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 7,100 employees in one of Europe’s biggest research centres and help us to shape change!

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

The EU’s goal to reduce 55% of greenhouse gas emissions by 2030 compared to the year 1990 will not only challenge the power and industry sector but also the household and service sector. Currently, 12% of all GHG emissions in Europe originate from the household and service sector. In households, heating and hot water account for 79% of total energy use, most of which is generated from fossil fuels. In addition to the general goal of decarbonization, reducing dependence on fossil fuels is more urgent than ever in light of current events. 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 utilization according to the political framework. On this occasion we are looking for a highly motivated master’s student to assess the current and future energy demand in the household and service sector in Europe.

We offer you an exciting

Master Thesis - Methodology to assess the future energy demand in the household & service sector in Europe

Your Job:
In this work, you first assess the status quo of energy consumption based on building characteristics in the household and service sector in the different European countries. Based on this, you will develop a methodology that will allow you to model and investigate the possible development of energy demand in these sectors starting from the status quo, taking into account various measures, incentives and new technologies. In detail, your tasks will involve:

• Assessing the status quo of energy consumption by researching and quantifying current building characteristics (e.g., building age structure, heated area, used heating fuel, energy consumption per appliance, etc.) on at least country level granularity and validation with the current energy balance

• Researching current and future decarbonization options for buildings, for both
renovation and new buildings

- Researching the limitations of renovations (e.g., the applicability of heat pumps in existing buildings)
- Consideration of the impact of weather conditions on the energy consumption
- Researching current EU and country policies
- Development of a tool for the analysis and creation of different scenarios and their impact on the future energy demand of the individual European countries

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 in Python programming desirable
- Fluent knowledge of written and spoken English

Our Offer:

We work on highly relevant innovative topics and offer you the possibility to actively shape the change. We support you 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
- An interesting and socially relevant topic for your thesis with a future-oriented theme
- Excellent technical equipment for successfully working in home office
- Flexible working hours as well as a reasonable remuneration

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

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