



Jordi Mazon

Deputy Mayor and pilot of
the Mission a carbon-neutral
Viladecans by 2030

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Viladecans powerful story

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Viladecans

67.000
inhabitants
20,4 km²



- > One of the cities with the greatest income equality in Spain
- > 67% of citizens have higher educational level than their parents



**MEDITERRANEAN
FOREST**



**URBAN
ECOSYSTEM**



**AGRICULTURAL
LAND**



WETLANDS



COASTAL DUNES



We're Green!



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Our strategical Framework

City's Strategic Framework *Viladecans 2030*

The city strategic framework - Viladecans 2030 was born as a living strategic planning instrument that embodies a vision of the present and future of Viladecans and that ensures its validity and usefulness because it evolves and learns from the experience of deploying what is written in its 3 components.



**Urban
Agenda**

**Sectoral
Planning**

Relational governance tools



City with 0 school dropouts by 2030



Climate neutral city by 2030

**Viladecans
Cares For Me
Network**

Municipal instruments



**Oficina del Futur
de la Ciutat**

Viladecans 2030 Strategy



Defines the vision of the city around **6 thematic strategic axes**:

- Economic development
- Educational innovation,
- Healthy lifestyle
- **Ecological transition**
- Urban regeneration Model
- Resilience

and **3 transversal strategic axes**: digital and green transformation, social cohesion & gender.

The 2030 Strategy defines 2 **City Missions > major city objectives** **which** respond to challenges identified by the strategy itself, that require the involvement & commitment of local agents (**quadruple helix**: public administration, companies, research academic bodies, & citizens) as they require a systemic transformation.

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Climate neutral
city by 2030

Mission 2030

Making Viladecans an emissions-neutral city in 2030 and negative emissions in 2050, optimising the cycle of energy and increasing the presence of nature in the urban centre.

Viladecans Local Urban Agenda



-  Strategic Goal 1: Plan land use and use it more rationally, preserve and protect it.
-  Strategic Goal 2: Avoid urban sprawl and revitalise existing cities.
-  Strategic Goal 3: Prevent and reduce the impacts of climate change and improve resilience.
-  Strategic Goal 4: Use resources sustainably and promote the circular economy.
-  Strategic Goal 5: Promote proximity and sustainable mobility.
-  Strategic Goal 6: Encourage social cohesion and strive for equality.
-  Strategic Goal 7: Promote and encourage the Urban Economy.
-  Strategic Goal 8: Ensure access to housing.
-  Strategic Goal 9: Lead and promote digital innovation.
-  Strategic Goal 10: Improve instruments of participation and governance.

Local Urban Agenda & Energy transition



- 45% of actions primarily oriented to climate neutrality.
- 11 actions specifically oriented to energy transition
- Main focus:
 - Fostering local renewable energy production for individual and collective consumption
 - Fostering energy culture among citizens & local stakeholders (Learning Communities, etc.)
 - Fostering building energy efficiency (public, private, business, etc.)
 - Fostering sustainable mobility
 - Fostering a Smart & Sustainable urban management (sensing - monitoring)

The Vilawatt project

The VILAWATT project,
has been a key element
of all this process



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The Vilawatt, the origin

Global cost of the project:
5'3 M€
UIA financing: 80%



378
PROJECTS SUBMITTED

18 SELECTED CITIES



March 2017 – October 2020



ENERGY TRANSITION PROJECTS

113

3
SELECTED CITIES

GOTHENBURG
PARIS
VILADECANS

First UIA call 2016



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The VILAWATT, the objectives

To promote the **energy transition in the city by broadly involving citizens and local stakeholders.**
To create a public-private-citizen structure, which managed 4 services to improve energy governance and sovereignty:

- Renewable energy supply
- Comprehensive energy rehabilitation
- Creation of a local currency
- Creation of training programs and learning spaces to promote the energy efficiency culture in the city (empowerment of citizens on energy issues)



The partners



Public entities - Viladecans City Council (promoter of the proposal), Catalan Institute of Energy, Barcelona Urban Ecology Agency, municipal companies (VIGEM / VIMED).

