



## **The polish invention – vertical wind power stations - renewable energy sources' future**

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The author has analyzed the world's first vertical wind turbine. It has the following advantages: it is quiet, safe and efficient, and most importantly, does not produce environmentally dangerous ultrasound. The wind power plant without windmills was invented and patented by Waldemar Piskorz, the Pole. The project is carried out in Poland by the municipality of Kodeń.

The framework of a vertical wind turbine is constructed out of a 30 meter high tower consisting of three columns of wind turbines with a total capacity of 0.5 MW, which withstands winds pressure up to 200 km / h. The framework is stable and does not cause vibrations. The tower can be extended by more segments, increasing its power. A vertical wind turbine is significantly more efficient than conventional fans because it works at low wind force and irrespective of its direction. The vertical turbine in Kodeń wind farm is the first of the kind in the world. Both individual customers, because the design/framework can be mounted on buildings, and large industrial plants will benefit from this innovative Polish technology solution. Wind farms can also be set up because the towers can be upgraded up to 60 meters in height. Such a wind turbine does not produce noise or odors. It's quiet and clean. This is a better solution than, for example a biogas.

The vertical wind farm located in Kodeń is a unique design/framework completely harmless to the environment. The technical parameters are promising. The design allows for achieving high efficiency without the necessity to build high masts and enables folding into functional segments of the object by placing one on the other. The manufacturer estimates the life of the installation, even up to 70 years. Financially a construction of an installation of a 1 MW is alike to a traditional windmill and photovoltaic farm. However, in the case of production capacity, it appears that the rotation of the vertical turbine can produce up to 3.6 times more electricity than photovoltaic farm and nearly 50% more than traditional windmills.

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