Doctoral Researcher in Sustainable Renewable Energy Engineering, Modeling and Optimization
Aalto University

Job Title	Doctoral Researcher in Sustainable Renewable Energy Engineering, Modeling and Optimization
Department	T212 Department of Energy and Mechanical Engineering
Institution	Aalto University , , Finland
Date Posted	Sep. 24, 2025
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-in-Sustainable-Renewable-Energy-Engineering--Modeling-and-Optimization_R44339
Apply By Email	

Job Description

Aalto University is where science and art meet technology and business. We shape a sustainable future by sparking the game changers of tomorrow and by creating novel solutions to major global challenges. Our community is made up of 13,000 students, 400 professors and close to 4 500 other staff members working on our vibrant campus in Espoo, Greater Helsinki, Finland. 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.

The School of Engineering drives science and innovation in industrial and built environment technologies. We are committed to educating a new generation of experts who combine technical

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excellence with a deep understanding of sustainable development in shaping societies. Our research focuses on sustainable built environment, mechanics and materials, multidisciplinary energy technology, and design and implementation of technical systems. The strength of our school lies in close collaboration with stakeholders across research and education. About 45 doctoral researchers and 350 master's students graduate from the school every year. The school is home to 700 staff members, including 70 professors. To learn more, please visit eng.aalto.fi.

The Department of Energy and Mechanical Engineering and Research Group of Energy Conversion and Systems at the Aalto University School of Engineering invites applications for

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[url=https://www.aalto.fi/en/department-of-energy-and-mechanical-engineering]Department of Energy and Mechanical Engineering is a community of around 300 staff members - including 30 tenure track professors - assembled to research, teach, create, and develop solutions for society's needs. Key research areas include marine and arctic technology; energy technologies and systems; mechanical systems and mechatronics; and materials, manufacturing, and product development. We have strong links to industry, creating lasting impact in both business and society.

We are now looking for a Doctoral Researcher to study the development of sustainable hydrogen valleys. The four year project is fully funded by Research Council of Finland. The work can be started immediately.

Your role and goals
Your main objective is to develop a simulation and optimization model of a large hydrogen valley operating in off-grid mode (having also an option for grid connection). As outputs the model should give sustainable and optimal capacities of system components (wind power plants, electrolyzers, P2X plants, data centers, transmission system for power H2, CO2 and heat, energy storages, etc.) and their optimal locations. Our aim is to maximize the sustainable production capacity of green hydrogen and e-fuels within the studied area. The model needs to consider variability of weather conditions and price variation of electricity and district heat. The solution is restricted by biodiversity loss, social acceptability and cultural boundary conditions, defined together with the research team of energy engineers, social scientists, ecologists, and landscape architects. Our ultimate research question is: How much green hydrogen and e-fuels can be produced on sustainable level within a defined area, and can we still have a competitive selling price of products?

As part of your doctoral researcher duties, you will also gain experience on teaching and supervision of Master's level students. Your thesis is composed of minimum 3 peer-reviewed research articles.

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Your network and team
You will be working in the Energy Conversion and Systems research group. We are a large and active team of 120 persons and 10 professors. You supervising professor will be Mika Järvinen. You will closely collaborate with other researchers in the team. In the research project, you need to be able to communicate with researchers from different disciplines, including ecology, social sciences and landscape architects. In addition, you need to collaborate and work together with our stakeholders which include One Planet (Kari&Pantzar), BalticSeaH2 hydrogen valley and representatives of study regions of North-Ostrobothnia and Kainuu in Finland.

Your experience and ambitions
We are looking for a passionate and open-minded person with:
*
A master's degree in energy technology, mathematical programming (e.g., Python), modeling, and optimization. *
Experience in geographic information analysis is an advantage. *
The ability to work independently. *
Excellent presentation skills. *
Fluency in English is essential.

What we offer

You will work in an international team of Energy Conversion and Systems with over 110 experts in the field of energy. We offer: *
Meaningful and inspiring environment. We are proud of our purpose to shape a sustainable future. We spark the game changers of tomorrow, and renew society with research-based knowledge, creativity and an entrepreneurial mindset. *
Culture that inspires and includes everyone. All our work is guided by the values of the university: responsibility, courage, and collaboration. It’s the people that create Aalto, now and in the future. We want to be an open community where equality and inclusion enable curiosity, innovation, collaboration and wellbeing. *
Responsible and meaningful role with true impact in our University’s/ School’s success, and in the end, in the wellbeing and development of our society. *
Support, coaching and sparring when you feel you need it. *
Great possibilities for competence development and learning. We constantly keep learning to find the most impactful ways to empower - and invest in - our people.

Our vast array of professional development opportunities means you will grow and learn, having the chance to participate actively in staff trainings and development projects based on your interests and

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needs. The salary range for this position from 2960 to 3662 €/month with the progress of the work. We value work-life balance and well-being in all aspects of life. We work in a hybrid model, with the primary workplace located at the Otaniemi Campus in Espoo. Life on the revitalized campus is vibrant, featuring stunning architecture, tranquil nature, and a variety of cafes, restaurants, and services, all complemented by excellent public transportation connections.

Join us!

To apply, please submit your application through our recruitment site ("Apply now!”) latest on 15th of October 2025. Please share the following application materials with us: *
Motivation letter *
CV *
Study certificates on Master’s degree *
Study record from your Bachelor’s and Master’s degree *
Copy of M.Sc. Thesis copy and most important publications (if any)

Please note: Aalto University’s employees should apply for the position via our internal HR system Workday (Internal Jobs) by using their existing Workday user account (not via the external webpage for open positions).

For more information about the role, please contact Mika Järvinen (+358 50 414 2993, mika.jarvinen@aalto.fi). For questions related to the application process, please contact Anna-Maija Harju ([url=mailto:anna-maija.harju@aalto.fi]anna-maija.harju@aalto.fi).

We will go through applications, and we may invite suitable candidates to interview already during the application period. You will hear from us the latest in the last week of October. We aim to have a transparent and equal recruitment process, so feel free to ask us for feedback.
Want to know more about us and your future colleagues? You can watch these videos:

[url=https://www.youtube.com/watch?v=i8zawpNMVG8]This is Aalto University!
[url=https://www.youtube.com/watch?v=5k_og_6zUJQ]Aalto University - Towards a better world and [url=https://www.youtube.com/watch?v=ZK6pDWm1_CE]Shaping a Sustainable Future.

Read more about working at Aalto: [url=https://www.aalto.fi/en/careers-at-aalto]https://www.aalto.fi/en/careers-at-aalto
Check out our new virtual campus experience: [url=https://virtualtour.aalto.fi/]https://virtualtour.aalto.fi/

About Finland

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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 listed again as the happiest country in the world: [url=https://worldhappiness.report/news/world-happiness-report-2024-most-comprehensive-picture-yet-of-happiness-across-generations/]World Happiness Report 2024
For more information about living in Finland: [url=https://www.aalto.fi/en/careers-at-aalto/for-international-staff]Aalto Careers for International Staff .

Contact Information

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

Contact

Finland