

# New methods to study sound generated by wind power plants

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A new two-year research project on sound produced by wind power plants was launched at Lappeenranta University of Technology, LUT in May. In the study, the formation and dissemination of sound from wind power generators, and people's experiences of it in Finnish climatic conditions, will be modelled and experimented with.

The aim is to identify annoying features of [wind power](#) plants from the point of view of people living near them. To help in identification, a real-time feedback system and statistical models are to be used. A special task of LUT's South Karelia Institute will be to study the psychoacoustics of how people experience [sound](#).

"In practice people's experiences with wind power are very difficult to study. In previous research we have asked people to keep a diary, but it has proven to be an impractical way of collecting information. Weather varies and the wind doesn't always blow, and people cannot always be bothered to keep the diary. Research into how people experience sound requires new, easier tools. But people must not be forgotten, and how people experience sound involves much more than logical argumentation", says Pertti Kolari of the South Karelia Institute.

In the new study, LUT's research on sound from wind power will be continued, with the aim of ascertaining more deeply what kinds of characteristics and conditions people find annoying in the sound of wind power.

"In practice we already have descriptive material available to us. Concrete information gathering could be implemented in the future using mobile telephones or iPads, and on that basis we would develop new kinds of equipment and technology for taking measurements. The aim is to conduct long, and short-term sound measurements", says project researcher Sari Janhunen from LUT.

## **Objective information is needed**

According to Janhunen, objective information is needed on the sound emitted by wind power, and especially on how people experience it and how it affects the acceptability of wind power. Janhunen emphasises that people's experiences cannot always be directly transferred from one culture to another. Finland needs more information with respect to sound coming from [wind power plants](#).

"In Finland, for instance, we are accustomed to silence, or we select a silent area for our living space, which probably affects people's attitudes and experiences concerning sound coming from wind power", says Janhunen.

The entire research project is coordinated by the University of Vaasa. The project is based on skills and knowledge attained in previous research projects of the Vaasa Energy Institute, LUT, and the Technical Research Centre of Finland (VTT), and equipment acquired from them.

The project is funded by Tekes and the Innovative Cities/ERDF programme, which is a project of the cities of Lappeenranta, Pori, and Vaasa. The budget of the whole project is € 650,000 of which LUT's share is € 140,000. Also funding the study is an impressive selection of representatives of the wind power industry, from the manufacture of turbines, the construction of wind parks, to the delivery of environmental acoustics and measuring instruments.

Provided by Lappeenranta University of Technology

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