



Re-advertisement call for applications for Postdocs at the African Center of Excellence in Energy for Sustainable Development (ACE-ESD) within the Research Training Partnership Program on Sustainable Energy

Background

The African Center of Excellence in Energy for Sustainable Development (ACEESD), at the College of Science and Technology (CST), University of Rwanda (UR), is funded by the World Bank. This is an approved ACE II project Center of Excellence envisioned to address key economic challenges resulting from low rural energy access, poor adoption of energy technologies in rural areas, and poor inter-state energy trading in the Eastern and Southern Africa region. The ACE-ESD is partnering with Chalmers University of Technology in a five-year Research Training Program (2019-2024) funded by the Swedish International Development Agency (Sida) aiming to strengthen research capacity on Sustainable Energy.

This call is for two (2) postdocs to be enrolled in the program. The following are the type of positions and preconditions for the positions of Postdoc. The partnership program is focused on interdisciplinary and policy-relevant energy research on the theme: *Smart electrification for rural and urban development using locally available renewable energy resources appropriate to Rwanda*. The program investigates Rwanda's future energy system, exploring the interaction between energy demand and energy system design the program will contribute to addressing real world problems of importance to Rwanda's development challenges and developing appropriate local solutions, establishing a link between researchers and energy sector actors that is currently missing. There is an emphasis on problem-oriented research, energy *systems* design (production-supply systems as a whole, rather than improvements of specific materials or components), field studies and stakeholder interactions.

Postdoc positions

The two postdocs will have Swedish mentors and work part time with research during 2 years, and will spend 5 months in Sweden as guest researchers at Chalmers. The positions are funded by Sida and the budget includes travels to Sweden, allowances for stay in Sweden, money for data collection and possibility to present work at a yearly conference. There are also possibilities to take courses at advanced level at Chalmers. Studies are expected to start mid 2022. For postdoc candidates, the following apply:

General Eligibility criteria (Apply to all postdoc positions.) Note that this call is readvertised.

The applicant must be:

- i. Staff of the University of Rwanda (permanent or on temporary contract), employed at a collaborating government or non-government institution
- ii. Citizen of Rwanda
- iii. Holding an relevant PhD degree;
- iv. Ready to spend 5 months in Sweden in two visits;
- v. Ready to continue working at the University of Rwanda after completion of the postdoc;

As per the policy, male applicants below the age of 40 years of age and female applicants below 45 years of age are given priority for PhD and Postdoctoral Scholarships. Post-doctoral fellowships applicants should have completed their PhD studies within the preceding 5 years. Women are encouraged to apply.



The following two postdoc positions are advertised. See the instructions on how to apply for each position below.

Postdoc position 1. Renewable energy

Postdoc position 2. Sustainable sizing of electric system components

1. POSTDOC POSITION 1. Renewable Energy

University of Rwanda (UR) and Chalmers University of Technology, Gothenburg, Sweden

Location: Kigali, Rwanda and Gothenburg, Sweden

The postdoc is a part of the on-going research cooperation between UR and Chalmers to strengthen the capacity of the Africa Centre of Excellence in Energy for Sustainable Development (ACE-ESD) at UR. The call is limited to researchers who have been awarded a PhD degree, or very close to completion. The researcher should also hold a tenured position (or about to apply for a tenured job) at UR as the postdoc (scholarship) only covers additional costs incurred for visits to Sweden. The Research Fellow will be based at her/his home institution but will also be an Affiliated guest researcher of the Department Technology Management and Economics at Chalmers.

The Research Fellow will be assigned a mentor from TME, Chalmers, who will support the main line of work, i.e. to publish research papers. Hence, the main output of the research is to produce papers – conceptual and/or empirically based - to be submitted to top academic journals. (These may be co-authored by the mentor and other research staff). However, the diffusion of results is also emphasized and the Fellow is encouraged to participate in joint research activities conducted at the Centre by attending and presenting at internal seminars and working groups and presenting at external conferences and seminars. No teaching is required, though teaching may be arranged if the successful candidate would like to gain teaching experience.

