

# Hydro scheduling in deregulated power systems

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## **Abstract:**

The presentation addresses the challenges of hydro scheduling in a liberalized power system. A brief description of long-term, mid-term and short-term hydro scheduling models developed by SINTEF Energy Research is given. These decision support models have a dominant market position in Nordic countries and are used by most players in Nord Pool Spot. Hydropower systems may have complex topologies with many cascaded reservoirs and power plants in the same river system. Reservoirs may have significant storage capacity and the inflow is stochastic with large variance. Use of the hydropower resources in a short-term perspective will therefore be coupled with the long-term strategic decision. The problem is decomposed into a planning hierarchy where the long-/mid-term models provide boundary conditions for the short-term models. The challenges and possible solutions in operational hydro scheduling are hence discussed. Recent development about pumped-storage and bidding in multiple markets are presented.