Private entities - Ubiquat, Cíclica, Gespromat, LIMA, EGM

The results

Energy purchase



Advising agency



Currency trader



Renovation operator



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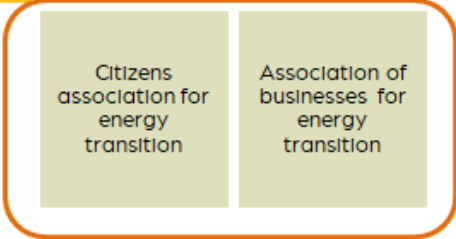
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The results. A public-private-citizen consortium

VILAWATT CONSORTIUM FOR ENERGY TRANSITION



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The results. Energy culture – Vilawatt Office

Energy information & services:

- Social bonds for electricity, gas and water.
- Vilawatt 100% renewable energy contract.
- Analysis energy bills
- Energy efficiency advice to save energy and money
- Individual & collective photovoltaic self-consumption installations.
- Tax benefits related to energy efficiency rehabilitation, solar installations, etc.
- Information, promotion and implementation of Energy Communities to share renewable between the City Council, citizens, shops and companies.
- Shared electric car service (Som Mobilitat cooperative).
- Workshops and talks on energy culture.
- Information about the Vilawatt Citizen and Business associations.
- Information on Vilawatt currency



The results. Energy culture



Promoting energy culture adapted to all targets:

- Vilawatt Spaces: Vilawatt Citizen's Spaces, Vilawatt Schools' Space, Vilawatt Professionals' Space, Vilawatt businesses Space
- Vilawatt game
- Vilawatt ice-cream trolley
- Vilawatt song
- Certificate on professional aptitude in energy efficiency
- Etc.

> OTHER ACTIONS

- Vilawatt Services and Business Catalogue
- Conferences on renewable energy transition and Vilawatt Energy Communities
- **1st National Congress on Vilawatt citizen and renewable energy transition (02/12/23)**



The results. Energy efficiency renovation



>VILAWATT 3 buildings renovated – PILOT TO BOOST RENOVATION

- 51 dwellings/ 4 commercial spaces
- Overall budget: 1.437.480€
- Average budget / entity: 25.000€
- renovating thermal insulation of the façades
- replacing windows
- installing LED lights
- replacing boilers with more efficient models

>OTHER ACTIONS:

- Bonus on property taxes, only in case that the rehabilitation includes a self-consumption photovoltaic installation
- Energy efficiency awards promoted by the City Council (Vilawatt currency)
- Information and support subsidies for energy efficiency renovations

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The results. A local currency



- Incentive/awareness raising for energy efficiency among citizens
- It promotes proximity and local commerce/retailers
- Users: +4000 citizens /+200 business
- 1 Vilawatt = 1 Euro
- Efficient tool to promote local economy during COVID pandemic
- Currently working on a new currency regulation 2024
- Currently working to reward actions which contribute to the carbon neutral mission.

VILAWATT core lines

Climate action

The Vilawatt project gives us the opportunity to **fight against the climate emergency** and to reach the goal of the mission **carbon neutral** by 2030 . It is a driver project for climate action projects in the city.

Social mobilisation and change the point of view

Vilawatt aims to **empower citizens**, changing from passive to active the role they have. Citizens are in the focus of the energy management and culture.

Democratisation of energy

The Vilawatt project opens up an opportunity to truly **democratize energy**. Energy goes from being a commodity with which a company makes money to a **common good** where citizens take control and are the protagonists.

