

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

CONFIDENTIAL

Capacity development Programs for DISCOMs and State Nodal agencies on Rooftop Solar Deployment, Grid Integration, Installation Quality, Safety and O&M Practices	Project number/ cost centre: G-012382-001
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0. List of abbreviations

CEA	Central Electricity Authority
DER	Distributed Energy Resources
DISCOM	Distribution Companies
DNI	Direct Normal Irradiance
GHI	Global Horizontal Irradiance
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ToRs	Terms of reference

1. Context

The project, titled *"Achieve India's Renewable Energy Target of 500 GW by 2030,"* is a flagship initiative aligned with India's ambitious climate and energy goals. It is politically anchored with the Ministry of New and Renewable Energy (MNRE), Government of India, and represents a commitment by the German Federal Ministry for Economic Cooperation and Development (BMZ) following the Indo-German intergovernmental negotiations held on 1st November 2023 in New Delhi.

The project directly contributes to India's Nationally Determined Contribution (NDC) targets for 2030 and the overarching goal of achieving net-zero emissions by 2070. It operates under the newly launched *Indo-German Platform for Investments into Renewable Energies*, aiming to facilitate strategic collaboration and impactful investments in the sector.

Key components of the project include policy and technical advisory to MNRE on the expansion of wind energy and rooftop solar photovoltaics, as well as the modernization of aging renewable energy infrastructure. It also supports the development of local solar supply chains, promotes digital tools for grid operators, and advises on necessary reforms and grid expansion. Furthermore, the project places a strong emphasis on addressing the shortage of skilled labour in the renewable energy sector by promoting the participation of women, thereby fostering inclusive and sustainable energy transitions in India.

India is undergoing a significant transition toward a sustainable and low-carbon energy system. Innovation and entrepreneurship play a crucial role in accelerating the adoption of clean energy technologies and solutions.

2. Tasks to be performed by the contractor

The objective of this assignment is to design and deliver a One-day capacity-building programme for state nodal agencies and DISCOM's engineers, renewable energy cell representatives, utility managers, and nodal officers to strengthen their technical and operational capacities for facilitating large-scale rooftop solar deployment across India.

The programme shall focus on policy and regulatory frameworks, utility approval processes, technical design and sizing, installation quality, safety standards, grid integration, operation and maintenance practices, and lessons learned from successful rooftop solar programmes implemented by Indian and international utilities.

Note: At least 50% of the training programme shall be dedicated to practical learning components, including hands-on exercises, utility experiences, demonstrations, simulations, and real-world case studies. The Consultant shall clearly indicate, in its technical proposal, the proposed practical exercises and example case studies for each training session/module, demonstrating how these will support the intended learning outcomes.

The consultant will be responsible for below work packages:

Work Package 1: Development of training materials for training programs

For designing the training programme that meets the specific needs of various Indian DISCOMs and state nodal agencies, contractor must conduct a basic needs assessment to determine the specific training requirements of the target audience (Discom officials, Beneficiaries of the rooftop, vendor or service providers involved in the installation of the PV

system). Depending on the identified needs and considering the current practices, contractor may modify the following modules.

The training material could be a compilation of existing training material available in the public domain and from previous GIZ training programs. The idea is to have trainings delivered in the format given below:

Session 1: Rooftop Solar Policy Framework and Utility Processes

Topics:

- PM Surya Ghar: Muft Bijli Yojana
- Roles and responsibilities of DISCOMs
- Consumer onboarding process
- Application review and approval procedures
- Net metering framework
- Consumer grievance handling mechanisms
- Digitalisation of rooftop solar approval processes

Practical Exercise:

Evaluation and approval of sample rooftop solar applications, including eligibility verification, document review, technical scrutiny, and commissioning procedures.

Session 2: Technical Design, Site Assessment and System Sizing

Topics:

- Solar resource assessment
- Site feasibility assessment
- Roof suitability analysis
- Shading assessment techniques
- Load analysis and energy consumption profiling
- Selection of modules, inverters and balance-of-system components
- Rooftop solar system sizing methodologies
- Residential, commercial and institutional applications
- Design software demonstrations (PVsyst/PVSol)

Case Studies:

Consultant will be responsible for developing at least two case studies for this session.

