Report on the Bio Energy Villages delegation trip to Germany
DBU project 39068
Practical guide to community energy in Moldova

The project by innova eG, Leipzig, co-financed by the DBU, is actually due to end in a few days after 24 months. In Moldova, the NGO Biotica is supporting the project with its bilingual employee Rafael Kornacker. This study trip was already planned for April 2024 but had to be postponed due to other projects by German donors. The original plan for autumn 2025 included a northern route (Eifel, Rhineland, Westphalia).

The programme, which was completely changed to the Rhine-Main region just two weeks ago, included two technologically well-matched bioenergy villages in Hunsrück and Spessart, a meeting with the state network of citizen energy in Rhineland-Palatinate, and a visit to a larger biogas plant with substrate diversification and methane feed-in in Karben (Hesse).

The Moldovans who participated consisted of the NGO Biotica itself, the head of the citizen energy team at the Ministry of Energy, and the project developers from Anenii Noi, Talmaza, and Chișinău. Two participants were not accepted by the airline on the day of arrival (overbooking) and travelled by car, arriving 28 hours later and only experiencing the second day after a 2000 km journey.

The objectives of the trip were

- to learn about the recipes for success of successful energy cooperatives in Germany
- to understand the applied planning/construction/operation of local heating networks from CHP heat from biogas in bioenergy villages
- to understand the planning and operation of larger energy plants, e.g. biogas plants with innovative substrates.

Programme schedule

Logistically, stylistically, in terms of group dynamics and professionally, this was the best delegation trip of my life. Gabriel Margineanu and the rapporteur said this independently of each other.

This is because innova eG's planning was very well balanced, covering the three federal states (Rhineland-Palatinate, Hesse and Bavaria) and a radius of no more than 130 km around Frankfurt. The style of authentic encounters without much of a protocol was credible and respectful at the same time (very agile cooperatives in their own buildings, the elegant and culinarily sophisticated but affordable hotel in Alzenau; the personal and also humorous support provided by the moderators). The Moldovans were in good spirits, appearing focused and asking intelligent questions, thus convincing the German experts such as Stein, Stümper, Ruppert, Kleespieß and Henke.

Example: Kappel

The Bio Energy Village Kappel is now largely supplied by the cooperative local heating network and has made a disproportionately large contribution to the energy transition through three levels of self-organisation (village cooperative, special-purpose association of most villages in the Kirchberg municipality and energy agency of the Rhein-Hunsrück district). Overall, this was only possible through voluntary commitment.

The members of the cooperative contributed €500 in share capital, while the members using the heating supply contributed €2,500. Thanks to the renovation allowance from the municipality/ district, homeowners were able to receive €4,600 in subsidies for thermo isolation. With approximately 130 house connections, the heat from the privately owned biogas plant of three farmers, with whom there is a collegial relationship, is used for a price of €0.10 per kWh in climate protecting manner. The small cooperative has now invested almost €2 million, more than half of which was covered by subsidies.

The local council was sceptical, at the beginning, but the team around the mayor at the time played a decisive role thanks to two factors: that the construction of the highway B 421 could be used as an opportunity to establish the cooperative and reduce the cost of earthworks, and that a feasibility study and some default guarantees from the local council got the planning process underway. An excellent presentation from Kappel is available on request.

In the evening, Dr Ruppert from the Network for Citizen Energy in Mainz (LANEG) was also available for a discussion. The role of citizen energy in the energy transition and self-organisation in Rhineland-Palatinate and other federal states was presented. The discussion focused on forms and funding approaches for citizen energy and was very concrete and helpful.

<u>Example: Burgjoß</u>

The village community energy project in Burgjoß was launched twenty years ago by a ten-member initiative called "weg vom Öl" (away from oil), which was started by hairdresser Klaus Kleespieß. Based on German and European models, a local heating plan was developed consisting of a boiler house and a wood chip plant. For a capital contribution of €2,250, the first 100 homeowners were provided with the entire package (house connection, energy consulting, heat supply). For latecomers, it has become increasingly expensive (currently between €8,000 and €40,000, for example, due to individual civil engineering measures). To date, the cooperative has invested €3.3 million. Local heating is now available to almost all residents of the village at a price of €0.11.

The local council was sceptical for a long time, but is now, of course, on board. The local heating network was able to use the biogas plant, which was built later, because of the cheap heat, but is theoretically viable even without it. Without the selfless voluntary commitment of Mr Pfeiffer in particular, with whom the generational change has already begun, the establishment of the cooperative, the boiler house and the network would have been inconceivable.

As Moldau is planning not only village-based but also larger plants, the Karben biogas plant was visited in the afternoon. Falk Henke is a renowned biogas manager who successfully works on at

least three relevant specialist topics: innovative substrates from waste, optimised logistics and methane scrubbing using the amine method.

The plant, with 900 KW of electricity (plus biomethane and heat that has only been partially utilised to date), was only planned in 2010 with the aim of feeding methane into the local grid.

Over the past two years, Henke's team has optimised the plant by diversifying the substrates. For example, wheat meal, potato waste, cattle and horse manure, and separated pig manure help to increase productivity and reduce costs. These measures, which are in line with DBFZ research, are a matter for senior management and cannot be automated.

The expansion of the feeding system, agitators and CHP units has made the plant more flexible and generates good returns thanks to the difference between costs of 15.4 ct and a feed-in tariff of 21 ct. In Germany, methane accounts for only 9% of natural gas consumption, compared to 25% in Italy and 40% in Denmark, for example.

Conclusions for Moldova

In Moldova, approximately five larger biogas plants based on the Rosdorf or Karben model could be built, as well as at least 20 rural plants. Since the country is roughly equivalent in size to Rhineland-Palatinate and has an electricity consumption equivalent to two to three German districts, biogas can be used as an energy source to power the national electricity grid. This is made possible by the availability and grid balancing provided by biogas, as wind and PV provide the volume based on this.

The trip provided decisive impetus for both types (bioenergy village versus large municipal plant). It is well known that Moldova offers good conditions for biogas in public hands (pre-feasibility, training successes and equity capital). As a result, the participants will form an agile municipal working group and implement corresponding projects. Experts from Kappel, Burgjoß (Pfeiffer) and Karben (Henke) have been directly asked to participate in the development.

Otilia Vatavu • Literature and contact Burghard Flieger • Contact and exchange Head of Department Mainz • Dialogue on best practices in Moldovan framework legislation Citizen energy (BE) • Model bioenergy village for Eastern Partnership (innova) • Sector concept (update) and package deal (management proposal) Ghenadie Scobiola • Framework agreement Anenii Noi • Project development Moldova (MD consortium) • Target group management and interface Viorel Purcarean and Manescurta • Plant-based sewage treatment plant (nature conservation) and energy cycle Arable farming in Talmaza	Rafael and Gabriel • Compact and final financial planning innova • HGN and HGS trip from 3 to 7 November 2025 • Update www and Ecotrinsiker award • Event on three energy sectors on 5 November 2025 in Chisinau • Meeting of municipal activists on 6 November 2025 in Chisinau All • Seven villages as a network (integrate more) • WA group, CIRC specialist newsletter, DENA and DBIO • Involvement of large companies • Professional consolidation of the consortium under company law • Market development and investor search by Rafael and Hans-Gerd

View of Kappel at Hunsrück, Germany

Visit of Burgjoß at Hessen Spessart

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