In order for the EU to achieve its goal to reduce greenhouse gas emissions by 55% by 2030 compared to the year 1990, an increased deployment of renewable energy sources (RES) will be crucial. At the same time, this necessitates the phase-out of carbon intensive conventional power plants. At the Institute of Energy and Climate Research - Techno-economic Systems Analysis (IEK-3) we develop energy system models for the analysis of transformation processes in energy supply and utilisation according to the political framework. For example, at least 50% of all coal-fired power plants in Europe announced shutdown before 2030. In order to decarbonize Europe, a major transformation of the European energy system is required. However, today’s energy mix differs strongly from country to country, which results in country-specific pathways and strategies to meet the 2030 greenhouse gas reduction goal. This has strong implications for the energy system in 2030.

We offer you to the next possible date an exiting

Master`s thesis: Analyzing the transition of energy generation in the European energy system until 2030

Your Job:
In this work, you assess the current landscape of energy generation in Europe and analyze the country-specific planned pathways until 2030 and their implications on the European energy system. The results of this research should be collected in a database and included into an existing energy system model for Europe. Based on the findings, you analyse the potential European energy system in the year 2030 in a number of future scenarios. Your tasks in detail:

• Assessment of the current landscape of energy generation in Europe (existing and planned plants as well of shutdown dates)
• Collection and analysis of country policies for 2030 regarding energy generation
• Construction of a GIS database regarding energy generation for today and 2030
• Implementation of the database into the energy system model
Scenario calculation of Europe’s energy system in 2030
Analysis of country targets, possible gaps and infrastructural needs

Your Profile:
- Excellent academic marks in climate science, electrical engineering, energy engineering, physics, computer science, or related fields of study
- High degree of independence and analytical working style
- Experience with energy system modeling is a plus
- Experience in GIS and Python programming desirable
- Fluent knowledge of written and spoken English

Our Offer:
We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We support you in your work with:
- A diverse and highly motivated working group of international character within one of the largest research institutions in Europe
- An excellent scientific and technical infrastructure
- Qualified support through your scientific colleagues
- The opportunity to actively participate in shaping the energy system of the future with a future oriented topic
- Excellent technical equipment to successfully work from home
- Flexible working hours as well as a reasonable remuneration

The position is initially for a fixed term of 6 months.

Forschungszentrum Jülich promotes equal opportunities and diversity in its employment relations.
We also welcome applications from disabled persons.