

Doctoral Researcher for Co-simulation of energy,  
hydrogen and electricity transmission systems for  
analysing alternative hydrogen futures  
Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=238564>

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Posted Jul. 5, 2024, set to expire Dec. 30, 2024

**Job Title** Doctoral Researcher for Co-simulation of energy,  
hydrogen and electricity transmission systems for  
analysing alternative hydrogen futures

**Department** T212 Mechanical Engineering

**Institution** Aalto University  
, , Finland

**Date Posted** Jul. 5, 2024

**Application Deadline** Open until filled

**Position Start Date** Available immediately

**Job Categories** Graduate Student

**Academic Field(s)** Mechanical Engineering

**Job Website** [https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-for-Co-simulation-of-energy--hydrogen-and-electricity-transmission-systems-for-analysing-alternative-hydrogen-futures\\_R40231-4](https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-for-Co-simulation-of-energy--hydrogen-and-electricity-transmission-systems-for-analysing-alternative-hydrogen-futures_R40231-4)

**Apply By Email**

### **Job Description**

Aalto University is where science and art meet technology and business. We shape a sustainable future by making research breakthroughs in and across our disciplines, sparking the game changers of tomorrow and creating novel solutions to major global challenges. Our community is made up of 13 000 students, 400 professors and close to 4 500 other faculty and staff working on our dynamic campus in Espoo, Greater Helsinki, Finland. Diversity is part of who we are, and we actively work to ensure our community's diversity and inclusiveness. This is why we warmly encourage qualified candidates from all backgrounds to join our community.

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We are now looking for a

A DOCTORAL RESEARCHER for Co-simulation of energy, hydrogen and electricity transmission systems for analysing alternative hydrogen futures

This position is part of the doctoral school of [[url=http://www.aalto.fi/h2](http://www.aalto.fi/h2)]Aalto Hydrogen Innovation Center, which will be supported by common seminars, networking activities and contact with industry. The research will be co-supervised by professors from School of Engineering and School of Electrical Engineering.

#### Research focus

The development of a hydrogen economy affects numerous sectors. For example, hydrogen-based e-fuels are seen as key energy carriers for the transport sector, industry's use of hydrogen may increase significantly, and storage of hydrogen can be used to balance the electricity system. Furthermore, hydrogen may become the largest electricity consumer in Finland, having significant implications on grid development. Consequently, it is important to study the co-evolution of hydrogen system, together with electricity transmission and the broader energy system. In this project, models are used to investigate how these systems may co-evolve and affect the direction and shape of the transition to hydrogen. A co-simulation platform of energy, hydrogen and electricity transmission system is developed, and used to investigate their co-evolution.

#### Person specifications

The successful candidate must be eligible to start doctoral studies at the School of Engineering (see here: [[url=https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering](https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering)]<https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering> , note especially the language and grade requirements) and thus, if not already holding an MSc degree, must show that they will hold one by the 15th of November, the latest, so that they can apply to the PhD programme in the application window open then.

#### Other requirements:

Essential \*

Academic background in engineering (e.g. energy, electrical) \*

Demonstrated academic excellence in previous studies \*

Familiarity with energy technologies, energy systems and electricity transmission \*

Some knowledge of Python

Desirable \*

Knowledge of mathematical modelling tools (e.g. GAMS) \*

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Experience with prominent energy system modelling frameworks (TIMES, OSeMOSYS or MESSAGE) and/or power flow simulation tools (e.g. PSS/E) \*

Knowledge of GIS tools \*

Knowledge of advanced data analytics approaches, such as clustering methods and scenario discovery \*

Studies in economics and/or systems analysis

#### What we offer

The salary of a starting Doctoral researcher is currently 2720 € / month (gross), increasing as milestones for the PhD are achieved (highest PhD researcher level is currently 3403 €/month). The annual workload of research and teaching staff at Aalto University is currently 1612 hours. The employment contract includes occupational health care, and Finland has a comprehensive social security system. The employment relationship is full-time, fixed-term (period of two years) employment at Aalto University, which can further be extended, based on performance and availability of funding. The doctoral candidate will be expected to contribute also to teaching (max 20% of her/his time).

#### Join us!

To apply, please share the following application materials with us through our recruitment site ("Apply now!"). \*

CV, describing at least education, employment history, possible publications and relevant software skills \*

Academic certificates and transcripts \*

Personal statement outlining motivation, interest and eligibility for the post (maximum one page) \*

Contact details of at least two referees (or letters of recommendation, if already available)

Do note that the applicants are not expected to apply to the Aalto doctoral programme at this point - only the successful candidate will do this at the next application window (but is expected to take up the position already before that).

The deadline for applications is no later than 9th of August 2024, at 23:59 Finnish time (UTC +3;2).

Possible interviews (via MS Teams) will take place during the week commencing on the 26th of August. Do note that we want the successful candidate to start as soon as possible and by 1st of November 2024 the latest, and do ask the applicants to only apply if this timeline is feasible for them.

Aalto University reserves the right for justified reasons to leave the position open, to extend the application period, and reopen the application process.

#### Further information

For additional information, please contact Ilkka Keppo

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(<mailto:Ilkka.keppo@aalto.fi>) or Janne Seppänen  
(<mailto:janne.seppanen@aalto.fi>) or [nne.seppanen@aalto.fi](mailto:nne.seppanen@aalto.fi)  
(<mailto:nne.seppanen@aalto.fi>). In questions related to the recruitment process, please contact [hr-eng@aalto.fi](mailto:hr-eng@aalto.fi).

Want to know more about us and your future colleagues? You can watch these videos:

[https://www.youtube.com/watch?v=5k\\_og\\_6zUJQ](https://www.youtube.com/watch?v=5k_og_6zUJQ)Aalto University - Towards a better world,  
<https://www.youtube.com/watch?v=dUfEGVM-ZP8&feature=youtu.be>Aalto People , and  
[https://www.youtube.com/watch?v=ZK6pDWm1\\_CE](https://www.youtube.com/watch?v=ZK6pDWm1_CE)Shaping a Sustainable Future. Read  
more about working at Aalto: <https://www.aalto.fi/en/careers-at-aalto>

Check out our new virtual campus experience: <https://virtualtour.aalto.fi/>

#### About Finland

Finland is a great place for living with or without family - it is a safe, politically stable and well-organized Nordic society. Finland is consistently ranked high in quality of life and was just listed again as the happiest country in the world: <https://worldhappiness.report/news/its-a-three-peat-finland-keeps-top-spot-as-happiest-country-in-world/>. For more information about living in Finland: <https://www.aalto.fi/en/careers-at-aalto/for-international-staff>.

### Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

#### Contact

Finland