



Overview and status of project

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 764805

Agenda

- Concept/ Aim
- Objectives
- Challenges
- Work Packages/ Methodology
- Expected Impacts
- Progress so far



CONCEPT/ Aim

- **EU** routes for **H**igh **pE**netration of sola**R** PV into **lO**cal **nE**twork**S**

EU Heroes is a European partnership project aimed at enabling increased deployment of community-owned solar PV systems

- **MAIN GOAL:** to bring together network operators, community solar practitioners and energy specialists to develop robust models for solar PV deployment that encourage the continued growth of community solar energy.
- **MEMBERS:** RVO (Netherlands), Dena (Germany), CRES (Greece), EST (UK), Protech (Lithuania), KAPE (Poland), CREARA (Spain)

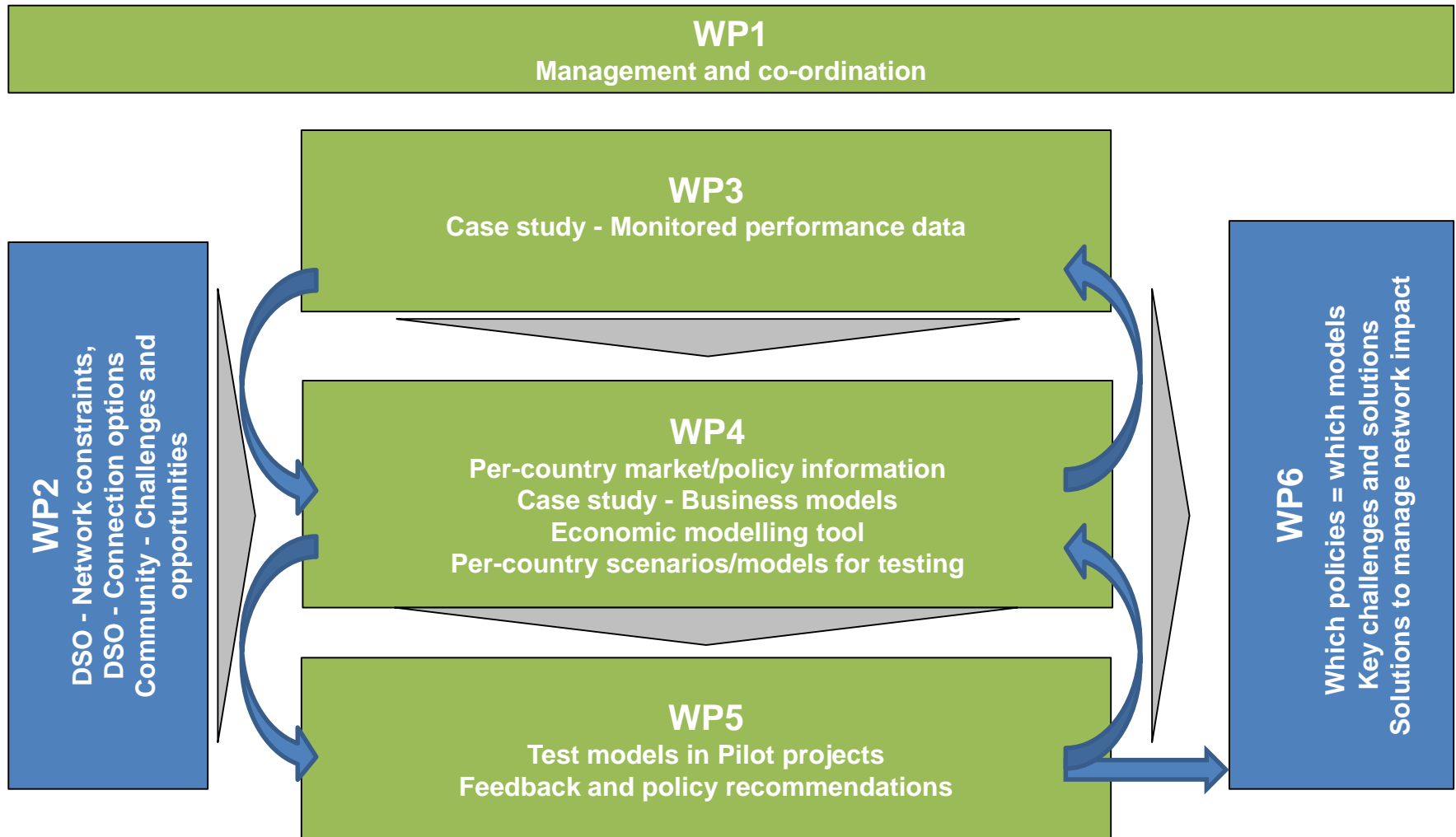
OBJECTIVES

1. Bring together network operators, energy communities, potential investors and the PV market to work towards “**win-win**” **solar PV connection solutions**.
2. Work with network operators and renewable energy community groups to identify and develop **local enterprise models** that enable increased deployment of solar PV in grid-constrained areas.
3. Carry out **cost-benefit analysis and economic feasibility** assessment of new and existing business models.
4. Motivate **consumers to have greater ownership** over their energy supply, democratising energy and investing profits back into those communities.
5. Provide **improved viable business models** to community groups to help them to store, utilise, aggregate and trade solar electricity locally.

CHALLENGES

- **Enabling continued deployment of PV** to contribute to RES and carbon emissions reduction targets, despite electricity network constraints;
- **Making a smooth transition from subsidised deployment to market conditions;**
- **Shortening the (expensive) learning curve** for making this energy transition in society and the energy sector.

Flow of information through WPs



EXPECTED IMPACTS

- **Strategic Impact**

Contribution to new developments of RES Directive

- **Market Impact and Socio-economic impact**

Acceleration of growth of community PV & increase in citizen engagement with renewable energy and decarbonisation of the EU economy

- **Energy and Environmental Impact**







Increase in share of renewable energy in EU energy mix and reduced CO2 emissions



WP3: System Design Monitoring and Evaluation



Objectives

-  **To collect** physical and electrical data from different operating PV Case Studies (PV C.S) **and to provide** WPs 4 and 5 with the most relevant performance indicators 
-  **To outline** the grid impact of the selected PV Case Studies 
-  **To identify** smart grid services in order to reduce the peaks in energy transactions between PV Case Studies and the Distribution Grid and to maximise the local consumption of the produced energy 



