

Risk GOveRnance of electricity pOrtfolioS (RIGOROUSt):

Cross-technology and spatial tradeoffs of multiple risks

Summary:

All electricity generation technologies create risks to society, such as global warming, induced seismicity, or severe industrial accidents. Scientific inquiry and wider energy debate often revolve around individual technologies. Such view may be misleading because it gives an illusion that exclusion of one technology eliminates risks. As electricity demand is supplied by a technology portfolio, exclusion of one technology implicitly means deployment of this or other technology in the same or other region. Although barely analyzed to date, such cross-technology and spatial tradeoffs must be understood in science and society. Science needs to shed light on these tradeoffs, adopting a broader and more open view to risk, including known and uncertain consequences, likelihoods, and knowledge robustness. This risk information needs to be accessible to stakeholders and the wider public in order to inform their opinions on technologies and their siting, without the illusion that risks can be avoided. In turn, understanding of the stakeholder and public preferences in face of risk tradeoffs helps finding socially viable ways to implement the Swiss Energy Strategy 2050.

The RIGOROUS project aims at examining such cross-technology and spatial tradeoffs of multiple risks within the Swiss electricity portfolio. For this purpose, two interactive tools RISKMETERS (basic and spatially-explicit versions) will be developed. These tools will link risks, created by electricity generation technologies, with the electricity portfolio model EXPANSE (EXploration of PATterns in Near-optimal energy ScEnarios). RISKMETERS will then be used to measure public, stakeholder and expert preferences for the Swiss electricity portfolios in light of risks.

The project will make a timely contribution to both energy research and practice. There has been no systematic assessment of cross-technology and spatial risk tradeoffs within electricity portfolios. Science is still looking for the best ways to communicate risks, especially with highly uncertain consequences, likelihoods, and different knowledge qualities. Public, stakeholder and expert preferences for electricity portfolios in light of risks have not yet been analyzed. For practice, the project will provide two interactive and publically available tools as well as a better understanding of the aforementioned preferences to inform the choice and siting of electricity generation technologies.

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