Vilawatt UTM, the transfer journey



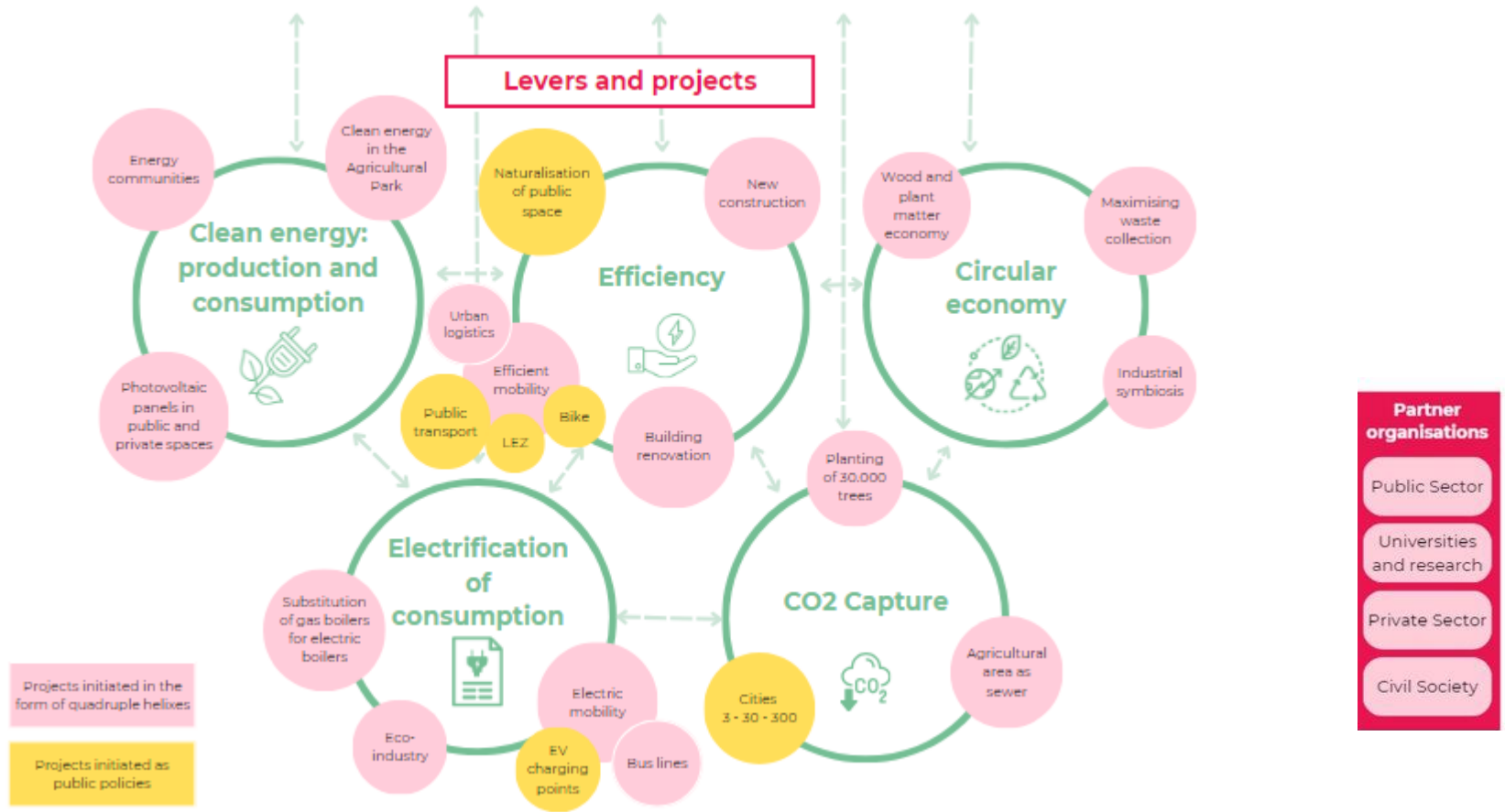
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The present & future – Our Mission carbon neutral 2030



Vilawatt UIA video



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Further information

- + <https://vilawatt.cat/>
- + <https://www.uia-initiative.eu/en/uia-cities/viladecans>
- + <https://urbact.eu/networks/vilawatt>