11 PV Case Studies from 7 EU countries ranged from 6,6kWp to 1,6MWp

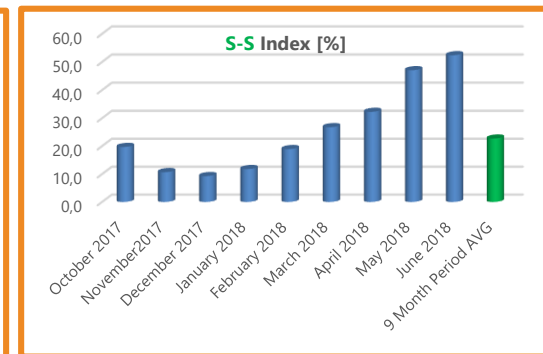
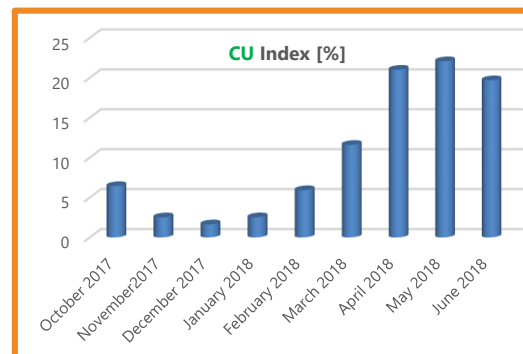
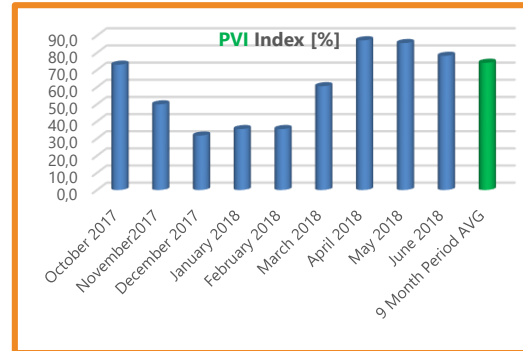
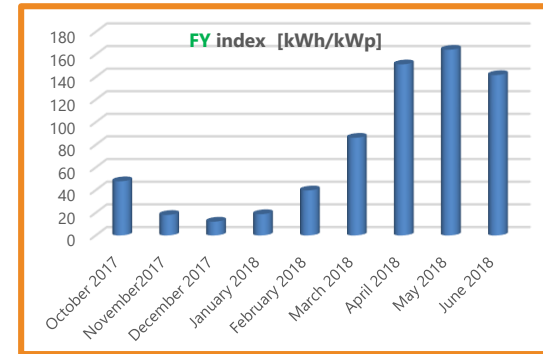
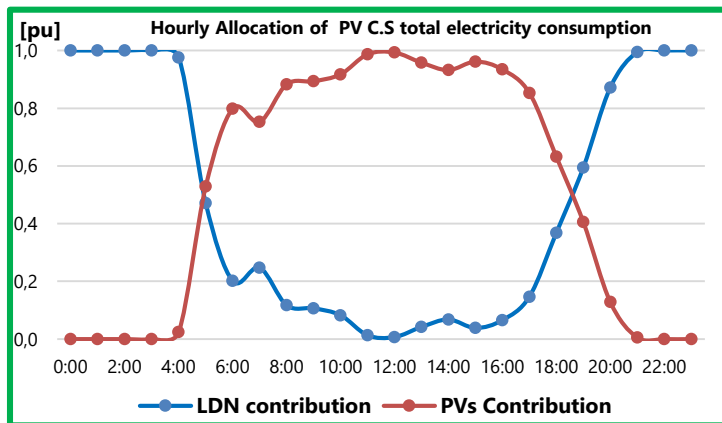
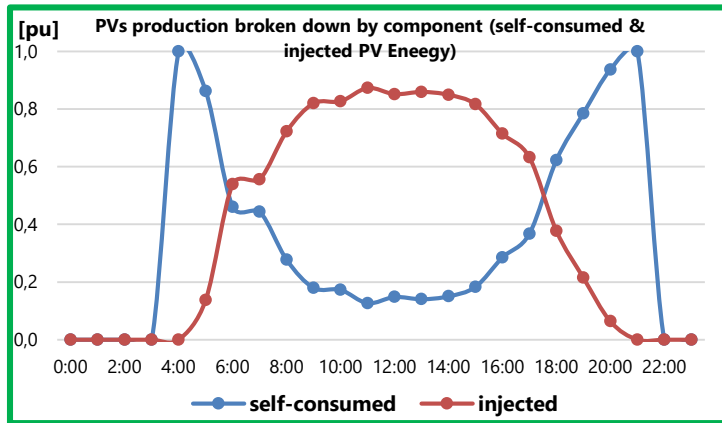
- 1 Multifunctional arts-education and entertainment complex
- 1 Hybrid PV community connected to weak electrical grid (PVs production is fall under curtailed operation)
- 2 Residential complex PV communities
- 2 Primary schools
- 1 Community enterprise centre
- 1 Feed-in tariff PV System (considered as virtual energy community)
- 1 Industrial smart-grid installation
- 1 Passive house
- 1 nZeb house

WP3: System Design Monitoring and Evaluation

- Performance data are reported as:

Monthly values of Final Yield Index, Self-Consumption Index, Self-Sufficiency Index, Capacity Utilisation Index, PVs Injection Index and PVs Exploitation Index.

Typical daily profile of the energy transactions between the output PVs, local loads and distribution grid.



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WP4: BM development, adaptation and training

OBJECTIVES AND CURRENT PROGRESS

Description

The aim of WP4 is to adapt proposed in WP3 model business cases to community and municipal solar projects taking into account particular pilot legislative and infrastructural environment. Main objectives:

- To propose design and contribute to implementation of at least 7 demonstration pilots
- To monitor performance, refine BM cases and evaluate the effectiveness of the pilot approaches

Objectives

1	Provide clear BM description for each case study project, including a country-level context analysis	A detailed country report has been developed by each country, covering technical, financial and regulatory aspects in order to deeply describe the national context.
2	Integrate technical data into an economical analysis that includes: <ul style="list-style-type: none">• Societal costs (owner/ consumer)• Cost for grid operator	A financial model has been developed to evaluate different BMs for the case study projects. Additionally to conventional BMs, the tool allows to test more innovative ones, such as the impact of batteries or demand side management.
3	Identify and evaluate potential improvements for pilot projects	Work in progress → The objective is to identify potential improvements from the BS testing with the financial tool, and identify the optimal BM for community solar projects in each country.
4	Provide conclusions on good practices	Once the optimal BM in each country has been identified, recommendations will be made in order to overcome the barriers that currently hinder its deployment.

