

Vulnerability of European electricity supply to climate change

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Climate change will impact thermoelectric power production in Europe through a combination of increased water temperatures and reduced river flow, especially during summer. In particular, thermoelectric power plants in southern and south-eastern Europe will be affected by climate change.

Summer average decrease in capacity of power plants of 6.3-19% in Europe was shown for 2031-2060 compared with 1971-2000. Overall, a decrease in low flows (10th percentile of daily distribution) for Europe (except Scandinavia) is projected with an average decrease of 13-15% for 2031-2060 and 16-23% for 2071-2100, compared with 1971-2000. Increases in mean summer water temperatures are projected of 0.8-1.0°C for 2031-2060 and 1.4-2.3°C for 2071-2100, compared with 1971-2000.

Considering the projected decreases in cooling-water availability during summer in combination with the long design life of power plant infrastructure, adaptation options should be included in today's planning and strategies to meet the growing electricity demand in the 21st century.

Source: Van Vliet et al., 2012. Nature Climate Change 2: 676-681.

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