RISK TRANSFER FOR GEOTHERMAL ENERGY EXPLORATION

GEOTHERMAL UPSTREAM RISK PRODUCT MODELLING AND TRANSACTION SUPPORT

TERMS OF REFERENCE

1. About FSD Africa

FSD Africa is a specialist development agency making finance work for Africa's future. Headquartered in Nairobi, FSD Africa's team of financial sector experts works alongside governments, business leaders, regulators and policymakers to design and build ambitious programmes that make financial markets work better for everyone. Established in 2012, FSD Africa is incorporated as a non-profit company limited by guarantee in Kenya. It is funded by UK aid from the UK government.

2. Background on Geothermal in Kenya

Kenya is a global leader in the development of geothermal energy, positioning itself as one of the few countries in Africa with significant geothermal potential. As of 2024, Kenya is the largest producer of geothermal power on the continent, generating over 500 MW of installed capacity, which accounts for approximately 30% of the country's electricity generation mix. This development has contributed significantly to the country's goal of transitioning to renewable energy sources and reducing reliance on hydropower and fossil fuels.

Geothermal Potential in Kenya

Kenya lies within the East African Rift System, a tectonically active region characterized by abundant geothermal resources. The Great Rift Valley, which runs through Kenya, holds substantial geothermal reservoirs with an estimated potential of up to 10,000 MW. Key geothermal fields such as Olkaria, Menengai, and Suswa are central to Kenya's geothermal development, with Olkaria being one of the world's largest geothermal plants.

Importance of Geothermal to Kenya's Energy Mix

Geothermal energy is a critical component of Kenya's strategy for energy security and sustainability. Unlike other renewable energy sources such as hydropower and solar, geothermal energy provides a stable and continuous power supply, making it an ideal baseload energy source. This reliability is essential for supporting Kenya's growing economy and meeting the increasing energy demand driven by industrialization, urbanization, and population growth.

Moreover, geothermal power plays a key role in Kenya's efforts to combat climate change by reducing greenhouse gas emissions. As the country seeks to meet its commitment under the Paris Agreement to transition to a low-carbon economy, geothermal energy serves as a cornerstone of its renewable energy goals.

Challenges Facing Geothermal Development

Despite the vast potential, geothermal development in Kenya faces several challenges, particularly in the early stages of exploration and drilling. These include:

a) High Upstream Costs -The cost of drilling geothermal wells, which can be as deep as 2,000-3,000 meters, is a significant financial barrier. Early-stage exploration involves high risks and uncertain outcomes in terms of well productivity.
b) Access to Financing - Given the high-risk nature of geothermal exploration, attracting private-sector investment is challenging. Innovative financial instruments and risk mitigation mechanisms are needed to unlock financing for early-stage projects.
c) Regulatory and Policy Framework - While Kenya has made strides in developing policies to support renewable energy, there are still regulatory challenges in licensing, land acquisition, and securing agreements for power purchase.
d) Technical Capacity - Another limiting factor is the need for specialized technical skills in geothermal exploration and development. Kenya has made progress in building local expertise, but continued investment in capacity development is crucial to scaling geothermal projects.

Opportunities and Future Outlook

To address these challenges and unlock the full potential of geothermal energy, Kenya has pursued several initiatives. The establishment of entities such as the Geothermal Development Company (GDC), which focuses on de-risking geothermal exploration by conducting early-stage activities, has been pivotal. Additionally, collaboration between the public sector, international development partners, and private investors is increasing, with the aim of developing more bankable geothermal projects.

Furthermore, Kenya is expanding its geothermal development beyond electricity generation to include direct uses, such as in agriculture and industrial processes, which could further enhance its economic impact. The country's strong commitment to geothermal energy is expected to play a critical role in achieving Kenya Vision 2030, the country's long-term development plan, and driving its transition to a net-zero future.

