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SIGNIFICANCE OF LOW-EMISSION ECONOMY IN PUŁTUSK MUNICIPALITY

ZNACZENIE GOSPODARKI NISKOEMISYJNEJ W GMINIE PUŁTUSK

Key words: low-emission economy, rural areas, Mazovian Voivodeship, Pułtusk Municipality

Słowa kluczowe: gospodarka niskoemisyjna, obszary wiejskie, województwo mazowieckie, gmina Pułtusk

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Abstract. The article aims to present the significance of low-emission (green) economy in Pułtusk Municipality (Gmina Pułtusk). The main source of air pollution in the municipality is emission resulting from the process of fossil fuel combustion to generate heat. The Low-Emission Economy Plan (LEEP) in Pułtusk is a strategic document describing the course of action aimed at achieving the targets of the climate and energy package. Action planned in order to implement the objectives set in the Low-Emission Economy Plan in Pułtusk Municipality will be financed by Pułtusk's own budgetary resources and outside funds.

Introduction

Pułtusk is located in the northern part of the Mazovian Voivodeship, in Pułtusk County, on the border between Wysoczyzna Ciechanowska and Nizina Kurpiowska, and on the western edge of Puszcza Biała. The Municipality covers the town of Pułtusk and sołectwa (sub-municipalities) of Białowieża, Boby, Chmielewo, Głodowo, Gnojno, Jezewo, Grabówiec, Gromin, Kleszewo, Kacice, Kokoszka, Lipa, Lipniki Nowe, Lipniki Stare, Moszyn, Olszak, Pawłówek, Płocochowo, Ponikiew, Przemiarowo, Szygówek, Trzciniac and Zakręt. The population is ca. 24 000 and the municipality covers an area of 133.72 km².

The main source of air pollution in the municipality is emission resulting from the process of fossil fuel combustion to generate energy. There is a central heating system in the municipality operated by the company Przedsiębiorstwo Energetyki Ciepłej w Pułtusku Sp. z o.o. In addition, heat generation for individual houses takes place in furnace rooms where energy sources used are most often coal (fine coal and coke), less often wood and oil, and sometimes sawdust briquettes [Nurek, Roman 2014, Roman, Świętochowski 2016]. Local furnace rooms generate heat for blocks of flats, public facilities and factories. In winter, there is increased emission of dust and pollution resulting from fossil fuel combustion in furnace rooms [*Strategy of sustainable...* 2004].

Due to the above-mentioned problems, it is necessary to undertake steps to improve the quality of air in the municipality. Transport also has a negative influence on the quality of air in the municipality, which is most noticeable near roads with big traffic [Roman, Świetlińska 2013]. Public transport consists of a bus service [*Resolution no. XXVII/292...* 2004].

The aim of the article was to show the importance of a low carbon economy in the municipality of Pułtusk, where the main source of air pollution in that municipality is the emissions from the combustion of fuels in the process of heat production. The method of descriptive, based on the review of the literature.

Significance of low-emission economy in Pułtusk Municipality

The most difficult problems of Pułtusk Municipality include low efficiency of energy use in buildings and for street lighting, an insufficient level of renewable energy use [Roman, 2015a], low ecological awareness of citizens, troublesome transit traffic in conditions of inappropriate road infrastructure and an insufficient infrastructure for alternative means of transport [Roman 2015b].

Pułusk Municipality is ready to implement and monitor actions designed in LEEP. The entity responsible for monitoring and co-ordinating the actions is Urząd Miasta Pułusk (Government of Pułusk) with its employees having the necessary knowledge and experience in the field of environmental protection and energy economics. Actions planned to implement the objectives set in LEEP in Pułusk Municipality will be financed by Pułusk's own budgetary resources and outside funds [*Low-Emission...* 2015].

In order to present the current energetic economy in the municipality and indicate and implement actions aimed at lowering the use of energy, increasing the production of green energy and reducing the emission of greenhouse gases, which will translate into better quality of air, Pułusk Municipality has developed a Low-Emission Economy Plan for the period of 2015-2020 [*Resolution of Town...* 2015]. LEEP is a strategic document describing the course of action necessary to achieve the objectives of the climate and energy package, i.e.:

- reduce the emission of greenhouse gases,
- increase the share of green energy (from renewable energy sources),
- increase the efficiency of energy use and improve the quality of air,
- change consumption attitudes of energy consumers.

LEEP covers the geographical territory of the municipality, i.e. areas where the authorities can influence the use of energy in the long-term. The aim of LEEP is to present an action plan and conditions for the reduction of energy use in the Pułusk Municipality and thus, reduce the emission of greenhouse gases (CO₂). The planned actions together with contemporary trends (e.g. exchange of household appliances such as 'white goods' and 'brown goods' into more energy efficient ones and increase the use of green energy), which take place regardless of actions undertaken, will enable Pułusk Municipality to reduce carbon dioxide emission by 2020.

