



E - LAND



This project has received funding from the **European Union's Horizon 2020 Research and Innovation programme** under Grant Agreement No **824388**.

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*Integrated multi-vector management system for **Energy isLANDs***

Introduction to H2020 project E-LAND

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E-LAND in brief

- H2020 Innovation Action
- December 2018 - May 2022 (42 Months)
- 6.2 M€ project with 5.4 M€ EC funding
- 12 European partners – 2 Indian partners
- 3 pilots in Europe and 2 simulated pilots in India
- Open innovation through collaboration with stakeholders and citizens connected to the pilots from the beginning of the project



Life Is On



E-LAND will transform the way energy is produced, stored and consumed in an Energy Island bringing innovation across three planes: **technology, community** and **business**.

The final product will be a **powerful toolbox** consisting of tools to build decarbonised, multi-vector Energy Islands on a foundation of advanced ICT and data analytics technologies, strong community engagement tools and a solid business development models.

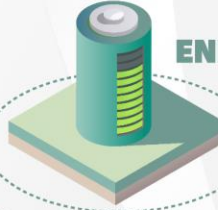
The toolbox will be **modular** and **customisable** to specific local requirements, **expandable** to incorporate new tools and **interoperable** with standards-based legacy systems.



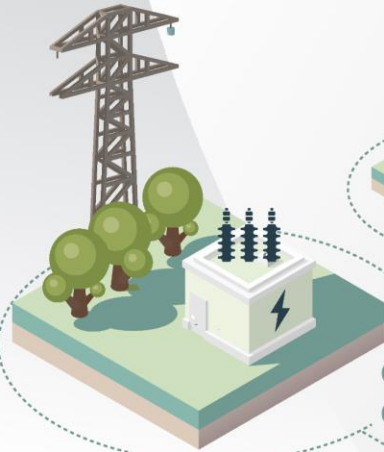


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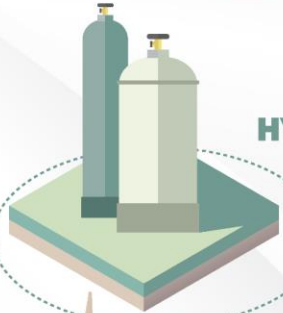
ENERGY STORAGE



**CENTRAL ELECTRICITY
GRID**



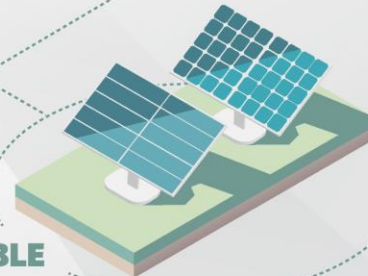
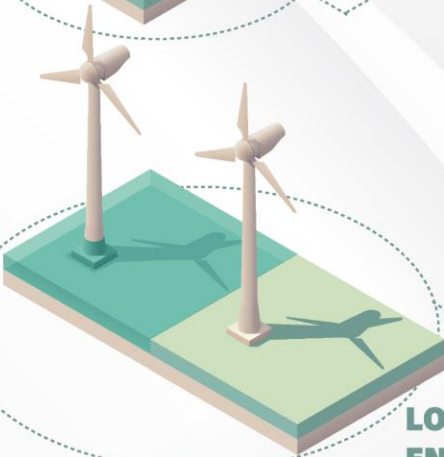
HYDROGEN / GAS



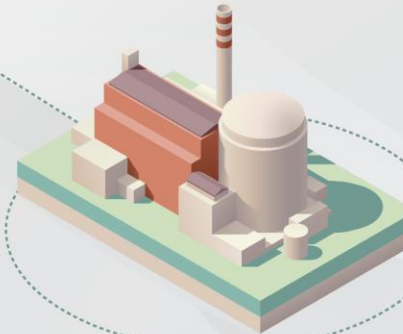
**MULTI-VECTOR ENERGY
MANAGEMENT SYSTEM**



