MVM OPTIMUM ZRT.

HOW CAN ENERGY COMMUNITIES TAKE PART IN THE SUSTAINABLE DEVELOPMENT AND IMPROVEMENT OF ENERGY EFFICIENCY?

TÚRI TÍMEA
SMART CITY EXPERT
MVM OPTIMUM ZRT.
25-27 MAY, 2022

MVM Optimum has developed multi-segment energy efficiency solutions...

- MVM Optimum Zrt. brings together products and services based on innovative energy efficiency and renewable energy sources that go beyond the traditional public service role.

B2G

- Energy efficiency services
- Creating energy communities with the involvement of the population and the business sector or even on a social basis
- Independent aggregation
- Smart City solutions
- Climate projects

B2C

- Installation of a household-sized solar system, free bidding, tender support
- Heat pump surface heating and cooling, hot water production
- Energy storage - construction of hybrid solar systems

B2B

- Solar power plant construction, maintenance, repair services
- Energy efficiency, audit, reference services
- Heating and cooling systems
- Implementation of energy storage






… and with the energy community and other innovative products, it can be implemented as a complex package and service of smart city

Energy Communities
- PV system
- Energy storage
- Comprehensive energy managment system

Smart city infrastructure
- Energy modernization projects
- Smart lighting systems
- Smart crossings
- Smart Parking
- Innovative bicycle and roller store
- Smart bus stop, bench and informations desks

Up-to-date professional advice with the help of **extensive knowledge network**

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SMART CITY SOLUTIONS

Development of **electromobility** and related infrastructure solutions

Targeted **research on funding sources** both in the EU and in Hungary

Governmental Strategy Papers
- **Climate strategy** and awareness-raising programs
- **SECAP**
- **SUMP**

DSR management services and systems

Energy communities are one of the key tools for integrating renewable energy sources to meet climate targets

EU regulation

National regulation

National electricity system

AIMS

- Key climate and energy targets

- Define national targets
- Strategic goal system (NES, NEKT)

- Increasing the use of renewable energy sources
- The need of development of flexible network
- Development of new business models

CHALLENGES

- The need for innovation
- Increase international integration

- Provide an innovative market environment
- Stimulate the cooperation
- Provide resources

- Network bottlenecks
- Technical and operational challenges
- The need of rethinking of the business environment

SOLUTIONS

- Provide sources of support

- Call for innovative RDI and market tenders

- Implementing network innovation
- **Creating Energy Communities**
- Development of aggregation business model
- Research on the role oand use of hydrogen

The national legal definition of energy community

VET: The **Energy** Community is a new form of renewable energy production, distribution and distribution that enables individuals, groups of individuals, small and medium-sized enterprises, large companies, state-owned institutions to move from a simple energy consumer to a renewable energy producer **(i.e. active consumers**).

The **main goal** of the Energy Community is to provide its members with access to renewable energy, various flexibility and regulatory services for the electricity grid, thus providing its members with **quantifiable material, energy efficiency, social and environmental benefits**.

The form of operation of the energy community is a **legal entity (Ltd., Ltd., etc.) or cooperative that performs at least one of the following activities:**

- production, storage or consumption of renewable energy
- provides distribution flexibility services
- electricity distribution
- aggregation
- electromobility services

Current regulations:
- 2007 LXXXVI. Act - on Electricity (VET)
- 73/2007. (X. 19.) Government Decree - Act LXXXVI of 2007 on electricity.

Detailed rules for the registration and operation of energy communities are currently being prepared.

