Chytré Líchy První udržitelná městská čtvrť v ČR

AZ 38614/01 Feasibility study: community energy in the City of Židlochovice, Czech Republic

Final report

gefördert durch

DBU

Deutsche Bundesstiftung Umwelt

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Antragstitel:	Feasibility study: community energy in the City of Židlochovice, Czech Republic
Aktenzeichen:	38614/01
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Bewilligungsempfänger:	Südmährische Agentur für Innovationen im öffentlichen Bereich JINAG, e.V.
Project partner:	
Projectbeginn:	1. 1. 2023
Laufzeit:	7 Monate (bis 31. 7. 2023)
Ort:	Brno, Czech Republic
Jahr:	2023

MĚSTO
ŽIDLOCHOVICE

JINAG

Content

Objective and reason for the project

The aim of the feasibility study is to prepare and assess a complex community energy concept in the new positive energy district Chytre Lichy and further enabling prosumers - our primary target group - citizens, public administration, SMEs, NGOs, municipal organisations and other actors including housing cooperatives across the whole City of Židlochovice to participate by joining the community energy network.

The design of the community energy system was consulted with our primary target group in order to understand their needs and expectations and enable their joining the community energy system.

The results will be presented to the secondary target group, which includes municipalities, investors, state organisations (such as the Energy Regulatory Authority, Ministry of Environment, etc.) and NGOs, as part of the promotion of the project and its outputs.

The feasibility study was developed by JINAG, the new innovation agency of the South Moravian Region. The concept was prepared for the specific place - City of Židlochovice including the Chytre Lichy district, and will serve as a case study and methodology for municipalities in the Czech Republic.

Summary

The project achieved its planned output - a feasibility study assessing the energy concept in the new positive energy district Chytre Lichy.

The feasibility study includes analysis of the target group, analysis of energy management models, analysis and design of the administrative model of the community energy, analysis and design of the technical solution needed to join the community energy network and design of the energy system of the new district Chytre Lichy.

In connection with the preparation of the feasibility study, negotiations with the Energy Regulatory Authority were initiated to make the Chytre Lichy project a pilot project for testing new distribution tariffs prepared in connection with the change in the Energy Act.

Unfortunately, the feasibility study was affected by the still unapproved amendment to the Energy Act, which is supposed to set the conditions for electricity sharing within energy communities. Due to the uncertainty resulting from the lack of legislation, it is not possible to assess the option of sharing the electricity produced within the energy community in the feasibility study with definitive validity.

In contrast to the original plan to involve the secondary target group through consultation during the feasibility study, we have organised 2 events for the secondary target group: a round table on 4 April 2023 and a workshop on 9 May 2023.

In addition, in accordance with the project change approved by the DBU, we organised a study trip to Germany for community energy projects and to the city of Freiburg on 18-20 July 2023, which was attended by 16 people, mainly representatives of the primary and secondary target groups.

Presentation of the work steps and the methods used

Administration

At the beginning of the project, the cooperation with the preparers of the feasibility study parts was started, in accordance with the planned subcontractors:

- EkoWATT CZ s. r. o. - Expert in the field of energy efficiency, RES in buildings and municipalities
- Frank Bold, s.r.o. - Expert in the field of regulation, law and agreements
- PMAC, spol. s r.o. - Expert in the field of energy distribution and management of the energy flows

During the development of the energy concept by EkoWATT, the originally planned subcontractor Nano Green s.r.o. had to be replaced by PMAC, spol. s r.o. due to lack of communication from the contractor Nano Green s.r.o..

Activities

Working sessions of the expert team

During the project, 5 main working team meetings were held, either by all subcontractors involved or individually. In addition to the meetings organised by JINAG, individual meetings were also held between the individual contractors to agree on the documents to be prepared and handed over. There were also a number of partial consultations between JINAG and individual contractors.

JINAG directly organised these meetings:

- 5 January 2023 - initial meeting of all subcontractors with the project manager (Jan Bárta) and the mayor of Židlochovice (Jan Vitula) - determination of the objective, work progress and form of further cooperation
- 1 March 2023 - JINAG - EkoWATT: handover of the first processed inputs, specification of the assignment in connection with the development of the architectural design
- 23 March 2023 - JINAG - FrankBold: handover of the first drafted parts, specification of the further procedure in connection with the progress of the work of other contractors
- 13 April 2023 - JINAG - PMAC: handover of the first drafted parts, specification of the further procedure in connection with the progress of the work of other contractors, agreement in connection with changes to the Energy Act
- 4 May 2023 - JINAG - PMAC - EkoWATT: presentation of the work progress, coordination of outputs of individual suppliers

Analysis of primary target group

During the project, a meeting was held on June 19, 2023 with representatives of the primary target group, i.e. entities that have the potential to participate in a community energy project:

- the City of Židlochovice and contributory/municipal organisations,

- the future inhabitants of the Chytré Líchy district,
- residents of the City of Židlochovice,
- entrepreneurs and non-profit organisations of the City of Židlochovice.

