

Local Energy Communities and Collective Self-Consumption

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Andreas Tuerk (Joanneum Research)

**Session 2: New paths to decentralized energy
systems**





LIFE - Center for Climate, Energy & Society

- Renewable Power
- Eco Mobility
- Tourism & Climate
- Impacts of Climate Change



JR's work on energy communities

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- COMPILE: Community Power in Energy Islands  Compile
- EXCESS: EXCESS FLEXible user-Centric Energy positive houses 
- EU BRIDGE Working Group: Task Force on Energy Communities



Range of existing approaches for Energy Communities

No	Name
class 1	Collective generation and trading of electricity
class 2	Generation-Consumption Communities
class 3	Collective residential and industrial self-consumption
class 4	Energy positive districts
class 5	Energy islands
class 6	Municipal utilities
class 7	Financial aggregation and investment
class 8	Cooperative Financing of Energy Efficiency
class 9	Collective service providers
Class 10	Digital energy supply and demand response systems

Implementation of Energy Communities in 2 EU Direktives

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- Renewable Energy Directive Art 21
 - **Collective Self-consumption (CSC)**
- Renewable Energy Directive Art 22
 - **Renewable Energy Communities (RECs)**
- EU Electricity Market Directive Art 16
 - **Citizen Energy Communities (CECs)**



→ Member states have 1,5 years for national transposition

Citizen Energy Communities (CECs) & Renewable Energy Communities (RECs)

Citizens Energy Communities

- New market actor

Primary purpose to provide environmental, economic or social community benefits rather than to generate financial profits

Collective Self
consumption

- Geographical proximity of production and consumption
- Renewable Energy
- Public support possible



Who can be member? Who can control?

Form of organisation: Definition at the national level

- “any form of entity for Citizen Energy Communities, for example an association, a cooperative, a partnership, a non-profit organization or SME”.

Membership volume

- RECs exclude ... don't

“Effective Co

- CECs: only ... enterprises
- RECs: only local (medium enterprises)

Inconsistencies,
RECs not
necessarily a
subset of CECs

Benefits and options for a CEC to operate its own (sub) grid?

- **Optimizing the economics of the grid**
 - Via sharing energy between the members of the CEC. Optimize use of infrastructure/RES via including all actors in the chain
 - Balancing onsite demand and generation..
- **Providing benefits to the DSO/markets**
 - Reduction of need for grid reinforcements due to optimisation of flexibility, reduction of congestions, local flexibility markets
- **Creating local benefits**
 - Creation of local value by outsourcing the maintenance of the grid to local companies of the community Awareness raising for renewables and environmental benefits



Austria's approach

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- Collective Self Consumption in multipartment buildings since 2017
 - So far no neighboring buildings can't be included
- Upcoming legislation towards energy communities (RECs):
 - Expansion of CSC to an area behind the transformer
 - Introduction of reduced local grid tariffs (-50%), but: rest of consumers have to compensate
 - Cooperative approach



Trends in Implementation

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- **Implementation in also in Belgium, Portugal, Luxembourg, Slovenia, Greece, Spain, France**
 - So far mostly Collective Self Consumption and REC implementation
 - Most Member States combine physical boundaries with regulatory boundaries (LV and MV transformer)
 - So far implementation of EU directives focuses on technical element, less on organisational ones
 - Creation of local tariffs is key in transposition process

Country Examples

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Slovenia



- ✓ CSC in multiapartment buildings
- ✓ RES Communities (behind the transformer)
- ✓ Many technical and organisational details

Portugal



- ✓ First EU country that has transposed article 22 (RECs)
- ✓ Local grid tarif under discussion

Greece



- ✓ Governance clarified in detail
- ✓ Members can be municipalities and provinces
- ✓ Broad activity portfolio: energy efficiency, CHP, emobility, Demand-side management

France



- ✓ Collective self-consumption
- ✓ Expansion towards energy communities
- ✓ 1km als boundary

Tarrif setting: discussed options

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Local grid tarrifs (AT, PT, FR)

- ✓ If only LV grid is used, only LV part of the grid tarrif has to be payed
- ✓ What about other charges that are part of the grid tarrif?

Ex-post remuneration (of part) of the grid tarrif (BE, NL)

- ✓ Depends on cost reduction of grid operator
 - ✓ reduced losses,
 - ✓ reduced grid reinforcements
 - ✓ reduced peaks)
- ✓ Can all benefits to the system be easily quantified?

Any barriers for energy communities?

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■ **Is there a bussines model?**

- Hardly any business model if only electricity is included
- Combination with heat/EE needed

■ **Technological barriers**

- Diversity of technologies: interoperability issues. No plug and play solutions
eg for storage
- Lack of technology integrators that are able to provide entire solutions
hardware and softwarewise

■ **Social barriers**

Details unter:



Collective self-consumption and energy communities:
Overview of emerging regulatory approaches in
Europe

Working paper, June 2019

<https://www.compile-project.eu/>

JOANNEUM RESEARCH
Forschungsgesellschaft mbH

LIFE – Centre for Climate, Energy and Society

Waagner-Biro-Strasse 100, 8020 Graz
Tel. +43 316 876-7600
life@joanneum.at

www.joanneum.at/life

