

Energy Systems Engineer Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=260292>

Downloaded On: Nov. 15, 2025 6:09am

Posted Jul. 25, 2025, set to expire Dec. 31, 2025

Job Title Energy Systems Engineer
Department T212 Department of Energy and Mechanical Engineering
Institution Aalto University
, , Finland

Date Posted Jul. 25, 2025

Application Deadline Open until filled
Position Start Date Available immediately

Job Categories Professional Staff

Academic Field(s) Mechanical Engineering

Job Website https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Energy-Systems-Engineer_R43759

Apply By Email

Job Description

Job Title: Energy Systems Engineer (Project Employee/Project Specialist)

Location: Aalto University, Espoo, Finland

Project: AC-Comp (Research-to-Business Initiative)

Start Date: August-September 2025 (Flexible)

Project Duration: 18 months (with a pathway to a co-founder position in a potential spin-off company). The project will end on December 31, 2026, and the employment contract will be valid until the end of year 2026.

Application Deadline: 31 August 2025 (Interviews will be conducted on a rolling basis)

About the Project: AC-Comp

AC-Comp is a Research-to-Business (R2B) project at Aalto University focused on one of the most energy-intensive operations in the industry: gas compression. Compression accounts for 10% of

Energy Systems Engineer Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=260292>

Downloaded On: Nov. 15, 2025 6:09am

Posted Jul. 25, 2025, set to expire Dec. 31, 2025

industrial electricity use in the EU, costing over €4 billion annually. At the same time, 20-50% of industrial energy is ultimately lost as waste heat. With the rising demand for computing power, data centers are producing increasing amounts of low-grade waste heat. Likewise, as hydrogen becomes a more prominent energy carrier, large amounts of heat will be generated in that sector. To reduce energy dependency, we need effective ways to reuse this low-grade waste heat.

What if we could use that waste heat to power gas compressors instead of electricity?

The goal of the AC-Comp project is to develop and validate a breakthrough technology that uses industrial waste heat to compress gas. This has the potential to significantly reduce energy consumption, lower operational costs, and support sustainability goals across multiple sectors. Over the next 18 months, we will build a commercially relevant Proof-of-Concept (PoC) to validate the technical and commercial viability of this innovation, with the goal of launching a spin-off company.

The Role and Your Contribution

We are seeking a skilled and analytical Energy Systems Engineer to join our core R&D team. As the third member of our technical team, you will play a pivotal role in advancing our technology from a laboratory prototype to a more robust, industrially relevant system.

Your primary responsibility will be to analyze the AC-Comp system from a holistic, first-principles perspective. You will investigate the interplay between the thermo-fluid dynamics of our heat exchangers and the complex adsorption/desorption phenomena within our reactors. Your work will be crucial for identifying system bottlenecks, optimizing performance, and guiding the design of our key components.

Working alongside our R&D engineers and a business developer, you will provide the critical analysis needed to make sound engineering decisions and translate our technical capabilities into a compelling commercial product.

Your Key Responsibilities:

- * **System-Level Analysis:** Develop a comprehensive understanding of the entire process, modeling the dynamic relationship between heat transfer, fluid flow, and the adsorption/desorption cycle.
- * **Support Prototype Development:** Assist in the practical assembly, instrumentation, and experimental validation of the Proof-of-Concept.
- * **Identify and Resolve Bottlenecks:** Use analytical methods or simulation tools (e.g., MATLAB/Simulink, Aspen Plus, COMSOL, Python, etc.) to pinpoint the primary limitations on our system's efficiency and cycle time whenever necessary.
- * **Component Design Guidance:** Provide analysis or empirical driven recommendations for the design and optimization of our core components. This may include modeling heat exchanger performance to maximize heat transfer rates or researching more suitable adsorbents

Energy Systems Engineer Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=260292>

Downloaded On: Nov. 15, 2025 6:09am

Posted Jul. 25, 2025, set to expire Dec. 31, 2025

or adsorbates. * Performance Characterization: Define and calculate key performance indicators for the system according to industry requirements. * Support Commercialization Efforts: Collaborate with the team to provide technical data that answers key questions from potential industrial partners and customers. This includes estimating system performance, capacity, and operational requirements under various industrial scenarios.

What We Are Looking For (Your Profile): * Required Qualifications: * A master's or PhD in Energy Systems, Process Engineering, Mechanical Engineering or a related field with a strong foundation in thermodynamics, fluid mechanics, and heat transfer. * Proven ability to model complex physical systems using either analytical methods or simulation software. You should be able to choose the right tool for the problem. * A systematic and analytical approach to problem-solving. * Ability to work effectively in a small, collaborative R&D team with a hands-on attitude. * New employees at Aalto University are required to begin their work in Finland. Due to our tight project schedule, work must start no later than September 2025. Therefore, it is essential that you possess legal authorization to work in Finland, such as EU/EEA citizenship or a valid work permit.

* Desired Skills: * Demonstrable knowledge of adsorption and desorption processes, including the underlying physical principles. * Practical or theoretical experience with heat exchanger design or analysis. * Familiarity with industrial processes related to compressed air or waste heat recovery. * A proactive and self-directed work ethic suitable for an early-stage project with significant autonomy. * A genuine interest in technology commercialization and the potential to grow with the project into a future leadership role.

What We Offer: * A Key Technical Role: You will have a significant and direct impact on the core technology of a promising deep-tech project. * A Path to a Founder Role: This position is designed as a precursor to a key role in a potential future spin-off. * A Collaborative Environment: Join a small, focused team where your contributions are immediately visible and valued. You will have access to the expertise and resources of the originating laboratory and the broader Aalto University innovation ecosystem. * Focus on Impact: Contribute to developing a technology with clear potential to improve energy efficiency and sustainability in major industries.

Application Process:

If you are interested in applying your technical expertise to this challenge, please submit your CV and a cover letter, including your salary expectation, through our recruitment system.

The application period is open until 31 August 2025. We will review applications and conduct interviews on a rolling basis, so we encourage you to apply at your earliest convenience.

For further information, please contact:

Energy Systems Engineer
Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=260292>

Downloaded On: Nov. 15, 2025 6:09am

Posted Jul. 25, 2025, set to expire Dec. 31, 2025

Jari Vepsäläinen

[url=mailto:jari.vepsalainen@aalto.fi]jari.vepsalainen@aalto.fi

Assistant Professor - Mechatronics,
Department of Mechanical Engineering,
Aalto University

Ganesh Neupane

[url=mailto:ganesh.neupane@aalto.fi]ganesh.neupane@aalto.fi

Project Engineer, AC-Comp
Department of Mechanical Engineering,
Aalto University

Contact Information

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

Contact

Finland