

Terms of reference (ToR) for the procurement of services below the EU threshold

CONFIDENTIAL

Training for KETRACO HVDC Maintenance Personnel	Project number/ cost centre: G-012062-001 Tender number 10046373
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0. List of abbreviations

AG	Commissioning party
AN	Contractor
AVB	General Terms and Conditions of Contract for supplying services and work
FK	Expert
FKT	Expert days
HVDC	High Voltage Direct Current
KETRACO	Kenya Electricity Transmission Company
KZFK	Short-term expert
ToRs	Terms of reference

1. Context

Kenya has made significant steps in ensuring local and regional grid stability through strategic interconnections with neighboring countries

The Suswa Converter Station Project was implemented by Siemens Energy as a Turnkey Project. It is part of the link between the Kenyan Grid and the Ethiopian Grid serving a key role of power exchange between the two countries. The link is rated at 2000MW and operates at a Voltage Level of $\pm 500\text{kV DC}$.

The HVDC Converter Station is a critical link for both power systems. The availability of the link is critical. This requires extensive knowledge of all the subsystems and proper maintenance practices. Given the complexity of technology and the critical nature of the system, specialized training is essential for optimal performance and reliability.

Project overview

The project “**Promoting the framework conditions for 100% renewable energies in Kenya RE 100**” is part of the Climate and Development Partnership (P+) between the Federal Government of Germany and Kenya. It is implemented by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) for the Kenyan Ministry of Energy and Petroleum (MoEP). It runs from May 2024 to April 2027 and contributes to achieving the goals of the development cooperation programme “Modernisation of the Energy Sector and Climate Protection in Kenya” which promotes a sustainable, reliable and needs-based energy supply and the reduction of greenhouse gas (GHG) emissions.

The project seeks to strengthen the competencies at the Ministry of Energy and Petroleum (MoEP) with the objective to improve the administrative, regulatory and technical requirements for supplying Kenya with electricity generated exclusively from renewable energies. The project has three spheres of outputs:

- i) **Improve the technical and administrative basis** for the **planning and procurement** of grid-connected renewable energy power generation capacities. This output envisages that MoEP will undertake preliminary and feasibility studies to ensure that the costs and benefits of increased adoption of renewables, especially solar and wind exceeding 10MW are considered. In addition, MoEP will have clear guidelines for competitive procurement of electricity from RE power plants for the system operator (RE Auctions Policy guidelines).
- ii) **Improve the decision-making basis** for making electricity demand more flexible among public and private actors including women-led companies to create favourable conditions for reducing curtailment of RE electricity and for integration of additional RE electricity into the grid. Activities include analysing the time of use (TOU) tariff barriers and challenges with a view to promoting an enabling environment for uptake of TOU tariff by various categories of consumers.
- iii) **Improve the regulatory and technical basis** for the grid integration of RE electricity. This will support improve decision-making on the procurement and remuneration of grid services. The transmission system operator will also be equipped to use central digital systems for solar and wind power forecasting, the technical conditions for increased share of RE into the grid through power plant deployment planning is improved and stronger incentives created for public and private companies to provide grid services that are compatible with RE grid integration.

2. Tasks to be performed by the contractor

The main objectives of the training are as follows:

1. Skill development for maintenance personnel. This shall include equipping the personnel with skills in HVDC technology focusing on maintenance, troubleshooting and operational efficiency.
2. Improve operational reliability of the plant by fostering a proactive maintenance culture. This is aimed at minimizing downtime and extending equipment lifespan.
3. Enhance the understanding of safety protocols and regulatory compliance by the maintenance personnel.

The contractor is responsible for providing the following services:

- Scope of Work
- Training Modules

The following four (2) training modules are required. The specific details are included.

A. Valve hall equipment installation and maintenance.

The training areas under this module shall focus on but not limited to maintenance including troubleshooting and replacement of the Thyristors, RC Snubber Components, Valve Reactor, Grading Capacitor, Grading Electrodes, Recovery Protection Units, Thyristor Voltage Monitoring modules, Multimode Star Couplers and the de-ionized water piping system.

B. Converter Water Cooling System maintenance including practical demonstration.

The Converter Water Cooling (CWC) System supplier is **FST Industrie**. The training areas shall cover checks, maintenance including troubleshooting and replacement of the CWC components. These include but are not limited to outdoor coolers, entire pipework, ion exchangers, valves and their accessories including filters, strainers and rubber compensators, all measuring devices, gauges and sensors. The training shall also include the control system for CWC.

