



# COL SUMERS



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Collaborative consumption in the field of energy and  
water consumption  
SESSION 5

# Session 5 – Consumption in the field of energy and water consumption C

## □ Introduction

- Welcoming
- Energy, water and collaborative consumption

## □ Content

- Sustainability challenges of energy and water consumption
- Co-operatives in the field of energy
- Co-operatives in the field of water

## □ Conclusions

- Key points of the session
- Participants' feedbacks



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# Introduction

## Challenges of sustainable energy production and consumption:

- the need to move away from fossil fuel-based energy sources;
- reduce emissions of CO<sub>2</sub>;
- transition to renewable sources of energy;
- transition from a centralised system to a more local, grass root consumers/producers cooperatives;



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# Introduction

## Presentation of the session 5: Collaborative consumption in the field of energy and water consumption

### Objectives

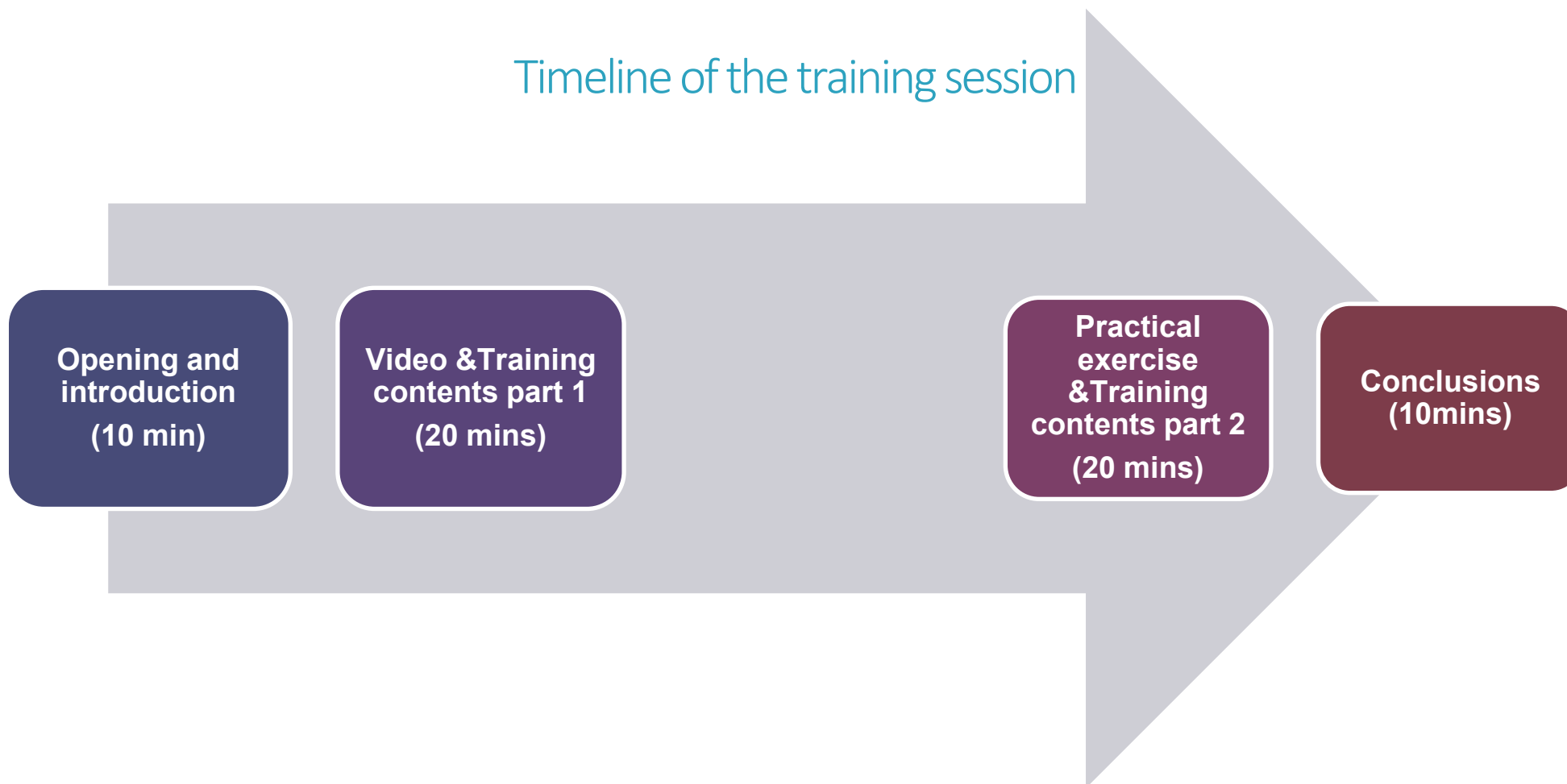
- To increase the competences of elder persons about the challenges and opportunities of energy and water co-operatives;
- To present the main opportunities offered by platforms in the area of energy and water to the elder people;
- Analyse co-operatives in the area of energy production and consumption;



