

Water Availability for Electrolysis: A Case study of Germany 2045

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Extended Abstract

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Abstract Summary

Germany has set ambitious goals for the expansion of hydrogen production based on water electrolysis in the next decades. While current debates predominantly focus on the necessary renewable electricity supply and hydrogen infrastructure to achieve this, the availability of water for electrolysis has received limited attention so far. We combine the DIETER model of the German electricity sector in 2045 with a future groundwater stress indicator to investigate whether water availability can regionally constrain hydrogen production. We evaluate the impacts of renewable energy availability, water availability, water pricing, and hydrogen transport infrastructure availability for the regional deployment of electrolysis capacity in the year 2045.

Presenting Author Biography

Franziska Holz is an energy economist and has been at the German Institute for Economic Research (DIW Berlin) since 2004. She is also an adjunct professor at the Norwegian University of Science and Technology (NTNU) as part of the NTNU Energy Transition Initiative (NETI). At DIW Berlin, she is the deputy head of the department Energy, Transportation, Environment, the head of the research area Resource & Environmental Markets, and the co-head of the research group Social-Ecological Transformation. Franziska's research deals with the markets for natural gas, hydrogen, coal and their interaction with climate policy, the energy transition and the heat transition.