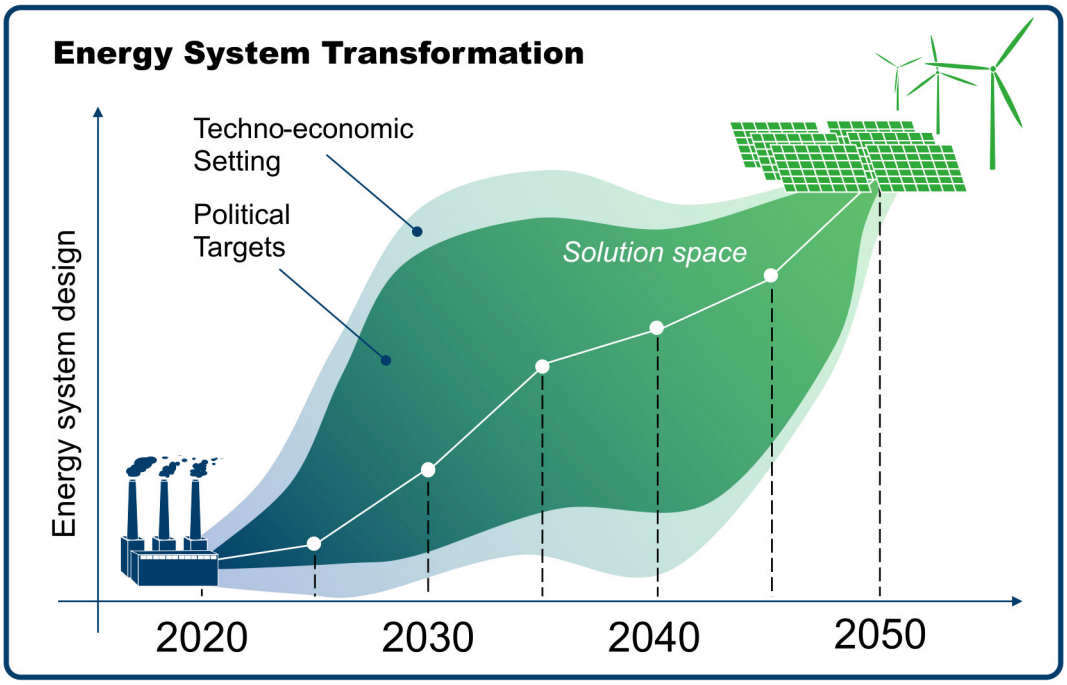

Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,500 employees in one of Europe's biggest research centres and help us to shape change!

Are you interested in questions concerning the greenhouse gas neutral energy system of the future? Would you like to be part of an international research team? And would you like to incorporate your own creative ideas into your master thesis? Then we have an offer for you: At the Institute of Climate and Energy Systems - Jülich Systems Analysis (ICE-2), we use integrated models to make statements regarding one of the greatest challenges of the 21st century: achieving a greenhouse gas neutral global energy system.

We offer you to the next possible date an exiting

Master Thesis - Raw material demand and criticality assessment of an innovative process chain to produce green hydrogen and methanol

Your Job:

The production of green hydrogen and methanol is a promising solution for the transition to a sustainable, greenhouse gas-neutral energy system. In addition to energy sustainability, there is an increasing focus on resource sustainability. Many of the technologies used require specific metals and materials, the global supply of which is increasingly seen as critical due to geopolitical uncertainties, limited resources and growing demand. The DryHy project (https://www.dryhy.de/de) is investigating an innovative process chain for the production of green hydrogen and methanol. In order to evaluate the sustainable scalability of these technologies, a systematic analysis of the material demand and a well-founded assessment of possible raw material bottlenecks are necessary. In your Master's thesis, you will contribute to the DryHy project by analyzing the material demand along the process chain, identifying critical raw materials and assessing their criticality. To this end, you will:

- Conduct a systematic literature review on the material demand of the technologies within the DryHy process chain

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our **Online-Recruitment-System!**

Questions about the vacancy?

Get in touch with us by using **our contact form.**

Please note that for technical reasons we cannot accept applications via email.

www.fz-juelich.de

- Quantify the total material demand of the relevant technologies for a defined target year
- Develop and apply a methodology to assess the criticality of raw materials
- Perform a materials comparison with an alternative process route for green hydrogen and methanol production (e.g. using PEM, seawater desalination, CCU)

Your Profile:
- You are studying engineering, energy technology, materials science, resource or environmental management, or a comparable course of study
- Interest in the challenges of the energy transition and its economic consequences
- A high degree of independence and the ability to analyze and address complex issues
- At best, you already have some knowledge and experience in programming (preferably in Python)
- Very good knowledge in German or English

Please feel free to apply for the position even if you do not have all the required skills and knowledge. We may be able to teach you missing skills during your induction.

Our Offer:
We work on cutting-edge innovative topics and offer you the opportunity to actively shape change! With us, you will have the opportunity to build up a deep knowledge of relevant future technologies in what is perhaps the most relevant topic of our century for society as a whole: the energy transition. We support your work and your career through:
- Highly motivated, international working group in one of the largest research centers in Europe
- Qualified supervision by scientific colleagues
- Interdisciplinary collaboration on projects in an international, committed, and collegial team environment
- Ideal conditions for practical experience alongside your studies
- Intensive supervision at a flexible workplace (100% home office possible)
- Excellent scientific equipment and the latest technology
- Fexible working hours and adequate remuneration

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

In addition to exciting tasks and a collegial working environment, we offer you much more: https://go.fzj.de/Benefits

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

Further information on diversity and equal opportunities: https://go.fzj.de/equality