

Sztum

Nearly zero-emission residential buildings. Thermal modernisation of multi-family residential buildings with active engagement of the residents and the use of innovative RES installations



Project description was prepared within the umbrella project "Polish-Norwegian cooperation platform for climate and energy conservation", which is funded under the PL04 Programme of the Bilateral Cooperation Fund, financed from the Norwegian Financial Mechanism (NMF) 2009-2014.

Description of the municipality

Sztum is a medium-sized municipality located in the northern part of Poland, in the Pomorskie Voivodeship. It has approx. 18 700 inhabitants and a long history. It is already cooperating with the partner city in Norway - Varde.

WWW: <http://www.sztum.pl/>

Description of the overall idea for innovation

Identified problem: high energy consumption in buildings included in the project due to their poor technical condition and inefficient, individual heating sources; high level of low emissions from individual, coal-fired boilers. Main objective of the innovative project: thermal modernisation of multi-family buildings, including installation of heat pumps, wind micro-turbines with vertical rotation axis and green roofs and/or living walls. Innovative wind micro-turbines use low-velocity winds and are not sensitive to the wind changes. The project also foresees conducting of open training sessions for the citizens, focusing on different ways of reducing energy bills. Each apartment will be equipped with the special meter, which will measure and display energy consumption in real time, as well as will show prognosis of the energy production from the wind turbine or other RES depending on the weather conditions. DSM (demand side management) solutions will be implemented - the buildings will be equipped with smart metering devices and software, connected to the weather forecasts, which will let the building users know when it is best to switch on the devices consuming larger quantities of energy in order to use energy from RES. Energy coming from the wind will be primarily used to supply heat pumps and then for covering other needs. Currently there are no such implementations in Poland (or in the world), which are using at the same time wind micro-turbines with vertical rotation axis, heat pumps and electricity control system.

Description of the micro-project

The micro-project consists in the development of the feasibility study for the thermal modernisation project, which will be implemented in Sztum's multi-family buildings and which will be based on the exchange of experience with the Norwegian partner. The study will be published on the municipal website and presented to the local stakeholders and neighbouring municipalities during the conference closing the micro-project. The study will include: (1) analysis of the current technical condition of the buildings selected for the pilot project, (2) proposition of possible solutions and (3) economic analysis. It will be prepared for 6 buildings located at the area of the municipality and will be a step forward on the way towards successful implementation of the pilot project.

Planned results/outputs of the micro-project

- Initial analysis - selecting buildings for modernisation;
- Working meeting with the inhabitants of the buildings selected for modernisation;

- Technical and economic analysis;
- Study visit in Norway - searching for inspiration and efficient EE/RES solutions, finding Norwegian partner;
- Finalizing technical and economic analysis – introduction of necessary corrections and improvements to the original concept, based on the Norwegian experience and ideas;
 - 2nd visit in Norway - consultation of the main assumptions of the technical and economic analysis with the Norwegian partner; study visit in sites, which are especially interesting and important from the EE and RES use point of view;
- Development of the cooperation frameworks, including common content of the memorandum of cooperation;
- Development of the feasibility study - the document will include a separate chapter focusing on tested technologies, which may be successfully implemented during energy modernization of multi-family buildings.
- Return visit of the Norwegian delegation in Poland and the conference closing the micro-project.

Expected role of the Norwegian

Sztum would like to use the Norwegian partner's experience and know-how at all stages of the project, as well as to search together for other areas of cooperation in the future.

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