Experience from power system operation with the first large offshore wind farm in Denmark: Horns Rev shows that the power from the wind farm is fluctuating significantly at certain times, and that this fluctuation is seen directly on the power exchange between Denmark and Germany. This report describes different models for simulation and prediction of wind power fluctuations from large wind farms, and data acquired at the two large offshore wind farms in Denmark are applied to validate the models. Finally, the simulation model is further developed to enable simulations of power fluctuations from several wind farms simultaneously in a larger geographical area, corresponding to a power system control area.

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