Where will the Norwegian wind power go? Comparison of generation and transmission expansion scenarios.

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Yearly **weather variations** strongly **impact** power system **costs and design**
— **even** when restricting expansion by **land use constraints**.

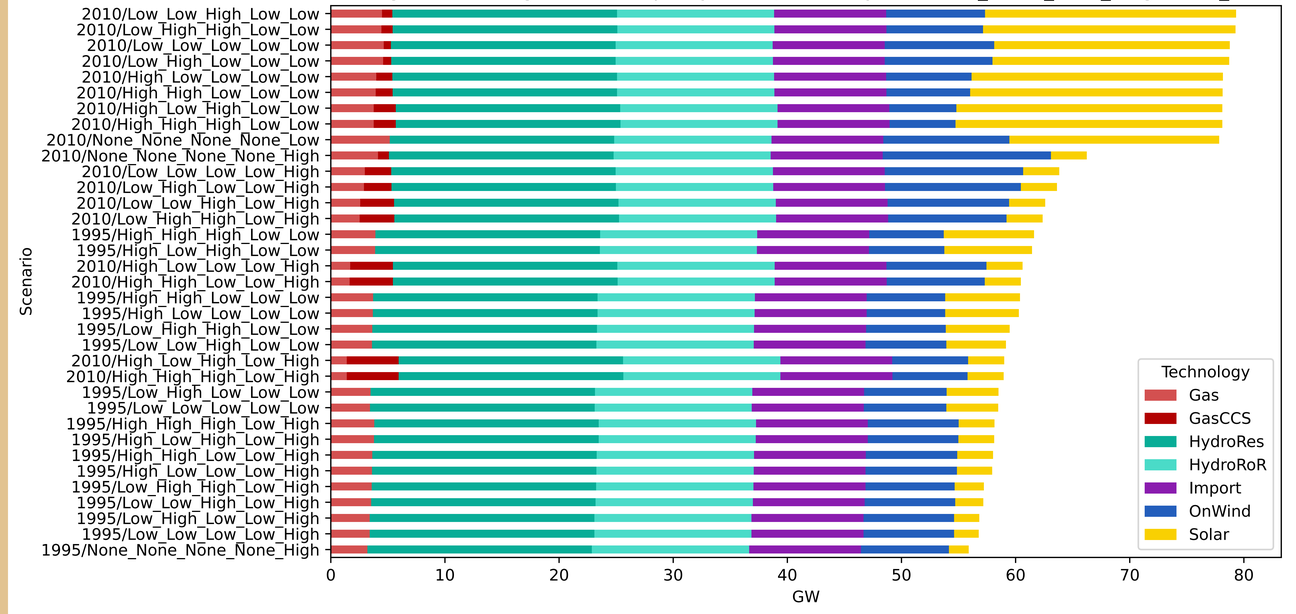
1. Problem:

- Norway's electricity **demand is increasing**, so generation has to keep up

- **Hydropower** supplies > 90 % of the demand but is **not expected to cover** all **additional capacity** needed

2. Method:

- **Power system model** for 2030 with 40 scenarios
- varying:
  * **weather** (year)
  * onshore **wind** deployment
  * **solar** deployment



For details on scenarios see Paola Velasco Herrejón's poster "A methodology for integrating social and environmental factors into energy system modelling (ESM)" @ ERE2.2 vHall | ERE | vERE.8)

3. Assumptions:

- No offshore wind
- No transmission expansion
- No export
- Carbon intensity limited to current values
- Very expensive imports (last resort)

4. Results:

- Large **onshore wind** deployment is **cheapest**
- Wind restrictions lead to ambitious solar deployment
- Total **system costs** are mainly **determined by** the **weather year**