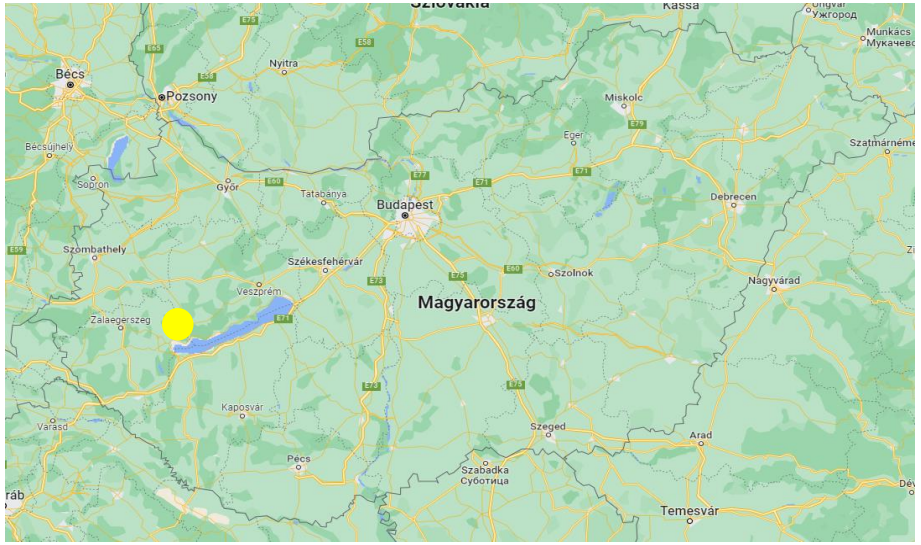
KESZTHELY ENERGY COMMUNITY PILOT PROJECT

- **Project title**: “Energy Communities in Hungary - Pilot Project for the Establishment of Energy Communities and the Community Solar Parks They Own and for the Development of Their Sustainable Operating Models” **(2020-3.1.4-ZFR-EKM-2020-00003)**
- **Period of implementation**: 01. April 2021. – 31. March 2023.
- **Total Budget:** HUF 403 981 000

  Own contribution of MVM Optimum: HUF 168 565 350

  Grant of the Ministry of Innovation and Technology HUF 235 415 650
- **Partners**: MVM Optimum Zrt., Municipality of Keszthely, Ministry of Innovation and Technology
- The R&D pilot project is aimed to set-up the energy community, at Keszthely, Hungary, it’s business model and –structures, as well as the related infrastructure: a Solar Power Plant and a Battery Storage Facility.
- **Main activities:**

1. **Development of the operating, management and business models of the Energy Community and establishment of the Energy Community**: Involvement of **20 residential users, 5 SMEs** and **1 Local Government** and becoming a member of the energy community, customer acquisition, media platform, operation of helpdesk
2. Construction of a **solar power plant (0.498 MW)** and a **Battery Energy Storage Facility (300 kW / 274 kWh)**, as well as the development of an **IT control system**, installation of **smart meters** at the members of the energy community
3. Az **energiaközösség tesztüzeme** és működtetése
4. Az energiaközösségek működésével kapcsolatos **tapasztalatok összegzése, fejlesztési és szabályozási javaslatok elkészítése** és **további projektek indukálása**



Innovációs és Technológiai Minisztérium

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MOTIVATION OF THE EC MEMBERS

- Between September 2021 and April 2022, MVMO conducted several personal interviews with applicants to the energy community

- The min.26-member energy community, we have started the preparation of the letter of intent to join the 19 locals, 4 SMEs and the Keszthely Government (1-1 more retail and SME customers are needed).

- **The main experiences of the client interviews**:

  - The current candidates can be considered as **“early adopters”**
  - •about **80% of the candidates** main motivations of more sustainable lifestyle, community-forming power
  - •About **60% of the candidates** at least half of the revenue generated during the first 5-10 years of participation on the development of EC assets spend
  - No or only longer-term **revenue** is expected by the clients from the participation
  - The clients expect **advice**, development and joint action of scale and cooperation from the EC
  - The **implementation** of the multi-annual development program based on the above is expected from the energy community

MEMBERSHIP OF THE KESZTHELY ENERGY COMMUNITY

Residential consumers (20)

Prosumer (5)

Controlled consumer (2)

Passive consumer (13)

Small and medium-sized enterprises (5)

Production

Office supplies (2)

Grocery store

Training center

Government

Government maintained buildings

THE ROLE OF EC IN THE SUSTAINABLE DEVELOPMENT AND IMPROVEMENT OF ENERGY EFFICIENCY

Impacts related to energy efficiency:

- Energy savings
- Fulfillment of community, social and economic targets for energy production and storage revenues and further development of renewable energy
- Implementation of the Energy Community Development and Development Program
- Impacts of local production and use (one substation area):
- Stability of the distribution network, security of supply,
- Establishment of battery storage (decreasing of carbon-related balancing power)

Other effects:

- Attitude formation – increasing the social awareness
- Prosumerek can be participants in the electricity market
- Benefit of economic scale
- Multiplier effect:
- Additional co-operation through EC Opportunities: induction of new energy communities
- Additional projects related to the energy community and / or EC members - energy efficiency renovation, smart city developments
- Contribution to meeting municipal climate targets

KEY ISSUES FOR THE PRACTICAL IMPLEMENTATION OF THE ENERGY COMMUNITIES

1. Finding the right form of company
2. The way the company works in practice and the decision-making process
3. Ensuring the operation of the company and its guarantees (development program to ensure community, social and economic benefits)
4. Limitations of fundraising for future developments
5. Energy Community Authorization: Energy Trade Authorization with limited content required for efficient operation
6. Providing EC benefits to members:

   6. a. How to get community, social and economic benefits: money, coupons, electricity, advice, joint investment

   6. b. tax exemption up to a certain amount, tax credit for the EC and its members
7. Proposal for a regulatory environment enabling the efficient functioning of the EC
8. Widening the possibilities for prosumers: size limitation of household solar systems
9. Issues of network connection of electricity generation and storage infrastructure
10. Developing the energy community as a product and service

THANK YOU FOR YOUR ATTENTION!