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Marina Feito

Industrial Engineer, Viladecans
City Council

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Vilawatt Informació

VILAWATT

**Creating communities
that share energy**

Vilawatt

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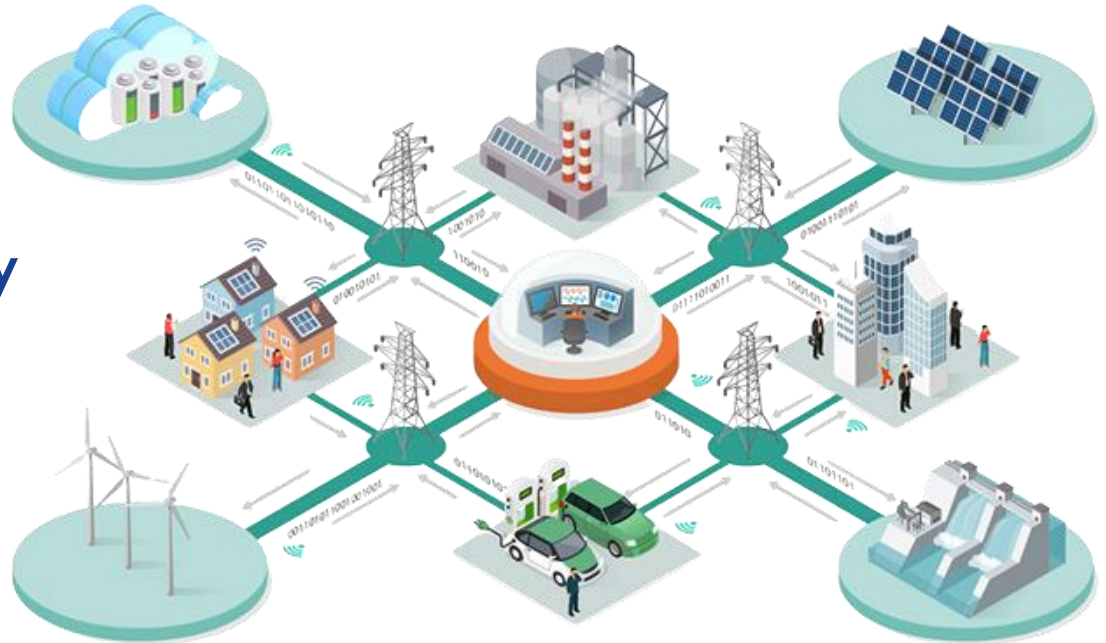
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Creating communities that share energy

💡 The city energy strategy is creating communities that share energy



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Source: Instituto Tecnológico de la Energía

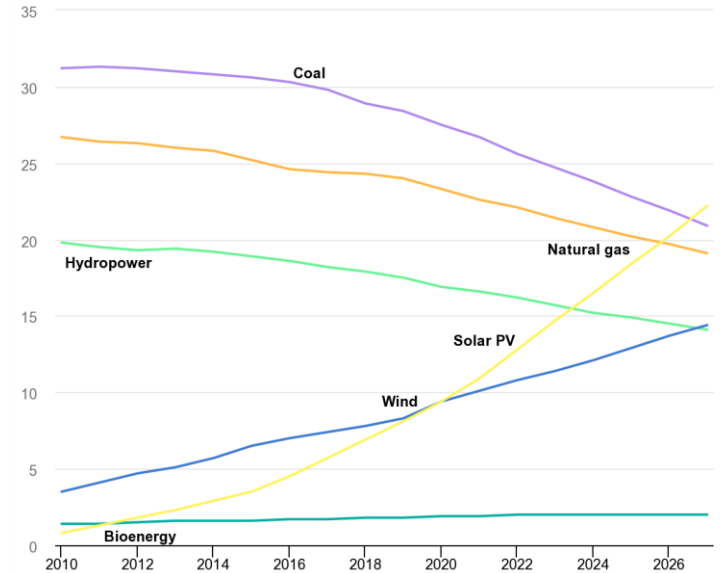
Energy Generation- Photovoltaics

⚙️ Based on that city strategy, the energy generation is based on photovoltaics technology:

- Affordable
- Distributed and local
- Adaptability
- Lifespan
- Huge solar energy capacity
- Well established technology

Other technologies:

