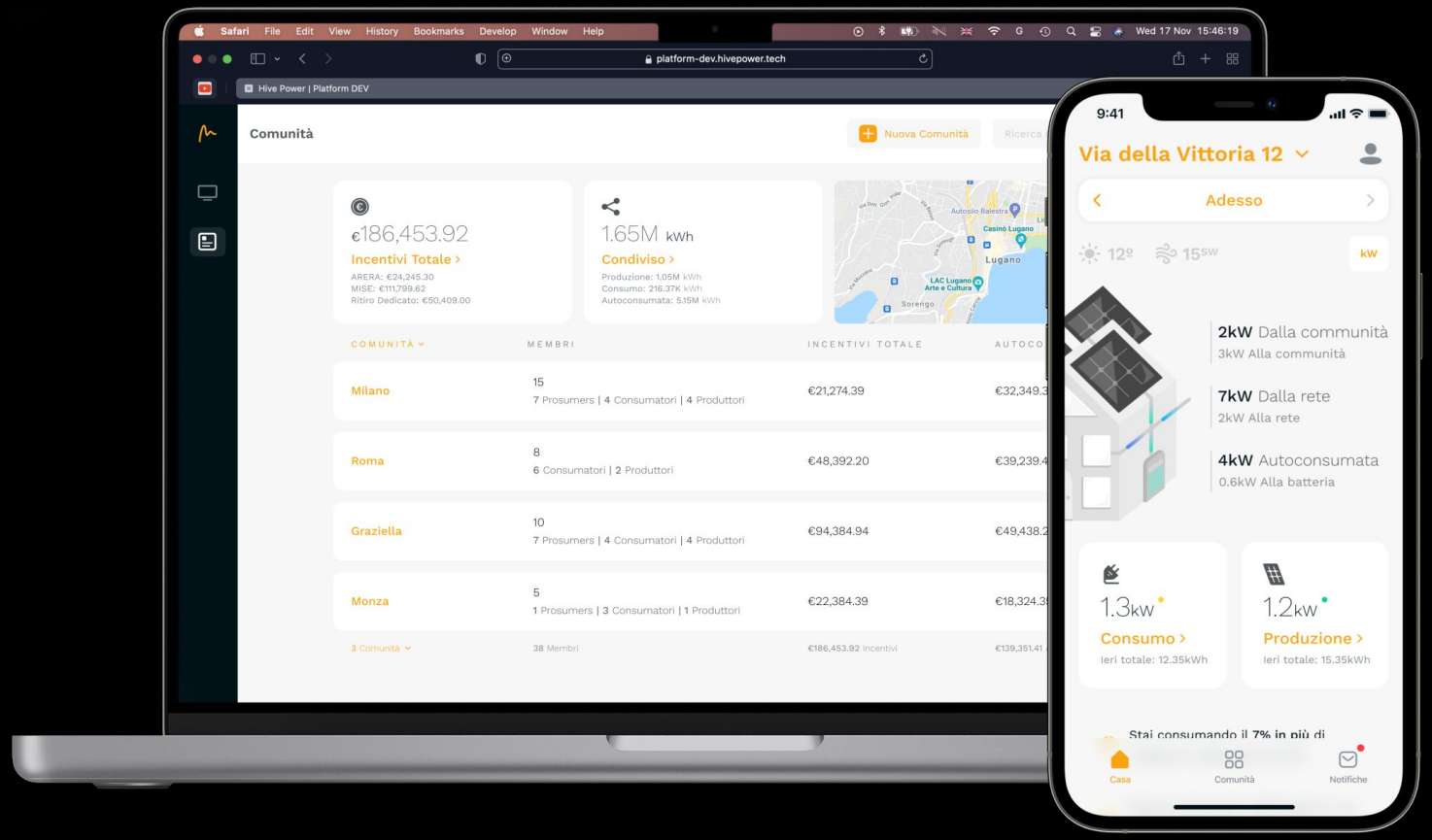
HIVE POWER

FLEXO

Fueling the energy transition with smart charging and energy community management

HIVE POWER

Hive Power's subscription-based SaaS, FLEXO, enables companies to manage anything connected to the grid, from smart EV Charging to Energy Communities.



