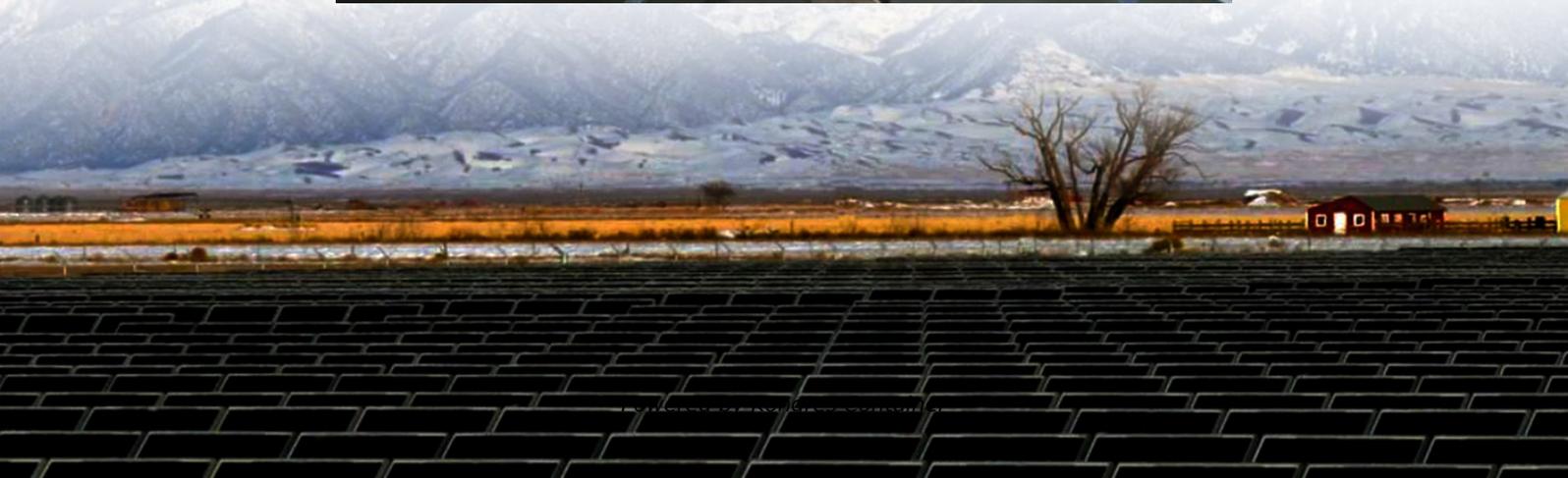


## Kongres Container

# Western Europe Solar On-site Energy Communication Power Supply



## Overview

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Are European power systems more resilient to weather variability?

Grochowicz, A., van Greevenbroek, K., Benth, F. E. & Zeyringer, M. Intersecting near-optimal spaces: European power systems with more resilience to weather variability. *Energy Econ.* 118, 106496 (2023).

How do we model the European sector-coupled Networked Energy System?

We model the European sector-coupled networked energy system from 2025 to 2050 with 5-year steps, under a carbon budget corresponding to 1.7 °C temperature increase and imposing carbon neutrality by 2050, with a network comprising 37 nodes, using 370 regions to represent wind and solar resources, and a time-resolution of 2-h for a full year.

How important is a common planning strategy for the European energy system?

Ultimately, while the final transition path chosen by each country will depend on many social and political factors, the results presented here emphasize that the goals of one country could have significant implications for many others, necessitating a common planning strategy for the European energy system.

What is the future of solar energy in Europe?

Solar PV and wind energy become the cornerstone of the transformed energy system, with solar PV being crucial for achieving self-sufficiency. By 2050, 5.1 TW of solar and 1.3 TW of onshore and offshore wind capacity will be installed across Europe (see Supplementary Fig. 13), taking up 57% and 36% of the electricity generation, respectively.

How much land does solar take up in Europe?

By 2050, 5.1 TW of solar and 1.3 TW of onshore and offshore wind capacity will be installed across Europe (see Supplementary Fig. 13), taking up 57%

and 36% of the electricity generation, respectively. This requires approximately 2.3% of available land for solar PV and 3.7% for wind, equivalent to about 4.5% of Europe's total land area.

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