Local Energy Communities in the Greek Non-Interconnected Islands

A vehicle towards energy democracy

Fotis Gakis
Policy Engineer at
Regulatory Issues Section

Hellenic Distribution Network Operator

HEDNO is the unique DSO in Greece and among the 10 largest DSOs in Europe, based on the number of the served customers and its network length

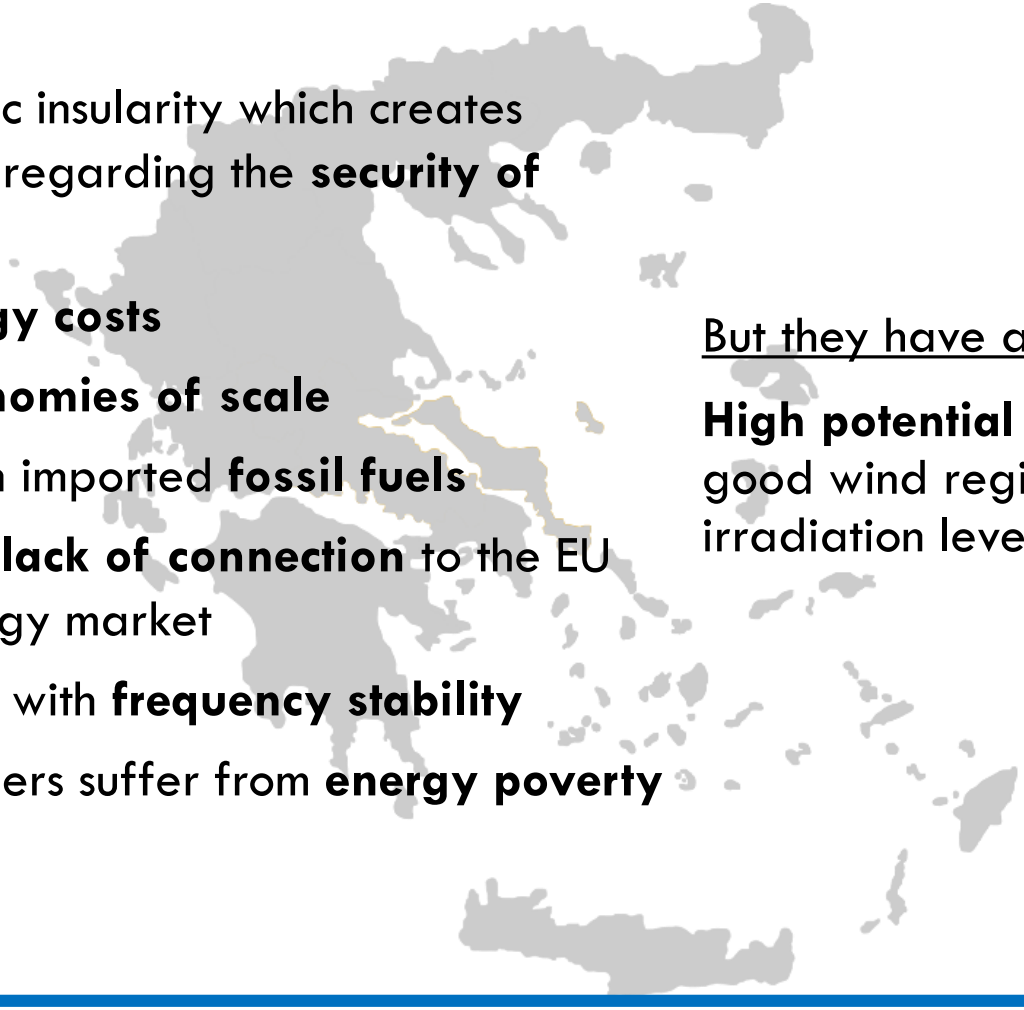
HEDNO was established in 2012 after the spin-off of the distribution segment of PPC SA.

- 60 Non-Interconnected Islands (NII)
- 32 Electrical Systems

HEDNO is the operator with the biggest number of electrical systems in Europe

Especially in the NII, HEDNO acts as DSO, TSO, Market Operator & Energy Manager

The Non-Interconnected Islands in Greece face…



- Geographic insularity which creates challenges regarding the **security of supply**
- **High energy costs**
- **Small economies of scale**
- Reliance on imported **fossil fuels**
- **Limited or lack of connection** to the EU single energy market
- Challenges with **frequency stability**
- The consumers suffer from **energy poverty**

<u>But they have a great advantage:</u>

High potential of RES due to very good wind regimes and solar irradiation levels

The New Reality

Consumers have the right to generate and sell their electricity individually and collectively via '**Local Energy Communities**' (LECs).

The members establish a (**micro)grid** which is either connected with the network or isolated.

A new Law for the energy communities in Greece has been prepared and will be ratified shortly by the parliament, giving **economic and administrative motives** to local stakeholders to organize in the energy communities.