WP4: BM development, adaptation and training

Exhibit of the developed financial tool output (1/2)

General information	
Pilot name	Jofemar Factory Microgrid
Country	Spain
Region	Comunidad Foral de Navarra
Segment	Industrial

PV System information		
Category	Unit	Value
PV System Size	kWp	40
Specific System Cost	EUR / kWp	1.500
Investment Subsidy	EUR	30.000
Total System Cost	EUR	30.000
Fixed Operation Costs	EUR / year	164
Variable Operation Costs	EUR / kWh	0
Specific System Performance	kWh / kWp	1.410
Degradation	%	0,5%

Investment		
Category	Unit	Value
Project Duration	years	30
Equity	EUR	30.000
Cost of equity	%	6%
Debt (Gearing)	EUR	0
Loan Tenor	years	0
Interest Rate	%	0%

PV Business Model			
Category	Share	Unit	Price
Feed-in Tariff	0%	EUR / kWh	0,00
Self-consumption	100%	EUR / kWh	0,10
Fees		EUR / kWh	0,02
Net-metering	0%	EUR / kWh	0,10
Fees		EUR / kWh	0,00
Excess Electricity		EUR / kWh	0,00
PPA Tariff	0%	EUR / kWh	0,00
Fees		EUR / kWh	0,00
Oversupply Price		EUR / kWh	0,00
Undersupply Penalty		EUR / kWh	0,00

Results		
Category	Unit	Value
Select the perspective of the analysis	-	Project
Net Present Value	EUR	33.481
Internal Rate of Return	%	10,0%
Simple payback period	years	11
Grid impact		

WP5: PILOTING OF BUSINESS MODEL CASES

OBJECTIVES AND CURRENT PROGRESS

Description

The aim of WP5 is to adapt the business model cases proposed in WP4 to community and municipal solar projects, taking into account specific pilot legislative and infrastructural environments.

Objectives

1	Task 5.1 - To propose design for specific community and municipal pilot projects utilizing business model cases in terms of interference with the grid, infrastructural solution and profitability	Work in progress - a list of pilots has been drawn up
2	Task 5.2 - To monitor and evaluate the effectiveness of the pilot approaches	Efficiency of proposed business case for each of 7 pilots will be tested by obtaining and accumulating relevant energy generation and consumption data on micro grid level and feeding it into model business case for particular pilot.
3	Task 5.3 - to provide training for communities pilot projects managers and technicians	Under this task specialised training workshops tailored to particular pilot technical solution and business models will be performed for each pilot operational staff. Participants from other community projects will be invited to training workshops widening access to project outputs with hands-on real case experience.

WP6: Dissemination & Exploitation

OBJECTIVES AND CURRENT PROGRESS

Description

The aim of WP6 is to embed the findings of the project in standard practice for community energy practitioners, network operators and policy makers across Europe.

Objectives

1	Task 1: Design visual identity and communication materials	Done
2	Task 2: Develop dissemination strategy	In progress
3	Task 3: Implement online information	Website online http://www.euheroes.eu
4	Task 4: Disseminate project impact through national channels	In progress

WP2: Stakeholder Engagement

OBJECTIVES AND CURRENT PROGRESS

Description

The aim of WP2 is to bring together key actors from the energy community and electricity network sectors and engage them in delivering the project objectives

Objectives

1

To identify and map key stakeholder groups in all EU HEROES countries and at EU level.

Done

2

To develop a stakeholder engagement plan that includes extensive stakeholder community activities including workshops, seminars, telephone conferences and bilateral working meetings.

In progress

3

To organise sharing and feedback loops and dialogues with relevant stakeholders from the community energy sector, electricity network sector, energy services sector and regulators

Organisation of thematic workshops and seminars



For further info'

<http://www.euheroes.eu>



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