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0. List of abbreviations

AVB General Terms and Conditions of Contract (AVB) for supplying services and work 2020

ToRs Terms of reference

Installer Company empanelled by GIZ for the design, manufacturing and installation of the PV Port system

CEA Central Electricity Authority

GCRT Grid Connected Solar Rooftop

GW Giga Watt

MW Mega Watt

MNRE Ministry of New and Renewable Energy

General information

a. Brief information on the project

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is a German Government enterprise that provides services in the field of international development cooperation worldwide. Under the Indo-German technical cooperation, Government of Germany is cooperating with India under the project "Indo German Solar Partnership - PV rooftop". The project is financed by Federal Ministry of Economic Cooperation and Development (Germany) and implemented by GIZ in partnership with Ministry of New and Renewable Energy (MNRE). The project aims to help establish a technically and economically efficient, as well as a socially and environmentally sustainable power supply on a large scale in India.

b. Context

India had set an ambitious target for installing 100 GW of Solar Systems by the year 2022. Out of this target of 100 GW, 40 GW of Grid Connected Solar Rooftop (GCRT) are proposed to be installed. At present the installed capacity of GCRT in the country is around 5000 MW.
The proliferation of rooftop solar systems is required to achieve the target set by the Indian Govt. Such large capacity addition can occur when the photovoltaic systems are installed through a mass movement. It has also been observed in many countries across the world that the advantage of distributed solar rooftop is when the installations are in the premises of a consumer and when solar is distributed across the network of a distribution company. In this regard, GIZ has also been requested by MNRE to come out with a standardized GCRT/ distributed solar solution which will be able to address the concerns of consumer, DISCOMs and other stakeholders in the country.

Accordingly, GIZ has developed the concept of a new type of rooftop solar power plant called "PV Port". A PV Port system is a standard plug-n-play photovoltaic system having a system size of a minimum of 2 kWp with or without battery storage.

More than 50 prototypes of PV Port & Store are being installed in India for the proof of concept. Under a separate assignment, GIZ has empanelled an installer to manage the procurement, installation, and maintenance of a mix of 2 versions of PV port to be installed as demonstration projects at different locations across 2 cities i.e. Gandhinagar and Dwarka in Gujarat.

Under the said assignment, 40 [Forty] PV port systems are proposed to be installed in the following ratios:

PV Port Version	Description	Gandhinagar	Dwarka	TOTAL
Version 1	Grid Connected (without storage and benches)	**5**	**5**	10
Version 2	Off - Grid (with storage and benches)	**15**	**15**	30
TOTAL		20	20	40

GIZ is releasing this TOR with an aim to hire an engineering consultant for "Design validation, testing and commissioning" of the 40 PV port systems proposed to be installed in Dwarka and

Gandhinagar in Gujarat. Additionally, the consultant will be required to undertake the performance monitoring for a period of 1 year to meet the specific conditions and requirements of GIZ.

The detailed design and other details of the PV Port system will be shared with the selected installer.

c. **GIZ shall hire the contractor for the anticipated contract term, from 18 months of the signing of the contract (May 2021– November 2022).**

d. **The contractor shall provide the following work/service:**

The detailed scope of work shall be carried out under the following two work packages. The tasks to be performed under each work package and deliverables to be achieved is defined below:

Work Package 1

Deployment of 40 PV Port – The consultant is responsible for coordination with the empanelled installer and the german consultant for overseeing the installation of 40 PV port systems across the cities of Dwarka and Gandhinagar in Gujarat. The detailed tasks under this work package is mentioned below:

Task 1: Testing of the prototype PV Port

The GIZ empaneled installer will deploy 2 projects to demonstrate the features before the dispatch and subsequent installation of the 40 PV Port Systems. The consultant will undertake the testing of the demonstration projects to assess the performance and identify any shortcomings.

The consultant will coordinate with the installer and German Consultant for testing of the prototype PV ports on field/ manufacturer premises /testing centre in India. The consultant shall develop and evaluate the test reports for all the functionality and submit the same to GIZ. The consultant to ensure that the PV ports meet the technical standards, parameters and performance standards as defined by GIZ/ SERC/ Local DISCOM.

Task 2: Testing & Inspection of PV Port System

After the deployment of the PV Ports by the Installer, the consultant through physical site visits is required to undertake the testing and inspection of the deployed PV Port systems. The consultant will undertake detailed testing of all 40 PV Port systems to assess the performance and identify shortcomings.

The consultant will coordinate with the installer for testing the installed PV ports in field. The consultant shall develop and evaluate the test reports for all the functionality and submit the same to GIZ. The consultant to ensure that the PV ports meet the technical standards, parameters and performance standards as defined by by GIZ/ SERC/ Local DISCOM.

Task 3: Coordination with Stakeholders

During the project implementation, whenever required, the consultant will coordinate with stakeholders including GUVNL, GEDA, Municipal Corporations etc. for the providing information related to PV Ports, selection of sites and proliferation of PV Port Systems.

