



Fourth Annual Research Conference Concept Note and call for Research Proposals

Theme: Sustainable Transformation of Electricity Transmission amid Contemporary Operating Environment

Kenya's electricity sector has registered unprecedented growth overtime. In the last decade, the growth in the sector has been underpinned on the Vision 2030 which seeks to transform the country into a "newly industrializing, middle-income" country. Energy sector is identified as a core enabler towards achievement of the envisaged development blueprint. The sector value – chain comprises of generation, transmission and distribution components with KETRACO being mandated with the execution of the transmission task. Recently, electricity transmission in Kenya has seen the remarkable development with KETRACO having constructed transmission network of approximately 4,190 km of circuit length and 37 new substations and 30 substation extensions in the last 12 years. It is notable that, transmission lines are focal given the role of intermediation between generation and distribution. However, despite the crucial role of electricity transmission, there exist contemporary challenges regarding the transmission lines in that if the lines continue to be constructed as there are constructed at the moment, there is a risk of the sector inability to obviate the contemporary challenges facing it. Such contemporary challenges entail the topical climate change and energy transition developments, technology advancements that is likely to render some ways of doing things obsolete in future, inadequate skilled personnel to handle new developments such as the High-Voltage Direct Current infrastructure currently being developed just to mention a few.

In order to provide competitive energy services to transform the economy and to catalyse realization of Kenya Vision 2030, the Government has plans to expand and strengthen the electricity transmission network. In this regard, KETRACO will play a key role in the realization of Kenya Vision 2030 through provision of reliable, stable, safe and affordable power. It is notable that the operating environment surrounding energy sector's operation is ever changing hence the need for organization to re – align themselves with these changes. Of late is the discussions around climate change, renewable energy integration, and energy transitions that have seen economies over the world devise some policy measures to this effect. In addition are the technological evolutions that pose both opportunities and challenges to the sector. Therefore, against this backdrop, KETRACO therefore wishes to make a call for research proposals under the theme "**Sustainable Transformation of Electricity Transmission amid Contemporary Operating Environment**". The proposals should focus on either of the following thematic areas:

- i. Climate change and energy transition.** Proposals within this theme should focus on the aspects how climate change is likely to affect electricity transmission from designs and construction issues, operation and maintenance issues among other aspects. Further is the issue on how energy transition to renewables is likely to affect grid stability, availability, and reliability. The novelty of the proposals here should aim at exploring the climate change and energy transitions as potential game changers in the overall electricity transmission stage. Exploring the benefits accruing from energy transition to renewables

and how such transition could be revealed in grid stability is the core issue here. Research proposals should further focus on how to efficiently develop, operate, maintain and manage transmission network under the envisaged changes and transitions.

- ii. Technological advancement** – proposals in this area should explore how energy utilities in transmission could leverage on appropriate technology to transform the sector. Proposals should focus on how technology can be relied upon in seizing opportunities or addressing the challenges facing electricity transmission. Proposals here could dive into ideas such as use of technology for optimized designs and construction issues, operation and maintenance and system operation issues, right of way acquisition among other pertinent issues.
- iii. Project management issues** – research proposals in this thematic area should focus on the optimal ways of managing energy projects amid contemporary issues such as resources constraints, increasing social related challenges such as stakeholders’ engagement amid increasing public awareness of their property rights and entitlement, donor or financing partner requirements, managing of communities’ expectations especially for community owned lands where the grid traverses among other project management issues in the energy sector the author may wish to explore.

The emphasis of the call will be on high quality research work with a clear balance between theory and application, and policy relevance of the research findings. The authors of the successful research proposals will thereafter be informed and given adequate timelines to develop the proposals into full research papers. Successful author will have opportunity to present their papers at the *4th Annual KETRACO Research Conference slated in June 2023*. **A reasonable honorarium will be paid for the successful research papers presented at the Conference**

Requirements

1. Researchers should submit a written **research proposal** to KETRACO by **10th December 2022**. All proposals should be strongly aligned to the above-mentioned theme
 2. The proposal should not be more than **5 pages**.
 3. The research proposal should focus on one of the thematic areas outlined in the call.
 4. The research proposal should include the following:
 - Introduction and Background Information - **1 page**
 - Statement of the problem – **½ page**
 - Rationale / Justification of the study – **½ page**
 - Overview of Literature – (**Summary**) – **2 pages**
 - Research Methodology – **1 page**
 - A brief biography of the researcher/ research team including their professional qualifications and research experience. The biography **should not be more than one page**.
 5. The proposals and authors’ bibliographies should be submitted to research@ketraco.co.ke **NOT LATER than 10th December 2022**.
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