LEEP is a key document showing the way in which Pułusk Municipality intends to achieve the tasks of reducing emissions in the municipality set for implementation by 2020 in comparison to 2010. The LEEP programme sets three major strategic targets:

- reduction of CO₂ emission in the municipality by 1,666.64 MgCO₂ by 2020 in comparison to 2010 (i.e. by 1.95%),
- reduction of energy consumption in the municipality by 3,683.53 MWH by 2020 in comparison to 2010 (i.e. by 1.34%),
- increase the share of renewable energy in the municipality to 20,013.41 MWH in the total use of energy by 2020 (i.e. by 6.8%).

The targets are compliant with:

- the targets set in the 2020 climate and energy package (3 x 20%),
- Pułusk Municipality striving to improve the quality of air in the area.

Strategic targets will help to meet indirect targets, including the following:

- obvious savings in the budget thanks to the limitation and optimisation of electricity, heat and other resource consumption,
- improvement of management and use of municipality potential in the reduction of pollution,
- more advantageous image of self-governing authorities in the eyes of the inhabitants.

Implementing 2020 targets, Pułusk Municipality will focus on obtaining the following long-term effects:

- increase the inhabitants' ecological awareness,
- increase the level of thermo-modernisation of houses and maximization of thermo-modernisation of public utility buildings,
- maximise the use of renewable energy resources,
- limit the use of high-emission heating equipment, especially those using fossil fuels.

The above-mentioned effects will result from the implementation of appropriate local policies by Pułusk Municipality, especially through:

- marketing and informational activities targeted at inhabitants and entrepreneurs,
- adjustment of existing strategic and planning documents to the contents of the present document,

- adoption of new planning documents that will take into account the aims of the present document,
- taking into account issues of climate and low-emission economy in internal procedures and instructions of the Government of Pułtusk.

The process of meeting the targets will focus on the following priority areas:

- public utility buildings/municipal facilities,
- private houses and non-municipal buildings/premises (commercial/production),
- public lighting,
- road transport.

Public utility buildings and municipal buildings/facilities, because of their small number, thermo-modernisation state and the heat supply method, account for a small share in emission in the municipality. However, action undertaken by public entities will be relatively easy to implement and will provide inhabitants and entrepreneurs with a useful example to follow. Propagating positive attitudes and interesting solutions may constitute an important element of promoting the concepts.

Private houses and non-municipal buildings/premises (commercial/production ones) have a substantial share in the total emission in the municipality with a simultaneous considerable potential of emission reduction. With the use of appropriate informational and marketing activities and the introduction of land management [Roman, Konieczna 2015, Roman, Konieczna 2013] and financial policy aimed at the reduction of emissions, it is possible to have an impact on private houses and non-municipal buildings/premises (commercial/production ones).

There is significant potential for the increase in energy efficiency of public lighting. Thanks to the substitution of new lamps for old ones, the use of more efficient electric ballasts or appropriate control techniques, it is possible to limit the consumption of energy.

Transport is one of the most important sectors, with respect to emission in the municipality, showing big potential for pollution emission reduction [M. Roman, M. Roman 2014]. Municipality authorities have a spectrum of possibilities influencing this sector and implementing projects aimed at limiting the consumption of energy and reducing emissions. These activities include:

- actions aimed at reducing the need of transport: linking different types of transport, efficient land management, increasing the use of communication and information technologies,
- increasing the attractiveness of alternative means of transport: pedestrian traffic, cycling and public transport, e.g. through a diagnosis of inhabitants' needs concerning public transport, network optimisation, support for public transport to schools, access to information on the public transport system, promotion of desired transport habits, provision of optimal cycling routes and parking facilities in well-chosen areas of the municipality,
- decreasing the attractiveness of car transport by an appropriate system of fees for access and parking in chosen areas.

In order to achieve the objectives planned in LEEP, the investment laid down in it has been included in the Long-term Financial Forecast of Pułtusk Municipality, and the tasks of thermo-modernisation of public utility buildings and municipal buildings have been submitted to the Investment plan for the sub-region under the AXIS Thematic Priority.

Conclusions

1. The main source of air pollution in the municipality is emission resulting from fossil fuel combustion in the process of heat generation.
2. The Low-Emission Economy Plan for Pułtusk Municipality is a strategic document describing the course of action aimed at achieving the targets of the climate and energy package.
3. Action planned in order to implement targets laid down in the Low-Emission Economy Plan for Pułtusk Municipality will be financed by Pułtusk's own budgetary resources and outside funds.
4. Transport is one of the most important sectors with regard to emission in the municipality, having big potential for pollution emission reduction.

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Streszczenie

Celem artykułu jest przedstawienie znaczenia gospodarki niskoemisyjnej w gminie Pultusk. Głównym źródłem zanieczyszczeń powietrza na terenie tej gminy jest emisja pochodząca ze spalania paliw w procesie produkcji ciepła. Plan Gospodarki Niskoemisyjnej w Pultusku jest dokumentem strategicznym, opisującym kierunki działań zmierzających do osiągnięcia celów pakietu klimatyczno-energetycznego. Działania zaplanowane w celu wdrażania i realizowania celów wyznaczonych w Planie Gospodarki Niskoemisyjnej na terenie dla gminy Pultusk będą finansowane ze środków zewnętrznych, jak i budżetu gminy Pultusk.

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