

## Contribution of Wind Power Plants to Frequency Control

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### Abstract

The use of renewable energies is steadily growing. Wind energy is the main installed type of renewable energies in Germany. Wind power plants are concentrated in large wind farms. These wind farms are connected to the high voltage network. Despite the high installed wind power, wind power plants may not contribute to frequency control (primary, secondary and tertiary control) till now. Wind power plants owner gets from the transmission system operator a fix payment for the generated energy. This payment is much higher than the average variable costs of conventional power plants. This study shows that modern wind power plants and farms can contribute to frequency control too. Thereby, wind power plants owner gets more income than the fix payment of the generated energy. This more income can be a contribution to reduce the fix payment of the generated energy of wind power plants.

*Keywords: Wind energy, Frequency control.*

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