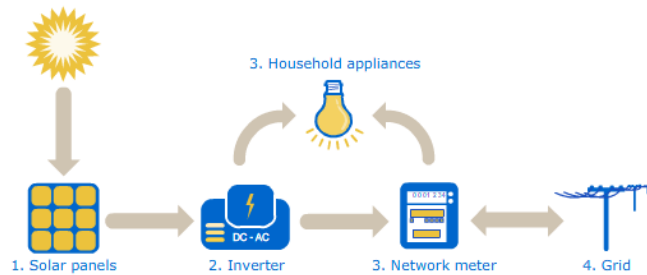
- Mini-windmill
- Energy Storage



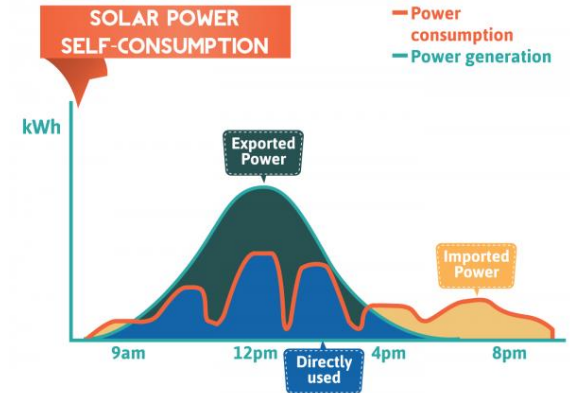
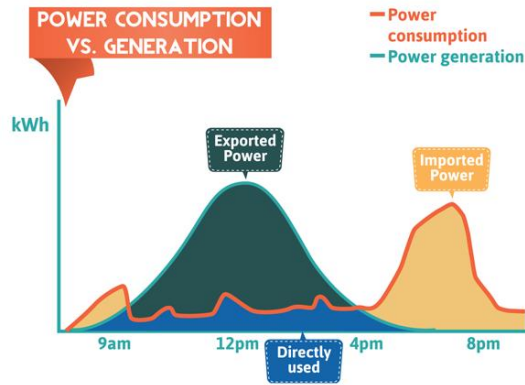
Source: International Energy Agency

Energy Generation- Photovoltaics

Photovoltaic basics



Source: AGL Solar Energy

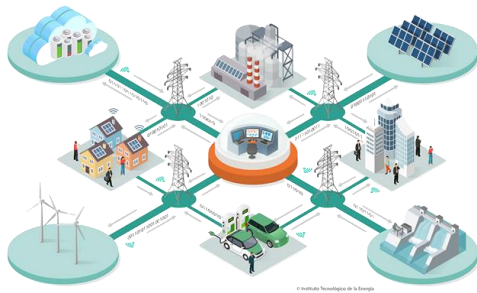


Source: My Solar Quotes

Communities that share energy

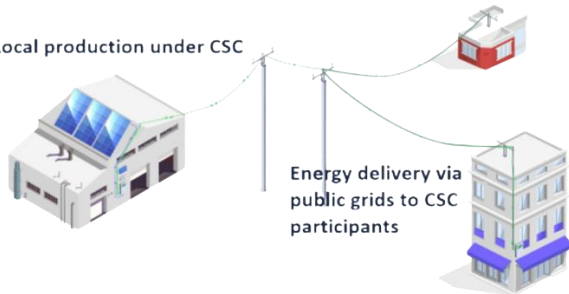
Communities that share energy based on **Collective self-consumption (CSC)**

Spanish regulation RD244/2019 that is now **2km** and **100kW** of power

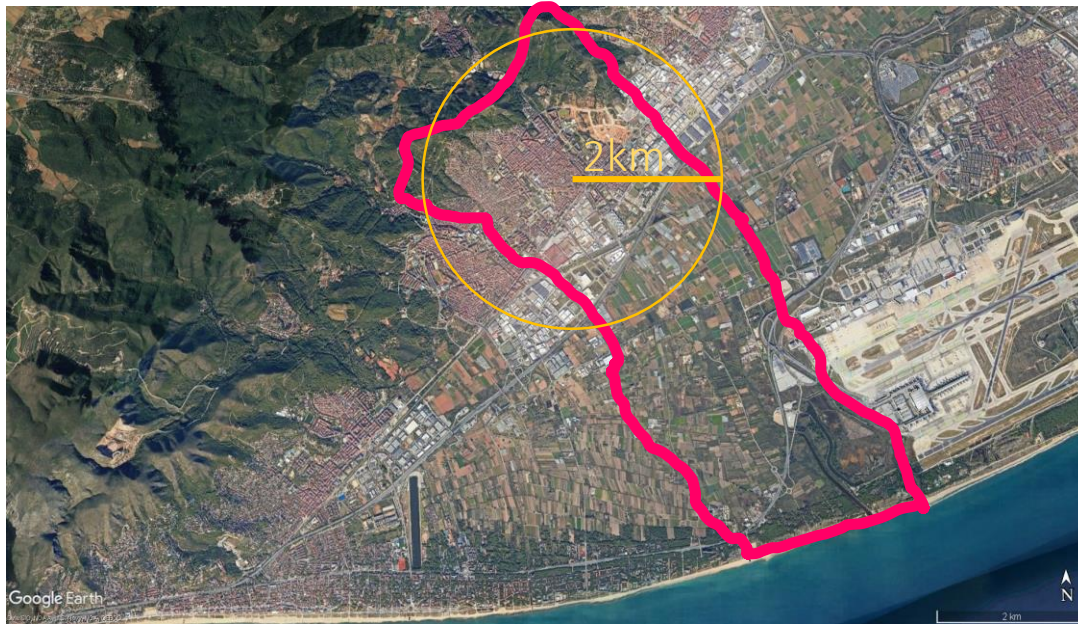


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Local production under CSC



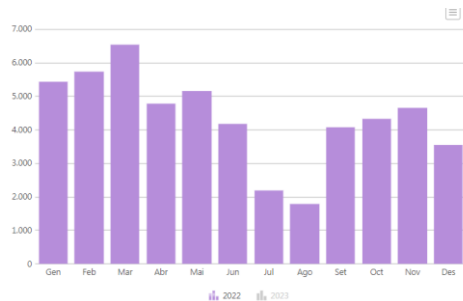
Energy delivery via public grids to CSC participants