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# Introduction

Timeline of the training session



# Rights and awareness

Energy Communities contribute to:

- social and solidarity-based economy;
- innovation in the energy sector;
- tackling energy poverty;
- promoting energy sustainability and innovation;
- self-consumption, distribution and supply of energy;
- improving local acceptance of energy efficiency in end-use at local and regional level;



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# Rights and awareness

! European Union law: citizens and communities have the legal right to engage directly in the energy sector

The Clean Energy Package recognises certain categories of community energy initiatives as 'energy communities' in European legislation.

Within this scope, the local communities need to be sensitised and raise their awareness regarding energy efficiency, climate change and low carbon economy.



# Energy communities

- Energy communities are incorporated as a non-commercial type of market actors that combine non-commercial economic aims with environmental and social community objectives
- Citizen energy communities constitute a new type of entity due to their membership structure, governance requirements and purpose



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# Energy communities

Energy communities are characterised by the following common conceptual elements:

- **Governance:**
- **Ownership and control:**
- **Purpose**



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# Energy communities

- **Governance:** participation must be 'open and voluntary'.
  - participation in renewable energy projects should be open to all potential local members based on non-discriminatory criteria.
  - membership should be open to all categories of entities
  - household customers should be allowed to participate voluntarily in community energy initiatives as well as to leave them, without losing access to the network operated by the community energy initiative.

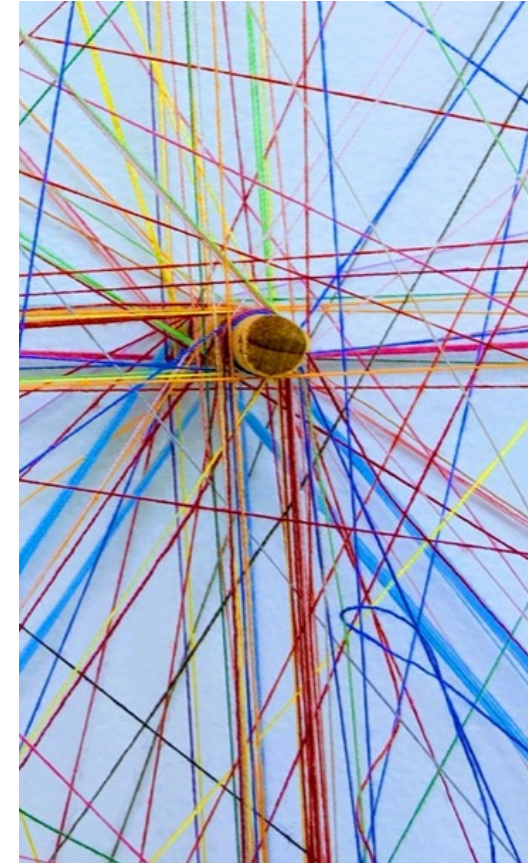


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# Energy communities

- **Ownership and control:**

participation and effective control by citizens, local authorities and smaller businesses whose primary economic activity is not the energy sector



