

[RESILIENCE: Strengthening the European Energy Network using Climate Services](#)

Description

One of the biggest single risks to the operation of the energy network is the meteorology. Both the supply and demand of electricity are strongly influenced by the weather and its modulation over time, the climate variability. The highest priority for the energy network operators is to maintain a balanced system to avoid black-outs. The rapidly evolving energy system is in an increasingly vulnerable position due to the growth of wind power, contributing to the total energy supply, and unusual temperatures affecting demand. The ability to reliably and accurately anticipate changes in energy supply and demand beyond a few days is essential to stabilise and secure the energy network as a whole. Although short-term weather forecasting for energy is a common service, subseasonal-to-seasonal probabilistic climate forecast are barely applied by the industry because there is a false, generalised perception that forecast quality over Europe beyond a forecast time of two weeks is very limited. To respond to this need, the overall objective of RESILIENCE is to strengthen the efficiency and security of the European energy network using the best information from subseasonal-to-seasonal operational climate predictions in a coproduction process, with a special focus on the Iberian Peninsula and the North Sea region.

The first aim of RESILIENCE is to understand the forecast quality and the predictability sources of the most comprehensive set of subseasonal and seasonal probabilistic predictions of wind speed and temperature. The predictions will be combined and calibrated to offer a single, reliable source of climate information to the users in the energy sector. The few probabilistic forecasts at those time scales currently available are difficult to access, poorly understood, untailored to specific needs, and therefore under-utilised by end user groups. Therefore, beyond the provision of the subseasonal-to-seasonal climate predictions, climate services for the energy industry are needed to bridge the gap between climate scientists and the end users, to ensure that research reaches the industry and society in a timely and usable manner.

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