

**Description of the appointment process of a tenure track position  
(assistant/associate/full professor)****Renewable electricity generation system technology and  
applications**

Location: School of Energy Systems, Lappeenranta campus

The rector has approved the description and initiated the appointment process on 26 May 2023.

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**Applied statutes**

Universities Act (558/2009)

Government decree on universities (770/2009)

Regulations of LUT University (8 December 2022)

Decision on the tenure track system of LUT University (20 March 2023)

**Additional information**

Further information on the duties of the professor is provided by Professor Jero Ahola, tel. +358 40 529 8524, [jero.ahola@lut.fi](mailto:jero.ahola@lut.fi).

## **1 Background**

Clean energy, water and air are life-giving resources for which we at LUT University seek new solutions with our expertise in technology, business and social sciences. We help society and businesses in their sustainable renewal.

LUT University was established in 1969. Our entrepreneurially thinking scientific and international community comprises approximately 6600 students and 1250 experts engaged in scientific research and academic education. There are 98 nationalities present on our modern campuses in Lappeenranta and Lahti.

In our schools – the LUT School of Energy Systems, the LUT School of Engineering Sciences and LUT Business School – we conduct research and provide education that are internationally recognised and relevant to both society and business.

### **LUT School of Energy Systems**

The LUT School of Energy Systems promotes energy and resource efficiency and pursues the global decarbonisation of energy processes.

The core vision and goal of the school is to deliver leading research on low-carbon energy technologies and the associated complex, net-zero or even carbon-negative energy systems and markets. The research and education at the school cover energy technology, electrical engineering, mechanical engineering and sustainability science. The strategic focus areas of the school's research include sustainable energy technologies, energy conversion and storage, digital production processes in mechanical systems, and sustainability. The school also includes the experimental research unit LUT Voima.

We are internationally recognised as a leading centre of energy research, and we have an unparalleled reputation for conducting research that combines academic excellence with close ties to major Finnish industries – especially the forest industry – making a distinct impact on business and society. A key principle in our research is to bridge areas from fundamental theory to empirical work, innovation, close-to-market products, technologies, processes, services and business models that can transform industrial-scale energy systems.

Our school provides bachelor's, master's and doctoral programmes and has Finland's largest group of researchers in the field of energy. The school employs 37 assistant/associate/full professors and 400 staff members overall.

### **Vacant professorship of renewable electricity generation system technology and applications**

A global transition is taking place from an energy system based on burning fossil fuels to an energy system based on carbon-neutral electricity. This transition is driven by responses to climate change and by economic factors. On a global scale, solar and wind power are the most cost-effective new means to produce electricity. Solar and wind resources are available everywhere. Currently, solar and wind technologies are mass produced. The prices of the technologies show a decreasing trend, and the performance of the technologies is improving as production volumes increase along with new innovations and the development of product performance. For example, at the present, onshore wind power is the most cost-effective and solar power the second-best way to build new electricity production capacity in Finland.

Renewable electricity production will first directly replace electricity produced from fossil fuels. Next, it will start to replace fossil fuels in industrial applications. These applications are mainly based on hydrogen production, by which it is possible to produce, e.g., carbon-neutral steel, fertilizers or methanol for raw materials of plastics and fuels. Because both wind and solar power production fluctuate, their large-scale deployment calls for novel thinking, methods, and technologies as well as optimisation. In the coming decades, the global energy system will likely change to be based on strongly fluctuating wind and solar power. The electricity produced by wind and solar power will replace the burning of fuels in the transport, heating, and industrial sectors. At the same time, Finland has an opportunity to establish completely new industries based on green electricity and hydrogen.

The professorship of renewable electricity generation system technology and applications will be an independent chair within its area of expertise. It is a part of the Department of Electrical Engineering at the LUT School of Energy Systems. The professorship will be located at the Laboratory of Renewable Electricity Generation and Storage on LUT's Lappeenranta campus. The professor will focus on wind and solar power technologies as well as the utilisation of fluctuating green electricity generation in different applications, such as hydrogen production, heating, transportation, and industry. The research group headed by the professor will work in close cooperation with other professors and teams at the Department of Electrical Engineering.

Other professors at the Department of Electrical Engineering specialise in electricity markets, smart grids, electrical machines and drives, power electronics, energy efficiency, IoT in energy systems, solar economy, applied electronics, energy storages, applied control engineering, and electric transportation.

Applicants must have proven expertise in at least one of the following fields of technology:

- system, control, and electrical engineering of wind and solar power plants
- service, maintenance, and diagnostics of wind and solar power plants
- technology and methods for integration of wind and solar power plants with various energy storage technologies and energy end use applications

The appointed applicant must possess a strong scientific research background in at least one of the above-mentioned research fields. The research focus of the applicant must support the existing research activities at LUT. The applicant is required to provide evidence of the acquisition of competitive research funding, the successful management of research projects, cooperation with relevant research institutes, companies and other stakeholders, and societal impact. The applicant must demonstrate the ability to integrate into the strategic blueprint of LUT's electrical engineering unit and to lead his/her own research group. The professorship of renewable electricity generation system technology and applications will include teaching obligations in bachelor's, master's, and doctoral programmes at the Department of Electrical Engineering.