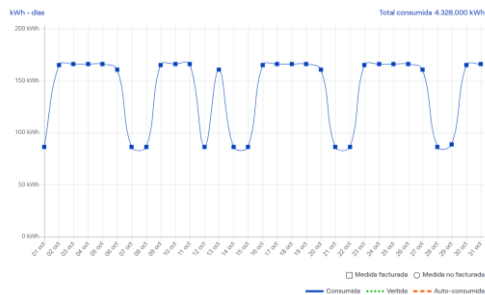
Source: AGL Solar Energy

Communities that share energy

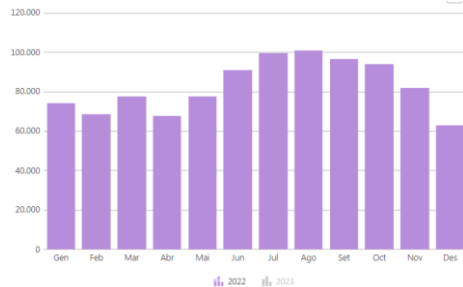
School Consumption



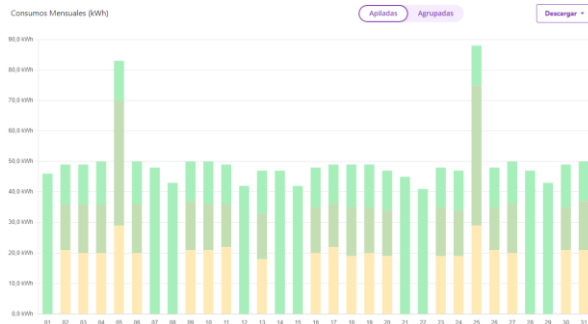
Source: Viladecans school consumption



Sports complex Consumption



Source: Viladecans sports complex



Dynamic coefficient

$$ENG_{h,i} = \beta_i \cdot ENG_h$$

The energy hourly generated for each participant is equal to their coefficient multiplied by the total energy generated

From September to June

School: $\beta_a=80\%$

Sports Complex: $\beta_b=20\%$

From June to September

School: $\beta_a=20\%$

Sports Complex: $\beta_b=80\%$

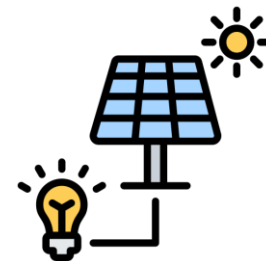
Coefficient could be also adapted during days or hours

Communities that share energy

Completing the installation of **23 self-consumption photovoltaic installations in public buildings**



EBM La Muntanyeta	24,30
EBM La Marina	31,50
CEIP Amat Targa	32,40
CEIP Dr Trueta	32,40
CEIP El Garrofer	105,30
CEIP Pau Casals	49,95
CEIP Can Palmer	102,60
Camp de beisbol	60,84
Atrium	88,00
Podium	90,48
Poliesportiu Montserratina	31,20
Camp de futbol municipal	17,40
Casal Can Pastera	8,10
Biblioteca Can Xic	30,60
Casal d'Alba-rosa	24,30
Can Batllori	16,20
Mercat Plaça Europa	43,20
Can Calderón	31,16
Masia Can Palmer	9,12
Manteniment i logística	42,56
Aparcament de Ponent	69,92
kWp	941,53



Power: 941,5 kWp
Energy: 1200 MWh

Communities that share energy

Photovoltaic installations

- Almost 1 MW of power
- Share energy
 - in the **1st phase** between **public buildings**
 - and in **2nd phase**, between **administration and citizens**.



