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Abstract to be sent soon for registration to organisers of YEEES:

Using flexible load shape objectives for demand response and its impact in system operation

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Variable generation sources such as wind are being integrated into today´s electricity systems and add more uncertainty to the system. Furthermore demand peaks keep growing and the system must provide system reserve for different eventualities: variations in intermittent generator outcome or demand and failures in generation equipment.

A model will be presented which is able to optimize the day-ahead unit commitment decisions and to simulate the real time reserve necessities. This model includes a demand response option which enables demand to provide spinning reserves via automatic load response. We will analyze which cost savings can be achieved with flexible demand for reserves, up to which point demand can provide system reserves and which generation technologies are replaced. Furthermore, Virtual Power Plants (VPP) which aggregate various demands and distributed generations are analyzed. It will be studied how these VPPs reduce uncertainty in the electric system operation and how this influences the rest of the decision variables.