

„Breaking barriers to low carbon investment in Budapest - Az alacsony széndioxid kibocsátású beruházásokat akadályozó tényezők megszüntetése Budapesten”

Projekt koncepció

Brief description

This project is intended to foster low carbon investments in Budapest by exploring the possibilities of large-scale urban rooftop solar/PV instalments. The fastgrowing electrification of urban mobility as well as other trends of energy use creates demand for strengthening the network, therefore the project will map the total solar potential of Budapest buildings and the impact of this potential capacity on the electricity network of the city. This project will assess the legal, administrative, technical, financial and social, behavioural barriers of the creation of urban prosumerism (producer and consumer of electricity at the same time) and come up with practical propositions for tackling those. The project will involve the main stakeholders and most important actors working on the field. Part of the project will be piloting a well-defined block of houses where deeper and hands on knowledge and experience can be gathered for future development and infrastructure planning purposes.

Problem analysis

Budapest is responsible for 15% of the country's GHG emission. Within this 44% of the city's CO2 emission is attributed to electricity generation and most of the energy related emission are tied to buildings. Only 4% of the city's energy is supplied by renewables. At the same time Budapest has an electricity network, which needs frequent upgrades and most of further development needs space in a limited and highly populated territory. One fifth of the country's population lives in Budapest, therefore the energy demand is continuously increasing. These two densities create conflicts and would need a different approach to tackle than in the past. According to the Google map dedicated to Budapest's sustainability indicators, more than 1500MW solar panels could be installed on the roofs. This is equivalent of the whole installed capacity of the country at the moment.

Budapest's most important potential lays in the buildings' efficiency. This area is quite well studied, mitigation potential coupled with a systemic roll out of renewable technologies can contribute a lot to the overall country commitment on low carbon transition. There are limited applicable technologies in urban environment. Solar is obviously one of the few, which is suitable.

There are specific barriers in the way of developing household size solar systems. The Hungarian regulation, taxing system and the respective tariffs are not encouraging multi apartment building cooperatives and owners of single-family-homes investing in this technology. Additionally, the inner-city buildings represent architectural heritage placing obstacles to solar installation on historic areas. The project aims at launching a capacity building platform where the above-mentioned sectors could join their forces to speed up urban solar integration. The project intends to react to the legal environment as well by sipping approaches from international findings.

During the EU programming period 2014-20 the number of grants available for Budapest through the operational programmes has been decreased significantly, and after 2020 their number will continue to decline considerably. Budapest is keen on embracing projects improving the cities resilience. The municipality is open for new ways of financing climate aligned investments. This project will result a complex package of financing constructions and schemes.

Stakeholder landscape in the sector

Since the project addresses solar integration in urban context, building owners, tenants, housing cooperatives, their representatives are key stakeholders in the project. It is obviously important to engage them in the project to understand their perspectives and create ownership to the project by explaining and introducing prosumerism. Budapest consists of 23 districts having specific social, economic, environmental conditions, including the built environment thus active participation in the project implementation, learning and starting their own solar initiative will be offered. District municipalities are to be key stakeholder working group members, several districts expressed its interest in taking part of this journey, III, VI and VII have already provided support letters to the project.

The electricity network plays a crucial role in planning and exploring the way solar energy can be integrated into the city's everyday life. ELMŰ the electricity utility took part in the project preparation phases from the very first step and some technical activity will be assigned to them via the University.

The project will assess benefits, costs of integrating solar energy for the utility system, therefore large energy consumers, such as retails, shopping malls potentially with huge rooftops will be involved in the process. Their involvement and the initial discussion on their solar potential give the opportunity to talk about wider issues of energy management.

Solar PV installers and professionals are an essential group for developing concrete projects and understand the current technical and legal environment, gaps and barriers. They'll be involved from the beginning to understand their experiences via Hungarian Solar Energy Association and Agora Energiewende.

Financial institutions play a crucial role in channelling the needed capital for city wide development, an investment plan will assess the financial options and during the project different type of packages are to be developed for solar integration support.

Target Group: The stakeholders as solar partnership will form working groups and co-develop the project activities. The following stakeholder assemblies are identified:

1. Building owners, tenants, housing cooperatives, family house owners, public authorities (local municipalities and decision makers). This group would like to reduce energy costs and increase climate change mitigation activities. Continuous back and forth communication are foreseen.
2. Technical experts (e.g. electricity service, grid operator, mobility manager, PV installers). Knowledge sharing platform will be set to share expectations, results.
3. Financial experts and stakeholders (external funding sources, financial institutions). The project will use this group experiences and know-how for demonstration and preparing scale up scenarios.

Results logic and capacity development

The applicable renewable technologies in urban environments are limited. Solar is obviously one of the few which is suitable for increasing needs. This project is in-tended to foster low carbon investments in Budapest by exploring the possibilities of large-scale urban rooftop solar and PV instalments. The project builds on three pillars that are clearly niche direction in Hungary:

- I) Solar energy integration background analysis, where legal, administrative, technical, financial and social, behavioural barriers are assessed, and practical propositions are provided for tackling these gaps. This outcome serves as a basis for the technical evaluation and policy development, and continuous collects information by the end of the project.
- II) Technical evaluation and strategic policy development for solar energy integration in urban context, where the total solar potential of Budapest buildings and the impact of this potential capacity on the electricity network of the city are mapped and combined with existing experiences. Both the technical evaluation and policy development directions are strongly supported and led by the target group inputs and feedback.
- III) Participation, stakeholder engagement, dissemination and replicability: the transformation of energy ecosystem needs involvement by all relevant players. The project will involve the main stakeholders and most important actors working on the field establishing a solar partnership, which will be open for the CEE region as well. Part of the project will be piloting a well-defined block of houses where deeper and hands on knowledge and experience can be gathered for future development and infrastructure planning purposes. Prominent organisations will be responsible for supporting research, dialogue, outreach and policy development.

Impact

The project will support the city in reaching its decarbonisation goals, by paving the way to an accelerated clean transition through rapid deployment of RES solutions. By implementing the actions, wider socio-economic benefits are realized through presenting technically and economically sound solutions to solar energy exploitation, that are accessible for the wider public, including multihousehold communities, family houses, commercial centres or industrial consumers. The project will contribute to an improved climate policy of the city and it will address national and CEE levels by acting as a trendsetter in solar deployment on local level. Additional long-term impact is attracting and enabling private capital in solar energy investments.

Outcome

A robust strategy for solar integration in the City of Budapest is developed through technical and policy solutions enabling accelerated RES deployment on local level.

Output I

Gap filling situation analysis on solar integration including mapping of the existing economic, legal, technical and social perspectives, followed by a future investment plan for solar integration in Budapest.

Output II

Technical assessment studies and interlinking the results with the solar cadastre map: analysis of the solar solutions supported by lab measurements and real-life piloting validated by computer modelling will be performed and the results will be interlinked with the layers of a solar cadastre map in order to define the solar integration policy objectives for the city.

Output III

Dialogues and partnerships with different stakeholders: working groups and a citizen advice service will be established to support the mapping, research and preparation of the solar city mapping while simultaneously having broad consultation, awareness raising and knowledge exchanges with partnering cities, communities and other relevant stakeholders within the region of CEE.