The energy transition is facing challenges

Tech and economic issues are slowing the adoption of green technologies.

Renewables and electrification risk compromising grid stability.

Energy prices are posing a threat to European industries.

Energy Suppliers, ESCOs, and Aggregators need new solutions.

Power grids and mobility companies need a way to work synergistically

POWER

The power grids need Flexibility to accept renewable energy sources

MOBILITY

EU regulations compel consumers to switch to Electric Vehicles which could feed the grid (“V2G”)

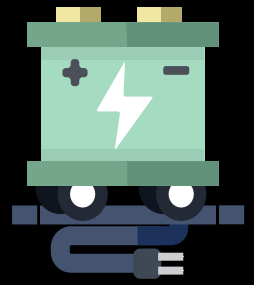
The new EU mobility & energy ecosystem creates pains ...

Power issues - The unique challenge for EV charging is not how the energy is produced but WHEN the EVs are charged (e.g. the load evening ramp presents a grid threat).

and meanwhile...

Renewable energy is hard to predict - Vulnerability to weather conditions can make it difficult to forecast quantities and timing of green energy sources, rendering them “intermittent and uncontrollable”. This leads many to give up and turn toward traditional - yet predictable - sources which are less sustainable.

… and there are new opportunities



Batteries on wheels - EVs can work as batteries on wheels. Smart charging systems maximize the value that can be drawn out of a resource which is often parked.

Flexibility providers - V2X (vehicle to everything) applications can represent one of the flexibility solutions to support the energy transition, enabling new revenue streams, comparable to EV charging costs.

Prosumer benefits - FLEXO also enables energy providers to reward customers who supply green energy and integrate it in their systems, which are being hybridized with traditional fuels.

FLEXO allows consumers to unlock energy savings with personalized, white label apps

Our app shows consumers that when they are flexible about when they use energy, they could reduce grid stress and their own bills.

By buying and aggregating enough consumer flexibility to offer as solutions to grid operators and balance responsible parties, a central Aggregator could sell it on to be used for:

- reducing grid congestion
- avoiding expensive grid upgrades
- limiting penalties for failing supply or demand balance
- avoiding buying energy when prices are high

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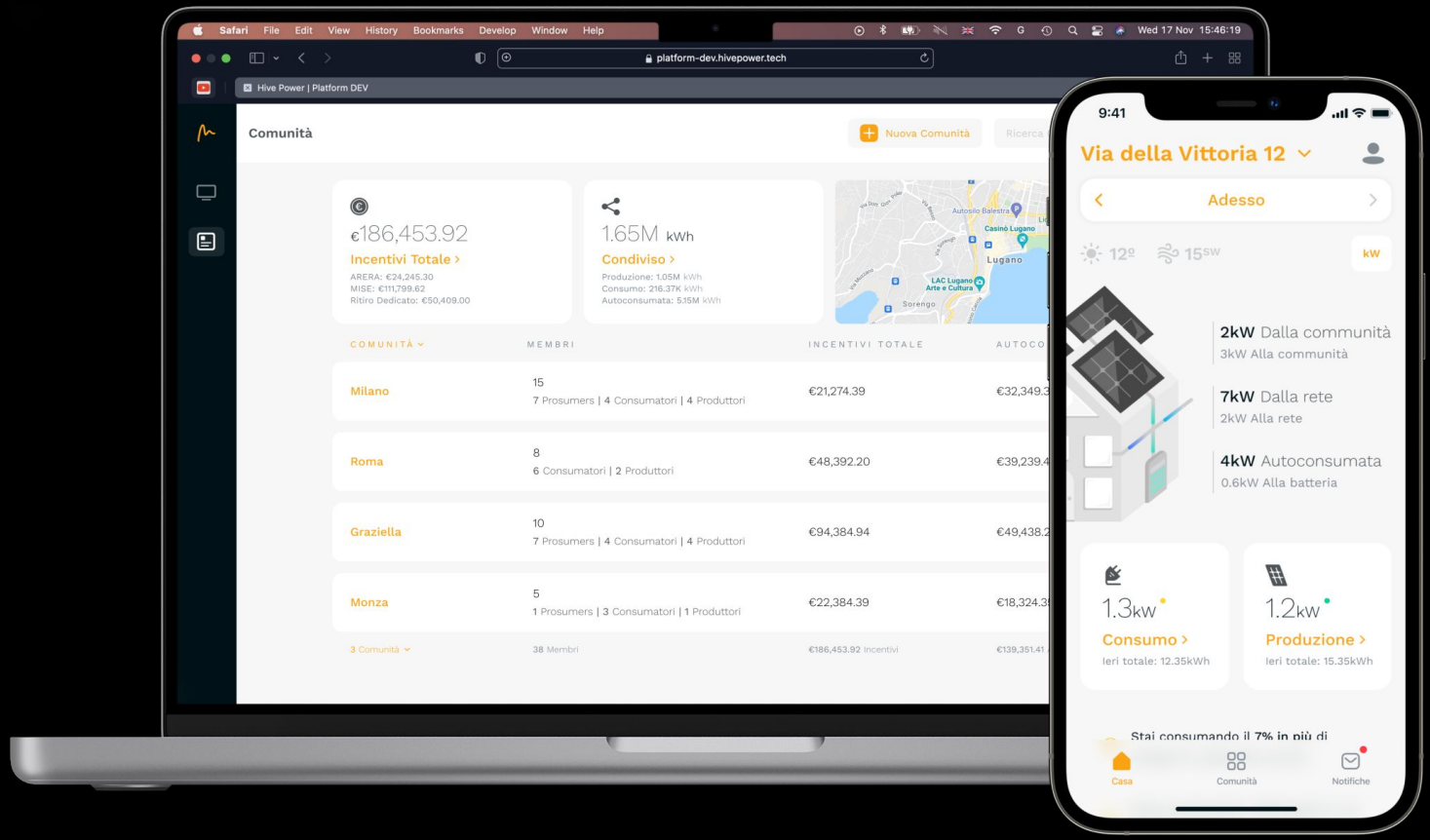
FLEXO white label app: consumer insights

