



Healthy society - towards optimal management of wind turbines' noise

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In Poland, as well as in many other countries, the same noise indices are used for assessment of all industrial installations including wind turbines. However, noise emitted by wind turbines does not resemble the typical industrial noise — it has specific temporal-spectral characteristics. Thus, present standardized procedures of rating, monitoring and predicting noise do not fit well into specifics of wind turbines. In effect, people's complaints about annoying noise of wind turbines are not confirmed by objective measurements of noise. Trying to answer this social dissatisfaction legislators in Poland changed the legal conditions of localizing new wind turbine farms. In practice it stopped the further development of this renewable energy sector in Poland. Unlike typical industrial sources, wind turbines are a specific kind of noise source, which has an impact on large areas. Thus, it seems justified not only to identify relevant characteristics of wind turbines noise but also to define procedures of measuring, predicting and rating it, taking into account the nature of the source. It should give the authorities and local communities reliable knowledge and tools for planning, controlling and reducing wind turbine noise. This is generally the goal of the project with the acronym "Hetman"(POLNOR 2019 call) implemented by the partners who are the authors of this presentation.

General aim of the project is to determine the comprehensive method of wind turbines annoyance assessment, including all possible aspects of their acoustic impact, at all stages of the installation operation, from planning to exploitation. The optimal set of tools will be established to control and manage the noise, based on the background of the current state of the scientific knowledge and international experience in the field. The long-term goal of the project is to define conditions which will allow to develop wind energy in Poland and minimize negative outcomes influencing the society.

The methodology developed within the project should allow for the setting of optimal (from acoustical point of view) localization of wind turbines, i.e. the smallest possible distance between a turbine and the nearest houses at which noise annoyance would not be observed.