While Kenya faces challenges in geothermal development, it remains a global pioneer in the use of this renewable energy source. With continued investments in capacity, technology, and financial de-risking mechanisms, Kenya is well-positioned to scale up geothermal energy production, enhance energy security, and contribute to regional efforts to combat climate change.

3. Geothermal Risk Transfer Project

The FSD Africa-funded programme leverages local insurance capital to de-risk renewable energy development, catalysing private investment into green energy projects across Africa. This is achieved by establishing a joint underwriting facility backed by insurers and reinsurers, which initially covers the early-stage development drilling risk for investors in geothermal projects. The underwriting facility is meant to expand further to cover other speciality risks in the renewable energy sector and the broader climate mitigation and adaptation sector in Africa.

The programme implements the following:

a) Develops technical capacity and facilitates insurance sector stakeholders
b) Advocates for and provides technical assistance on regulatory adaptation
c) Supports the structuring and execution of a joint underwriting facility
d) Advocates for and provides technical support to fundraising from African investors for geothermal investment

FSD Africa, in collaboration with partners, recently launched a Geothermal Output Underwriting Facility aimed at supporting the de-risking of geothermal exploration in Africa. This facility currently includes five insurers, with a sum assured limit of $2 million. To scale this initiative, additional

insurers need to be built up to take on more of the risk. Furthermore, support is required for the quoting process for the first two transactions/policies underwritten by the facility.

4. **Objective:**

The primary objectives of the consultancy are to:

a) Train additional insurers and reinsurers to understand and effectively underwrite geothermal exploration upstream risks.
b) Facilitate the first two geothermal transactions underwritten by the facility.

5. **Key Responsibilities:**

The consultant will be expected to deliver on the following tasks:

a) Capacity Building for Insurers:

- **Curriculum Development**:
  - Building on the existing curriculum, deliver a capacity-building program tailored to insurers and reinsurers, focusing on geothermal exploration underwriting. The program will be adapted and refined based on feedback from insurers, Independent Power Producers (IPPs), and investors, ensuring it addresses emerging needs and incorporates practical insights.
  - Modules will include the technical aspects of geothermal energy projects, risk analysis/modelling, financial exposure, and international best practices, among other relevant topics.
- **Training Delivery**:
  - Conduct a series of in-depth training sessions (virtual or in-person) for insurers and reinsurers, with particular emphasis on risk evaluation and underwriting practices specific to geothermal exploration.
  - Provide practical case studies from other geothermal exploration projects globally to illustrate challenges, risk mitigation, and potential underwriting strategies.
- **Follow-up and Mentoring**:
  - Offer ongoing mentorship and support for a selected group of insurers and reinsurers over a 6-month period post-training, addressing any questions or issues that may arise during insurance policy approval processes, quotation drafting etc.

b) Support for Quoting the First Two Transactions:

- **Transaction Review**:
  - Work closely with the participating insurers and reinsurers to review the details of the first two geothermal projects under consideration for insurance coverage.
  - Analyse the risk profiles of these projects and engage with the geothermal project developers, ensuring that all relevant information and documentation are gathered for underwriting purposes.
- **Quoting Process**:
  - Provide hands-on support to insurers in preparing quotes for these two projects, including assessing premium rates, identifying exclusions, and proposing policy terms.
  - Engage with project developers, investors, and reinsurers to ensure alignment on coverage terms and clarify any technical or financial aspects of the projects that may affect the underwriting process.

c) Stakeholder Engagement and Collaboration:

- **Coordination with Key Stakeholders**:

- Engage with FSD Africa, insurers, reinsurers, project developers, Ministry of Energy and Petroleum and brokers to foster collaboration and ensure all parties understand the scope and risks of the geothermal projects.
- Lead consultations with these stakeholders to address any concerns and facilitate discussions around risk allocation, pricing, and terms of coverage.

- **Reporting**:
  - Prepare detailed reports on each training session conducted, documenting key insights, challenges, and recommendations for further capacity building.
  - Provide regular progress reports on the quoting process for the two transactions, outlining any issues encountered and how they were resolved.