The meeting was attended by 10 people.

The next step of the target group analysis was a survey. Only people who are positively interested in energy projects of this type responded to the survey. The survey showed that the people responding were interested in:

- Providing a roof in their ownership for the installation of PVE, which would be owned by the municipality,
- sharing a central battery, instead of owning individual batteries,
- Engaging in community energy in the sense of sharing renewable energy.

Events for secondary target group

In contrast to the original plan to involve the secondary target group through consultation in the preparation of the feasibility study, we have organised 2 events: a round table and a moderated workshop. The target group was mayors, leaders of the South Moravian region and energy managers preparing civic energy projects.

Round table 4 April 2023

The roundtable was held on 4 April 2023 with 36 participants. The participants included:

- Representatives of local action groups in the South Moravia region
- Representatives of the South Moravia Region
- Representatives of the Ministry of the Environment of the Czech Republic
- Representatives EG.D
- Employees of JINAG

Through the roundtable, we received valuable advice on what information this target group needs and which will be included in a feasibility study. Furthermore, a representative of the Ministry of the Environment presented the upcoming subsidy programme for pilot projects for the establishment of energy communities. Compared to the originally planned launch of this programme in May 2023, the programme has not yet been launched due to an unapproved change in the Energy Act. Some outcomes of the roundtable were reflected in the grant program.

Workshop 9 May 2023

The roundtable was followed by a facilitated workshop on 9 May 2023, attended by 15 people. The aim of the workshop was to present the first outputs of the project to the participants. The following conclusions emerged from the discussion:

- Energy decentralisation and community energy is a very important topic

- the problem is perceived to be the still unapproved amendment to the Energy Act
- Municipalities do not have the professional capacity to deal with municipal and community energy

Elaboration of feasibility study

The summary feasibility study was prepared on the basis of outputs from individual suppliers of the subparts.

The feasibility study includes:

- analysis of target group,
- analysis of energy management models (local distribution system, energy cooperative, microgrid ...) in the Chytre Lichy district,
- analysis and design of the administrative model of the community energy (cooperative, public/private company, ...),
- analysis and design of the technical solution needed to join the community energy network,

- design of the energy system of the new district Chytre Lichy.

The sub-sections on which the feasibility study is based were prepared by external contractors in accordance with the plan:

EkoWATT CZ s. r. o.

As the experts in the field of energy efficiency, RES in buildings and municipalities, their task was to design an energy solution for the buildings in the Chytré Líchy district, including a detailed quantification of the course of consumption and the potential for electricity production and an economic evaluation.

The output (sub-study - annex 4) contains the following sections:

- Boundary setting: delimitation of the territory and individual objects
- Parameters of individual objects
- Implementation of RES and location of PV on buildings, their parameters
- Placement of PV panels on the roofs of individual building types
- Total PV output, production and battery capacity
- Energy balance
- Investment costs and reinvestment
- Conclusion, the possible form of the Chytre Lichy operation

PMAC, spol. s r.o. (replacement for Nano Green s. r. o.)

During the development of the energy concept by EkoWATT, the subcontractor Nano Green had to be replaced by PMAC, spol. s r.o. due to the lack of communication of the contractor Nano Green.

As the experts in the field of energy distribution and management of the energy flows, their round was to prepare a technical model at the level of the entire Chytré Líchy district including the evaluation of the total installed capacity of PV power plants, the potential of central battery storage and the consideration of future development of electromobility.

The output (sub-study - annex 5) contains the following sections:

- Operational concept at the level of Chytre Lichy (direct line - microgrid, local distribution system, energy community)
- Quantification of pros and cons, basic comparison of connection options
- Simulation model of energy balance (processing of the model of the consumption process, electromobility, processing of the model of the production process
- Balance sheet comparison of consumption and production
- Overall balance and central accumulation proposal
- Proposals for local regulation and its benefits
- Flexibility management
- Connecting the Chytré Líchy district
- Documents for negotiations with the ERU
- Conclusion, possible form of functioning of the Chytré Líchy district

Frank Bold, s.r.o.

The task for the expert in the field of regulation, law and agreements was to elaborate the legislative and legal aspects related to the energy solution.