C. Safety protocols during maintenance and normal maintenance for the valve hall equipment and the water-cooling system. Best practices on regulatory compliance by the maintenance personnel.

• Training Delivery

The training shall be delivered as a combination of theoretical instructions and hands-on practical sessions at the converter station site in Suswa, Kenya. The trainer shall provide case studies and real-life scenarios to enhance learning. Actual equipment shall be used for hands-on experience and simulations where feasible.

• Training Deliverables

The training deliverables shall include:

- a. Detailed Training Schedule and Curriculum.
- b. Training materials including all training resources, including manuals, PPTs, Videos etc. as shall be required.
- c. Assessment tools to evaluate participant knowledge and training outcome.
- d. Certificates to the participants on completion of the training program.

Kindly note;

- The contractor is responsible for selecting, preparing, training and steering the international and national, short and long-term experts assigned to perform the advisory tasks.
- The contractor provides equipment and supplies (consumables) and assumes the associated operating and administrative costs.
- The contractor manages costs and expenditures, accounting processes and invoicing in line with the requirements of GIZ.
- The contractor reports regularly to GIZ in accordance with the current AVB of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

In derogation from GIZ AVB, the contractor makes contributions to reports to GIZ's commissioning party instead of submitting its own reports.

In addition to the reports required by GIZ in accordance with the AVB, the contractor submits the following reports:

- Inception report together with a detailed training schedule and Curriculum
- Training materials including all training resources, including manuals, PPTs, Videos etc as shall be required.
- Assessment tools to evaluate participant knowledge and training outcome.
- Certificates to the participants on completion of the training program
- Contributions to reports to GIZ's commissioning party
- Brief final report on the training (5-7 pages).

Certain milestones, as laid out in the table below, are to be achieved during the contract term:

Milestones	Activities	Deadline
Milestone 1: Inception & Training Preparation	Submission of training plan, agenda, training materials, and logistical arrangements.	1 month after contract signing
Milestone 2: Delivery of Theoretical Training Modules	Completion of classroom/theoretical sessions covering HVDC fundamentals, converter systems, control & protection, safety, and maintenance principles.	Days 1–5/ Month 2
Milestone 3: Delivery of Practical & Hands-on Training	Completion of practical sessions at the converter station, including equipment familiarization, maintenance procedures, troubleshooting exercises, and simulations.	Days 6–9/ Month 2

Milestone 4: Assessment & Knowledge Evaluation	Conduct of trainee assessments, practical evaluations, Q&A sessions, and review of learning outcomes.	Day 10/ Month 2
Milestone 5: Submission of Final Training Report	Submission of attendance records, assessment results, training materials, photographs, participant feedback, and final completion report.	Month 3

Period of assignment: from 01.10.2026 until 28.02.2027.

3. Concept

In the tender, the tenderer is required to show *how* the objectives defined in Chapter 2 (Tasks to be performed) are to be achieved, if applicable under consideration of further method-related requirements (technical-methodological concept). In addition, the tenderer must describe the project management system for service provision.

Note: The numbers in parentheses correspond to the lines of the technical assessment grid.

Technical-methodological concept

Strategy (1.1): The tenderer is required to consider the tasks to be performed with reference to the objectives of the services put out to tender (see Chapter 1 Context) (1.1.1). Following this, the tenderer presents and justifies the explicit strategy with which it intends to provide the services for which it is responsible (see Chapter 2 Tasks to be performed) (1.1.2).

The tenderer is required to present the actors relevant for the services for which it is responsible and describe the **cooperation (1.2)** with them.

The tenderer is required to present and explain its approach to **steering** the measures with the project partners (1.3.1) and its contribution to the **results-based monitoring system** (1.3.2).

The tenderer is required to describe the key **processes** for the services for which it is responsible and create an **operational plan** or schedule (1.4.1) that describes how the services according to Chapter 2 (Tasks to be performed by the contractor) are to be provided. In particular, the tenderer is required to describe the necessary work steps and, if applicable, take account of the milestones and **contributions** of other actors (partner contributions) in accordance with Chapter 2 (Tasks to be performed) (1.4.2).

The tenderer is required to describe its contribution to knowledge management for the partner (1.5.1) and GIZ and to promote scaling-up effects (1.5.2) under **learning and innovation**.

