**Postdoc** **Damping of Critical Electrical Oscillatory Phenomena**

**[Specifications]**

Faculty/Department Faculty of Electrical Engineering, Mathematics and Computer Science/Electrical Sustainable Energy

Job type Postdoc

Scientific field Xxx

Hours per week XX

Salary - € x,xxx – x,xxx gross a month

Desired level of education: PhD

Vacancy number [generated automatically]

**Challenge**: Effective mitigation of unstable electrical oscillations in HVDC-HVAC offshore energy systems.

**Change**: New damping control principles.

**Impact**: Safeguarding stable dynamic performance of power systems.

**[Job description]**

The power grid topology needs to adapt to absorb the rapid expansion of offshore wind, wind-to-hydrogen and the integration of offshore and onshore power generation. The volatile nature of sustainable energy production, the unpredictable demand, and random disturbances like component outages or short-circuits, result in poorly damped electrical oscillations, which could result in partial or total systemic blackouts. To design and confidently operate a stable power system for the future, a dynamic, data-driven approach to modelling is crucial. That’s your challenge as a postdoc at TU Delft.

You will conduct research into and develop a comprehensive, self-learning model, building a digital twin of the sustainable offshore power systems. Levering relevant monitoring and measuring data, your model will continuously adapt to reliably assess dynamic behaviour in micro to millisecond time scales . You will be focusing on anticipation, monitoring, and effective mitigation of diverse and unprecedented forms of poorly damped oscillations with different physical roots and time-varying properties affecting the systemic dynamic stability. In your research you will be working closely with grid operators and developers of sustainable offshore projects such as wind farms. As part of your role, you will coach and support PhD and master students, and publish and disseminate your findings and knowledge in relevant communities and at conferences.

The Dynamic Stability of Sustainable Electrical Power Systems research group will be your home base. Sharing the ambition to enable stable, reliable sustainable energy systems, we’re proud of our research facilities, which include the state-of-the-art Electrical Sustainable Power Lab. We are an innovation-driven, multidisciplinary team of early-stage and senior professors, postdocs, PhDs, and MSc researchers with different cultural backgrounds. Fostering a synergetic, open-minded, and win-together culture, we regularly interact and share views, unlocking different opportunities, forms of incubation, and deployment of knowledge and groundbreaking developments. We also stimulate and motivate a healthy and inclusive work environment in which you can bring out the best in yourself . And we value autonomy, professionalism, and a balanced work-life approach.

**[Requirements}**

You thrive on helping accelerate the energy transition with groundbreaking research to resolve dynamic stability issues in the power system. Working towards meaningful team results, you have the flexibility to align your research and collaborate with your interdisciplinary colleagues. You harness your communication and organisation skills to coach and motivate PhD and master students, and convince industrial partners of your approach. And you are keen to further develop your modelling, programming and analytical skills.

You also have:

* A PhD in Electrical Power Systems or Power Electronics.
* A background in power system stability and multi-variable control, and in modelling and control of power electronic interfaced devices, with demonstrable electromagnetic transient model programming experience.
* A good command of English, because you will be working in an international environment. A command of Dutch would help you communicate with industrial partners and students.

**[Conditions of employment]**

[Automatically completed by recruitment system]

**[TU Delft (Delft University of Technology)]**

[Automatically completed by recruitment system]

**[Department]**

[Automatically completed by recruitment system

**Additional information**

If you would like more information about this role, please contact please contact [name], [role], email [email address].

**Application procedure**

To apply, please complete the application form [link] and add the following documents to your application:

1. Research statement in maximum one (A4 format) page. Please explain clearly:

* Your key skills which will help you successfully generate and steer high quality scientific research within the scope of this postdoc position.
* The top-two of your latest innovative solutions and their deployment and impact.
* The top-two of your latest published works in highly ranked scientific journals.

1. Detailed CV.
2. Copy of your PhD degree and transcript.
3. Names and contact information of at least three relevant references, one or two of whom were not involved in your PhD research. We will not contact references without your consent.

Please apply before [date].

After the first selection, video interviews will be held on [dates]. The interviews at TU Delft will take place on [dates].

**[Metatitle]**

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**[Metadescription]**

Modelling the dynamic behaviour of sustainable offshore power generation, geared to damping oscillations. That’s your challenge as a postdoc at TU Delft.

**[Intro’s social media 3x]**

Would you like to contribute to creating a stable, sustainable power system? As a postdoc at TU Delft you will develop a data-driven, self-learning model of offshore power generators, conducting groundbreaking research into the damping of oscillations. Interested? Apply now!

To absorb the dynamic properties of sustainable power generation and deal with unpredictable demand, the power grid topology needs to adapt radically, which requires a dynamic, data-driven approach to modelling. Are you up for the challenge? Join TU Delft as a postdoc in damping of critical electrical oscillatory phenomena. Check the job post!

Your challenge as a postdoc in damping of critical electrical oscillatory phenomena at TU Delft is to develop a reliable model of the dynamic behaviour of sustainable offshore power generation. Your research will be geared to damping oscillations, which is crucial to stable, reliable power grids. Are you ready to help accelerate the energy transition? Check the job post and apply now!

**[Relevant hashtags]**

#vacancy #workingatTUDelft #postdoc #oscillations #damping #powergrid #offshorewind #sustainableenergy #windtohydrogen