- Wet appliances
- DHW heater
- Heat Pump
- Electric Vehicle
- Air Conditioning
- Storage Systems



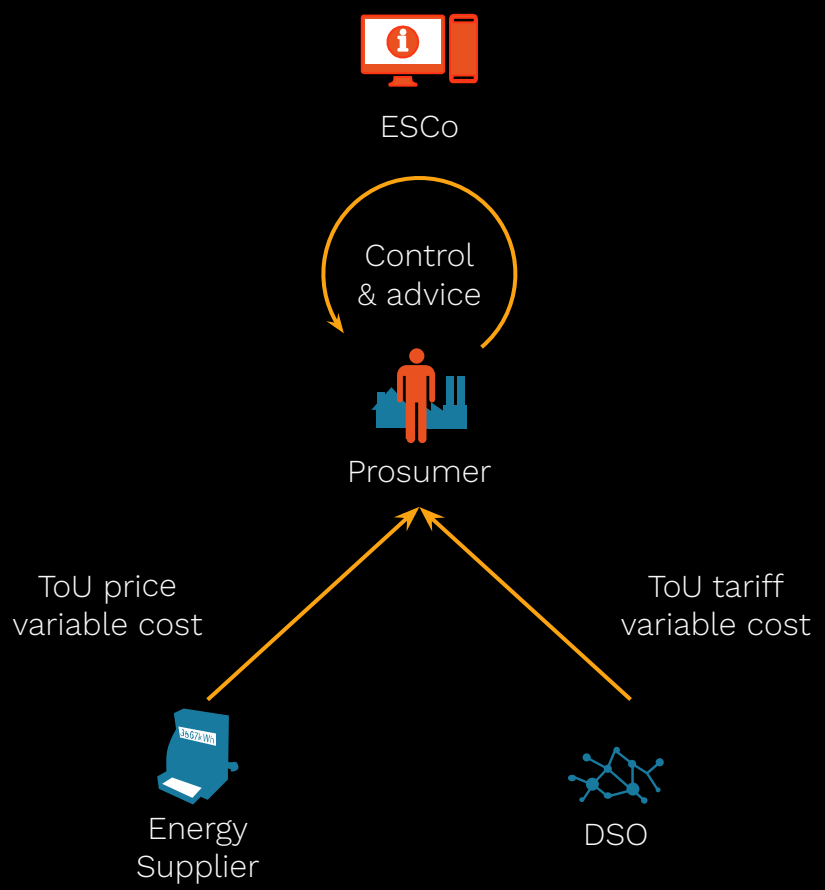
How does this all work?