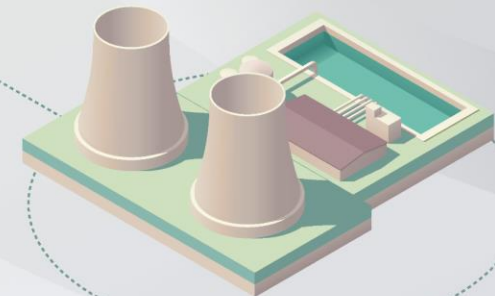
**LOCAL RENEWABLE
ENERGY**



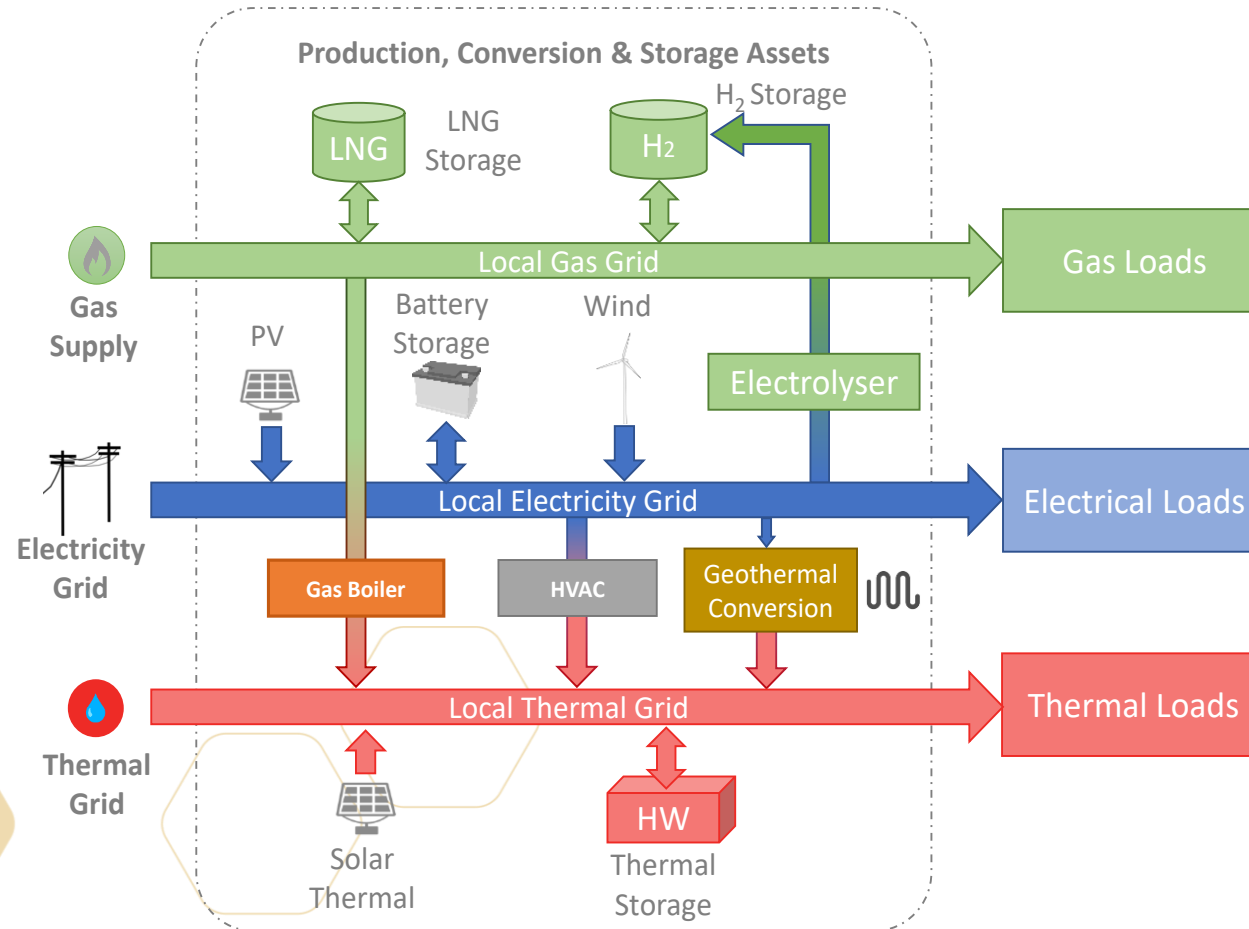
**COMBINED HEAT AND
POWER PLANTS (CHP)**



**LOCAL ENERGY
COMMUNITY**



Multi-vector Local Energy System Asset Overview





**Security, Safety
and Privacy**

**Community
Building
Tools**

Community Impact Model

Community maps

Communication tools

Local ownership development tools

**Business
Development
Tools**

Business Model Innovator

Business model patterns

Pattern selection & combination criteria

Reference business models

Data Management Services

Preprocessing

Visualisation

Data Analytics Services

Generation
forecasting

Demand
forecasting

Storage
forecasting

Markets
forecasting

Decision support services

Planning and
scheduling services

Scenario
simulations

Technology Tools

Enterprise Service Bus [Pilot Specific Instances]

Pilot_1 (Norway)

Operation Planning

Operation Control

EcoStruxure EMS

RES

CHP

Stor
age

Gas

Pilot_2 (Romania)

Operation Planning

Operation Control

EMS_1

RES

CHP

Stor
age

Gas

Pilot_3 (Spain)

Operation Planning

Operation Control

EMS_2

RES

CHP

Stor
age

Gas

Simulated Pilot_4 (India)

Operation Planning

Operation Control

EMS_3

RES

CHP

Stor
age

Gas

Replication Sites

Operation Planning

Operation Control

EMS_x

RES

CHP

Stor
age

Gas



Port of Borg NORWAY



Background: A port is a major hub from sea to shore and vice versa. Port of Borg is a strong promoter of the green shift for ports, nationally and internationally

Objectives for the port, motivating participation in E-Land:

- Reduce CO2 emissions and energy usage (reduced footprint)
- Broaden the consciousness of energy production, usage and efficiency
- Sustainable energy usage in core areas (like transport and logistics)
- New business models; office space with renewables, renewables in terminal handling (“green contracts”)
- Development of skills and competences



UVTgv Campus ROMANIA



Highlights: The students and professors at the Valahia University of Targoviste will work in a living laboratory during the project lifetime. Having such a project in a naturally curious and engaging environment will greatly increase the probability of new ideas and suggestions emerging in the project, and spark new spinoffs and research topics from the project itself.

Objectives:

- Implement multi-vector energy optimization;
- Develop an economically viable system that will be self-sustaining;
- Enforce the role of citizens and communities as active players;
- Implement a modular toolbox composed of technology, business and community engagement related tools, and validate the viability and impact of these tools.



Walqa Technology Park SPAIN



- Though pilot is run by INYCOM as ESCO, the pilot location is own by the Aragon regional government (near city of Huesca), thus there are many different types of stakeholders
- E-LAND will enable the coordinated management of different assets coming from other R&D projects and stakeholders' investments
- Financial and regulatory barriers

Exploitation beyond EEA - Pilots India

- BYBL - BSES Yamuna Power Limited
 - BYPL is licensed to supply and distribute electricity in Delhi and serves 1.6 million customers in Delhi area and has 2800 employees. The customers are a mix of commercial and residential buildings.
- On-going negotiations with another pilot in southern India.



Delhi simulation sites

Akshardham Temple



Scope Tower



Housing society



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E N E R G Y I S L A N D

ANY QUESTIONS OR COMMENTS?

THANK YOU!

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