The professorship will include the following duties related to its field of study:

- planning and execution of master's and doctoral programmes, including online and classroom teaching
- supervision of final theses and doctoral studies
- producing high-level international scientific publications
- personnel and financial management of one's own research group
- acquisition of external competitive research funding and the preparation of related research projects at LUT, nationally, and internationally; heading these research projects when required
- production of relevant new knowledge for the specific needs of Finnish industries
- close cooperation and interaction with LUT's research groups
- networking and cooperation with Finnish and international universities and research institutes
- networking and research collaboration with companies in the field of the professorship
- societal interaction in the field of wind and solar power
- general administrative duties related to the university's operations

<https://www.lut.fi/en/about-lut/faculties/lut-school-energy-systems/electrical-engineering>

The position is at the associate/full professor levels of the tenure track and will be filled through an open call for a fixed term of four years (assistant/associate professor) or permanently (full professor). The tenure track system offers researchers a possibility to advance to a full professorship. LUT is committed to providing tenure track researchers the possibility to advance to the next level, provided they meet the requirements in the promotion reviews, are suitable for the position, and conduct research that fits LUT's strategy and operation.

More information on the LUT tenure track system:

<https://www.lut.fi/en/research/research-career-lut/tenure-track>

The position starts with a six-month trial period.

## **2 Qualifications**

According to the administrative regulations of LUT University, adopted on 8 December 2022, assistant/associate/full professors are required to have a doctorate, high-level scientific qualifications, experience in heading scientific research, the ability to acquire funding, the ability to provide high-level instruction based on research, the ability to supervise final theses, proof of international cooperation in their field of research, and when relevant to the duties of the position, practical experience in the field of the professorship.

Practical experience in the field is not a requirement in this position, but it is considered an advantage. Applicants must demonstrate in their application how they have collaborated with industry.

Applicants must have research and teaching merits, proof of effective research and the acquisition of external research funding, and international experience. The appointed applicant will be the immediate supervisor of a research group and may need to perform other demanding management duties assigned by the university. Therefore, related skills will be taken into consideration in the appointment, and attention will be paid to the applicant's merits as defined in LUT's tenure track system (Annex).

Under the universities decree (770/2009), persons in teaching and research positions at universities are required to master the language, Finnish or Swedish, in which they teach. According to the university regulations, section 28, foreign or Finnish citizens who are not natives of Finland may be appointed to a teaching or research position regardless of the fact that they have not demonstrated skills in Finnish and/or Swedish. Applicants for professorships may demonstrate their language skills with a language certificate accepted by the academic council and/or in an interview.

According to the university regulations, section 28, professors are required to have the language skills needed for the successful completion of their duties.

This position requires oral and written fluency in English. The applicant must also be prepared to acquire Finnish skills sufficient for carrying out the duties within a reasonable amount of time. Societal interaction and cooperation with Finnish industry are included in the duties of the professorship, and hence, Finnish skills are highly appreciated and necessary. The person appointed to the professorship and his/her supervisor will together define the required language skill level and the schedule for reaching it.

### **3 Applying for the position**

#### **Application**

The application must specify the tenure track level applied to. The deadline for applications is indicated in the vacancy announcement. The application and material for expert assessors should primarily be submitted through the online recruitment system mentioned in the vacancy announcement or e-mailed to the university (recruitment@lut.fi).

**All application documents must be in English and in PDF format.** The application must include:

- a curriculum vitae (max. 10 pages)
- a copy of the applicant's doctoral diploma
- a full list of publications, including the total number of publications in the Scopus database, the total number of citations, the h-index and Scopus ID. In addition, equivalent information from the applicant's Google Scholar profile is required
- a separate list of the publications submitted for expert evaluation
- publications for evaluation by experts (max. 10)
- a teaching portfolio or an equivalent account of the applicant's teaching qualifications
- an account of the applicant's merits and activities of significance to the vacancy (max. 3 pages)
- an account of the applicant's vision on the development of education, research and projects in the field of the professorship at LUT University (max. 3 pages).

#### **Contact information**

Applicants must give the university an e-mail address at which they can be reached. Applicants who do not wish to be contacted by e-mail must give a postal address at which they can be reached during the appointment process. The university prefers e-mail.

### **4 Expert evaluators**

#### **Selection of experts**

Before the selection of expert evaluators, the applicants must be provided the possibility to comment on their possible disqualification.