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ANNEXES

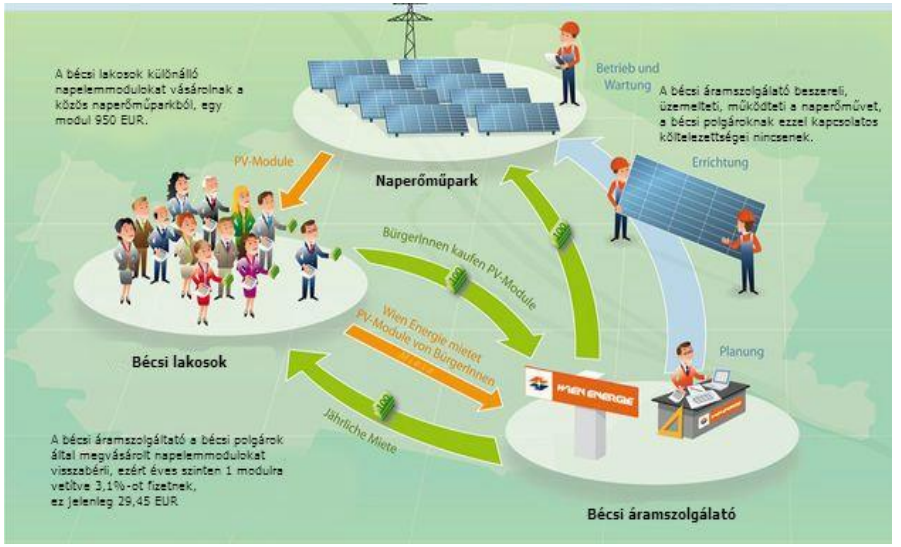
Energy community vs. Aggregator vs. Community solar park

VIEWPOINTS	ENERGY COMMUNITY	INDEPENDENT AGGREGATOR	COMMUNITY SOLAR PARK
Profit-orientation	**non**-profit	**Profit-oriented**	**Profit-oriented**
Roles	**Social** and **economic, electricity market player**	**electricity market** and **economic operator**	**electricity market** and **economic operator**
Aims	its primary purpose is **not to obtain financial gain** but to provide environmental, economic and social community benefits to its members or shareholders or to its area of operation;	the aggregator collects the capacities that are unable to participate in the market on its own (producers and consumers) and, by summing them up, supplies them as a relevant product for the given market, its **primary purpose gaining profit**	It raises funds for the production / storage infrastructure by collecting investors, it usually undertakes to repay the investment after 25 years, until then it makes regular payments from the operating income, it mostly has no community aspect, **the primary goal is profit**.
Membership conditions	its members form a **community for common environmental, social and community goals** (producers, consumers, decision-makers, investors, customers)	**has no members;** it has a **bilateral contractual business relationship** with entities that are independent of each other and unknown to each other	**has no members;** it has a **bilateral contractual business relationship** with entities that are independent of each other and unknown to each other
Decision-making	based on **voluntary and open participation**, effectively controlled by members or shareholders	The aggregator has a **commercial contractual relationship with the participants** in its portfolio. Customers have no say in the operation of the independent aggregator	based on a **commercial contractual relationship,** the participants may not intervene in the operation

INTERNATIONAL EXAMPLES OF SUCCESSFUL ENERGY COMMUNITIES AND AGGREGATION

Wien Energie - Austria: 10,000 members since 2012, operation of 30 renewable energy systems, 50,000 MWh of energy production.

•Individuals from Vienna can participate and purchase panels for EUR 950 (max. 10). The energy supplier will then rent (lease) the panels or buy them in the form of a voucher / coupon.