# Energy communities

- **Purpose:**
  - The primary purpose is to generate social and environmental benefits rather than focus on financial profits.
  - energy communities as non-commercial type of actors that use revenues from economic activities to provide services/benefits for members and/or the **local community**



# Video - Energy community

Story of a local community: [https://youtu.be/0YE\\_n1Lczjg](https://youtu.be/0YE_n1Lczjg)

Project: <https://www.seai.ie/community-energy/sustainable-energy-communities/>



# Potential for development

Estimates suggest that:

(!) by 2030, energy communities could own some 17% of installed wind capacity and 21% of solar (European Commission, 2016).

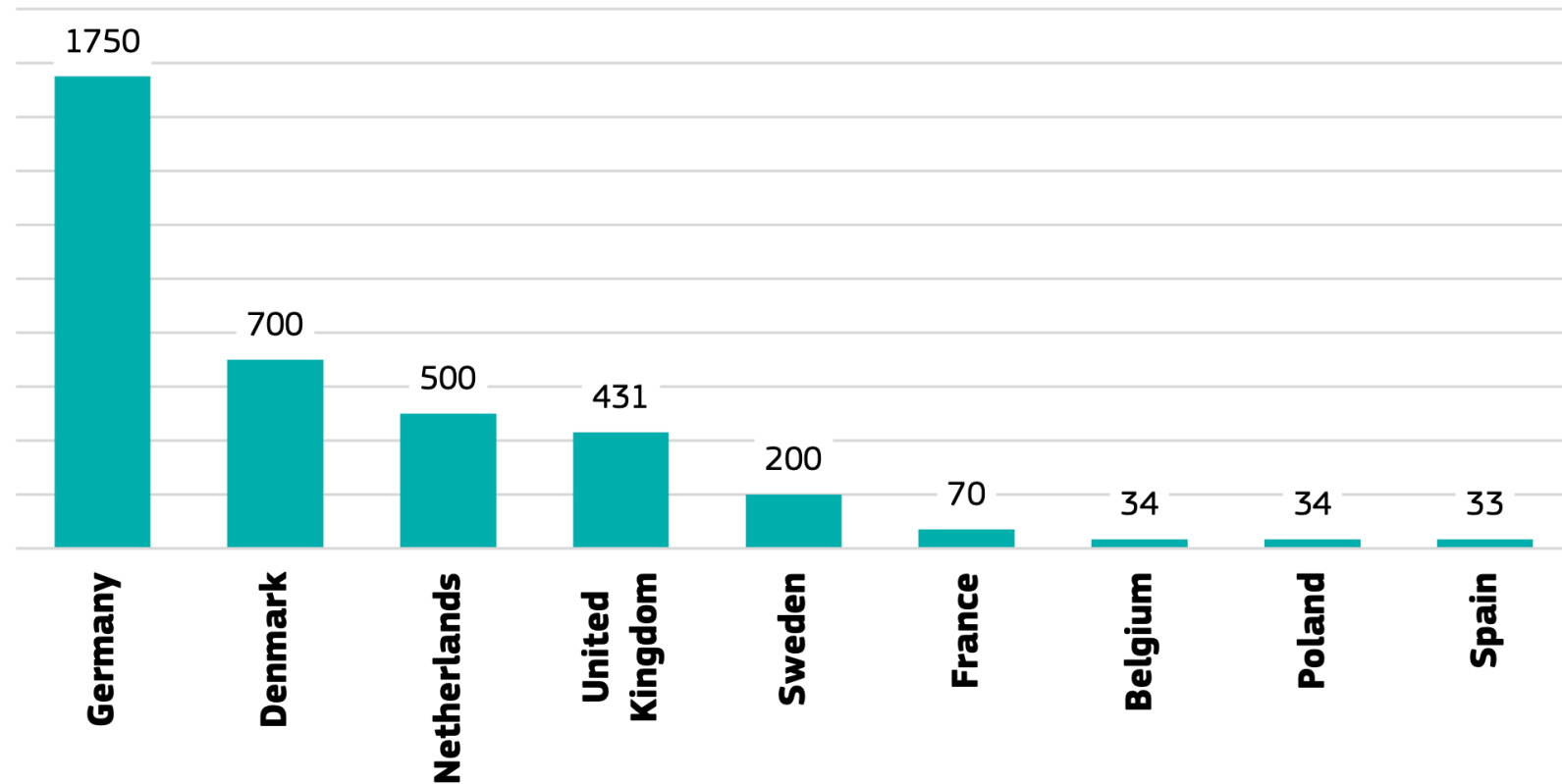
(!) by 2050, almost 50% of EU households are expected to be producing renewable energy (Kampman, Blommerde, and Afma, 2016)



