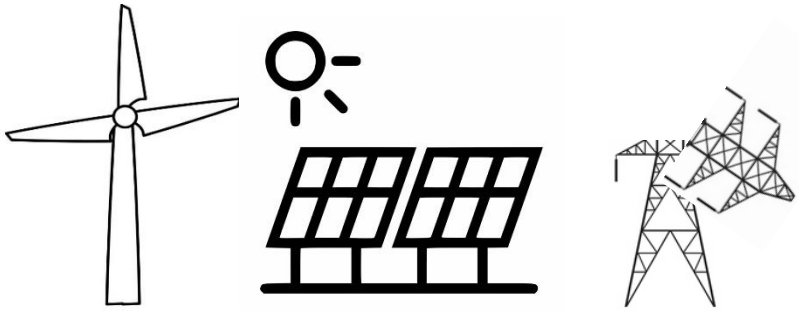


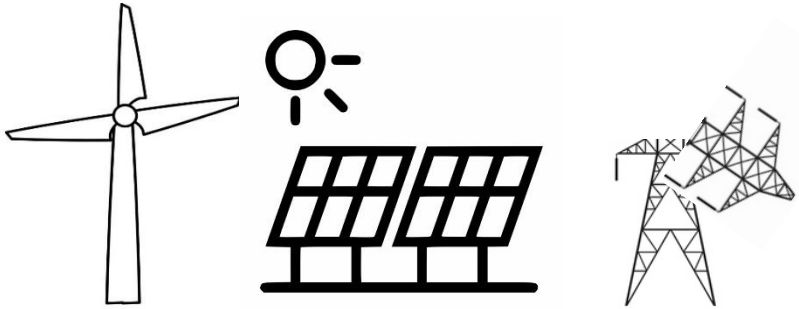
How extreme is too extreme: can adverse weather break a highly-renewable electricity system?

Laura Dawkins,
Met Office

- **Motivation:** The UK and Europe are targeting net-zero emissions and are planning for highly-renewable electricity systems, hence it is **important to understand how resilient such electricity systems are to periods of adverse weather**

- **Aim/Outcome:** Gain a better understanding of **how bad the weather has to get** to jeopardise security of supply, for plausible future highly-renewable electricity systems

- **Method:** **A resilience/sensitivity study**, in which adverse periods of weather data are used to drive existing electricity system models, and the security of supply is explored



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- **Adverse weather data:**
  - ERA5
  - UKCP18
  - ‘Adverse Weather Scenarios for Electricity Systems’ dataset
  - Modify this weather data to see how extreme we can go…

- Met Office working on a project with the National Infrastructure Commission and the Climate Change Committee
  - Developed a **method for characterising and identifying periods of adverse weather** – wind-drought-peak-demand in summer and winter
  - **Identified adverse weather periods** in ERA5, UKCP18 and climate model hindcasts
  - See discovery phase report and characterising adverse weather report for more information