



Hydroclimatic risks and uncertainty in the global power sector

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Approximately 80% of the world's electricity supply depends on reliable water resources. Thermoelectric and hydropower plants have been impacted by low flows and floods in recent years, notably in the US, Brazil, France, and China, amongst other countries. The dependence on reliable flows imputes a large vulnerability to the electricity supply system due to hydrological variability and the impacts of climate change. Using an updated dataset of global electricity capacity with global climate and hydrological data from the ISI-MIP project, we present an overview analysis of power sector vulnerability to hydroclimatic risks, including low river flows and peak flows. We show how electricity generation in individual countries and transboundary river basins can be impacted, helping decision-makers identify key at-risk geographical regions. Furthermore, our use of a multi-model ensemble of climate and hydrological models allows us to quantify the uncertainty of projected impacts, such that basin-level risks and uncertainty can be compared.