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# Energy communities in Europe

Approximate number of community energy initiatives from the nine countries from UE



Source: JRC based on various sources, 2019

## Part II: case studies



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# Case-Studies. 1

## Bioenergy Village Jühnde - Germany



- The system contains a 700kW CHP generator that runs on biogas to produce electricity that is supplied to the public grid.
- A 550kW woodchip boiler is used in the winter to supply heating which circulates around the local district network.

website: <http://www.bioenergiedorf.de/en/home.html>



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# Case-Studies

## Bioenergy Village Jühnde - Germany

### Key Facts

- Jühnde is a small village in Lower Saxony, Germany, with a population of around 750 inhabitants.
- In 2005, a bioenergy plant running on biogas and woodchip opened to supply heat and power to the village. The plant is owned by local residents via a cooperative, providing low-cost energy to its members.



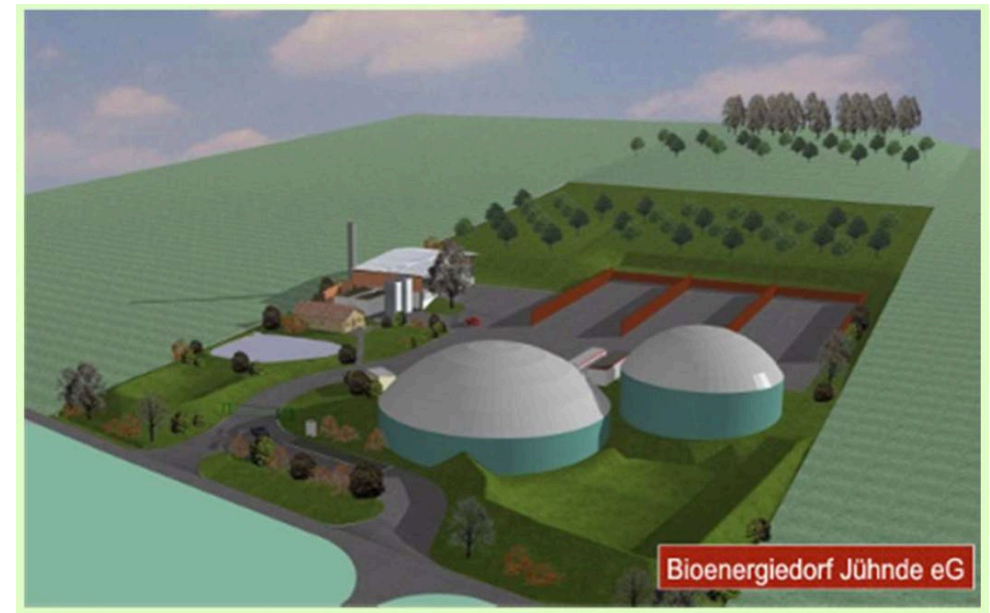
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# Case-Studies

## Bioenergy Village Jühnde - Germany

### Key Facts

- The University of Göttingen played a key role in initiating the project and providing support throughout its development. Political support also proved vital, with the village's Mayor particularly important in motivating local participation.
- Co-operatives are relatively widespread in Germany, and village residents had an awareness of this business model and shared belief in its value.
- Interpersonal trust and social cohesion between residents in the village was strong, helping them to work together to develop the project.