The ACEESD awards fellowship positions to innovative postdoctoral scholars focusing on one of its core disciplines including: renewable energy, energy markets and finance, climate change and the environment, technology and innovation.

The Centre's main focus is on key economic challenges related to low rural energy access, poor adoption of energy technologies especially in rural areas, and poor inter-state energy trading in the Eastern and Southern Africa region.

The particular focus of **POSTDOC POSITION 1**: The scientific focus is on various diffusion mechanisms for off grid electrification in Rwanda. The call is not technology specific per se and may address solar PV, mini/micro hydro, wind or other renewable energy alternatives. This focus draws from GoR's interest and efforts to apply these technologies at different scales to speed up off grid electricity access. Moreover, the call encourages proposals that intend to study the role of the private sector in driving the off grid market. The growth and strategies of Rwandan renewable energy companies could be a possible area of concern. Challenges facing mini grid operators is another example of priority research.

The key responsibilities of the post doc is to design and plan independently a research project, though in collaboration with the Swedish senior cooperation partner who will act as a mentor over the course of project duration. The post doc will be responsible for further elaboration and development of the theoretical framework and methodology, including collection and analysis of collected empirical data. There will be opportunity for co-publications with senior cooperation partner(s), foremost the mentor. During the first year the post doc will develop the framework but also start the data collection relevant for understanding the solar power TIS in Rwanda.



The focus is on the actors – type, structure, roles, etc - of the innovation system. In the second year the post doc together with the mentor will jointly discuss and decide on publications plans. The main cooperation partner is Dr Lennart Bångens, associate senior researcher at Chalmers University of technology. The postdoc is envisaged to visit Sweden twice (2) over the post doc period. The planning of these visits will take into account the needs and requirements of the project. Studies are expected to start mid-2022 and continue on a 50% basis over two years.

1.1. Specific eligibility criteria for POSITION 1

Essential criteria:

- holds a PhD degree in a relevant field. For example, a PhD degree in energy management, business administration, innovation policy, strategy, energy economics, development studies, political economy, or related subject may be of relevance.
- be highly proficient in writing, reading and speaking in English;
- be able to work independently as well as within an inter-disciplinary, cross-continental team.
- Ability and willingness to think and write critically, and to interrogate techno-economic assumptions.

Desired criteria:

- v. PhD related to the diffusion of renewable energy in developing countries
- vi. Experience of field work, including carrying out interviews in Rwanda
- vii. Documented knowledge of both qualitative and quantitative scientific methods
- viii. An understanding of Rwanda's energy sector including government institutions, agencies but also commercial actors and users

1.2. How to apply:

Interested applicants should apply by email and submit the following:

- i. An application letter for the position, the subject should be **POSTDOC POSITION 1 Renewable Energy**.
- ii. A personal motivation statement for the programme of study. This statement should demonstrate commitment, motivation and reasons for interest in the program (max 2 pages).
- iii. Recommendation letters from two academic or professional referees; In the case of a Postdoc, two recommendation letters from people who can comment on the candidate's intellectual curiosity and academic ability to pursue research. One of the recommendation letters should be issued by a previous academic supervisor, preferably the PhD degree supervisor.
- iv. Applicants from collaborating institutions must attach letter from employer ensuring the candidate gets study leave for the entire period if chosen for the scholarship;
- v. Certified copy of the relevant highest prior degree (i.e. PhD degree).
- vi. Copies of valid identification card or passport
- vii. Copy of the PhD dissertation; and diploma/proficiency certificate in English (if available)



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- viii. Current CV (maximum of 3 pages) with full name, e-mail, date of birth, sex, formal education at xx university (please specify), including full specification of the Masters' and PhD degree specialization, teaching experience, previous experience relevant to the program, present position, scientific publications and/or any other academic experience that may be relevant.
 - ix. Description of current and planned teaching portfolio. Include a plan for how to combine teaching with the post doc position, both in terms of topics and time plan.
 - x. Research proposal of maximum 3-4 pages (see instructions below);

Please send the above mentioned (scanned and saved in one document) to the following email: UR CPGS: ur-cpgscholarship@ur.ac.rw, with a copy to the subprogram team leaders c.kabiri@ur.ac.rw, and helene.ahlborg@chalmers.se. Please name the application folder with your name and "POSTDOC POSITION 1. Renewable Energy".

