2023

Local energy for farmers and citizens: The concept of energy communities

Farmers and citizens have created an energy cooperative and are accelerating the uptake of renewable energy.

EAFRD-funded projects

Location: Leuven, Belgium (Flanders)

Programming period: 2014-2020

Priority: P5 - Resource efficiency and climate

Focus Area: Energy use efficiency

Measures: M16 - Cooperation

Funding:		
	Total budget	83 688 (EUR)
	EAFRD	75 000 (EUR)
	National/Regional	0 (EUR)
	Private/Own funds	8 688 (EUR)

Timeframe: 2021 to 2023

Project promoter: Innovatiesteunpunt voor landbouw en platteland vzw

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Summary

In the rural village of Hal, in Belgium, 22 farmers and 40 citizens seized the opportunities offered by the 'Clean energy for all Europeans Package', which fosters the production and sale of electricity between citizens and SMEs.

Motivated by this opportunity, the village started a cooperative called Halnet c.v. with the aim of (co)investing in and generating income from local renewable energy projects and attaining the status of a renewable energy community.

An EIP-Operational Group facilitated this process, whereby farmers and citizens learned about the relevant legal, organisational and technical aspects of creating a rural renewable energy community; gained knowledge about how to use new digital technologies; and selected a suitable revenue model for their cooperative. Finally, an innovative energy management system was set up to monitor and control the supply and demand of the local energy market.

Project results

- The energy cooperative set up through the project, Halnet CV, reduced greenhouse gas (GHG) emissions by using photovoltaic panels (+/- 260 kWp PV) and an on-site battery (450 kWh). This resulted in energy savings of around 5-10% on the farms involved.
- The cooperative generated an increase in revenues. Each year, members of the cooperative receive a minimum of 4% of their shares. The community was less affected by the energy crisis of 2022.
- Overall, the project had a fundamentally positive impact on the whole community, which gained the skills to effectively operate and invest in new renewable energy projects.
- The collaborative nature of the project improved mutual understanding between farmers and citizens and empowered the community.
- Three other rural municipalities in Belgium are already in the process of replicating this project.
- The project adopted an innovative platform for real-time data measurement and connectivity.

Key lessons and recommendations

- Choose profitable business models, including e-selling and e-sharing of renewable energy.
- Ensure participants are matched with the appropriate, complementary experts.
- Build a diverse partnership involving many relevant stakeholders that can contribute different perspectives.
- The project involved a lot of meetings to achieve the results, but there were also more informal moments to involve the neighbours.
- A team of coaches in Flanders would help to roll out the concept of energy communities effectively and deal with administrative burdens.

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Context

Rural communities such as Hal (Flanders, Belgium) can find themselves in a vulnerable situation regarding their energy supply and yet are still not prioritised for public investments in relevant infrastructure. At the same time, rural areas, and specifically farmers, have a significant potential to become frontrunners in renewable energy production. For example, farms often have large roof surfaces suitable for the installation of photovoltaic panels and farmers know the environment extremely well and are fully aware of any seasonal influences. Furthermore, different types of farms have specific electricity consumption patterns that can complement each other and local citizens' needs.

The entrepreneurial idea of the farmers in Hal was triggered by the EU setting targets for saving energy consumption, increasing the production of renewable energy and promoting the concept of energy communities through 'local energy sharing and selling'. Specifically, the 'Clean energy for all Europeans Package' (based on EU regulation 2018/2001) created the potential for the production and sale of electricity between citizens and SMEs.

The farmers understood that, by creating a local economy based on the production of locally owned renewable energy production, the whole local community in Hal would become less dependent on centralised energy production and would benefit from a more affordable price for their energy. In addition, renewable energy communities could generate a financial added value for farmers while also creating socio-economic and climate benefits.

Objectives

The key aims of the project were to make the rural community of Hal more resilient and less dependent on the central energy market. By becoming pivotal actors on the local energy market, Hal would be future-proof, reduce its GHG emissions and increase its renewable energy production.

In practical terms, this meant establishing an energy cooperative with the objectives to benefit from the energy transition and enhancing the economic and social attractiveness of the Hall community. The cooperative further required a suitable business model for farmers and shareholders and sought to improve the social relationships between farmers and citizens. In addition, members of the cooperative needed to acquire knowledge in laws, finance, technology, marketing and management to ensure that the cooperative would become a trusted renewable energy supplier.

Activities

The first step was to create the energy cooperative Halnet CV, produce renewable energy and also embrace the principles of reduced energy consumption and smart use of energy among its members. Members of the cooperative include 22 farmers (including three young farmers) and 40 citizens.