# Case-Studies

## Bioenergy Village Jühnde - Germany



### Key Facts

- the plants now produce 70% of the villages heating demand and double its electricity demand.
- nearly 75% of Jühnde's inhabitants are members of this company
- the development has resulted in a 60% reduction in the villages CO2 emissions because of a switch away from oil heating, and members are now provided with a comfortable, reliable and relatively cheap source of local energy
- the system cost 5.2M Euro, of which 0.5M came from the investing citizens, 1.3M from a grant, and the remaining 3.4M from a bank loan



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## Case-Studies. II.

### Sifnos Island Cooperative

**Country:** Greece

**Involved Regions:** Sifnos

**Website:** <http://sifnosislandcoop.gr/en/energyautonomy/index.html>

**Number of Members:** 100

**Involved RES Sectors:** Wind, Hydropower

Sifnos project refers to a Hybrid Power Station consisting of a wind park and a pumped storage plant. It is foreseen to have the capacity to generate all the energy required in Sifnos through only Renewable Energy Sources (RES).



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## Case-Studies. II.

### Sifnos Island Cooperative



The electricity will be generated from RES installations jointly owned by the inhabitants and the friends of the island who will be prosumers (producers and consumers at the same time). In order to turn the vision into reality, the following steps needed to be taken:

- 1) Create a citizens energy cooperative
- 2) Find the most suitable plan for the energy autonomy of Sifnos
- 3) Conduct the studies required for permit by the competent Authority
- 4) Work out the financing scheme under development
- 5) Develop the project



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## Case-Studies. II.

### Sifnos Island Cooperative

The hybrid station consists of:

- a small, 5 wind turbines park
- one sealed sea water reservoir 1.000.000+ cubic meters, dug in the rocky area near the sea, at an altitude of 330 meters
- a hydroelectric power station with 4 hydroturbines
- a pumping station with 12 pumps

