



NTNU

PhD Candidate in CINELDI - Transition pathways for smart distribution grids in view of new technologies, digitalization, regulation, markets and other drivers

About the position

There is a temporary position available at the Department of Industrial Economics and Technology Management as PhD Candidate in industrial economics and technology management for a period of 3 years. The position is resident at NTNU's 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.

This position is part of the Centre for Intelligent Electricity Distribution (CINELDI) and hosted at the Department of Industrial Economics and Technology Management in cooperation with SINTEF Energy Research and the Department of Electric Power Engineering.

[CINELDI](#) is a multidisciplinary research Centre for Environment-friendly Energy Research (FME) awarded by the Research Council of Norway. CINELDI is hosted by SINTEF Energy Research with NTNU as a major research partner.

CINELDI seeks to develop expertise and promote innovation through focus on long-term research, development and education related to flexible and intelligent energy systems (smart grids). CINELDI works towards digitalising and modernising the electricity distribution grid for higher efficiency, flexibility and resilience. The objective is to tailor the grid for use by smart grid customers, electric vehicles, solar power facilities and other renewable electric power in a cost-efficient way.

The PhD will work closely with other PhDs/post doctors and researchers within CINELDI.

The position is connected to the PhD programme at the Faculty of Economics and Management and the faculty will be your employer. The main supervisor is Associate Professor Maria Lavrutich at the Department of Industrial Economics and Technology Management.

Information about the Department

The Department is organized into six sections:

- Managerial Economics, Finance and Operations Research
- Health, Safety and Environment Management
- Strategy and Business Development
- Operations Management
- Experts in Teamwork
- Section of Economics and Management (Campus Gjøvik)

The position is part of the Managerial Economics, Finance and Operations Research section. For further information about the department, see our [website](#).

Main duties and responsibilities

The position is part of the research project "Transition pathways for smart distribution grids in view of new technologies, digitalization, regulation, markets and other drivers".

Distribution grids are experiencing a transformation driven by decarbonization, decentralized generation, digitalization, and the emergence of flexibility markets. In this transition, achieving a flexible, robust, and cost-efficient electricity distribution system requires complex interactions of a variety of actors and technologies. In order to enable the transition towards feasible long-term scenarios for distribution grids, policy makers need to understand the impact of short-term regulatory measures, market designs and incentive schemes to promote robust and cost-efficient electricity distribution system transition supported by system innovation and new technologies and solutions. These measures should allow for optimal resource allocation in both the long-term (investments) and short-term (security of electricity supply and power system balance). In this attempt, new market designs and business models will be crucial to ensure social welfare.

The focus of the PhD project is to identify efficient market and regulatory mechanisms to support the long-term transition with short-term measures. The objective is to analyze and understand the long-term impacts of market-regulatory frameworks, interactions of a variety of actors as well as different technologies on the transformation of smart distribution grids. The PhD project will study the effects of different flexibility markets, tariffs and other incentive schemes. These aspects will be studied in view of scenarios for the future distribution system developed in CINELDI also including technology details and descriptions of the technological capabilities.

The main purpose is to see how to incentivize investments in smart grid infrastructure in order to support plausible transition scenarios. The efficiency of these measures will then be assessed in terms of socio-economic welfare and distribution perspectives. Methods used will be from

economics, optimization and electric power engineering. Knowledge of the power system and distribution grids, as well as economic regulation of grid companies/monopoly regulation is an advantage.

Qualification requirements

- The PhD position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background in managerial economics, operations research or another relevant field or equivalent education 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.
- A solid background in quantitative methods for economics and or optimization
- Experience in programming
- Fluency in written and spoken English

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

- Experience with scientific publishing in the relevant area will be regarded as an advantage
- Experience in interdisciplinary work will be regarded as an advantage
- Knowledge of the power system and distribution grids, as well as economic regulation of grid companies/monopoly regulation is an advantage
- Experience concerning investment analysis and stochastic programming will be regarded as an advantage
- Experience with Python or similar programming language will be regarded as an advantage

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

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and [national guidelines for appointment as PhD, postdoctor and research assistant](#)

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

Personal characteristics

- Motivation for entering cross-disciplinary research teams
- Suitable candidates should have the ability to cooperate, have good communication skills, be flexible and solution-oriented

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](#)

Information about working and living in Norway can be found [here](#).

Salary and conditions

PhD candidates are remunerated in code 1017, and are remunerated at gross from NOK 479 600 before tax per year. From the salary, 2 % is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years. Appointment to a PhD position requires admission to the PhD programme in at the Faculty of Economics and Management, in industrial economics and technology management (www.ntnu.edu/studies/phiot).

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.

Primary residency in Trondheim is a prerequisite.

Any statutory leave will be added to the employment period.

General information

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, 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 criteria in the latter law will be prohibited from recruitment to NTNU.

CINELDI works closely with key players in the Norwegian electricity supply sector, who manage critical infrastructure. A comprehensive risk assessment of the candidates' research interests and potential activities related to national threat assessments will therefore also form basis for the final selection of candidates.

Questions about the position can be directed to Associate Professor Maria Lavrutich (phone number: +47 904 02 416).

The application must include:

- Application letter concerning your motivation for completing a PhD
- A CV with information on education, previous research experience, together with authorized documentation of certificates and study records.
- 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.

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

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"](#).

Application deadline: 01.03.2020

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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.

Faculty of Economics and Management

[The Faculty of Economics and Management](#) is NTNU's newest faculty, with academic communities in Trondheim, Ålesund and Gjøvik. Our research and programmes of study cover a wide range within economics, management and technology, focusing on interdisciplinarity and collaboration at regional, national and international levels. Our academic groups are important contributors to Norwegian industry and economic policy. The Faculty has four departments and a Faculty administration.

Jobbnorge-ID: 180939, Søknadsfrist: 1. mars 2020