Then, with the help of the EIP project entitled 'Local energy for farmer and citizen', Halnet CV evolved into an energy community. This process involved various activities that drew on the substantial experience and knowledge that already existed (including European projects such as Energy Community Co-operatives - ECCO, ecoSCADA - an Energy Management System installed on

different production farms, and ROLECS). The cooperative members learned to adapt and apply this knowledge to their specific rural-agricultural context, including their community of farmers and citizens.

In addition to Halnet CV, the Operational Group involved:

- Innovatiesteunpunt (innovation support service and lead partner of ECCO).
- Boerenbond (farmers union).
- KBC (private bank with knowledge in smart energy projects).
- i.LECO(now Aug.e – an SME with experience in complex smart energy projects and products).

The project partners contributed to the following activities:

Studying and learning from experience. This included tapping into existing legal and operational knowledge. For example: the EU-funded project ECCO (Creating collaborations around community energy) offered useful insights and knowledge about how to work together to develop and build renewable energy production communities. The legal and administrative aspects of creating a renewable energy community were analysed and an action plan was created.

Planning and learning for practical implementation. This involved exploring how to involve citizens, how to manage an energy cooperative, how to assess energy market opportunities, how to select the most suitable revenue model for the operation of the energy community and how to manage energy at farm level.

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Turning theory into practice and getting started. Firstly, the project identified the most suitable and profitable revenue model. The cooperative then learned how to use an energy management system (EMS) for data collection, how to establish energy profiles and how to analyse and interpret data. Secondly, the EMS tool (ecoSCADA) was installed so that the renewable energy community became operational and was launched.

Networking, communicating and dissemination. This phase included the organisation of activities such as interactive workshops, demonstration days and bus trips with experts to various places to test different methods and share experiences. Finally, all project material/knowledge was disseminated.

Main results

In terms of renewable energy production, Halnet CV reduced GHG emissions by using photovoltaic panels (+/- 260 kWp PV) and an on-site battery (450 kWh). This resulted in energy savings of around 5-10% on the farms involved, contributing to the aims of the European Green Deal.

The cooperative generated an increase in revenues through energy savings, lower energy bills and an increase in self-consumption. Each year cooperative members receive a minimum of 4% of their shares. The rural community of Hal was less affected by the energy crisis of 2022.

Overall, the project had a fundamentally positive impact on the energy awareness of the whole community. Now, farmers and citizens have the skills and capacities to operate their energy community effectively, create action plans, use the EMS platform and put research into practice. They are now planning to develop and invest in new renewable energy projects.

The collaborative nature of the project enabled farmers and citizens to understand each other better. This has already resulted in new landscape projects and demonstrates a change in mentality and the empowerment of community members.

Networking ensured that different actors were able to meet and share knowledge. Three other rural municipalities in Belgium are already in the process of replicating this project.

The use of the ecoSCADA platform is considered innovative for its real-time data measurement and connectivity for effective operation and revenue generation.

The young participants of the project generally gained hands-on experience and access to lower energy prices.

Key lessons and recommendations

There is a need to choose profitable business models, including e-selling and e-sharing of renewable energy.

Matching farmers and citizens with the appropriate, complementary experts helps to ensure that they are empowered and gain new skills.

It is beneficial to build a diverse partnership involving many relevant stakeholders that can contribute different perspectives and suggest different revenue models.

The project involved a lot of meetings to achieve the results, but there were also more informal moments, such as a BBQ on a blueberry farm to get the neighbours involved.

A team of coaches in Flanders would help to roll out the concept of energy communities effectively and deal with administrative burdens.

Additional information:

Innovatiesteunpunt website: https://www.innovatiesteunpunt.be/nl/inspiratie/halnet-powered-boer-en-burger

Het Laatste Nieuws website: https://myprivacy.dpgmedia.be/consent?siteKey=Uqxf9TXhjmaG4pbQ&callbackUrl=https%3A%2F%2Fwww.hln.be%2Fprivacy-gate%2Faccept-tcf2%3FredirectUri%3D%252Fhoogstraten%252Fboeren-en-buurtbewoners-richten-samen-cooperatie-halnet-op-in-minderhout-samen-gaan-we-voor-groene-stroom-en-efficienter-energieverbruik~a24c2056%252F

Het Nieuwsblad website: https://www.nieuwsblad.be/cnt/dmf20201012_97006563

VRT NWS Website: https://www.vrt.be/vrtnws/nl/2022/12/14/korte-kabel-halnet/

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