6. Deliverables:

1. **Training Materials**: Updated training materials and case studies on geothermal exploration underwriting.
2. **Training Sessions**: Successful delivery of at least 2 structured training sessions for participating and prospective insurers.
3. **Mentoring and Capacity Building**: Ongoing support to insurers for six months post-training.
4. **Quoting Support**: Completion of the quoting process for the first two geothermal transactions.
5. **Final Reports**:
   - A detailed report on the outcomes of the training.
   - A report summarizing the process, challenges, and final quotations for the two geothermal transactions.

7. Invitation to Submit Proposal

FSD Africa is inviting proposals from suitably qualified consultancy firms.

Your proposal should contain:
- CV (maximum 3 sides of A4 paper each) of the consultant/key individuals tailored to the assignment.
- For consulting firms an outline of team structure, including roles and responsibilities of team members.
- A summary of relevant experience for the assignment.
- A short description of your understanding of the role of the Consultant and the approach to be used as outlined in these Terms of Reference.
- A description of how you intend to fulfil the Services within the suggested timeline and confirmation of your ability to meet the timelines.
- An itemised budget for both professional fees and reimbursable expenses, including fee rates, number of days and a breakdown of expenses.

Your proposal, which should not exceed 10 pages (excluding annexures), should be sent by email to FSD Africa at bids@fsdafrica.org by **12PM EAT,06 November 2024.**

8. Basis of Award

Consultant Qualifications/Mandatory Requirements:
- Minimum of 5 years of experience in Geothermal Output insurance underwriting.
- Proven expertise in risk assessment, insurance product development, and policy structuring for large-scale energy projects.

- Demonstrated experience in training insurers or financial institutions, particularly in emerging markets.
- Strong interpersonal and communication skills with the ability to engage effectively with a diverse range of stakeholders, including insurers, developers, and regulators.

Assessment Criteria

The selection criteria for the consultant will be based on the following:

Assessment criteria	Weighting (%)
Proven actuarial expertise of the team in risk assessment, insurance product development, and policy structuring for geothermal energy projects.	25%
Demonstrated experience in training insurers or financial institutions, particularly in emerging markets.	20%
Understanding/interpretation of the task set out in the terms of reference including detailed work plan	15%
Consultants' demonstration of sustainability value-add such as localisation, equity diversity and inclusion, gender equality, ethical compliance such as reduced risk of child labour, human trafficking. Environmental safeguards such as reduction of waste, GHG emissions etc	10%
Fee basis and total costs. Most economically advantageous tender, where the computation will be based using the below formula. FS = 30% x LB/BP where: FS = is the financial score LB = is the lowest bid quoted BP = is the bid of the proposal under consideration. The lowest bid quoted will be allocated a maximum score of 30%. **The fee quoted must be inclusive of applicable withholding taxes.**	30%
Total	100%

9. Duration:

The consultancy is expected to last for **9 months**, with an estimated total of **80 Man days**. This includes preparation, training, mentoring, and transaction support.

10. Management

The consultant will report to the Senior Manager, Climate Finance at FSD Africa and work closely with the lead team overseeing the Geothermal Output Underwriting Facility.

11. Contact

Questions or comments in respect of these terms of reference should be directed by email to bids@fsdafrica.org on or before 12 noon (EAT) 28 **October 2024**, and feedback will be provided by 5 pm (EAT) 30 **October 2024**.

12. Applicable Taxes

As per Kenya's tax law, FSD Africa will pay the Consultant after withholding the appropriate taxes at the applicable rate between Kenya and the Consultant's country of tax residence, considering any tax treaties in force. It is the responsibility of the Consultant to keep themselves apprised of these applicable taxes. The table below provides guidance on the applicable rates as per tax regimes.

Country	WHT Rate
Kenya	5%
United Kingdom	12.5%
Canada	15%
Germany	15%
India	10%
Non-resident rate for citizens of EAC member countries	15%
All other countries	20%