The output (sub-study - annex 6) contains the following sections:

- Legal provisions analysed

- Analysis and description of licences related to the generation, trading and distribution of electricity
- Analysis of possible legal forms of "special purpose vehicle" (contributory organisation, limited liability company, joint stock company) and proposal of a solution for Chytré Líchy
- Analysis and description of the context of ownership of photovoltaic power plants (PV power plants as part of the building, PV power plants as a separate thing) and proposal of a solution for Chytre Lichy
- Electricity sharing options within apartment buildings
- Operating models (direct line - microgrid, local distribution system, energy community, combination)
- Possibilities of operating an energy community (basic principles, legal form of association, legal form of cooperative)
- Conclusion, the possible form of the Chytre Lichy

Unfortunately, the feasibility study has been affected by the still pending amendment to the Energy Act, which will determine the basic parameters for electricity sharing within energy communities, and by the subsequent decrees that will specify the technical and economic models in more detail. Given this uncertainty, it is not possible to assess definitively in the feasibility study the option of sharing the electricity produced within the energy community. At the time the feasibility study was prepared, the draft amendment to the law was undergoing very turbulent changes, unfortunately mainly aimed at limiting sharing and reducing the economic viability of this model. Compared to the original assumption of approval of the amendment during June 2023, it is now assumed that, in the best case, the law will not be approved until late 2023. The decision on the most appropriate model will be revisited once the amendment is approved and other economic and technical details become clear.

In connection with the preparation of the feasibility study, negotiations with the Energy Regulatory Office were initiated to make the Chytre Lichy project a pilot project for testing new distribution tariffs prepared in connection with the change in the Energy Act.

The results of the feasibility study have also been used in the argumentation for commenting on changes to the Energy Act, primarily through the collaborating Unie komunitní energetiky (Community Energy Union).

Study trip to Germany

In accordance with the project change approved by the DBU, we organised a study trip to Germany on 18-20 July 2023 to visit community energy projects and the city of Freiburg.

The trip was attended by 16 people:

- JINAG - Bárta Jan, Hlubinka Jakub, Smutková Karolína
- City of Židlochovice (members of the City Council): Brázdová Lenka, Kahoun Oldřich, Šenkyřík Tomáš, Vitula Jan, Svoboda Petr
- TIC Zlín (Technological Innovation Centre Zlín): Trčka Lukáš, Matulová Zuzana
- Architect of the Chytré Líchy district: Dobrovolný Petr
- City of Rousínov: Pospíšil Jiří (power engineer)
- City of Křenovice: Doležalová Hana (Vice-Mayor)
- City of Slavičín: Chmela Tomáš (Mayor)
- City of Česká Kamenice: Tomáš Kettner (energy and climate coordinator)
- Local Action Group Růže: Pixová Adéla (energy engineer)

The study trip included the following locations:

Ursensollen

Visit to the biogas plant connected to the heat network, tour of the municipal PVE and wind power plants

Ansbach

Tour of urban and civil PVE.

Limburgerhof

Tour of energy-efficient deep renovation of apartment buildings using heat pumps

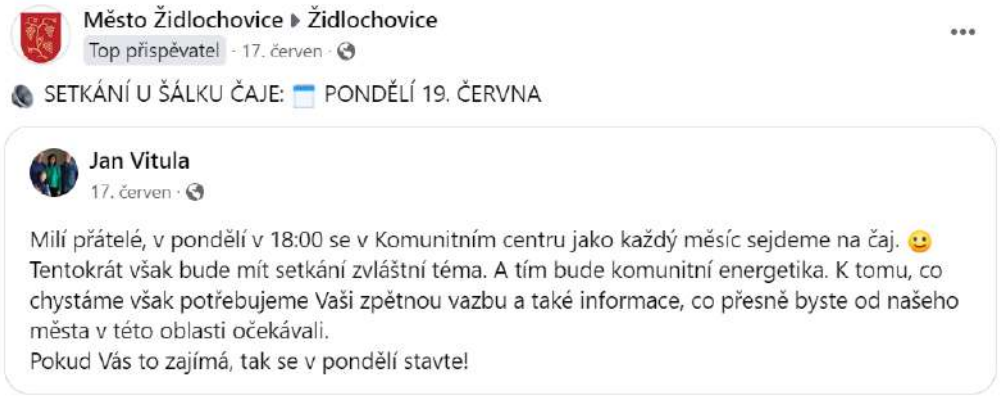
Freiburg im Breisgau

A tour of the Stühlinger Town Hall, a tour of the city centre focusing on sustainable development:


A visit to the Vauban district, including a presentation on Freiburg's climate protection strategy:


Öffentlichkeitsarbeit / Communication

Communication with the primary target audience was primarily conducted at a Cup of Tea with the Mayor on 19 June 2023. The meeting was set up at the end of the project to present the intentions and opportunities for citizen involvement in the planned community energy project.