Project management of the contractor (1.6)

The tenderer is required to explain its approach for coordination with the GIZ project. In particular, the project management requirements specified in Chapter 2 (Tasks to be performed by the contractor) must be explained in detail.

The tenderer is required to draw up a **personnel assignment plan** with explanatory notes that list all the experts proposed in the tender; the plan includes information on assignment dates (duration and expert days) and locations of the individual members of the team complete with the allocation of work steps as set out in the schedule.

The tenderer is required to describe its backstopping concept. The following services are part of the standard backstopping package, which (like ancillary personnel costs) must be factored into the fee schedules of the staff listed in the tender in accordance with Section 3.1 of the GIZ AVB:

- Service-delivery control
- Managing adaptations to changing conditions
- Ensuring the flow of information between the tenderer and GIZ
- Assuming personnel responsibility for the contractor's experts
- Process-oriented steering for implementation of the commission
- Securing the administrative conclusion of the project

4. Personnel concept

The tenderer is required to provide personnel who are suited to filling the positions described, on the basis of their CVs (see Chapter 7), the range of tasks involved and the required qualifications.

The below specified qualifications represent the requirements to reach the maximum number of points in the technical assessment.

Team leader

Tasks of the team leader

- Overall responsibility for the advisory packages of the contractor (quality and deadlines)
- Coordinating and ensuring communication with GIZ, partners and others involved in the project
- Personnel management, identifying the need for short-term assignments within the available budget, as well as planning and steering assignments and supporting local and international short-term experts
- Regular reporting in accordance with deadlines

Qualifications of the team leader

- Education/training (2.1.1): university degree (Masters) in Electrical Engineering, Power Systems Engineering.
- Language (2.1.2): C2-level language proficiency in English
- General professional experience (2.1.3): 10 years of professional experience in the power systems engineering sector
- Specific professional experience (2.1.4): 5 years in HVDC projects involving commissioning, operation, maintenance, and training

- Leadership/management experience (2.1.5): 4 years of management/leadership experience as project team leader or manager in a company
- Regional experience (2.1.6): 3 years of experience in projects in Africa (region).
- Development cooperation (DC) experience (2.1.7): 2 years of experience in DC projects
- Other (2.1.8): Knowledge of Siemens HVDC systems, understanding of converter stations, control systems, maintenance practices and experience coordinating technical training programs.

Key expert 1

Tasks of key expert 1

- Deliver theoretical and practical HVDC training on systems, equipment, operations, maintenance, troubleshooting, and safety procedures at the converter station site.
- Facilitate hands-on exercises, simulations, discussions, and assessments to evaluate trainee understanding and enhance practical learning.
- Integrate practical examples, operational experience, and lessons learned from previous HVDC projects to support effective knowledge transfer and capacity building for KETRACO maintenance personnel.
- Provide technical input and supporting documentation for inclusion in the final training report.

Qualifications of key expert 1

- Education/training (2.2.1): Electrical Engineering, Electronics Engineering, Power Engineering.
- Language (2.2.2): C2-level language proficiency in English
- General professional experience (2.2.3): 8 years of professional experience in the power systems engineering sector
- Specific professional experience (2.2.4): 5 years of professional experience in Siemens HVDC systems.
- Leadership/management experience (2.2.5): 2 years of management/leadership experience as project team leader or manager in a company
- Regional experience (2.2.6): 1 year of experience in projects in Africa (region).
- Other (2.2.8): experience in Siemens HVDC systems, including participation in the commissioning and maintenance of HVDC converter stations

Key Expert 2

Tasks of key expert 2

- Deliver theoretical and practical HVDC training on systems, equipment, operations, maintenance, troubleshooting, and safety procedures at the converter station site.
- Facilitate hands-on exercises, simulations, discussions, and assessments to evaluate trainee understanding and enhance practical learning.
- Integrate practical examples, operational experience, and lessons learned from previous HVDC projects to support effective knowledge transfer and capacity building for KETRACO maintenance personnel.
- Provide technical input and supporting documentation for inclusion in the final training report.

Qualifications of key expert 2

- Education/training (2.3.1): Electrical Engineering, Electronics Engineering, Power Engineering.
- Language (2.3.2): C2-level language proficiency in English.
- General professional experience (2.3.3): 8 years of professional experience in the power systems engineering sector
- Specific professional experience (2.3.4): 5 years of professional experience in HV safety within utility and HVDC environments.
- Other (2.3.8): certified in high-voltage (HV) safety training, with experience in HV safety practices within utility and HVDC environments.

