Jobbnorge ID: 235321
Deadline: 12/1/2022
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Industrial Economics and Technology Management has a vacancy for a

PhD Candidate position on equilibrium and optimization models for analyzing the role of hydrogen in the energy transition towards 2050

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 42,000 students work to create knowledge for a better world.

You will find more information about working at NTNU and the application process here.

Video: https://youtu.be/Xt-yHCN5QS0

About the position

There is a PhD position available at the Department of Industrial Economics and Technology Management - section of Managerial Economics, Finance and Operations Research. The position is resident at NTNUs campus in Trondheim.

This is an educational position, which will provide promising research recruits the opportunity for professional development through studies towards a PhD-degree. The position is connected to the PhD program at the Faculty of Economics and Management and the faculty will be your employer.

The department endeavors to promote research that meets high International standards. Subsequently, contact with International institutions is important. Therefore, the department encourages the successful PhD Candidate to spend one to two semesters of the contract period at a foreign university. The department offers support in the planning of such scholarly visits.

About the position

This PhD project is part of the recently started research project: 'Hydrogen Pathways 2050 - Transition of the Norwegian society and value creation from export' (Hydrogen Pathways 2050) that has as aim to understand how hydrogen can contribute with sector coupling, how hydrogen can serve as a flexibility provider and how hydrogen can be an export product for Norway in the future. The Project is together with research partners IFE and SINTEF as well as active industry partners: Equinor, Gassco, Statkraft and others. It is a knowledge building project funded by the Research Council of Norway, its central objective is to study the role of hydrogen in transition pathways towards zero emission society by understanding its effect as point of coupling between transport, industry, and energy.

A transition towards a net zero emissions, implies not only enormous changes to the energy system, but also induces similar radical structural changes to a number of other sectors. In order to calculate the GDP and welfare distribution effects of the pathways, the PhD position will actively use economic models and energy system models. The PhD position will co-develop a new modelling framework to represent a broader scope of the energy-economic system. Here, the modelling of the economy will be done by the Computational General Equilibrium (CGE) model developed by NTNU. This will be combined with an energy system model that provides feedback (e.g, technology mix in the power sector) to the CGE model. The iterations and interaction between these two models will provide in-depth analysis on the infrastructure needs, for the power grid and associated flexible resources, natural-gas pipelines utilized for hydrogen export, and the impact or complement to other technologies (e.g. CCS).

Duties of the position

- Conduct original scientific research relevant to the research topic above
- Publish and disseminate research results obtained in a suitable and timely manner
- The candidate must engage in the Hydrogen Pathways project activities as required
- Complete mandatory coursework during the initial part of the employment period
- Meet with and plan research tasks in collaboration with relevant research and industrial partners from the Hydrogen Pathways project

Required selection criteria

- A relevant master's degree in operations research or economic equilibrium modelling, preferably with knowledge in energy system modelling. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background with a grade of B or better in terms of NTNU's grading scale. Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD-degree.
- The position requires excellent English oral and writing skills.

In addition, the following qualifications will contribute positively to the evaluation of the applicant:

- Documented knowledge of economic equilibrium models and optimization models.
- Basic understanding of energy systems, power system flexibility and sector coupling (multi-carrier energy systems). Knowledge in energy transition challenges in transport and industry is an advantage.
- Proficiency in at least one programming language, e.g. C++, Matlab Java, Python or Julia.

Recent graduates, or applicants who are in the final stage of their Master's program, are encouraged to apply. Such an applicant may be offered the position under the condition that the diploma will show satisfactory final term results.

Incomplete applications will not be considered. This also applies to applications from candidates originating from countries covered by ITAR or "Electronic Code of Federal Regulations".

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and Regulations concerning the degrees of Philosophiae Doctor (PhD) and Philosodophiae Doctor (PhD) in artistic research national guidelines for appointment as PhD, post doctor and research assistant , and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criterias in the latter law will be prohibited from recruitment to NTNU.

Personal characteristics

Personal qualifications which we see contributing positively to the research team are independence, work capacity and enthusiasm. We are also looking for candidates with social skills benefiting the work environment for the PhD candidates and in general.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, in terms of the qualification requirements specified in the advertisement.

We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and inclusive work environment with dedicated colleagues
- favourable terms in the Norwegian Public Service Pension Fund
- employee benefits
- Attractive Norwegian social welfare scheme including family benefits, home loans, Insurance and pensions in the Norwegian Public Service Pension Fund

  Information about Working and living in Norway can be found at the following link: http://www.nyinorge.no/en/Ny-i-Norge-velg-sprak/New-in-Norway/

Salary and conditions

PhD candidates are remunerated in code 1017, remunerated at gross NOK 501.200,- per annum before tax. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years without required teaching duties. The position is connected to the PhD programme at the Faculty of Economics and Management and the faculty will be your employer. Appointment to a PhD position requires admission to the PhD programme in Faculty of Economics and Management, Department of Industrial Economics and Technology Management.

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

Appointment takes place on the terms that apply to State employees at any time, and after the appointment you must assume that there may be changes in the area of work.

It is a prerequisite that the person appointed will have his/hers workplace in Trondheim.

After the appointment you must assume that there may be changes in the area of work.

The position is subject to external funding.

About the application

The application must include:

1) Application letter concerning your motivation for completing a PhD

2) A CV with information on education, previous research experience, together with authorized documentation of certificates and study records.

3) Academic work (not master thesis). Joint work will be evaluated. If it is difficult to identify the contributions from individuals in a joint piece of work, applicants should enclose a short descriptive summary of what she/he contributed to the work.

4) Names and contact details for 3 references

Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates.

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both bachelor's and master's education, in addition to other higher education. Description of the documentation required can be found here. If you already have a statement from NOKUT, please attach this as well.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal and interpersonal qualities. Motivation, ambitions, and potential will also count in the assessment of the candidates.

NTNU is committed to following evaluation criteria for research quality according to The San Francisco Declaration on Research Assessment - DORA.

General information

Working at NTNU

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the innovation capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

As an employee at NTNU, you must at all times adhere to the changes that the development in the subject entails and the organizational changes that are adopted.

In accordance with The Public Information Act (Offentleglova), your name, age, position and municipality may be made public even if you have requested not to have your name entered on the list of applicants.

Questions about the position can be directed to Researcher Paolo Pisciella, Professor Asgeir Tomasgard, or Associate Professor Pedro Crespo del Granado.

For questions about the recruitment process, please contact HR Consultant Hilde Selli Egelie on hilde.s.egelie@ntnu.no.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates. Applications submitted elsewhere will not be considered. Diploma Supplement is required to attach for European Master Diplomas outside Norway. Chinese applicants are required to provide confirmation of Master Diploma from China Credentials Verification (CHSI).

Application deadline: 01.12.2022

NTNU - knowledge for a better world

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Industrial Economics and Technology Management

We conduct research and teaching at an international level in the interface between technology/natural sciences and economics, management, and HSE (health, safety and the environment). Our goal is sustainable creation of value within technology-based areas in industry, business and the public sector in Norway. We have academic groups in Trondheim and Gjøvik. The Department of Industrial Economics and Technology Management is one of four departments in the Faculty of Economics and Management.

Additional information

Place of service:

Trondheim 7030 Trondheim (Trondheim Municipality)