Final report
for the Deutsche Bundesstiftung Umwelt

Project title: Decarbonized energy system and possibilities of community energy for the new district Mayer Malacky (SR) / Feasibility Study

Project registration number: AZ 38629/01 - 43/0

Beneficiary of the grant: Priatelia Zeme-CEPA (Friends of the Earth-CEPA)

Project start: November 30, 2022

Project end: October 31, 2023

Location of project implementation: Slovak Republic

Contents

Summary

Project No: AZ 38629/01 - 43/0 was implemented during 11 months (12/2022 – 10/2023) by experienced expert team coordinated by Friends of the Earth-CEPA, a leading and respected NGO dealing with climate and energy policies, decarbonization , and regional energy in Slovakia. Its main output was the development of a feasibility study for the design of a decarbonized and decentralized energy system for the new residential district of Mayer Malacky in western Slovakia, planned for approximately 4 thousand inhabitants. The goal of the project was to outline a new approach to the planning of such energy systems built on a green field, enabling the active participation of consumers in its operation, and to open a discussion about such a new approach.

Since the long-term strategic goal of Friends of the Earth-CEPA is regional decarbonization and energy decentralization, it is realistic to expect that this organization will promote the proposed solution in the long term in its activities and campaigns in different regions. In addition, the developer of the residential district Mayer Malacky has long confirmed a real interest in the implementation of climatically, environmentally and socially innovative development plans, his project Mayer Malacky has the stable support of the city management, and thus there is an assumption that the output of the project will be reflected in real construction in Malacky. The feasibility study thus may become a part of the repertoire of concrete steps contributing to achieving the fulfillment of Slovakia's commitment to achieve carbon neutrality by 2050.

The project achieved the planned goals, attracted the attention of the professional and lay public in Slovakia and led to some practical results in a short time. For example, the approach presented in the feasibility study has already been applied in the preparation of a methodological package for regional energy planning in Slovakia, and the legal analysis that is part of the feasibility study is also planned to be used by organizations supporting the development of energy communities.

Purpose and objectives of the project

The purpose of the project was to develop a preliminary feasibility study for the design of an efficient, decarbonized, decentralized energy system for the planned new urban district of Mayer Malacky in the city of Malacky in western Slovakia as a stimulus for a discussion of stakeholders from the public, private and non-governmental sectors on the construction of new decarbonized settlements in Slovakia with high level of energy self-sufficiency.

The goals of the project include: (1) to outline a model for planning the decarbonized and decentralized energy infrastructure in new districts in Slovakia through a design of specific district energy system which would involve an active participation of local energy communities, and (2) to spark the discussion on such model among the relevant stakeholders.

Working steps and used methods

The professional and project team, with the participation of the developer, started work on the project with an initial work meeting online on December 22, 2022. The participants were presented with the details of the approved project, their questions were answered and, in particular, a joint work schedule and procedure and methods of working on the individual components of the feasibility study as well as the way of communication during project implementation were agreed upon.

The entire expert and project team and representatives of the developer then met regularly once a month at work meetings online during the entire project implementation period, while experts responsible for design of the heat and electricity supply systems for the Mayer Malacky district communicated with each other continuously. Their communication led to several corrections of the technical design, especially in the design of the district's electricity supply system. A little bit later, communication of these technicians with the energy and legal team of the law firm Poláček & Partners, responsible for preparing a legal analysis of the possibilities of active participation of local energy communities in the proposed system, also intensified.

The team continuously consulted its partial outputs with representatives of the developers. This, on the one hand, modified the technical proposal according to specific limitations in the addressed location, but at the same time broadened the developer's view of the technical possibilities applicable to solving the energy system in the planned district in Malacky.

The conclusions of the feasibility study were included as an inspiring example in the presentation on low-temperature heat supply systems of the 4th and 5th generation as part of the nation-wide conference The Future of Regional Energy, which was organized by the Slovak Innovation and Energy Agency SIEA in Liptovský Mikuláš on June 20 and 21, 2023 (Annex 3).

The extension of the implementation period until October 31, 2023 made it possible to ensure consultations of the solution team with other external experts, incorporate their comments into the design of the energy system, and improve and expand dissemination of information on the project's outputs.

On September 22, 2023, a seminar on the design of a decarbonized energy system for the new residential district of Mayer Malacky was held at the Malacky municipal office (Annex 2). The seminar was opened by the vice-mayor of the city, who praised the result of the experts' cooperation and promised the cooperation of the city in the implementation phase. The seminar was attended by 27 participants representing 13 organizations from the public and private sectors, including energy companies, professional institutions and the municipal sphere. Friends of the Earth-CEPA officially handed over the feasibility study to the mayor of the city and also to all participants of the seminar.

