

Stellenbosch University - Centre for Renewable and Sustainable Energy Studies

Postdoctoral Research Fellowship: Techno-Economic Modelling and Scenario Evaluation within the WEF Nexus

Host: Centre for Renewable and Sustainable Energy Studies

Value of Award: Competitive tax-free fellowship

Duration: 1 year, renewable upon sufficient funding

The Centre for Renewable and Sustainable Energy Studies (CRSES) at Stellenbosch University seeks a dedicated professional to advance Africa's sustainability efforts. The candidate will engage in world-class research, provide expert advisory services, and deliver advanced training in renewable energy systems. The CRSES hosts the only ARUA Centre of Excellence (CoE) in Energy on the African continent, making this a unique opportunity to contribute to impactful, regional leadership.

We are seeking a passionate, highly motivated, and well-organised **Postdoctoral Research Fellow** to join our multidisciplinary team. The successful candidate will lead the **techno-economic modelling of renewable energy technologies** within the **Water-Waste-Energy-Food (WWEF) Nexus** and the **ARUA CoE in Energy**. The role involves evaluating waste-to-energy pathways, bridging engineering efficiency and agricultural market strategies. The Fellow will work in a dynamic, diverse research environment, collaborating with national and international industrial and governmental partners to transform complex data into practical decision-making tools. This position offers an excellent opportunity for a researcher committed to optimising supply chains and advancing the circular bioeconomy across the continent.

The appointed candidate will be required to publish their research results in high-impact journals, present at local and international conferences, and provide limited mentoring and supervision to postgraduate students.

The fellowship is available for one year and is renewable for up to three years, subject to satisfactory performance and funding availability. Please note that postdoctoral fellows are not appointed as SU employees and, therefore, are not eligible for employee benefits. Postdoctoral fellowships are also awarded tax-free.

Host:

- Prof Cristina Trois, Centre for Renewable and Sustainable Energy Studies

Requirements:

- PhD in relevant field (must have graduated within the last five years). Preference will be given to a candidate with a multidisciplinary profile combining Engineering and Economics (e.g., Industrial Engineering, Agriculture-Economics, Energy Engineering, Process Engineering, Environmental Engineering)
- Excellent communication skills in English (both written and verbal)
- A proven publication record in high-impact journals and a demonstrated capacity to conduct independent research (minimum one relevant published article in a Scimago Q1 or Q2 journal)
- Familiarity with techno-economic assessment (TEA), scenario development, the South African agricultural landscape, and the WEF Nexus

Specific areas of potential research include:

- Development and refinement of the Waste to Resource Optimisation and Scenario Evaluation (WROSE) model for decision-making for waste-to-energy (WtE) and RE technologies
- Modelling of techno-economic impacts of WtE and RE within the WEF Nexus framework
- Assessment of the techno-economic feasibility of large-scale bioenergy projects
- Optimisation of logistics and supply chains within agro-food networks

Commencement of duties: As soon as available, preferred 1 July 2026

Closing date: 5 June 2026.

Application process: Send a letter of application, accompanied by a comprehensive curriculum vitae, including a list of publications, proof of PhD qualification, and the names and contact details of two referees, to Prof Cristina Trois at cristinatrois@sun.ac.za and/or Dr Andrea Dell'Orto at dellortoa@sun.ac.za.