

# Terms of Reference: “Expert to deliver training of trainers on mini-grids”

## 1. Background information

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The Cornerstone of Rural Electrification (CORE) initiative and the Transforming Energy Access Learning Partnership (TEA-LP) are partnering to support training of trainers on mini-grids across Sub-Saharan Africa and South Asia.

**CORE** enables resilient rural and peri-urban communities by ensuring safety, efficiency and reliability become the cornerstone of decentralised electrification. Key CORE activities include training-of-trainers at university and TVET level, community trainings on productive uses of energy and technical trainings for governments (e.g. on standards, quality assurance...). CORE is an international initiative founded by Alliance for Rural Electrification (ARE), International Renewable Energy Agency (IRENA), Sustainable Energy for All (SEforALL), UN Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO) and International Copper Alliance (ICA). CORE is managed by ARE.

More information: [www.core-initiative.org](http://www.core-initiative.org)

**TEA-LP** is a partnership of universities committed to delivering local professionals to drive the transition to sustainable energy access for all. TEA-LP is supporting 30 universities across Africa, South-East Asia and the Indo Pacific to deliver new masters’ curricula, that respond to the needs of the rapidly growing off-grid sector in their respective countries.

**17 of these universities** are delivering a TEA-LP designed course on mini-grids.

TEA-LP is planning a **6-day Mini-Grids Training Workshop (MGTW) from 4-11 September 2024 in Kigali, Rwanda**, to ensure that lecturers are updated with the latest knowledge, skills and mini-grid software to deliver the mini-grids course. It is envisaged that **thirty-four (34) lecturers from 17 different TEA-LP universities will take part in the training**. Subsequent to the workshop, each lecturer is estimated to train at least ten (10) masters’ students annually.

**The workshop** has the following aims:

- to enable the lecturers to finalise their mini-grids course curriculum;
- to give lecturers proficiency in the use of the mini-grid design software (HomerPro and/or Xendee);
- to enable lecturers to assess the socio-economic and technical aspects of a proposed mini-grids site;
- to ensure that lecturers can design a simple mini-grid system given a set of specifications and constraints

The CORE trainer selected will be responsible for the delivery of the training (focusing on theoretical and technical aspects of mini-grid design, integrated with the use of the appropriate software) at the 6-day Mini-Grids Training Workshop (MGTW).

## 2. Objectives

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The key objective of this activity is to support training of trainers for 17 universities in the TEA-LP network and with this embed skills on green energy mini-grids within universities across Africa and South Asia.

## 3. Scope of work

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CORE is seeking an expert to deliver the training of trainers on the following topics:

- **Unit 3.1. AC & DC Technology for Mini-Grids;** including central vs distributed architecture, hybrid systems, as well as grid-tied mini-grids
- **Unit 3.2. Mini-Grid System Design,** including system sizing, modularity, optimising RE generation, energy storage, distribution, smart metering. Mesh grids. Levelised Costs of Electricity; Simulation and performance prediction
- **Unit 3.3. Key Metrics for Mini-Grid Performance** (Reliability/ maintenance, costs); demand-side management and how much energy is being consumed during daytime hours – e.g. load factor, or capacity utilization factor, including elastic loads (i.e. water pumping)
- **Unit 3.4. System Protection Systems, Health & Safety Standards,** including power evacuation; technical Codes, compliance & quality of service standards, health & safety procedures

The expert will need to integrate theory with hands on experience in the mock design of a mini-grid, using Xendee and/or HomerPro software. The expert should set and moderate a task for the participants e.g. Given a set of specs, each group of four participants will design a mini-grid over the course of the workshop. They will present their results on the final day

The expert will be expected to work with the TEA-LP team to co-design the agenda, the workshop topics and the participant task, using the TEA-LP designed course curriculum.

CORE has available training packages that may be refined together with the selected training. The final packages are subject to approval by CORE and will be the property of CORE.

The expert delivering the training of trainers should **deliver in-person training on the 4-6 September 2024 in Kigali.**

The total training time will be **six days.**

The training will be delivered in **English.**

A final report of **up to two pages** is to be submitted to ARE upon completion of the trainings, including the following:

- **Pre- and post-training** survey results (to trainers participating in the trainings)
- **Number of trainers trained:** monitored before and during training of trainers sessions

- **All of the above is disaggregated into gender-specific data** (e.g. number of female & male students trained, number of women that gained employment)

The deadline for submission of this report is **27 September 2024 (COB)**.