Session 3: Grid Integration and Regulatory Compliance

Topics:

- CEA technical standards
- Net metering and gross metering requirements
- Interconnection procedures
- Anti-islanding protection
- Metering arrangements

- Power quality considerations
- Protection coordination
- Regulatory compliance requirements

Case Studies: (The list below is indicative and provided for reference purposes only. It may be revised or updated during the development and implementation of the training programmes.)

- Utility approval challenges and solutions
- Rooftop solar integration experiences from states like Gujarat, Delhi and Karnataka
- International grid integration practices from Germany and Australia

Session 4: Installation Quality Assurance and Safety

Topics:

- Rooftop solar installation methodologies
- Mounting structures and civil considerations
- Cable management practices
- Earthing and lightning protection systems
- Electrical safety requirements
- Fire safety standards
- Quality assurance and inspection procedures
- Common installation defects and mitigation measures

Case Studies: (The list below is indicative and provided for reference purposes only. It may be revised or updated during the development and implementation of the training programmes.)

- Rooftop solar fire incident investigations
- Installation failures caused by poor workmanship
- Quality assurance practices adopted by leading EPC contractors

Practical Demonstration:

- Installation inspection checklist
- Safety audit procedures
- Identification of installation defects

Session 5: Operation, Maintenance and Performance Monitoring

Topics:

- Pre-commissioning and commissioning procedures
- Preventive and corrective maintenance
- Performance monitoring and analysis
- Fault detection and troubleshooting
- Digital monitoring systems
- SCADA and remote monitoring platforms
- Performance ratio analysis
- Documentation and reporting requirements

Case Studies: (The list below is indicative and provided for reference purposes only. It may be revised or updated during the development and implementation of the training programmes.)

- Delhi Metro rooftop solar programme
- Cochin International Airport solar plant
- Large-scale rooftop solar portfolios managed by Indian utilities
- Performance optimisation and asset management practices

Practical Exercise:

- Analysis of actual generation reports, fault logs, inverter alarms, and maintenance records.

Work Package 2: Implementation of Training Programs

This work package entails the implementation of the training program, which consists of ten trainings. The duration of each training will be for two days. These ten trainings will be decided by GIZ (tentatively in Gujarat, Andra Pradesh, Telangana, Goa, Odissa, and Kerala). It is expected that the trainers will be available to travel on an as-needed basis. To ensure the effective delivery of the training program, two senior consultants will be required to travel for each training.

Deliverables:

Delivery of training: 10 trainings are to be delivered over a period of 14 months.

Note: Feedback will be gathered from participants at the conclusion of each training session, and any necessary modifications to subsequent trainings will be made based on this feedback. It should be noted that no additional person days will be allocated for modifications. To ensure that these modifications can be implemented without requiring additional person days, the contractor is advised to utilize the allotted person days judiciously.

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

- Inception report
- Contributions to reports to GIZ's commissioning party
- Brief quarterly or half-yearly reports on the implementation status of the project

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

Milestones/process steps/partial services	Tasks	Deadline
Work Package 1	Material Preparation	15 th September 2026
	Training program 1,2,3	15 th November 2026
	Training program 4,5,6	30 th December 2026
	Training program 7,8,9	29 th January 2027
	Training program 10,11,12	28 th February 2027

Work Package 2	Training program 13,14,15	15 th April 2027
	Training program 16,17,18	15 th May 2027
	Training program 19,20,21	15 th June 2027
	Training program 22,23,24	15 th July 2027
	Training program 25,26,27	15 th August 2027
	Training program 28,29,30	15 th October 2027

Period of assignment: from August 2026 until 30th December 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 lists 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 3.3.1 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. Criteria for Eligibility of firms

I. Commercial Eligibility

- The agency must be legally registered in India.
- The agency must submit "Compliance declaration" – Refer Annexure.
- Minimum average annual turnover of 60,000 EUR for the last three financial years {last-but- four financial can be included in case of invitation to tender held within six months of end of last financial year. (All conversion rates must be taken from Info-euro site: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-inr.en.html)
- The average no. of managers & employees from past three calendar years must be 12.