Soft skills of team members

In addition to their specialist qualifications, the following qualifications are required of team members:

- Team skills
- Initiative
- Communication skills
- Socio-cultural skills
- Efficient, partner- and client-focused working methods
- Interdisciplinary thinking

The tenderer must provide a clear overview of all proposed experts and their individual qualifications.

5. Costing requirements

Assignment of personnel and travel expenses

Per diem allowances are reimbursed as a lump sum up to the maximum amounts permissible under tax law for each country as set out in the country table in the circular from the German Federal Ministry of Finance on travel expense remuneration (downloadable from the [German Federal Ministry of Finance – tax treatment of travel expenses and allowances for international business travel as of 1 January 2026 \(GERMAN ONLY\)](#)).

Accommodation allowances are reimbursed as detailed in the specification of inputs below.

With special justification, additional Accommodation costs up to a reasonable amount can be reimbursed against evidence.

All business travel must be agreed in advance by the officer responsible for the project

Sustainability aspects for travel

GIZ has undertaken an obligation to reduce greenhouse gas emissions (CO₂ emissions) caused by travel. When preparing your tender, please incorporate options for reducing emissions, such as selecting the lowest-emission booking class (economy) and using means

of transport, airlines and flight routes with higher CO₂ efficiency. For short distances, travel by train (second class) or e-mobility should be the preferred option.

CO₂ emissions caused by air travel must be offset. GIZ specifies a budget for this, through which the carbon offsets can be settled against evidence.

There are many different providers in the market for emissions certificates, and they have different climate impact ambitions. The [Development and Climate Alliance \(German only\)](#) has published a [list of standards \(German only\)](#). GIZ recommends using the standards specified there.

Specification of Inputs

Fee days	Number of experts	Number of days per expert	Total	Comments
Designation of Team Leader	1	15	15	
Designation of key expert 1	1	35	35	
Designation of key expert 2	1	30	30	
Travel expenses	Quantity	Price EUR	Total EUR	Comments
CO ₂ compensation for air travel	1	280,00	280,00 EUR	A fixed budget of EUR 280,00 is earmarked for settling carbon offsets against evidence.
Fixed travel budget	1	11.500,00	11.500,00	A fixed budget of 11.500,00 EUR is earmarked for travel expenses-international flights, car & train travel within Kenya, per diem allowance, overnight accommodation allowance, visa costs (against evidence)
Other costs	Number	Price EUR	Total EUR	Comments
Flexible remuneration	1	9.000,00	9.000,00	A budget of EUR 9.000,00 is foreseen for flexible remuneration. Please incorporate this budget into the price schedule. Use of the flexible remuneration item requires

				prior written approval from GIZ.
Procurement of materials and equipment (Printing of training materials and certificates)	1	1.500,00	1.500,00	The budget contains the following costs, Training materials and certificates.

Workshops, events and trainings

Kenya Electricity Transmission Company (KETRACO) will provide a workshop/training facility at Suswa sub-station.

6. Inputs of GIZ or other actors

KETRACO are expected to make the following available:

KETRACO will provide venue/ workstations for the training and workshops at their Suswa Substation.

7. Requirements on the format of the tender

The structure of the tender must correspond to the structure of the ToR. In particular, the detailed structure of the concept (Chapter 3) should be organized in accordance with the positively weighted criteria in the assessment grid (not with zero). The tender must be legible (font size 11 or larger) and clearly formulated. It must be drawn up in English (language).

The complete tender must not exceed 10 pages (excluding CVs). If one of the maximum page lengths is exceeded, the content appearing after the cut-off point will not be included in the assessment. External content (e.g. links to websites) will also not be considered.

The CVs of the personnel proposed in accordance with Chapter 4 of the ToRs must be submitted using the format specified in the terms and conditions for application. The CVs shall not exceed 4 pages each. They must clearly show the position and job the proposed person held in the reference project and for how long. CVs can also be submitted in English (language).

Please calculate your financial tender based exactly on the parameters specified in Chapter 5 Quantitative requirements. The contractor is not contractually entitled to use up the days, trips, workshops or budgets in full. The number of days, trips and workshops and the budgets will be contractually agreed as maximum limits. The specifications for pricing are defined in the price schedule.