#### 4. Required experience and skills

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- More than 10 years of experience with technical aspects of green energy mini-grids, including demonstrated experience on:
  - Mini-Grid System Design (solar and mini-hydro)
  - Key Metrics for Mini-Grid Performance (operations)
  - System Protection Systems, and Health & Safety Standards
  - Hands on experience of simulating mini-grid systems using Xendee and/or Homer Pro software
- Strong and demonstrated recent experience in mini-grid implementation in the field, especially in Sub-Saharan Africa
- Demonstrated experience in delivering similar training in the past and understanding of curricula and learning outcomes
- Based in and ability to travel to Kigali on the dates in question
- Fluent in written and spoken English (native speaker or equivalent)
- Higher education degree in engineering or similar education

#### 5. Required documents

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Bidders are required to submit the following documents to Jens Jæger, Director of Policy & Business Development, ARE & Manager, CORE: [j.jaeger@ruralelec.org](mailto:j.jaeger@ruralelec.org)

- a. **Technical proposal** of maximum two pages in PDF.
- b. **CV** of the expert(s) in format of choice + references.
- c. **Financial proposal** of no more than 1 page (in USD) – see details on structure below.

#### 6. Evaluation of proposals

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A two-stage procedure shall be adopted in evaluating the proposals. The technical evaluation shall be carried out first, followed by the financial evaluation.

Only proposals whose **technical score is higher than 70 points** (out of 100) will be considered in the next stage, i.e. the financial evaluation.

#### 7. Timeline

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The deadline for submissions of proposals is **19 July 2024**.

Shortlisted candidates will be contacted in **the week of 22-26 July 2024**.

The start of mission is envisaged in **late July 2024**.

## 8. Fees

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The selected expert(s) will be contracted by ARE and paid a **service fee**.

The expert fees quoted in the financial proposal are **not subject to change**.

Travel fees quoted in the proposal are “up to” amounts and will be reimbursed to the expert in the next quarterly invoice based on supporting documentation for the travels. The proposed fee should be filled in the [financial proposal template](#) structured as follows:

- a. **Expert fees** (daily rate in USD X amount of working days estimated for the assignment). Not subject to change after contracting.
- b. **Travel costs** ('up to' amount), structured as follows:
  1. Estimated travel costs (“up to” amount) (Flight to and from Kigali)
  2. Accommodation costs in Kigali (at fixed rate of USD 100 per night x number of nights proposed): TEA-LP has negotiated a nearby accommodation for trainers and participants at USD 100 per night. This accommodation is in close walking distance to the University of Rwanda’s campus where the daily trainings and lunches will be held (tbc). The quote price should thus be USD 100 per night (breakfast is included) times the amount of nights proposed. Details on how to book this accommodation will be shared with the selected CORE expert upon contracting.
  3. Other costs (“up to” amount) (VISA cost + airport transfers). Since meals in Kigali will be covered by TEA-LP, no per diem will be offered.

Reimbursement of travel costs will be made based on filling in of travel expense sheet approved by ARE.

The following supporting documentation will be needed from the CORE expert to get this reimburse:

- **Annex 1:** Invoice for flights; original boarding passes
- **Annex 2:** Invoice from hotel
- **Annex 3:** Invoice/receipt for VISA and original receipt from airport transfers

## 9. Payment schedule and details

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Payments to the selected Expert will be made along the following schedule:

- **Upon contract signature:** 40% of expert fees
- **Upon delivery and acceptance by ARE of annual report:** remaining 60% of expert fees
- **Upon delivery and acceptance by ARE of travel expense sheet:** Reimbursement of travel expenses

Payment for services will be made via a valid invoice (VAT number included if applicable) that complies with the deliverables indicated in the payment schedule.

Invoices must be sent in U.S. dollars or EUR and the bidder must have a valid account in U.S. dollars or EUR. Invoices should clearly indicate the split between fixed expert fees and travel costs.



Managed by:



The Bank Information Statement (BIS) of the bank account of the recipient will be requested, the information of which must also be included on the invoice. Invoices should be addressed to:

Alliance for Rural Electrification AISBL  
Rue d'Arlon 63-67  
1040 Brussels  
Belgium  
VAT: BE 0883.277.545

ARE is not responsible for bank charges that are deducted from the receiving banking institution.

Payments will be payable within 60 days upon receipt and acceptance of deliverables and invoice (electronic version) indicating the contract number and instalment requested.