HEDNO's role

Towards this energy transition HEDNO is committed to **facilitate LECs**

- In the area of generation by facilitating the connection of even **more distributed generation**
- In the area of distribution by operating the local distribution network, ensuring the **security of supply** in cases the local production of energy communities is not adequate for the consumption or absorption of the excess of energy
- In the area of market operation by helping in establishing and operating a platform suitable for energy trading between the members of the LEC, facilitating a '**micro-market**' for energy transactions

Recommended General Principles

- Participation must be **voluntary** – no costumer shall be forced to become part of a LEC
- Shareholders or members of LECs **shall not lose their rights** as household customers or active customers
- LECs should operate on the market on a **level-playing field** without distorting competition
- LECs shall contribute to all regulated charges (network charges, taxies and levies) in a **fair, transparent and cost-reflective way**

LECs in islands

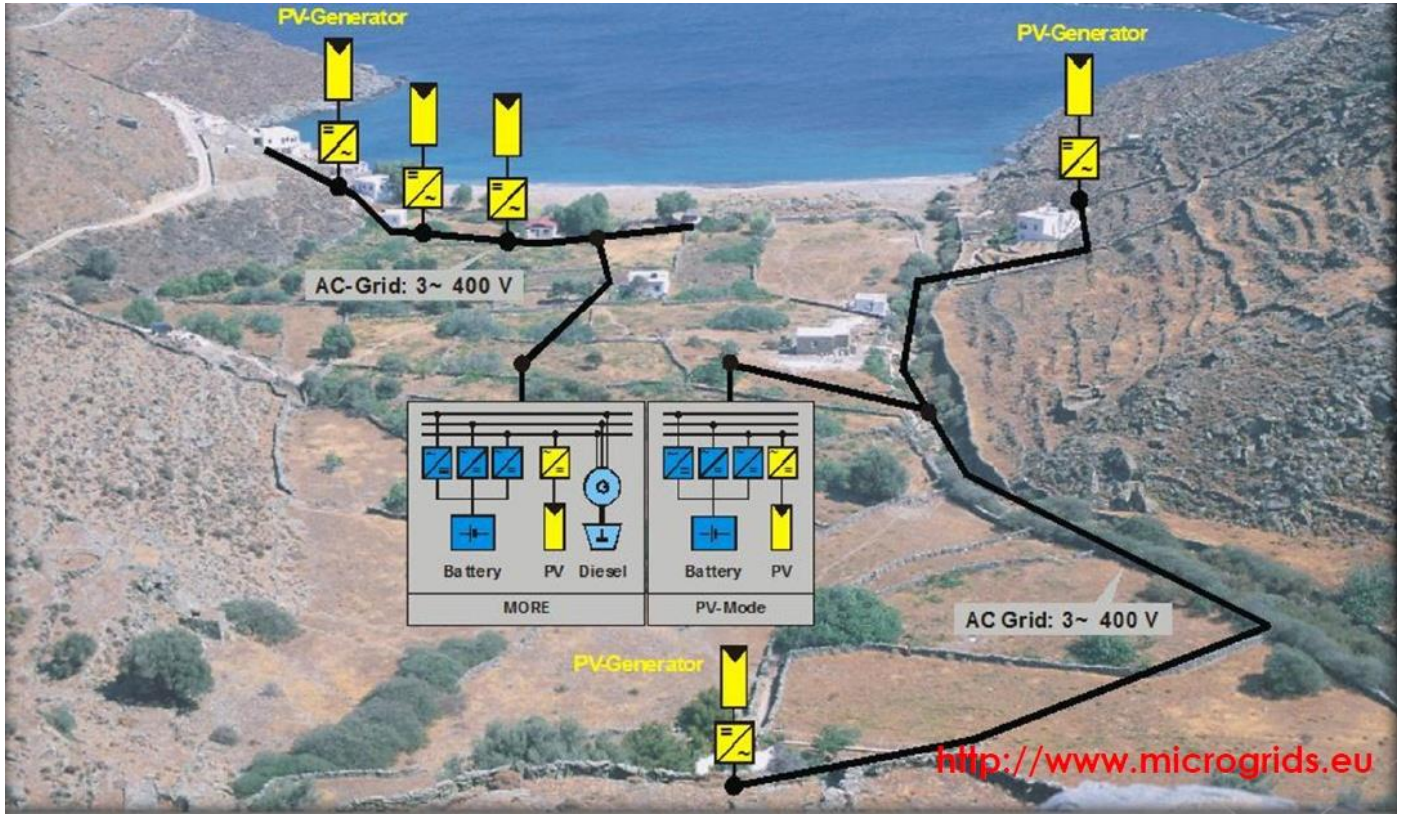
Small and Medium Size islands – Ideal places for the development of **LECs**

- Integrated Energy Systems of small size
- Local Energy Markets
- Local Economies
- High Operating Costs

But technical and economic challenges

- Operation of fully islanded systems
- High RES penetration

Pioneer LEC Greece (Kythnos island)



Kythnos microgrid– autonomous electrification of 12 houses (2001)

The first Microgrid in Europe

HEDNO - Island LECs: Ideal Partnership for success…

HEDNO is legally responsible for the islands security of supply, efficient operation and power quality

HEDNO has long and rich experience in successful islands operation

HEDNO's active role in facilitating LECs will ensure:

- **Proven experience and know-how** in the operation of micro-isolated systems.
- **Lower Costs** avoiding sub-optimization or due to small economies of scale
- **Homogeneity and Standardization** of the necessary equipment avoiding technical issues and complexity
- Refuge for **consumers who do not wish to participate or abandon the LEC.**

HEDNO - Island LECs: a Win-Win situation

- LECs could be an **alternative to reinforcing network** in congested areas ➔ reduction of system costs
- **Economic benefits** for the LEC members
- Bigger **social acceptance** of RES
- **Empowerment** of the consumer
- Bigger RES penetration ➔ Lower carbon footprint ➔ Improvement of **life quality**
- **Lighthouse projects** and know-how development

LECs, as entities, **stand between** the traditional centralised power system and the single producers/prosumers with little impact to the energy market.

LECs are considered a vehicle to **energy democracy**, as the communities take control of their energy profile.

Thank you very much