The concept for the feasibility study was presented at a meeting of the Union's Community Energy Projects Working Group on 19 June 2023, attended by around 25 UKEN members - mainly community representatives and energy managers and consultants.

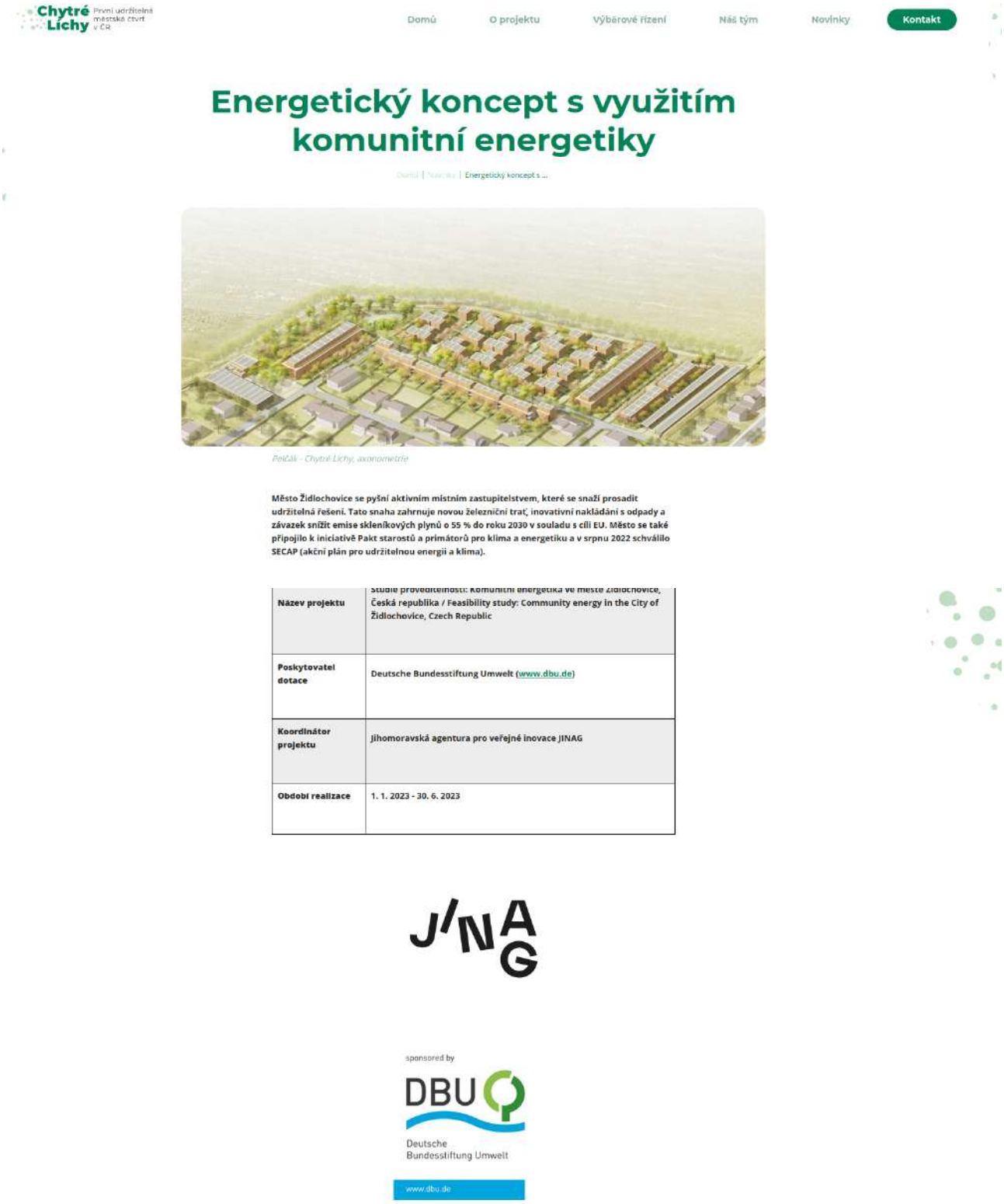
Due to the short duration of the project, the next communication is planned for autumn 2023 and then, also in connection with the legislative process in relation to the Energy Act.

A meeting with representatives of the City of Židlochovice, the preparers of partial parts of the feasibility study and other entities from the City of Židlochovice is being prepared for 1 November 2023 in Židlochovice. We are also preparing a presentation of the project outputs to the members of the Parliament of the Czech Republic.

