

Future role of DSOs

Between Smart Grids and Smart Markets

CEDEC-Conference, Panel

Brussels, 19 November 2014

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Challenges from the view of DSOs

Grid infrastructure *

- Approximately 900 DSOs with heterogeneous grid structures
- DSO-networks representing with 1,7 million kilometers line length about 98 percent of the entire German electricity grid
- About 90 percent of the installed capacity provided by renewable energy systems is connected to DSO-grids (65 GW).
- Effects of the goals of the German federal government:
 - Installed capacity of wind power plants and photovoltaic systems increases to 2032 by 128 GW.
 - Additional investment needed for grid expansion around 23 billion Euros
- Grid expansion affects a large part of the DSOs:
 - One thirds of the operators of low voltage networks
 - Two third of the operators of medium voltage networks

* Source: Federal Ministry for Economic Affairs and Energy, Distribution Grid Study, 12 September 2014

Market role DSOs

- **Provision of grid infrastructure:**
 - Maintenance and renewal of distribution networks;
 - Cost and time-efficient integration of decentralized power generators;
 - Development of new solutions and exploitation of new potentials for the economic operation of the grids as alternative to grid expansion (Smart Grid).
- **Ensure secure grid operation:**
 - Security of supply reliability and quality through a proactive network management;
 - Feed-in and load management to maintain system stability in bottleneck situations.
- **Non-discriminatory available data:**
 - Hundreds of suppliers and measuring point operators are acting in the DSO-electricity networks in Germany.
 - Collection, verification and distribution of data from decentralized electricity generators, consumers and network resources for the network operation;
 - Timely provision of data to suppliers and consumers.