Postdoctoral Fellowship in Flexibility of Power Grid with High Penetration of Renewable Energy

The Department of Electrical Engineering, University of Cape Town (UCT), South Africa, invites applications for one full-time Postdoctoral Research Fellowship in the area of power system flexibility and renewable energy integration.

This position forms part of a National Research Foundation (NRF)–funded research project focused on enhancing the flexibility, stability, and resilience of power systems with a high share of renewable energy sources. The project combines theoretical and experimental research, including advanced studies using a real-time power system simulator. We are seeking a highly motivated postdoctoral research scholar who is available to commence as soon as possible.

Research focus area

Developing countries are increasingly facing energy and environmental challenges driven by rapid population growth, rising electricity demand, and continued reliance on fossil fuels. The large-scale use of fossil fuels has contributed significantly to environmental pollution, global warming, and climate change. In response, there has been a global push towards energy transition and national commitments to achieve net-zero emissions. South Africa's Low Emission Development Strategy targets a transition to a net-zero carbon economy by 2050.

Achieving this objective will require a substantial increase in the integration and utilisation of renewable energy sources (RESs). However, high penetration of RESs introduces significant operational and technical challenges due to their intermittent and variable nature. Weather-dependent generation can create constraints on system reliability and stability.

Furthermore, the energy transition will involve the large-scale adoption of electric vehicles (EVs), expansion of electric transportation infrastructure, deployment of energy storage systems, and increased utilisation of smart grid technologies. Future power systems will rely heavily on advanced control and energy management systems, driven by automation, digitalisation, and artificial intelligence, to ensure efficiency, reliability, security, and resilience.

This research will address key challenges related to the integration of RESs and EVs, with a particular focus on enhancing grid flexibility to ensure system reliability, security, and resilience.

Value and Tenure:

The fellowship is valued between R300 000 to R350 000 per annum and is a full-time position, based in Cape Town.

The initial appointment is for one year or less depending on the starting date, with the possibility of extension to a second year, subject to satisfactory performance. No relocation expenses are provided. The fellowship carries no additional benefits; however, a directive for tax exemption will be applied for by UCT on behalf of the successful candidate, which typically renders the fellowship tax-free. The final remuneration will

depend on the candidate's profile and performance during the selection process

During the tenure of the Fellowship, the fellow will be directly responsible to principal investigators Prof. Komla Folly and Prof. David Oyedokun. In addition, the fellow will be accountable to the Head of Department and the Dean of the Faculty of Engineering and the Built Environment (EBE).

Conditions and Eligibility:

Both South African and foreign candidates are eligible. Applicants must have completed their doctoral study in the last five years.

- Applicants should have an outstanding academic record in power and energy systems or a closely related discipline
- Applicants should demonstrate strong experience in independent research, with publications in high-impact journals.
- The successful candidate will be expected to publish two to three journal publications in high-impact journals per year during the fellowship tenure.
- The successful candidate will be required to enter into a Memorandum of Agreement with the University of Cape Town and a Memorandum of Understanding with the Principal Investigator.
- Applicants must not have previously held a full-time permanent academic or professional position.

University of Cape Town
Department of Computer Science - Computer Science Building - University Avenue - Rondebosch
Private Bag X3, Rondebosch - 7701 - South Africa
Tel: +27 21 650 5107

Application requirements:
Applications must include the following:

- A cover letter outlining the candidate's suitability, experience, and availability.
- A comprehensive curriculum vitae, including a full list of publications
- The names and contact details of at least two academic referees who have taught, supervised or worked closely with the applicant.
- Certified copies of all academic transcripts (undergraduate, Honours (if (applicable), Masters (if applicable) and PhD).

All applicants are subject to the policies, procedures, and regulations governing postdoctoral fellows at the University of Cape Town.

Application deadline
The official call is scheduled to close on 6th April 2026. Potential candidates are encouraged to contact Prof. Komla Folly (komla.folly@uct.ac.za) for project-related queries. Candidates are advised to apply for the position by emailing Prof. Komla Folly their CV, academic transcript, and a research proposal.

The University of Cape Town reserves the right not to make an appointment, to withdraw the position if conditions are not met, and to amend the terms and conditions of the fellowship as necessary. Incomplete, ineligible, or inappropriate applications may be disqualified.

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