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!

At the Institute of Energy and Climate Research - Jülich Systems Analysis (ICE-2), we investigate how a sustainable energy system can be achieved and what it might look like. The work of the team "Global Energy Pathways" in the department "Integrated Infrastructure" specifically focuses on global potentials and energy system aspects. We are looking for fair and equitable transboundary solutions to global energy-related challenges, working in close cooperation with project partners across the world. Look at our latest project here: https://africa.h2atlas.de/

We are offering a

PhD Position - Impact of Climate Change on Renewable Electricity Production and future Energy Systems

Your Job:
Climate change is already reshaping our world and will continue to do so in the coming decades. Reducing greenhouse gas emissions is essential to limiting future climate change, with renewable energy systems playing a pivotal role in transitioning away from fossil fuels. Wind turbines, solar photovoltaics and hydropower form the backbone of low-emission ("green") electricity generation. However, these technologies are inherently dependent on weather conditions, which are likely to be influenced by climate change. The PhD position is aimed at investigating the effects of future climate change on renewable energy production. This work will leverage and expand upon RESkit - an open-source renewable energy simulaton framework developed at our institute (available on Github: https://github.com/FZJ-IEK3-VSA/RESKit). This framework currently uses historical weather data to model energy output and will be further developed to allow the simulation of renewable electricity production under future climate scenarios. Your research will contribute to understanding the effects of climate change on renewable power generation and its impacts on energy system design on a global scale. Key responsibilities include:

- Evaluation and selection of existing meteorological datasets that include climate

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

change projections
- Integration of current hydropower workflows into the RESkit framework
- Integration of the projected weather parameters into the RESkit framework and subsequent calibration and validation of the output
- Global simulation of the electricity output under various climate change scenarios
- Analysis of global trends and technology-specific impacts on electricity production
- Integration of projected volatile electricity production into existing energy system models along with an assessment of how climate change affects system design and cost

Your Profile:
- Master's degree in the field of natural sciences, engineering, or a related field of study
- Huge interest in energy system transition and climate change
- Knowledge of renewable electricity systems and/or a background in atmospheric sciences is an advantage
- Experience in atmospheric/climate modeling, renewable electricity generation simulation and/or energy system modeling is beneficial but not mandatory
- First programming skills, ideally in Python
- Independent and analytical way of working
- Reliable and conscientious working style
- Fluent written and spoken English; German language skills are beneficial but not necessary

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 the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We offer ideal conditions for you to complete your doctoral degree:
- A highly motivated working group as well as an international and interdisciplinary working environment in one of the largest research institutions in Europe
- Participation in an exciting consortium project with top-class partner institutions
- Excellent training, interdisciplinary collaboration, and practical insights in questions regarding negative emission technologies within the `Helmholtz Research School for Negative Emission Technologies`
- The opportunity to complete a doctoral thesis within 3 years through professional supervision and internal support services; time taken to submit the final thesis for the last 16 doctoral students at IEK-3: 2.7 - 3.4 years
- Excellent scientific and technical infrastructure
- Opportunity to participate in (international) conferences and project meetings
- Continuous professional support by your scientific supervisor(s)
- Best conditions for successful work in home office
- 30 days of annual leave and provision for days off between public holidays and weekends (e.g. between Christmas and New Year)
- Further development of your personal strengths, e.g. through an extensive range of training courses; a structured program of continuing education and networking opportunities specifically for doctoral researchers via JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: https://www.fz-juelich.de/en/judocs
- Targeted services for international employees, e.g. through our International Advisory Service

In addition to exciting tasks and a collaborative working atmosphere at Jülich, we have a

lot more to offer: https://go.fzj.de/benefits

The position is initially for a fixed term of 3 years. Pay in line with 75% of pay group 13 of the Collective Agreement for the Public Service (TVöD-Bund) and additionally 60 % of a monthly salary as special payment („Christmas bonus“). The monthly salaries in euros can be found on page 66 of the PDF download: https://go.fzj.de/bmi.tvoed Further information on doctoral degrees at Forschungszentrum Jülich including our other locations is available at: https://www.fz-juelich.de/gp/Careers_Docs

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