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Smart Grid experience and transition to full-scale projects

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Abstract

The Smart Grid is a prerequisite for increasing the share of sustainable electricity production from renewable energy sources, primarily wind power, and thereby fulfilling the European Union's climate targets (20/20/20 targets). A number of Smart Grid projects and test sites were launched and implemented during the last couple of years. Two such projects are presented, with their detailed objectives, characteristics and lessons learned. A general goal was to develop strategies for planning, construction and operation of a fully developed, large-scale grid.

Multiple conceptual, technological and legal challenges need to be solved on the transition path to full-scale projects. One of the critical components are new or improved software tools, enabling safe and economical grid operation at all voltage levels. These tools have to deal with a variety of operational problems such as dynamically changing network constraints, increasing penetration of renewables, new energy consumption and production patterns etc. The presentation will mention several tools already in use or under development.