



Task 1.1: Creating a common and shared
understanding of microgrids

D 1.1: PROCEEDINGS OF TRANSNATIONAL EXPERT WORKSHOP:

Documentation of an interactive part at the kick-off workshop

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1. INTRODUCTION

At the occasion of the kick-off workshop in Graing on 09th January 2020, an interactive session with the entire consortium was held to prepare the content and work plan for developing the Alpine Microgrid Model (AMM). The session was part of the following half-day workshop:

8:30 – 8:50	Registration
8:50 – 9:15	Welcome and introduction to the Workshop Officials and BAUM
9:15 – 10:00	Presentation by experts (15' each): (find presentations in AlpGrids workspace) <ul style="list-style-type: none"> • 4Eward: microgrid experience • UNIGE on smart poly-generation microgrid • BAUM on local energy communities
10:00 – 10:45	Interactive session with participants: puzzle session: how would you characterize microgrid, local energy community?
10:45 – 11:15	Roundtable discussion: Q&A with experts, observers' feedback
11:15 – 11:30	Coffee break

This document displays the results of the **interactive session** and makes them available for further steps.

2. EXECUTIVE SUMMARY

The workshop unveiled a clear need to align terminology, views and expectations as regards to microgrids. However, participants share that microgrids come in two flavours:

- (1) technical solutions for optimized operation of local grids including where appropriate the preparation for islanding in emergency cases
- (2) elements of local energy communities which often strive for maximising energy self-supply

While the benefits of (1) obviously include reduced grid operation costs and increased resilience of the electric grid, benefits of (2) are less explicit and need to be debated.

The two EU directives addressing, respectively, renewable energy communities (notion defined in, and used by, the Directive on the promotion of the use of energy from renewable sources (Renewable Energy Directive 2018/2001/EU¹) and citizen energy communities (notion defined in, and used by, the Directive on common rules for the internal market for electricity (EU) 2019/944²) leave it to member states to allow such energy communities to own and operate their part of the grid or not. Various alpine countries have taken different approaches and defined different legal frameworks. That needs to be studied and brought to a coherent definition of terms and views for the Alpine Space.

¹ https://ec.europa.eu/energy/topics/renewable-energy/renewable-energy-directive/overview_en;
text of the directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001>

² https://ec.europa.eu/energy/topics/markets-and-consumers/market-legislation/electricity-market-design_en;
text of the directive: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.158.01.0125.01.ENG&toc=OJ:L:2019:158:TOC

3. DOCUMENTATION

WORK PROCESS OF THE SESSION



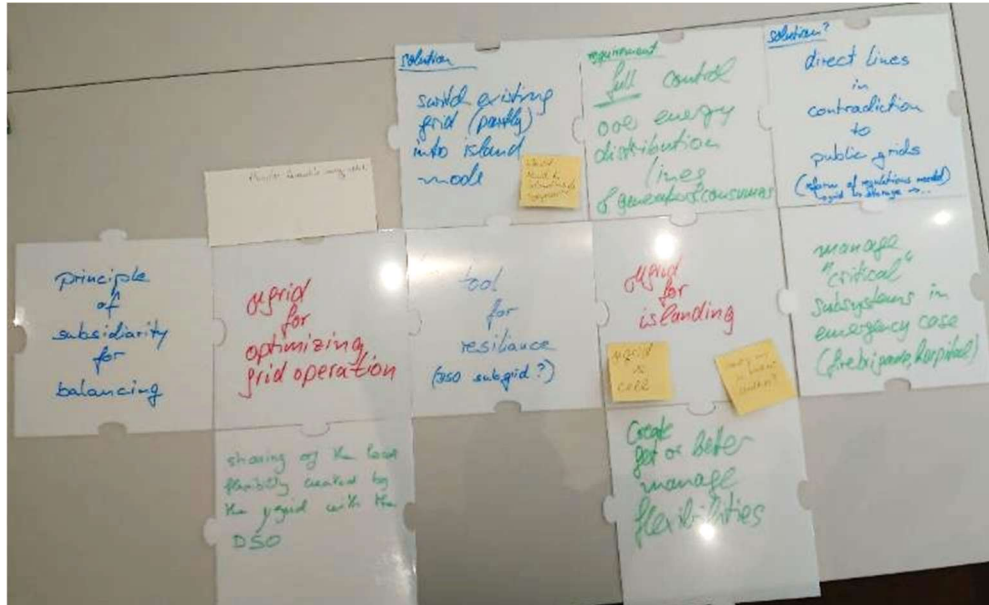
Participants were divided into rotating groups to display and visualise their views on microgrids. They identified various flavours:

- microgrids related to optimized grid operation
- microgrids related to islanding
- microgrids related to energy communities
- microgrids related to collective self-supply.

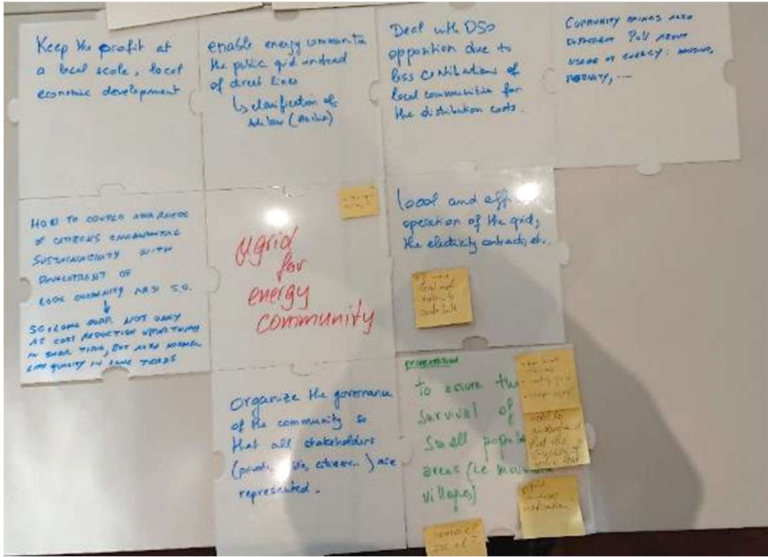
Participants were asked to describe **characteristics** and **requirements**. Using a puzzle method, similarities and different views were identified as a basis for a common terminology and a joint definition of the term “microgrid” for the work in AlpGrids and as a basis of a general definition of an Alpine Microgrid Model (AMM).

