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Energy weather forecast: Power from the sun and wind



The energy weather forecast converts sunshine and wind into kilowatt hours for each location over the next 24 hours. This information helps, for example, to plan energy consumption and any flexibility needed. The energy weather forecast represents changes in and the future of the electricity market as the dispersed generation of renewable energy will increase, having an impact on power consumption and electricity prices.

The free and easy-to-use renewable energy weather forecast is available to consumers and producers of electricity alike online www.bcdcenergia.fi . The energy weather forecast was opened on 31 May 2016.

Innovation developed in research cooperation for consumers and producers of electricity

By monitoring the renewable energy weather forecast, households and communities using wind and solar power can time their energy production and consumption during good weather, for example, sunshine during the day and high winds at night.

What is more, they can reduce their consumption if the weather is expected to be cloudy with low winds.

“Despite the energy weather forecast being still in the prototype phase, we wanted to make it available to all so that users are able to become accustomed to the renewable energy weather concept developed in the BCDC project at as early a stage as possible. From now on, we will also combine market mechanisms with accurate weather forecasts and the next generation's ICT and digital services,” says **Rauli Svento**, professor at the Oulu Business School and research director in the BCDC Energy project.

The energy weather forecast enables the planning of production and consumption

During the extreme cold last winter, people were advised to keep their electricity consumption balanced. The energy weather forecast may also steer consumer habits. Its benefits can best be seen on the large scale, for example, in larger buildings connected to wind and solar power where it is possible to plan and optimise heating and cooling periods.

For example, households utilising wind and solar power in their heat and power production are better able to plan their heating needs. Some small-scale energy producers are also selling their energy back to the network. The renewable energy weather forecast helps producers to know when production is high and what kinds of agreements they should enter into with power companies regarding transmission prices. From the power companies' point of view, there may be significant benefits of scale in

terms of optimised production technology in that the energy weather forecast is able to indicate expected small-scale production volumes.

Despite it still being in the development phase, the energy weather forecast is an important innovation which also raises awareness of the growing opportunities of consumers. This prototype forms a platform, on the basis of which all renewable energy weather forecasts will be developed. When interpreting the forecast, it should be noted that, considering all of the assumptions included, the results are not definitive.

A system built on open data of the Finnish Meteorological Institute

The energy weather forecast is the first version developed under the BCDC project, and it is based on openly available weather forecast material and assumptions of the available wind and solar power production technology.

The energy weather forecast obtains its weather information via the open data interface of the Finnish Meteorological Institute (FMI). “FMI's open weather data includes all of the significant factors considering, for example, solar power. It offers solar irradiance figures, temperatures and wind details to calculate the level of solar irradiance on a specific solar panel and the efficiency of that panel under specific conditions. This results in a forecast of solar power production,” says **Anders Lindfors**, research professor at FMI and a member of the BCDC Weather team.

Contact information

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More information also in English:

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