Smart Solar Power in Europe – Intersolar, Munich, 16 May 2019

Workshop Summary "Solar Power in Smart Local Energy Systems"

Solar Power in Smart Local Energy Systems

Moderator: ERA-Net SES

Goal of the interactive workshop

The overall goal of this workshop was to identify the varied challenges local energy communities (LEC) are facing, and to identify measures for tackling these challenges collaboratively for enabling the implementation of citizen energy communities (CEC) and renewable energy communities.

Approach

The following topics have been discussed in small expert groups allowing for deep exchange:

- Energy trading
- Operating a subgrid of a distribution grid
- Operating batteries to optimize self-supply and provide system services
- Integrating e-mobility in energy communities

The discussion followed seven phases selected by Kilian Karg and Ludwig Karg, B.A.U.M. Consult München / Berlin, for enabling a focused sharing of knowledge and ideas.
In a first step, challenges hindering the uptake of Energy Communities related to the topic were collected. Afterwards, the challenges were clustered. Furthermore, those challenges affected by the recent legislative resolution to the EC directive on on common rules for the internal market in electricity have been identified.

Finally, potential actions to overcome these challenges were collected. After discussing and reflecting about the potential actions within the group, the two most promising “routes to success” were identified and visualised.

Results

In addition to the summary of the results developed by the four teams, a comprehensive report of the workshop can be provided upon request.

Energy Trading

Cluster	Challenges	Proposed Solutions
Regulation	• Grid fees and taxes • To end all hindering regulations • Regulatory/ tariffs on temporary stored energy • Grid use costs	• Pilot projects • MS consultations • Forward hurdles of pilot project to funding agency (critical for success of project) • Tax free or at least less tax for energy communities • EC force member states to make reg. for energy communities. • Bridge between sandbox projects and regulator in member countries • Sandbox project, show it works
Technology leaps	• Efficient billing • Cost	• Set deadline for implementation • EC check spirit of implemented rules
Ownership	• Ownership of community	• More responsibility for energy supply to the communities, districts, villages, local businesses, citizens • Organise a 2-day Business Model innovation workshop in Brussels for the EC with energy experts
Customer engagement smart service	• Acceptance to pay premium price • Value of renewable power in €€€ • Customer is afraid to join something new • Complex for customer • Customer engagement in flexibility solutions	• Include municipal stakeholders • Educate end-customers: what is energy community, what are the benefits? • Make customers aware what are the blockers to make sharing more attractive

Operating a Sub-grid of a Distribution Grid

Cluster	Challenges	Proposed Solutions
Overregulated market	• Lack of simple regulation for peer2peer energy trading • Legislation/regulatory rules for energy market • Difficult/missing business model for ancillary services for LECs • No regulation: enable market mechanics for peer2peer trading	• Regulatory sandboxes • EU peer2peer rules/frame • Sound and easy regulation (framework) • Techno-economic analysis of ancillary services • Stop the need of trading licences to be able to trade energy (open to anyone) • De-regulation
Measurement	• Overregulated measurements • Set-up: secure, affordable measurement of energy flows	• Cost benefit analysis of metrology accuracy • Digital enabled “SM” cheap, secure measurement • Utilize available measurement
Grid operation (DSO)	• Need to set up private grid (different regulations on national level) • Grid operator monopolist	• Grid fee based on maximal load per user: mobile tariffs • Digitalization (in/out/grid usage) • Modulating grid use fees based on distance between seller and producer • Revise unbundling assumptions between grid and energy assets • Local ancillary services market
State introduced fees / taxes	• Government taxes EEG (different on national level)	• Unbundle fees (EEG) from Energy price • Subsidies vs. framework: EU-> national level

Cluster	Challenges	Proposed Solutions
	• Grid costs	
Sound coordination / system view	• Systems view required	• Stars projects • Experiments • Research closer to market/industry -> integration • Definition of TOPes

Operating Batteries to Optimize Self supply and at the same time provide System-services

Cluster	Challenges	Proposed Solutions
Rules & Regulation	• Model limited to private households. Everything else is too complicated so far (Mieterstrom) • Storages pays back for society only if PR is provided by it • Administration problems	• Keep it simple! • Transpose EU directive into national law: quickly, easy to implement • Take the idea into the schools: pupils grassroots
Technology	• Merging IT-Systems • System built for large centralised assets not suited for decentralised assets	• Best practice: show practical cases that technology with PV/wind/hydro/batteries works in system • Decrease of operational work for scaling
People	• Lack of knowledge • Mindset of people involved	• Program to enhance acceptance and awareness

Integrating E-mobility in Energy Communities

Cluster	Challenges	Proposed Solutions
Regulation / Standardisation	• Lack of or clear regulation and standards • No identification of EV-SOC • Lack of vehicle to grid legislation and warranties	
Infrastructure	• Poor infrastructure • Lack of infrastructure for enabling integration • Energy system stability • High energy demand and high power flow	• Develop roll out tool for regional development showcasing benefits
Business Models	• Price of EV (consider share/lease to avoid buying) • Energy pricing and related business models	• Enable business model: framework for customer friendly tariffs • Enable business models: clear legal framework for sharing/leasing • Exchange between association of energy traders and research
Awareness	• Lack of knowledge regarding regulations • Lack of education • Lack of information • Lack of e-mobility mentality • Lack of infrastructure • Limited accessibility to infrastructures • Lack of confidence	• Awareness campaign

Photo: Workshop session on Solar Power in Smart Local Energy Systems

Photo: Results of the workshops presented in the final plenary session Conclusions of the Day with several promising findings for future cooperation between research and industry as well as between the two networks of SOLAR-ERA.NET and ERA-Net SES