Based on the proposal of the selection committee, the dean invites at least three experts of an international level to submit a statement on the qualification of the applicants. The university's staff members may not be invited as expert evaluators. To the extent possible, the experts should be chosen with the applicants' fields of specialisation in mind and with a view to impartiality.

Sections 27-29 of the Administrative Procedure Act (434/2003) apply to the disqualification of an expert evaluator.

#### **Applications forwarded to expert evaluators**

The selection committee may limit the number of applications forwarded to expert evaluators if there are four applicants or more. At least three applications must be forwarded to the experts. The applications may be limited to the most suitable candidates for the position in the view of the person making the decision. The selection committee must present grounds for its decision. The applicants will be informed if any applications are excluded from the evaluation.

#### **Expert statements**

The expert evaluators must give their statements in writing within six weeks. More specific dates will be sent to the evaluators along with instructions. In their statement, the experts must evaluate especially the scientific qualification of the applicant, and if possible, also other merits related to the professorship, and rank the applicants in order of preference.

Expert evaluators may not take part in the appointment process at a later stage.

The statement must be submitted to the university (separate instructions issued) by the deadline.

## **5 Interview and trial lecture**

Applicants deemed qualified for the position by the experts will be invited to an interview. The selection committee may ask the applicants to give a public trial lecture.

## **6 Appointment**

The tenure track committee makes a proposal to the dean concerning the appointment. The dean then makes a proposal to the rector on filling the position or leaving it vacant. The proposal shall be based on the merits presented by the applicants, expert statements, possible trial lectures and other related matters.

The assessment of the merits of the applicant takes into account scientific publications and other research results with scientific value, pedagogical expertise, teaching experience and other merits related to teaching, a trial lecture if needed, the number of dissertations supervised, and leadership skills. In addition, the applicant's activity in the scientific community, success in raising research funding, scientific work abroad and international positions of trust are considered.

The rector decides either to appoint an applicant or to leave the position vacant.

The appointment proposal may be made or let lapse even if all of the experts have not submitted their statements, provided that the time limit for the statements has expired, at least three experts have submitted their statements, and the impartial treatment of the applicants is not compromised by doing so.

After the rector has made the appointment decision, an employment contract is concluded with the appointed person. If no employment contract is concluded, the rector may, based on the proposal by the dean, make a new decision and appoint another applicant. The rector may also leave the position vacant. When the employment contract is concluded with the person appointed, the final decision is made known to all applicants.

## Tenure track appointment criteria

The positions below require a doctorate in an applicable field, a research field that fits the LUT strategy (see LUT Strategy 2030), a goal-oriented plan for the work in question, teaching experience and an up-to-date teaching portfolio.

In international recruitments, the evaluation must take into account that applicants from outside of Finland and Europe may not have been involved in Finnish or European research projects and have thus not taken into consideration the Finnish Publication Forum classification. Such applicants are evaluated in terms of their success in acquiring competitive funding through their own national channels or through international ones, and in terms of impact factors of scientific journals in their own field. Only in promotion and tenure reviews can the same criteria be applied to them as to Finnish persons.

The following merits of the applicant must be taken into account in the appointment:

### Assistant professor:

- Scientific publications in journals with a national Publication Forum rating.
- Contacts with one's own international scientific community.
- Potential to take part in the acquisition of external funding in the research group and apply for post-doctoral researcher posts of the Academy of Finland.
- Potential to take part in teaching and the supervision of final theses.

### Associate professor:

- Successful publication history after the doctoral defence, target of 3 publications/year with a national Publication Forum rating.
- Proof of participation in international cooperation.
- Successful acquisition of external funding and acting as, e.g., a project manager in externally funded projects.
- Applying for post-doctoral researcher posts of the Academy of Finland.
- Participation in the supervision of doctoral students.
- Participation in the commercialisation of research results.
- Participation in teaching, the development of teaching and the supervision of final theses.

### Full professor:

- Proof of successful performance of duties
  1. Scientific research
    - publications: target of 3 publications/year with a national Publication Forum rating; emphasis on recent publications
    - supervised dissertations: approx. one doctorate/year
    - other scientific publications, such as books and chapters
    - citations
    - important keynote/plenary presentations and scientific awards
    - editing work in scientific journals
  2. Academic teaching experience
    - high-quality education proven in different ways; e.g., feedback received
    - up-to-date teaching portfolio
    - development of teaching modules
    - supervision of final theses
  3. Academic leadership

- establishing and heading a research group
- other leadership experience and feedback received
- 4. Acquisition of external funding
  - EU, ERC, Academy of Finland and Business Finland
- 5. Work in the scientific community
  - international scientific societies and expert advisory duties
  - duties influencing the scientific community
- 6. Societal impact
  - visibility in societal dialogue
  - corporate funding and external funding not referred to in point 5 above
  - professional experience beyond universities
  - innovations, patents, support for spin-off companies (e.g., board memberships)
  - activity in the university's stakeholder groups