



# Bachelor & Master Theses

## In the field: Correction and combination methods for wind and photovoltaic forecasts

### Field description:

The increasing integration of fluctuating renewable energies poses growing challenges to the entire energy system. To effectively and efficiently address these challenges, there is a growing need for highly accurate short-term forecasts for future energy feed-in from wind and photovoltaic sources. A powerful approach is to combine divergent individual forecasts from various prediction models into a more accurate meta-forecast.

### General description of tasks:

The thesis on this topic usually includes extensive forecast data from different models to be processed and examined using given correction and combination methods. This is carried out by researchers in the chair of energy economics at BTU. Applicants for this topic should have a mathematical and statistical orientation, an interest in working with extensive datasets, and basic programming skills. Additionally, familiarity with the Python or R statistical program is required. Students are welcome to discuss areas of research interest and thesis topics with our team. Information about our research team and publications may be found with the following links:

- [Souhir Ben Amor](#)
- [Prashanth Akkal Devi](#)
- Research paper: [Solar and wind power generation forecasts using elastic net in time-varying forecast combinations.](#)

### Our expectations:

- Interest in energy economics, econometrics, and mathematical modelling
- Good understanding of selected topics
- Practical knowledge of forecasting methods (statistical and machine learning) and the ability to implement these methods in R or Python.

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