1.3.Submission deadline

The deadline for application is 11th March, 2022

1.4.Contact details for more information: For further information about the program setup please contact UR team leader Charles Kabiri: c.kabiri@ur.ac.rw For questions about the scientific focus and training, please contact Dr Lennart Bångens lennart.bangens@chalmers.se

Eligible and complete applications will be considered and short-listed candidates will be called for an interview.

The interview process will, apart from the interview, discuss the research proposal submitted by the Post-Doc applicant who will make a short presentation (no longer than 5 minutes). The recruitment team includes senior staff from both UR and Swedish universities. Successful candidates will be notified a couple of weeks after the interview and expected to start on their new position mid 2022.

1.5.Instructions for research proposal

A research proposal of appr. 3-4 pages. The research proposal aims to show that the post doc applicant has the ability to engage with scientific literature, identify the state of the art and research gaps. It will not necessarily form the basis for the post docs work. The proposal should contain a summary on key opportunities and challenges to the growth of renewable energy in Rwanda - with special attention paid to the solar power sector -comments on the role of various actors with a specific focus on commercial actors but also the interplay with institutional actors and outline specifically interesting research questions and how these may be addressed.

The concept should include the following sections: 1) Title/Sub-title, 2) Context and background (2-3 paragraphs), 3) relevance and justification of the topic (what the project intends to accomplish that will also include research studies that may be relevant to your work), 4) Framework/models (overall methodology).



This may include disciplines in which you will initially begin to read texts and look for research studies), 5) Research Question (a primary question relevant to your title, plus sub questions if needed), 6) Proposed Research Method, 7) Proposed Timeline/Deliverables (in the first phase – appr. 6 months – discussions about the Literature Review and first drafts of data collection plan including interview instruments, questionnaires, etc.) Questions about the concept note please contact Dr. Lennart.bangens@chalmers.se

2. POSTDOC POSITION 2. Sustainable sizing of electric system components

Societal development relies on increased productivity which is fundamentally dependent on efficient energy systems. The electricity system (ES) is outstanding in efficiency and can be sourced by many different flowing natural resources – sun, wind and hydro which are to be preferred due to the climate crisis. There are a number of components in an ES, of which production and function give environmental consequences that can be of importance and underpin system design choices.

The scientific focus of this postdoc position is on the application of technical requirement, a specific environmental systems analytical method - life-cycle assessment (LCA) as well as methods for the economical evaluation methods. The methods shall be applied to a few primary components in order to perform comparative up-to-date life cycle impact assessments for a selected number of environmental impact categories.

The postdoc is a part of the on-going research cooperation between UR and Chalmers to strengthen the capacity of the Africa Centre of Excellence in Energy for Sustainable Development (ACE-ESD) at UR. The call is limited to researchers who have been awarded a PhD degree, or very close to completion. The researcher should also hold a tenured position (or about to apply for a tenured job) at UR as the postdoc (scholarship) only covers additional costs incurred for visits to Sweden. The Research Fellow will be based at her/his home institution (UR) but will also be an Affiliated guest researcher of the Department Technology Management and Economics at Chalmers.

Key responsibilities of the postdoc include the performance of a research project from start to end. This includes:

- identification and selection of components of an electricity system (ES) to include in the study;
- development of system models for the selected components with special focus on the operational phase, data gathering, and synthesis;
- writing a scientific article on the study to be published in an international scientific journal;
- if deemed relevant communicate with stakeholders in Rwanda.

The postdoc will make yearly visits to Sweden. The planning of these visits will consider the needs and requirements of the project.

The main cooperation partner is prof. Sverker Molander at the division of Environmental Systems Analysis, Chalmers University of Technology, Gothenburg, Sweden.

Studies are expected to start mid 2022 and continue on a 50% basis over two years. Note that the candidate is expected to contribute to teaching at ACE ESD .