Certain milestones, as laid out in the table below, are to be achieved by certain dates during the contract term, and at particular locations:

Milestone/ Deliverable	**Deadline/place/person responsible**
Submission of test reports for the 2 prototype PV Port system based on the detailed testing undertaken.	10 days from the intimation from the installer regarding the development of prototype systems
Commissioning of the 40 PV Port systems Submission of the test reports for 40 PV Port systems based on the detailed testing undertaken.	20 days from the intimation from the installer regarding the completion of installation activity.

Work Package 2

Capacity building, cost discovery and performance assessment.

Task 1 – Capacity Building

As the GIZ empaneled installer is responsible for the O&M for 1 year, the contractor along with Installer is required to train the nodal persons of the sites where the PV Ports are installed. The training (on/off field) should capture subjects such as 'about PV Ports', its components, its operation, and maintenance activities etc. This would enable the nodal persons of the sites to operate and maintain the systems on their own after the defined O&M period by the installer. Additionally, the contractor in association with the installer to develop and design training handbook/ manuals (maximum 25 pages) for the nodal persons of the sites. The contractor shall print and submit one copy of the handbook/ manual per site during the training session.

Task 2: Performance Assessment

The consultant shall be responsible for monitoring the performance of system for a period of one year from the date of commissioning of the system.

The contractor would be required to assess the performance using desktop study and also undertake site visits to identify any disruption or reasons for low performance.

The contractor to submit the quarterly reports (once in 3 months) on the performance of the PV Port systems. The report should map the following: System wise generation, benchmarking of the systems, activities undertaken by the installer under the preventive and curative maintenance (review of the O&M reports by the installer), abnormal activities, rectification required etc.

Milestone/ Deliverable	**Deadline/place/person responsible**
Training Workshop(s) for the nodal officers of the sites.	20 days from the commissioning of the systems.
Submission of the quarterly performance reports (minimum 4 reports to be submitted).	For 1 year from the system commissioning date

Other specific requirements

The consultant shall coordinate with GIZ empanelled installer, German consultant and other stakeholders during the deployment of the 40 PV Port systems.

Tender requirements

1. Qualifications of proposed staff

1.1 ***Expert 1:***

1.1.1 **General qualifications Education:** University qualification (Master) in Science/Electrical/Business administration and bachelor's in engineering

Professional experience: 10 years of professional experience in the Renewable Energy Sector

1.1.2 **Experience in the region/knowledge of the country:** Experience in development of or training on PV Ports systems in Gujarat, India

1.1.3 **1.1.3 Language skills:** Ability to fluently communicate and very good business language skills in English (Level C1 in the Common European Framework of Reference for Languages)

1.2 Expert 2:

1.2.1 **General qualifications Education:** University qualification (Master) in Science/Electrical/Business administration and bachelor's in engineering

Professional experience: 06 years of professional experience in the Renewable Energy Sector

1.2.2 **Experience in the region/knowledge of the country:** Experience in development of or training on PV Ports systems in Gujarat, India

1.2.3 **Language skills: business fluency in** Ability to fluently communicate and very good business language skills in English (Level C1 in the Common European Framework of Reference for Languages)

2. Specification of inputs

Fee days	**Number of experts**	**Number of days per expert**	**Comments**
• Preparation/debriefing	2	20	
• Implementation	2	30	
Travel expenses	**Number of experts**	**Number of days/nights per experts**	**Comments**
• Per-diem allowance in country of assignment	2	14	

• Overnight allowance in country of assignment	2	14	
• Travel costs (train, private vehicle)	2	16	Includes both intercity and Intracity travel
Flights	**Number of experts**	**Number of flights per experts**	**Comments**
• International flights	0	0	
• Domestic flights	2	2	
Other costs	**Number of experts**	**Amount per experts**	**Comments**
NA			

Calculate your financial bid exactly *in line with the quantitative requirements of the specification of inputs above. There is no contractual right to use up the full days/travel or workshops or budgets. The number of days/travel/workshops and the budgets will be contractually agreed as* ***maximum amounts****. The regulations on pricing are contained in the price sheet.*

Note:

If restrictions are introduced to combat coronavirus/COVID-19 (restrictions on air travel and travel in general, entry restrictions, quarantine measures, etc.), GIZ and the contractor are obliged to make adjustments to their contractual services to reflect the changed circumstances on the basis of good faith; this may involve changes to the service delivery period, the services to be delivered and, if necessary, to the remuneration.

3. Payment Schedule

Following shall be the payment schedule for the scope under the tender which has to be performed by the Engineering Consultant:

S. No.	Deliverables	Payment as percentage of consulting contract fee	Month
1	Advance	40%	After signing of the contract
2	Commissioning of 40 PV Port. Submission of the test reports for 40 PV Port systems based on the detailed testing undertaken.	50%	Within 6 months after signing of the contract
3	Submission of the performance reports for 40 PV Ports every quarter for a total duration of 1 year from the commissioning date.	10%	Within 18 months after signing of the contract
Total		100%	