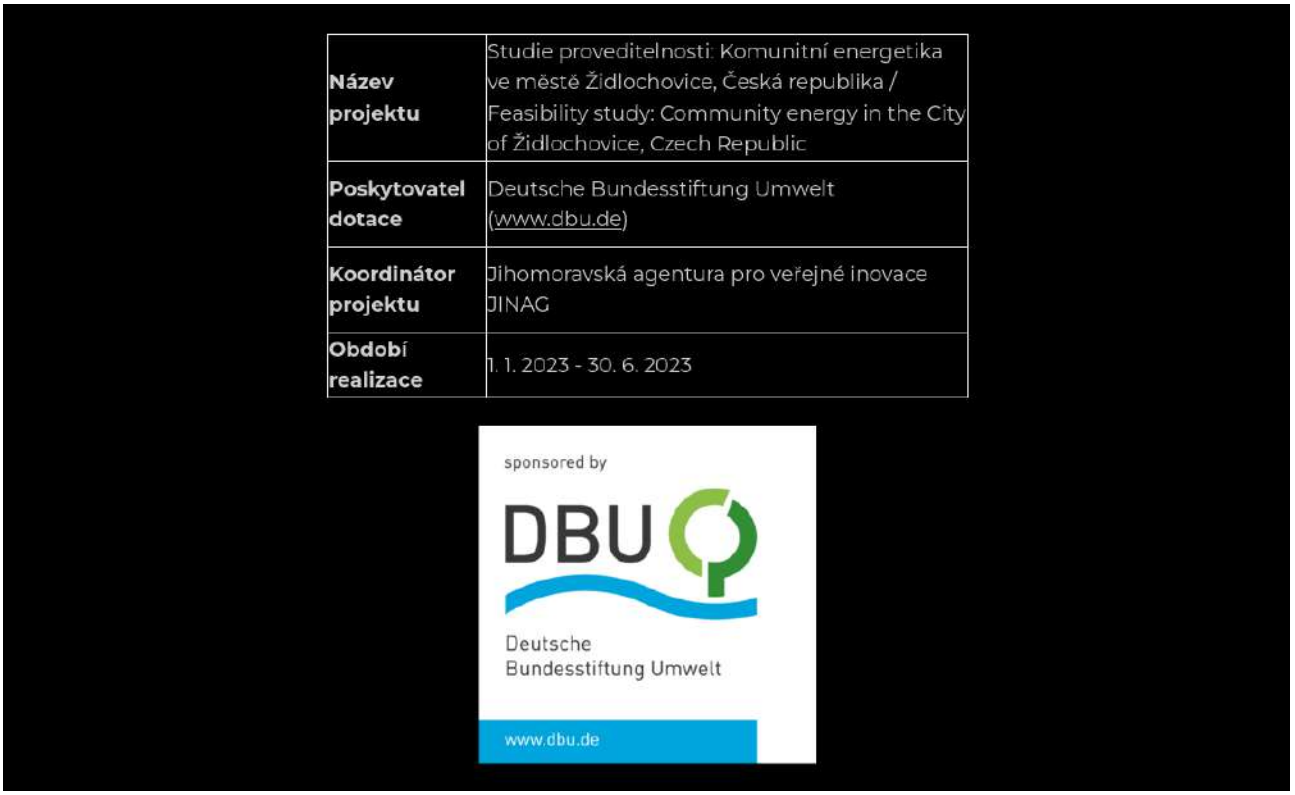
Web

Information about the project was published on the website:

https://www.chytrelichy.cz/energeticky-koncept-s-vyuzitim-komunitni-energetiky



https://jinag.eu/cs/komunitni-energetika-lichy-1



Název projektu	Studie proveditelnosti: Komunitní energetika ve městě Židlochovice, Česká republika / Feasibility study: Community energy in the City of Židlochovice, Czech Republic
Poskytovatel dotace	Deutsche Bundesstiftung Umwelt (www.dbu.de)
Koordinátor projektu	Jihomoravská agentura pro veřejné inovace JINAG
Období realizace	1. 1. 2023 - 30. 6. 2023

Annexes

All annexes to download:
https://drive.google.com/drive/folders/1QrQ0IL9AXs7RdtR9W2pCmdjvUMTosBfv

- Annex 1 - Feasibility study (EN) | PDF | DOCX
- Annex 2 - Feasibility study (CZ) | PDF | DOCX
- Annex 3 - Output from EkoWATT CZ s. r. o.
- Annex 4 - Output from PMAC, spol. s r.o.
- Annex 5 - Output from Frank Bold, s.r.o.
- Annex 6 - Presse Überwachung 09/2022-06/2023
- Photos (free to use)