II. Technical Eligibility

- At least 2 reference projects on delivering training programs on rooftop solar for DISCOMs and state nodal agencies and at least one reference project in India in the last 36 months with a minimum commission 8,000 EUR

III. Weighted Criteria

1. Technical Experience

- At least **two reference projects** in rooftop solar implementation support, DISCOM advisory, PMU services, or consumer awareness programs in India during the last three years with a minimum commission 8,000 EUR.
- Demonstrated experience of the following:
 - RTPV scheme policy and regulations
 - Design and technical aspects of roof top solar
 - Operational, maintenance and safety of solar roof top PV

2. Regional Experience - The agency must have regional experience in India

Please refer document "Grid for Eligibility of consulting firms" and its Annex (2A) for details. The documentary evidence of the criteria listed above must be submitted as per Annex A of bidding conditions.

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, in particular identifying the need for short-term assignments within the available budget, as well as planning and steering assignments and supporting Experts
- Regular reporting in accordance with deadlines

Qualifications of the team leader

- Education/training (2.1.1): Master's degree in science, engineering, or management from a recognized university
- Language (2.1.2): C1-level language proficiency in English language
- General professional experience (2.1.3): 6 years of professional experience in the Renewable energy sector
- Specific professional experience (2.1.4): 3 years of experience in the following areas:
 - Knowledge of solar PV system as per WP 1.
 - Knowledge of business operation, latest technologies or policy initiatives of renewable sector in India
 - Design and conduct of capacity building programs for key stakeholders in the renewable energy ecosystem
- Leadership/management experience (2.1.5): 2 years of management/leadership experience as project team leader or manager in a company

Key expert 1

Tasks of key expert 1

- Responsible for designing and delivery of the lectures

Qualifications of key expert 1

- Education/training (2.2.1): Master's degree in science, engineering, or management from a recognized university
- Language (2.2.2): C1 -level language proficiency in English language
- General professional experience (2.2.3): 5 years of professional experience in the renewable energy sector.

- Specific professional experience (2.2.4): 3 years of specific experience in the operation and maintenance of solar PV systems, safety aspects, pre-commissioning and post-commissioning of solar projects etc.
- Regional experience (2.2.5): 3 years of experience in working with Indian DISCOMs / state nodal agencies / Ministries / Departments.

Key expert 2

Tasks of key expert 2

- Responsible for designing and delivery of the lectures

Qualifications of key expert 2

- Education/training (2.3.1): Master's degree in science, engineering, or management from a recognized university
- Language (2.3.2): C1 -level language proficiency in English language
- General professional experience (2.3.3): 5 years of professional experience in the renewable energy sector.
- Specific professional experience (2.3.4): 3 years of specific experience in policy, regulatory frameworks, and consumer awareness for rooftop solar, along with experience in designing training materials, manuals, or SOPs.
- Regional experience (2.3.5): 3 years of experience in working with Indian DISCOMs / state nodal agencies / Ministries / Departments.

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

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 2024/2025 \(GERMAN ONLY\)](#)).

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 a 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
Team Leader	1	20	20	
Key Expert-1	1	70	70	
Key Expert-2	1	70	70	
Travel expenses	Quantity	Number per expert	Total	Comments
Per-diem allowance in country of assignment	120	60	120	Only key experts-1 and 2 will travel for implementing the training programs. Lump sum based
Overnight allowance in country of assignment	60	30	60	Consultant needs to provide evidence for Overnight allowance
Transport	Quantity	Number per expert	Total	Comments
Domestic flights	60	30	60	Flights within the country (India) of assignment during service delivery
CO ₂ compensation for air travel	60	30	30	

Link to working aid and table for determining the budget and Guidance for GIZ service providers on avoiding, reducing and offsetting GHG emissions on setting the budget.				
Travel expenses (train, car)	80	N.A	80	Travel within the country (India) of assignment, transfer to/from airport etc.
Other costs	Number	Price	Total	Comments
Flexible remuneration	1	N.A	N.A	A budget of 10% 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.

Workshops, events and trainings

The Consultant shall be responsible for designing, preparing, and delivering 30 one-day training programmes for State DISCOMs and State Nodal Agencies across PAN India. The proposed states include Andhra Pradesh, Goa, Gujarat, Jammu & Kashmir, Karnataka, Kerala, Sikkim, Tamil Nadu, and Telangana; however, the final list of states may be revised based on project requirements and mutual agreement with GIZ. GIZ shall be responsible for arranging the training venue and providing refreshments/food for all participants.

6. 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 organised 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 24 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. The 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.