You'll need to understand the basics of "flexibilities" (variable inputs into the grid) and the main players in energy. There are two types of energy demand to consider: implicit and explicit.

Read on to take a tour.

Flexibility Management

Implicit Demand Response



Demand response - your energy consumption - is how you shift or control your loads (your demand on the grid). For example, your laundry machine.

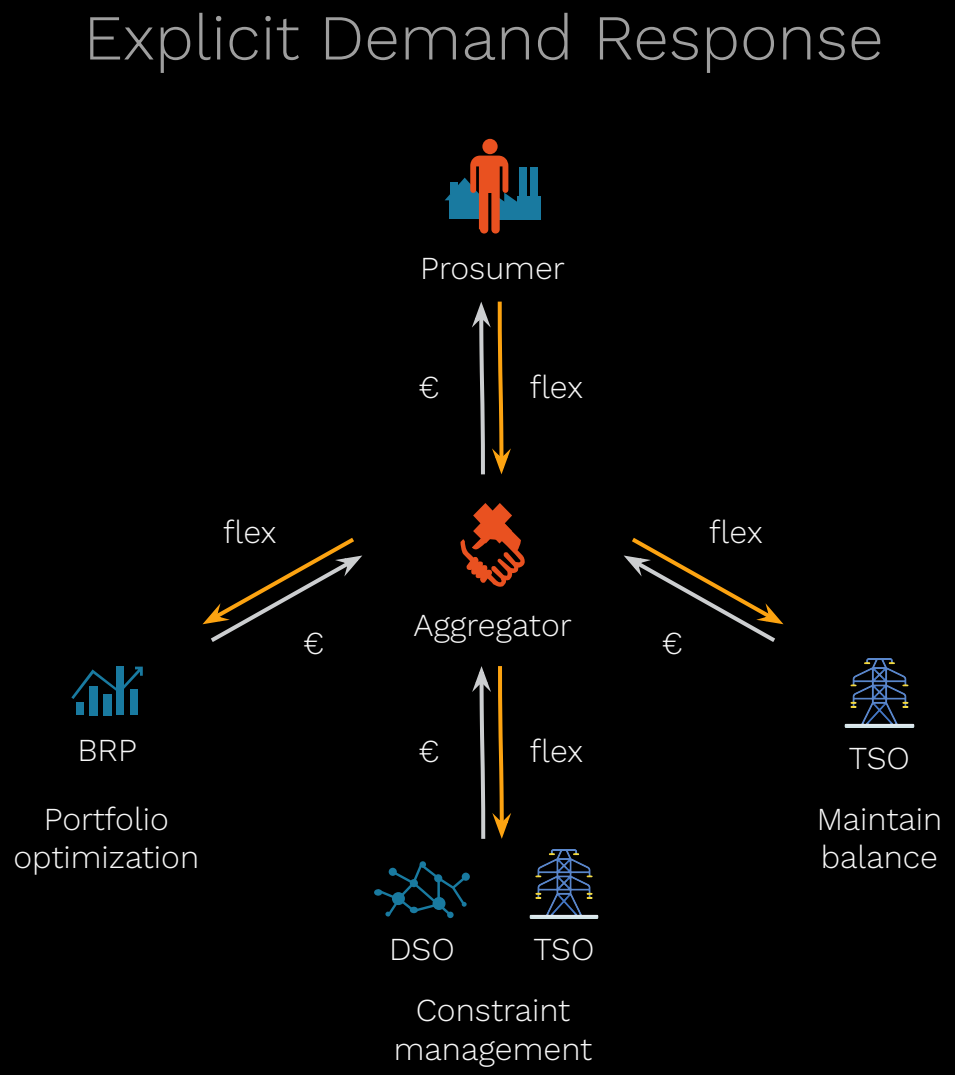
Implicit means you can control your energy costs based on the time-of-day you use it. Your energy supplier charges you by “ToU” - Time of Use. It is implicit because the companies don’t control your usage, just incentivize you with price changes.