Zelena Energetska Zadruga (ZEZ) - Croatia

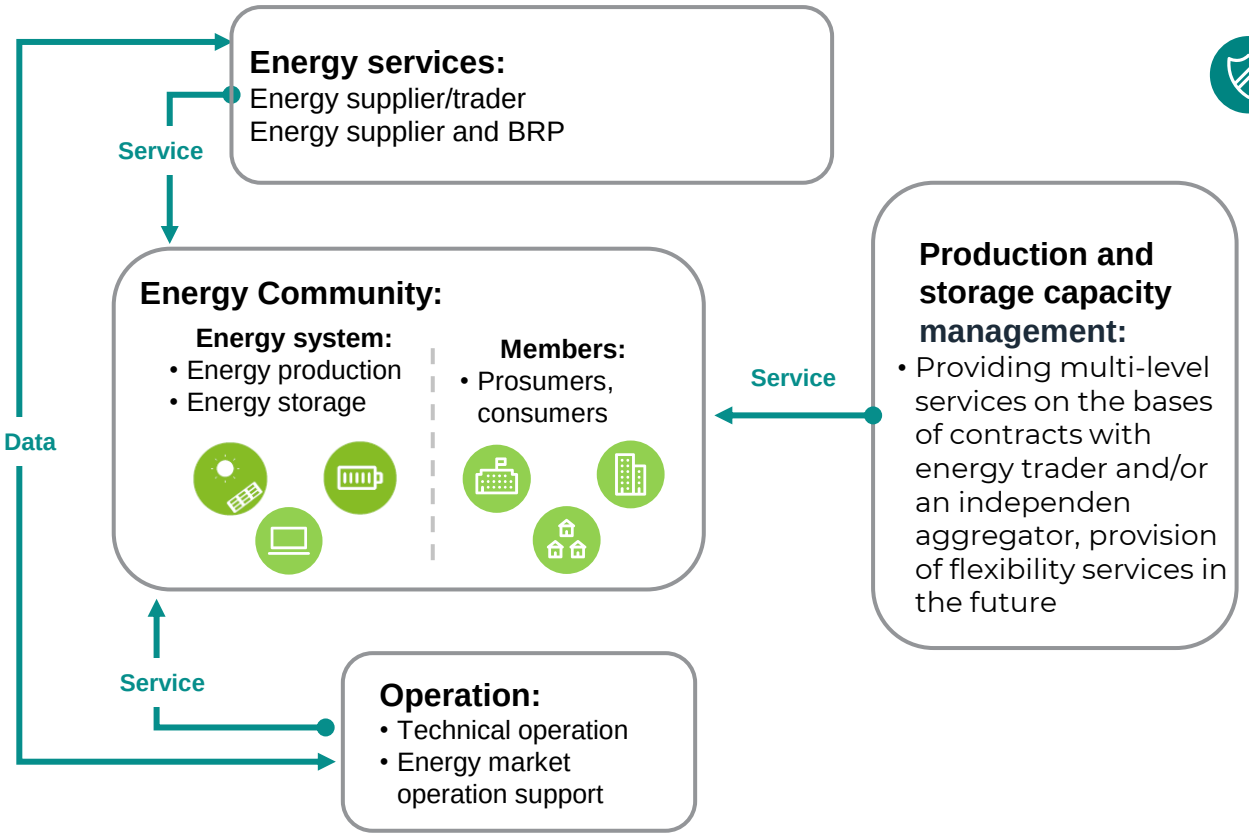
In 2018, the Croatian company ZEZ, in cooperation with the city of Križevci, installed a 30 kW solar power plant in the city's technology park with community funding.

•Through the joint investment of 50 individuals, associations and small businesses, the cost of building the power plant was collected in 10 days. ZEZ provides them with an annual interest rate of 4.5% for 10 years.

Energy efficiency and demand-side flexibility: Carbon Co-op - A UK: based initiative for more than 20 years to reduce GHG emissions by increasing energy efficiency and renovating / remodeling homes.

- Carbon Co-op will allow users to participate in demand-side flexibility
- Need to make access point controllable
- Narrows the range of controllable devices
- Installs self-developed control unit for devices
- on behalf of user flexibility within the framework agreed with the client

The general operational logic of the Energy Community



ACTIVITIES

Energy Communities (EC):

- Electricity (decentralized) **generation and storage facilities** + infrastructure
- The EC is made up of the **end users** connected to it

Energy services:

- Depending on the consumption of the end users and the production of the production equipment, it is necessary to sell **the surplus production or to obtain the demand in excess of the production**.

Operation:

- On the one hand, operation means ensuring the technical operation of the system
- On the other hand, the operation of the energy market

Management of the electricity generator and energy storage:

- The given energy community or several energy communities can generate additional revenue by aggregating their free capacities by an independent or external actor
- In addition, the developed production and storage capacities can be sold in the market for MAVIR system-level services and future flexibility.