Communities that share energy

Completing writing **10 projects** of **self-consumption photovoltaic installation** in **public buildings**



Cementiri	52,5
Escola Marta Mata	121
EBM La Pineda	89,9
Escola Montserratina	110
Parc de la Marina 1	24,38
Parc de la Marina 2	23
Parc de la Marina 3	34,04
Aparcament 13 Roses	10,12
Plaça Constitució	46,92
Camp de Futbol Torre Roja	46
kWp 557,86	

Communities that share energy

Two pilot projects, with shared energy communities

Global objective

Extend this model throughout the city through 23 photovoltaic installations

Enxaneta School

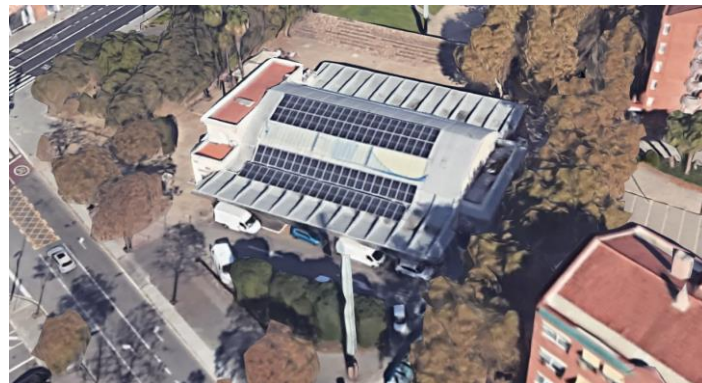
A school, that shares energy with 50 families the same amount of energy

Power: 100kW - 1kW each family



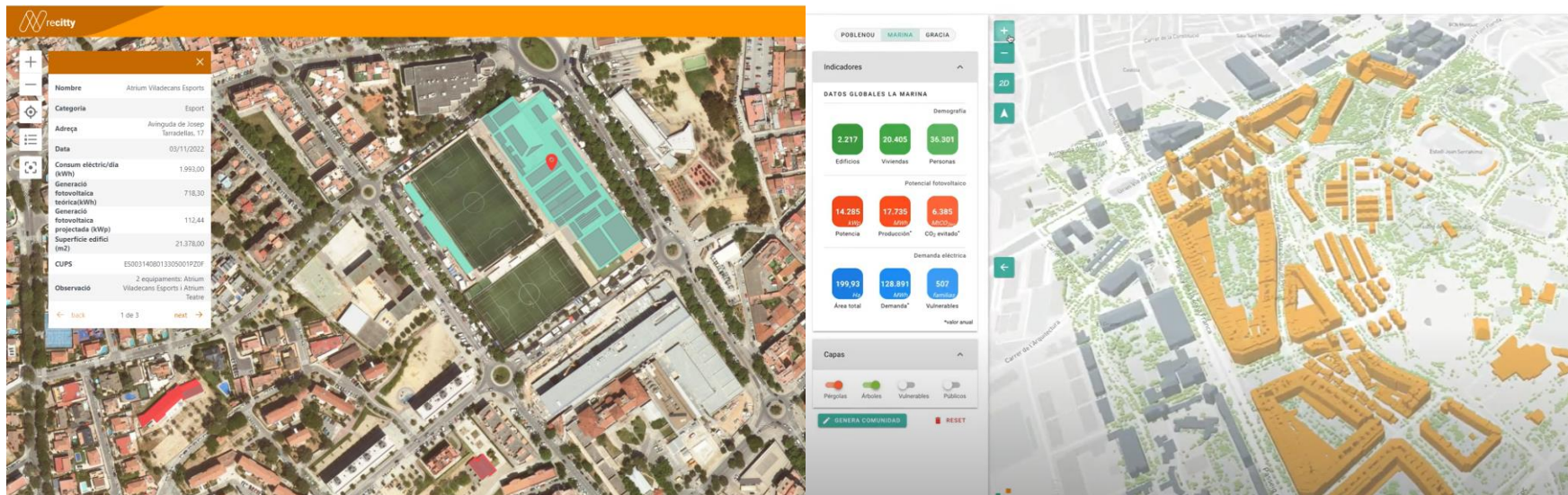
Municipal Market

Public market, share with the market business but in a proportion 30% of saving on the electricity bill.



Interactive photovoltaic potential map

Developing a **useful tool**, not only for the administration buildings but also for any citizen of the city that wanted to know the **PV potential** of his house and its emissions reduction (2nd part under procurement process at the moment)





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