Bidding into Balancing Markets in a hydro-dominated Electricity System

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Abstract

Swiss hydropower is currently challenged by low electricity market prices. Additional services provided by hydropower plants to balance electricity demand and supply (balancing) can in theory relax the profitability situation. In this paper, we want to have a closer look at the operation of hydropower plants in the balancing markets in order to identify market characteristics and uncertainties, technical limitations, and their effect on the balancing market prices. Therefore, we developed a short-term hydropower operation model to simulate the operation of a generic but representative hydropower plant in the spot and balancing markets. Different model variations are used to take into account the impact of technical plant characteristics, short-term trading options as well as price uncertainty on the opportunity cost for providing balancing power. First results show that while technical plant characteristics as well as short-term trading options have a neglectable influence on the opportunity costs for providing balancing power, uncertainty in electricity market prices affects the opportunity costs.

Keywords: *hydropower operation, balancing markets, opportunity cost*

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