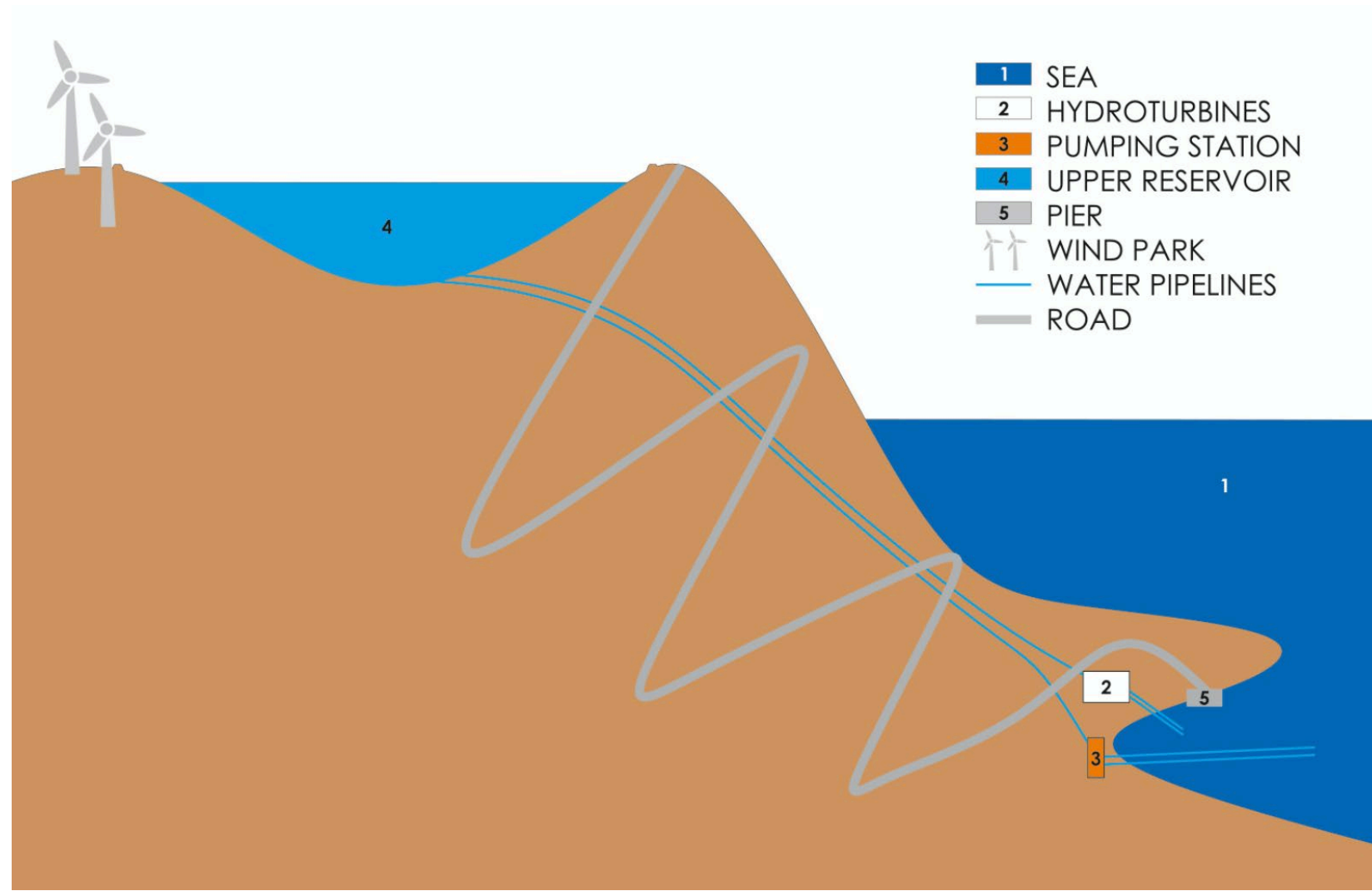
How it works

- The electricity generated by the wind turbines will supply both the grid and to the pumps that will elevate seawater, filling the water reservoir
- The hydroelectric generators will operate at all times, providing stability to the grid
- Even if there is no wind for several days, the hydroelectric plant will be able to effortlessly meet the electric power demand of the island



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## Case-Studies. II.





## Case-Studies. II.

### Sifnos Island Cooperative

#### Key Facts

- Gaining necessary knowledge for the Greek and European legislation on social entrepreneurship, the ways for energy production and storage, RES and electricity distribution networks and their evolution.
- Contacts with other European REScoops and the European Federation of RES Cooperatives, REScoop.eu.
- The community participated in conferences and seminars throughout Europe on RES and ways of funding projects like ours, gaining valuable knowledge.



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## Case-Studies. II.

### Sifnos Island Cooperative

#### Key Facts

- The community organized awareness events and one international conference in Sifnos on “ENERGY COOPERATIVES, how they can be promoted in the island regions of Greece” (09/06/2014).
- The island and the effort of Sifnos Island Cooperative for the energy autonomy of the island from RES, was portrayed by REScoop.eu, the European Federation of RES Cooperatives as a global example, through the only video created by REScoop.eu so far, for the promotion of renewable energy worldwide.
- The community invited and presented the plan for the energy autonomy of the island in the European Parliament.



