

Modelling of power system containing demand response

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INTRODUCTION

Large penetration of fluctuating energy sources like wind power will create a stability problem in the electric power system, which might in part be solved by introducing a flexible (e.g. price controlled) electricity demand.

The purpose of this project is to obtain a basic understanding of the dynamics of a power system containing a significant fraction of flexible demand indirectly controlled by an electricity price signal. This includes clarifying what the price signal should do for the system and investigating how a price-signal can be generated so that it fulfills the requirements.

The inputs to a price-signal generator will presumably be an appropriate combination of load and production, both present and forecasted values, as well as the power system response to previous price changes. Different scenarios may then be simulated by varying system parameters, input data and off course the properties of the price generator and demand response.