The project outputs were also presented through the web portal energoportal.org administered by Friends of the Earth and through social networks Facebook and LinkedIn (Annex 4 and Annex 5).

Achieved results (dosiahnuté výsledky)

The main output of the project is a feasibility study (Annex 1), which provides a proposal for a complex decarbonized and decentralized heat and electricity supply system for the planned district of Mayer Malacky with the active participation of local energy communities. The study evaluates the feasibility of 3 fundamentally different variants of heat supply and 3 variants of the electric power system, presents their assessment from energy, economic and environmental point of views and recommends the optimal solution. A special chapter provides a legal analysis of the current legislative framework regarding the active consumer and the energy community producing energy from renewable energy sources, the identification of weak points in the current legislation in Slovakia, an outline of possible solutions to the shortcomings in the existing legislation, recommendations for the Mayer Malacky district as well as generalization of the recommendations for the planning and construction of energy infrastructures within the Slovak Republic.

The proposed solution was the subject of professional consultations with external experts and a professional seminar in Malacky (Annex 2) and was presented at the SIEA national professional conference in Liptovský Mikuláš (Annex 3).

The study was presented and published on the Friends of the Earth-CEPA energoportal.org (Annex 4), popularized through social networks (Annex 5) and provided to representatives of the city of Malacky, investors and developers, as well as participants of the seminar in Malacky and, upon request, to other experts in the field of construction, energy and regional development and those with an interest in the development of energy communities.

The feasibility study aroused the interest of the professional and lay public. One of the authors of the design of the heating part of the energy system for the district of Mayer Malacky, commissioned by SIEA, developed a draft methodology for assessing the suitability of low-temperature district heating systems for the needs of regional energy planning in Slovakia. The Passive House Institute expressed an interest in using the conclusions from the feasibility study in the creation of conceptual and methodological documents related to the construction of energy-positive districts. Civic organizations use the legal analysis, which is part of the feasibility study, in their activities to support the development of energy communities in Slovakia.

Discussion

Fulfillment of project goals

The feasibility study outlined the procedure for planning solutions of decarbonized and decentralized energy infrastructure in new districts in Slovakia and their energy, economic and environmental assessment. At the same time, it evaluated the current legal environment in terms of active participation of consumers in the operation and economics of the proposed system.

The activities following the development of the feasibility study opened a discussion on a new approach to the supply of new neighborhoods with energy among both the stakeholders directly involved in the project of Mayer Malacky and others operating in this area.

Both planned goals were achieved through the implementation of the project.

Deviations from planned goals, problems, changes in strategy

Despite the regular communication of the working team, there were slight delays compared to the schedule in the project implementation, especially in designing of the electricity supply system. This fact, together with the complicated political situation in Slovakia (growing energy crisis with severe consequences for local governments, central government temporarily entrusted by the president after the collapse of the minority government, early parliamentary elections planned for September 2023), could weaken the effect of planned activities related to publicity, dissemination of outputs and discussion about them, especially in the target location. Therefore, we asked the DBU to extend the project completion date until 31 October 2023. The approval of our request allowed us to achieve a significantly greater effect of the mentioned activities without any increase in the project budget.

Cooperation with partners

Cooperation with partners was smooth. The only partial exception was the expert responsible for the development of the electric supply system. His preoccupation with other professional activities caused a delay in the preparation of his part of the study. Therefore, we had to provide additional capacities to complete his part, which was also reflected in the transfer of part of the planned remuneration for the expert to other experts (but only within the respective budget category and without any increase in the approved amount for this category).

Publicity

The project was not primarily focused on work with the public and publicity. Nevertheless, we consider the activities in this area to be successful (Annex 3, Annex 4, Annex 5).

Conclusion

The project AZ 38629/01 - 43/0 achieved the planned goals and its main output - Feasibility study: Modern energy system for the district of Mayer Malacky - represents an inspiring example of an innovative approach to the design of energy supply systems with the active participation of energy communities in new districts and neighborhoods in Slovakia. The feasibility study attracted the attention of both the expert and civic public in Slovakia and already led to some concrete results in a short time (e.g. in the preparation of methodological procedures for regional planning and in building civil support for the development of energy communities).

Literature

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Annexes:

Annex 1: Feasibility study
Annex 2: Seminar on proposal of decarbonized energy system for new district Mayer Malacky
Annex 3: Information on national conference Future of Regional Energy
Annex 4: Information on energoportal.org administered by Friends of the Earth-CEPA
Annex 5: Social media report