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# Water co-operatives

## **Solution for *rural* water supply and sanitation**

Water co-operatives that have been established to provide:

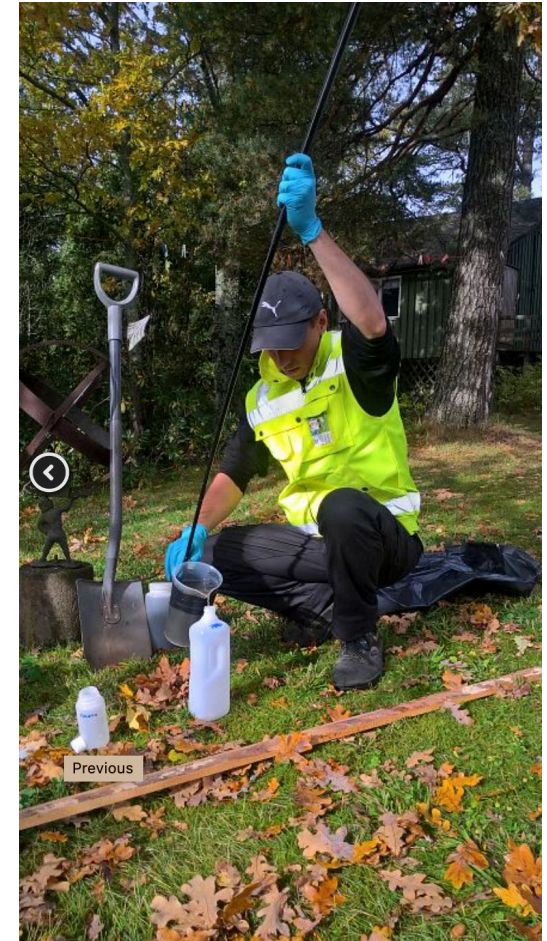
- water supply
- sewerage services.

Water co-operative is good alternative for water services if there are several people with common interest of needs for water services and they want to solve the problem together.



# Water co-operatives

- Water co-operatives are established and owned by the people who need the water services.
- Usually the people who have the greatest need for the water services are the founders of the co-operative and they are in active role in the management of the water co-operative.
- In many cases the active people have accelerated the development of the water and sanitation services on their neighbourhood by establishing the water co-operative instead of waiting the actions of the municipalities.





# Water co-operatives: project example

## VillageWaters Project

VillageWaters (Water emissions and their reduction in village communities villages in Baltic Sea Region as pilots) brings together households, village communities and local authorities, scientists and enterprises.

### **Villagers and homeowners in sparsely populated area**

VillageWaters helps homeowners find effective wastewater treatment equipment and to save in the long run.



### **Municipal authorities**

Environmental authorities in the local municipality benefit of the information-tool by advising homeowners to meet the best wastewater treatment solutions.



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# Water co-operatives

## **Small and medium entrepreneurs in wastewater treatment**

The project builds up expertise about the technology and its functionality in order to reduce risks and manage running costs.



## **Researchers in environmental science**

The project measures the impact of emissions on groundwater quality and surface-water eutrophication as well as the climate change impact.



(!) Water cooperatives are not as developed as energy cooperatives, but there is interest in these models at local level.

More details: [https://www.villagewaters.eu/About\\_VillageWaters\\_500](https://www.villagewaters.eu/About_VillageWaters_500)



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# Optional: Col-Summers LAB

## Activity 9.5

### CC in the field of energy and water consumption

“Renovation through Innovation”



## □ Main idea

This activity assists participants to identify ways to reduce energy and water consumption in their everyday life through a monitoring activity, that will indicate all the factors that need to be considered and provide further knowledge on the range of renewable sources

## □ You will need

whiteboard (chalkboard, butcher paper, large flip chart, etc.), pens, papers

## □ Expected duration

60'

Let's go!





# Conclusions

- benefits/problems to use CC in energy and water?
- How useful do you think CC and cooperatives are for energy and water?
- Feedback



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