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UNIVERSITY OF RWANDA CENTRE FOR POSTGRADUATE STUDIES (UR CPGS)

**Call for PhD Studies at the Africa Center of Excellence in Energy for Sustainable
Development (ACE-ESD)**

Academic year 2018/2019

1. About the Center

The Africa Center of Excellence in Energy for Sustainable Development (ACE-ESD) 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 II is a partnership between the World Bank and the Government of Rwanda to strengthen selected institutions of higher education in the country to deliver quality post-graduate education and build collaborative research capacity in the Eastern and Southern Africa sub-region, and Africa as a whole.

2. About the Rwanda-UK collaboration

In July 2017 the Engineering and Physical Research Sciences Research Council (EPSRC) in the UK opened a call for applications to fund up to 6 research projects targeting key challenges for the development worldwide under the umbrella of the Global Challenges Research Fund (GCRF). One of those projects was RENGA¹ (Resilient Electricity Networks for a productive Grid Architecture) led by Imperial College London in collaboration with the ACE-ESD, BBOXX Ltd. and Meshpower Ltd in Rwanda. The project investigates new technical solutions to deliver electricity supply in rural areas of Sub-Saharan Africa that enable new productive applications and foster economic growth.

3. Call for candidates

We are seeking to recruit two highly motivated individuals to conduct a PhD in the area of electrification. Successful candidates must have a background in electrical power engineering and be interest in rural electrification, distribution network planning and electrical appliance

¹<http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/R030235/1>



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design. Each will be working on a different project within the scope of RENGA and will partake in the activities of the research consortium. The description of the projects is given below:

Project #1- Enabling productive applications of electricity: water pumping, refrigeration and steel welding are examples of uses of electricity that have a direct tangible economic and social benefit. However, they often involve high upfront and running costs that make their potential users not be able to afford them. The purpose of this project is to identify promising productive application cases and to develop and understanding of their requirements from the techno-economical point of view. For example, the researcher could quantify how much additional annual revenue a welder would make by having access to a certain tool and this could be compared against the cost of the tool and the cost associated to being supplied a certain peak power and a yearly energy bill.

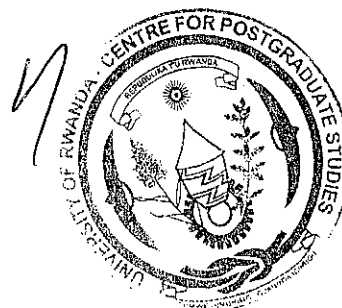
Project #2- Building an electrical network from the ground up: conventional electrical power systems expansion was based on building transmission lines to transmit the power generated in large power plants across long distances that would then be distributed using a radial network. Electrification in remote areas makes this approach impractical in many cases and photovoltaic generation has made it possible to deliver electricity to small communities in a more cost-effective way. There's an open question about the long-term viability of such electricity supply systems. It has been suggested that small autonomous power systems based on PV and batteries could be linked together to form a power system. This would enable sharing energy resources, with well-known aggregation effects. However, there's an open question about how big should the autonomous systems be (e.g. solar home systems vs mini-grids) for the interconnection to be worth building. The answer may also depend on the geographical distribution of the population. The purpose of this project is to investigate this problem.

4. Conditions

Candidates will be registered as PhD students of the UR-CST and will be co-supervised by an academic of Imperial College London. The PhD tenure will get offices at the ACE-ESD, Kigali, Rwanda. Candidates are expected to fill biweekly (twice a month) project status reports that will be shared with the supervisors. A one month long secondment at Imperial College London for each candidate is expected to take place during the PhD.

5. Admission Requirements

Applicants must have a Master of Science (or equivalent) degree in field related to energy, electrical engineering or mechanical engineering (to be linked with the above Call for



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candidates in point 3). The applicant must also demonstrate the ability to think and work independently and in a team environment.

6. Mode of attendance

Full-time (PhD by research, publications and thesis)

7. Duration of Study

The duration for the PhD will be three years.

8. Payments and fee structure

See the university fee structure accessible from University of Rwanda's website www.ur.ac.rw under *Academic* section; *Fee structure and payment information*.

9. Application process

- i. Go to UR CPGS Webpage (www.postgraduate.ur.ac.rw) by clicking on the link UR Center Postgraduate Studies on UR Website (www.ur.ac.rw)
- ii. Go to Studies Portal and click to (New Application)
- iii. Fill the **Biographical Form** and click (Save) at the end.
- iv. You will get "**Your Student ID Reference Number**" and create PIN.
- v. Please keep this ID Reference Number as it will be your Student ID Reference Number as it will be your study and all transactions at UR.
- vi. Go to the Bank and pay your application fees using your created Student ID Reference Number (10,000).

LIST OF COLLEGE ACCOUNTS TO BE USED DURING APPLICATION

UR COLLEGE OF SCIENCES & TECHNOLOGY (CST)	00094-0651935-36	BANK OF KIGALI
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NB: APPLICANTS SHOULD USE THEIR ID NUMBERS AND THEIR FULL NAMES DURING PAYMENT AND APPLICATION

- vii. Go back to Student Portal on (www.postgraduate.ur.ac.rw)
- viii. On the right panel under Registered Users, put your Student ID Reference Number and created PIN. You will get a Form where there is a link for Application.
- ix. Fill the Application Form and Save at the end.



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Please send the following (scanned and saved in one folder) documents to the following email: admissions.pgs@ur.ac.rw with a copy to the Head of PhD studies and Research of ACE-ESD at hakizimanajd@gmail.com (please make sure that the name of the folder is your ID Reference Number):

- i. A cover letter indicating for which program of study the application is being made and description of the motivation to join the program.
- ii. Detailed curriculum vitae (CV).
- iii. Notarized Master's and Bachelor's degrees and transcripts.
- iv. Recommendation letters from at least two academic referees who are knowledgeable about the applicant.
- v. Support letter from employer (if any).
- vi. Copies of valid identification card and/or passport.
- vii. Sponsorship letter from an organization (if any).
- viii. Provide an English proficiency certificate from a relevant body or institution.
- ix. Summary Research Proposal (Concept Note) relevant to the PhD degree sought. The concept note should state the research problem, the purpose and objectives of the research, the methodology, the expected outcome and its expected impact in the area of study.
- x. Master's Thesis abstract.

For more information, please visit ACE-ESD website <http://aceesd.ur.ac.rw>

10. Important dates

- i. Closing of application process: 31st December 2018
- ii. Admission process: 03rd - 07th January 2019
- iii. Registration: 14th – 18th January 2019

Kindly note that applications received after the deadline will not be considered.

11. Selection & Notification Process

Successful applicants will be notified by email within ten days after the closing of applications. If you do not receive any feedback after this period, you were unfortunately unsuccessful.



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Successful Applicants will be required to report in person at the College of Science & Technology (Nyarugenge Campus) for commencement of studies on 21st January 2019. Further details will be communicated to selected candidates in due process.

Note:

For any additional information, clarifications or inquiry, please do not hesitate to contact:

- i. Mrs. Jocelyne MUTAGANDA, Postgraduate Studies Officer: Tel: (+250) 788862609; email: jmutaganda@ur.ac.rw
- ii. Dr. Hakizimana Jean de Dieu, Head of PhD Studies and Research of ACE-ESD: Tel: (+250) 788476201; email: hakizimanajd@gmail.com

Thank you for choosing the University of Rwanda (UR)

Done at KIGALI, on 5th December 2018



Dr. Celestin NTIVUGURUZWA

Acting Director, University of Rwanda Centre for Postgraduate Studies (UR CPGS)