Relevance of a Safety Factor for Wind Power Trading in Comparison with the Utilization of a Storage

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Abstract - In Germany renewable energy sources are paid by law with a constant amount for the supplied energy. Thus, the operators of such plants have no intention to take part at the energy market yet, but there exists possibilities to earn a better payment, so already some facilities act in the market and in the future this participation will be more and also necessary.

This work analyses the opportunities for the participation at an energy exchange and at the control power market. To interact with the market, wind farms have to supply a constant power for a specified time. Due to the fluctuations of wind energy it is not possibly to guarantee a constant power based on wind forecasts. Thus, the wind farm cannot sell their maximal estimated energy but only a reduced value. The aim of the work is to figure out this specific "safety factor". Later on, the results are compared both technically and economically with the use of a storage unit, where the full amount of energy can be traded.