Review of Uncertainties

In Future Swiss Electricity Scenarios:

A random simulation approach

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Abstract

In the aftermath of the Fukushima nuclear disaster, public and government opinion towards nuclear energy became increasingly hostile worldwide. The Swiss Federal government, in 2011, decided to phase-out nuclear energy with the last nuclear plant projected to go offline in 2034. Coupled with limited potential for new hydropower development and Switzerland's commitment to climate change mitigation efforts, it leaves limited low-carbon options for new electricity supply technologies. Combined Cycle Gas Turbines (CCGT), solar power and a limited amount of wind power are projected to take over the share given up by nuclear energy. On the demand side, there is uncertainty related to the successful implementation of energy efficiency measures to reduce demand. Prior studies on the projected evolution of the electricity sector consider these aspects to varying degrees, depending on how they account for the driving variables. However, these studies do not give explicit estimates of uncertainty in their projections. Taken together, it is therefore difficult to assess the likely evolution of the electricity sector across multiple studies. In this work, the Monte Carlo class of simulation techniques was employed to probabilistically evaluate the uncertainties across the projections presented in literature.