OUTPUTS OF THE WORKING SESSION

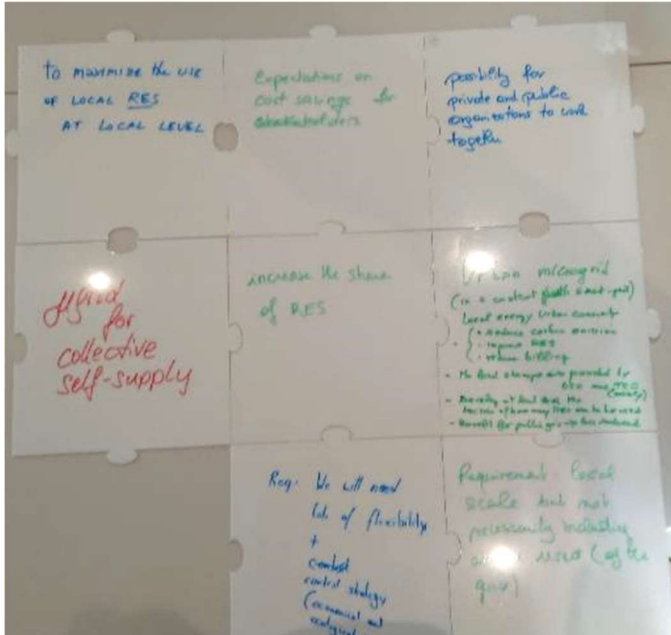
input from participants plus interpretation and comments



microgrids related to optimized grid operation ...	microgrids related to islanding ...
... are both a tool to increase resilience (mainly when operated as a sub-grid of the distribution grid)	
... are a means of subsidiarity for balancing energy generation and supply	... are a technical solution to switch part of a distribution grid into an islanded mode
... should help stabilizing the grid by sharing the local flexibility with the DSO	... should allow for managing the flexibility needed for islanded mode
	... must have full control over distribution lines between all generators and consumers
	... should help managing critical subsystems in case of emergency (e.g. keep fire-brigade or hospital up and running)
	... could comprise a situation where direct lines between generation and supply complement the public grid

input from participants	interpretation and comments
	
microgrids in relation to energy communities³ can ...	
... help to keep the profit at a local scale > local economic development	
... enable energy communities to use the public grid instead of using direct lines	But: would need a clarification of the legal framework (e.g. in Austria)
... be the basis to deal with the DSO for lower grid fees	That could be the case when the Energy Community provides grid services
... bring benefits beyond energy supply, e.g. housing, mobility	Benefits are in the economic as well as in the social domain. Energy Communities can increase the motivation to take part in energy transition.
... allow for local and efficient management of the energy system, i.e. the grid, the contracts etc. That can contribute to the “survival” of scarcely populated areas and small populations (e.g. in Alpine villages).	We need to understand that with such approaches someone wins, but there will be “losers” as well
... should be organized in a way so all participants (citizen, private, public) are represented in the governance of the organisation	
<p>The big question is: How to couple citizens’ awareness of environment and sustainability with the development of a local community and a smart grid. It would be necessary to not only see energy communities as a means to reduce costs in short term but also a long-term contribution to quality of life.</p>	

³ The term „energy communities“ is used for a variety of cooperative approaches to energy supply and consumption, not necessarily only according to definitions in EC regulations for Citizen or Renewable Energy Communities.

input from participants	interpretation and comments
	
microgrids for collective self-supply ...	
... help maximise the use of local renewables at local level	Above all such systems allow for deciding on a local level how much renewables we want to use.
... offer the possibility for private and public organisations to work together.	A participant stated: "While there is a need for local scale approaches – there is not necessarily a need for including end users." We need to discuss to what extent involvement of many or all (grid) users is necessary and beneficial.
... will provide the flexibility (in consumption) that is desperately need for system stability	
Urban microgrids in combination with the distribution grid will play a special role to reduce carbon emissions, increase use of renewables and reduce costs. They need to go together with storage, mainly provide by DSO and TSO. Then the benefit will be reduced costs of operating or refurbishing the local grid.	

FURTHER STEPS TOWARDS A CONSISTENT ALPINE MICROGRID MODEL (AMM)

After sharing this report with results from the kick-off workshop, the following work process shall be implemented:

- ❑ jointly describe techno-economic framework
 - basic terminology (supply/share, local/regional, owner/operator, ...)
 - household/industry prices, grids fees, generation costs, contractual situations (BAUM to provide a request / template)
- ❑ come to a definition of „Alpine Microgrids“ (including microgrids and energy communities)
 - generally used definitions, e.g. EC, US, China (by B.A.U.M.)
 - official definitions per country (by volunteer of each country)
 - proposal per partner or group of partners
 - joint definition or set of definitions discussed and adopted by consortium
- ❑ update initial description of (legal) framework using / referring to definitions.