This was the state of yesterday’s market.

Flexibility Management

Aggregators are the middle actors who sell your flexible energy to different stakeholders, such as BRPs (energy traders) and DSOs/TSOs (grid operators). Often, these companies are part of the same conglomerate. For example, in California, a central company directly controls or “pilots” everyone’s air conditioning - they decide when it is turned on and at what strength. The same thing happens for EV charging.

This is the future.



Managing Explicit Demand Response → futuristic business models

With FLEXO technology as the foundation, we can now re-direct energy flexibility and excess EV charges into new business models.

New energy business models are easy to derive in a situation of flexibility because energy is centralized and controlled by aggregators. FLEXO enables energy and mobility companies to open up significant new revenues for their businesses and savings for end users.

For example, energy companies implementing the smart charging solution that Hive Power developed would generate €1000 in additional revenues per vehicle per year.

€10000

Additional revenue...

Per Electric Vehicle.

Every year.

Business Opportunity Recap:

There are two areas in which Hive Power's FLEXO technology can have an impact:

Electric Vehicle (EV) Charging and Energy Communities

Traction

Past and ongoing projects

Corporate Clients

Pilot Projects

TOYOTA

eSolutions
Free2move

iren

e·on

SaaS

sorgenia

plenitude

Eni
GROUP

AEM

AMB AZIENDA MULTISERVIZI BELLINZONA

European Projects

LIC LUGAGGIA
INNOVATION COMMUNITY

P&D Lugaggia Innovation Community

PARITY

Pro-sumer AwaRe, Transactive Markets for Valorization of Distributed flexibilITY enabled by Smart Energy Contracts

REEFLEX

REplicable, interoperable, cross-sector solutions and Energy services for demand side FLEXibility markets

MAESHA

deMonstration of smArt and flExible solutions for a decarboniSed energy future in Mayotte and other European islAnds

ENERGICA

ENERGy access and green transition collaboratively demonstrated in urban and rural areas in AfrICA

Chronicle

Building Performance Digitalisation and Dynamic Logbooks for future Value-Driven Services

FEDECOM

FEDErated system of systems approach for flexible and interoperable energy COMmunities

OPENTUNITY

OPENing the electricity ecosystem to multiple actors in order to have a real decarbonization opporTUNITY

Total Funding

2021 Seed: **€500K**

2022 Series A: **€2.5M** by October

EU Grants To-Date: **€3M**

LET'S TALK!

Contact us about our solutions and investment opportunities

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Appendix

Players and use cases

STAKEHOLDER DEFINITIONS

Several players are involved in the energy management

- **Consumer**, users (residential, commercial, industrial) consuming energy
- **Producer**, users producing energy
- **Prosumer**, user consuming and producing energy
- **Supplier**, private companies trading energy and selling it to users as retailers
- Balance Responsible Party (**BRP**) aggregating and trading flexibility to stabilise grids
- Energy Service COmpanies (**ESCO**), provides energy solutions including designs and implementation of energy savings projects, retrofitting, energy management
- The Distribution System Operator (**DSO**), publicly owned companies managing distribution grids (low/medium voltage) - municipality, city, region
- The Transmission System Operator (**TSO**), publicly owned companies managing transportation grids (high voltage) - national

STAKEHOLDER BENEFITS

Flexibility can provide value to different parties

- The **Prosumer** can use flexibility for in-home optimization, e.g. optimizing against variable energy and/or grid tariffs, or increasing self-consumption of own generation.
- The **Supplier** and its Balance Responsible Party (**BRP**) aim to reduce sourcing costs, maximize revenue of generation and avoid imbalance charges. Flexibility can help a Supplier/BRP optimize its portfolio.
- The Distribution System Operator (**DSO**) is responsible for the installation and maintenance of distribution grids. A DSO can use flexibility, e.g. to defer or avoid grid reinforcement costs.
- The Transmission System Operator (**TSO**) is responsible for the installation and maintenance of the transmission grid and for system stability. It may also, depending on national regulation, have responsibility for ensuring generation adequacy. The TSO can use flexibility for any of these purposes.