2.1. Specific eligibility criteria for POSITION 2

Essential criteria:

- vi. The candidate must hold a PhD degree in electric engineering or other a relevant field of engineering or natural science;
- vii. The candidate must be able to learn and use relevant LCA-software;



- viii. The candidate must be proficient in English;

Desired criteria:

- The candidate should have knowledge of various ESs components
- The candidate should be able to work mostly independently, but also when needed, as part of a small team.

Note that the candidate is expected to contribute to teaching at ACE ESD. Women are encouraged to apply.

2.2. How to apply:

Interested applicants should apply by email and submit the following:

- An application letter for the position, the subject should be POSTDOC POSITION 2. Sustainable sizing of electric system components
- A personal motivation statement for the programme of study. This statement should demonstrate commitment, motivation and reasons for interest in the program (max 2 pages).
- Two recommendation letters from people who can comment on the candidate's intellectual curiosity and academic ability to pursue research. One of the recommendation letters should be issued by a previous academic supervisor, preferably the PhD degree supervisor.
- Applicants from collaborating government institutions must attach letter from employer ensuring the candidate gets study leave for the entire period if chosen for the scholarship;
- Certified copy of the relevant highest prior degree (i.e. PhD degree).
- Copies of valid identification card or passport
- Copy of the PhD dissertation; and diploma/proficiency certificate in English (if available)
- Current CV (maximum of 3 pages) with full name, e-mail, date of birth, sex, formal education at universities, including full specification of the Masters' and PhD degree specialization, teaching experience, previous experience relevant to the program, present position, list of scientific publications and/or any other academic experience that may be relevant, statements of other experience.
- Description of current and planned teaching portfolio. Include a plan for how to combine teaching with the post doc position, both in terms of topics and time plan.
- A research proposal of maximum 4 pages.

Please send the above mentioned (scanned and saved in one document) to the following email: UR CPGS : ur-cpgscholarship@ur.ac.rw, with a copy to the subprogram team leaders c.kabiri@ur.ac.rw, and helene.ahlborg@chalmers.se. Please name the application folder with your name and "POSTDOC POSITION 2: Sustainable sizing of electric system components".

2.3 Submission deadline

The deadline for application is **11th March, 2022**

Contact details for more information: For further information about the program setup please contact UR team leader Charles Kabiri: c.kabiri@ur.ac.rw For questions about the scientific focus and training, please contact Prof. Sverker Molander sverker.molander@chalmers.se

The candidates will be notified if they are called for an interview.

The interview process will, apart from the interview, discuss the research proposal submitted by the Postdoc applicant who will make a short presentation (no longer than 5 minutes).



The recruitment team includes senior staff from both UR and Swedish universities. Successful candidates will be notified a couple of weeks after the interview and expected to start on their new position mid-2022.

2.4 Instructions for research proposal

A research proposal of appr. 3-4 pages. The research proposal aims to show that the postdoc applicant has the ability to engage with scientific literature, identify the state of the art and research gaps. It will not necessarily form the basis for the post docs work. The proposal should contain a summary on key opportunities and challenges to the growth of renewable energy in Rwanda - with special attention paid to the environmental consequences of energy production and use, and the expansion of energy infrastructure, outline specifically interesting research questions and how these may be addressed through the use of Life Cycle Assessments methods.

The concept should include the following sections: 1) Title/Sub-title, 2) Context and background (2-3 paragraphs), 3) relevance and justification of the topic (what the project intends to accomplish that will also include research studies that may be relevant to your work), 4) Framework/models (overall methodology. This may include disciplines in which you will initially begin to read texts and look for research studies), 5) Research Question (a primary question relevant to your title, plus sub questions if needed), 6) Proposed Research Method, 7) Proposed Timeline/Deliverables (in the first phase – appr. 6 months – discussions about the Literature Review and first drafts of data collection plan including source for secondary and original data, etc.) Questions about the concept note please contact prof. Sverker Molander.

Note that all texts should be written by the candidate him/herself and cannot be copied from other authors. Documents will be checked against plagiarism software.

Done at Kigali on January 27, 2022



Prof. Nosa O. Egiebor
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University of Rwanda