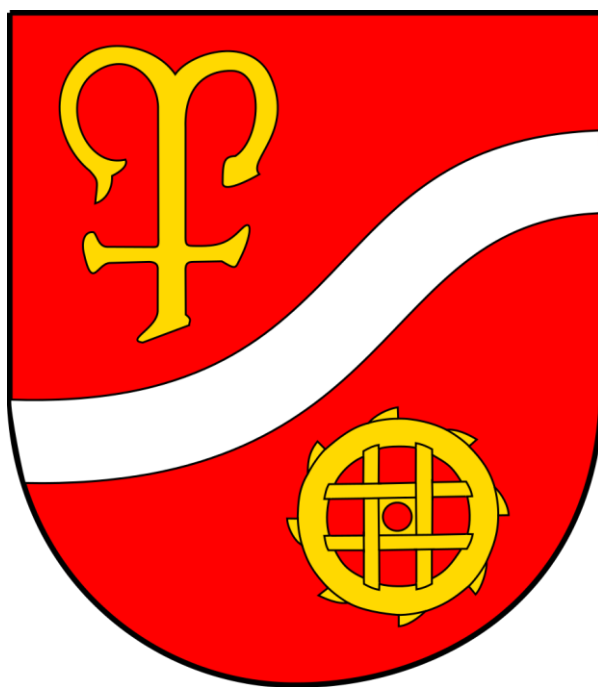




POLSKIE I NORWESKIE GMINY
razem dla klimatu i energii

Rumia

Innovative system for supplying electricity, heat and cold to
the part of the Rumia town



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

Rumia is a medium-sized municipality located in the northern part of Poland, in the Pomorskie Voivodeship. It has approx. 47 500 inhabitants and together with two neighbouring municipalities it forms so called "Small Kashubian Tricity". Rumia is cooperating actively with local and sub-regional NGOs.

WWW: <http://um.rumia.pl/>

Description of the overall idea for innovation

Identified problem: significant emission of pollutants and urgent need to reduce storage of waste with the calorific value exceeding 6 MJ/kg; Main objective of the innovative project: the project aims at supplying district heating and cooling to these parts of Rumia, which are located west from the railway line, as well as at reducing low emissions of pollutants. This will be achieved by the construction of the modern poli-generation plant, which will be using innovative solutions ensuring high total efficiency of the production of electricity, heat and cold. The plant will be adapted to incinerate biomass and municipal waste (in the form of RDF) and will supply part of the town with warm usable water and heat (covering part of the overall demand). It will be located in the premises of the Repair Works of LNG Systems Sp. z o.o. and will replace present boiler house used by the facility. Initial project assumptions envisage implementation of the modular solution, with the possibility of further development of the investment on different stages. Proposed design of the plant is characterised by high efficiency and can be adapted to the needs of many other municipalities. In the vicinity of the planned poli-generation plant, there are located multiple housing settlements, one primary school and several industrial facilities (including Toyota and Repair Works of LNG Systems Sp. z o.o.). These are the potential consumers of the heat and cold produced by the plant. Cold production from heat in the summer period may significantly influence economic impact of the project during the whole period of plant's operation.

Another important aspect of the project is the relatively small distance and good communication between the planned plant and the Waste Management Facility EkoDolina Sp. z o.o., which is the producer of RDF.

Description of the micro-project

The main objective of the micro-project is the development of the economic and technical analysis of the pilot investment, which will enable selection of specific elements of the proposed poli-generation plant. The analysis will also help in defining plant's capacity, technological details, etc. An important part of the analysis will be the assessment of the energy demand (including its dynamics) in order to adapt the outputs and the size of heat and cold storage facilities to the actual needs. Results of this analysis will be a basis for the next step, which is selection of the technology, indication of electrical and thermal output and determination of the necessary capacity of energy storage facilities.

Planned results/outputs of the micro-project

1. Identification of the demand for heating and cooling (electricity will be supplied to the electrical grid).
2. Identification of the availability of potential fuel, especially in terms of possible RDF supply by the Waste Management Facility EkoDolina Sp. zo.o., which is responsible for the collection of municipal waste from the territory of Rumia. The analysis will include evaluation of the possible supply routes and assessment of the impact of truck traffic on the overall local traffic.
3. Initial selection of technologies, based on the information obtained within the previous two steps. During the selection process the municipality will take into consideration energy efficiency of analysed technologies, their environmental impact and the economic aspect of the whole undertaking.
4. The final step is the analysis of the possibility of using different devices and solutions for improving system's effectiveness both on the supply and on the demand side (e.g. heat and cold storage tanks).

Expected role of the Norwegian

The municipality together with its Polish partner (Institute of Fluid-Flow Machinery) are willing to cooperate with the Norwegian partner at all stages of the project implementation, as well as to benefit from his experience in the area of dispersed production of energy (especially using co-generation or poli-generation). The municipality already addressed the Oslo Renewable Energy and Environment Cluster (OREEC; <http://www.oreec.no/>), asking for help in finding the most appropriate Norwegian partner. Moreover, for the success of the whole pilot project, it will be interesting to learn about Norwegian experience in the field of communication and cooperation with local stakeholders. The Polish partners are also willing to learn about technical solutions proposed by the Norwegian partner.

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