**ANNEX B**

**TERMS OF REFERENCE (TOR)**

**Long Term Arrangement for the Procurement of Goods, Works and Services for the Installation, Commissioning, and Operation of Grid-Connected Solar PV Systems at UNICEF Facilities**

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# **Background of Requested Services**

## **1.1 The Mission of UNICEF**

UNICEF promotes the rights and wellbeing of every child, in everything we do. Together with our partners, we work in 190 countries and territories to translate that commitment into practical action, focusing special effort on reaching the most vulnerable and excluded children, to the benefit of all children, everywhere.

## **1.2 Purpose and Objective**

**Foreword:** Since 2015, UNICEF has been solarizing its facilities by purchasing solar PV (photovoltaics) systems from service providers, as of now about 69 facilities have been solarized.

Based on the initial success of the UNICEF Solar PV Initiative, UNICEF is looking forward to scaling up solar PV based electricity services in other facilities across the globe to truly make an impact at the technological, environmental, business innovation, and Sustainable Development Goals levels.

**Purpose:** The **“Solar PV Systems at UNICEF Facilities-Project (The Project)**”, is interested in the procurement of goods, works and services for the installation, commissioning, and operation of grid-connected Solar PV Systems at UNICEF Facilities, including Head Quarters, Country Offices, and other facilties at Regional Level. The list of regions and countries are included in **Appendix 8**.

Through the Request for Proposals for Services (RFPS) process, UNICEF wishes to sign Long Term Arrangements (LTAs) with multiple service providers for an initial period of three (3) years with possibility of extensions for two (2) additional periods of two (2) years each (“3+2+2 years”), at the discretion of UNICEF and subject to satisfactory performance by the service providers to deliver the required solar PV systems and services. An LTA is a contractual framework in which UNICEF and the selected service providers agree on a list of services, the conditions of their delivery, and their prices for a defined period.

Specific details of this Request for Proposals (RFP) can be found in the following list of documents within this TOR document:

(i) Appendix 1: SERVICE PROVIDER’S INFORMATION FORM – to be completed by the Service Provider

(ii) Appendix 2: SERVICE PROVIDER’S LEGAL REQUIREMENTS CHECKLIST – to be completed by the Service Provider

(iii) Appendix 3: SERVICE PROVIDER’S PROJECT REFERENCE INFORMATION SHEET – to be completed by the Service Provider

1. Appendix 4: EVALUATION CRITERIA

(v) Appendix 5A – 5P: PRICE SCHEDULES - FIXED-RATE COST FOR THE LTA (Enclosed as separate document) – to be completed by the Service Provider

(vi) Appendix 6: GUIDELINES ON TECHNICAL COMPLIANCE – the Key Technical Guidance Part 2 to be completed by the Service Provider

(vii) Appendix 7: UNICEF TECHNICAL REQUIREMENTS (Enclosed as separate document)

(viii) Appendix 8: LIST OF REGIONS AND COUNTRIES WITH UNICEF PROGRAMS

(ix) Appendix 9: SCENARIO-BASED REQUIREMENTS FOR THE DESIGN AND COSTING OF THE SOLAR PV SYSTEM (Enclosed as separate document)

(x) Appendix 10 (A&B): SCENARIO-BASED PRICE PROPOSAL (Enclosed as separate document) – to be completed by the Service Provider

**Objective:** The Project aims to introduce solar PV power into the energy mix of UNICEF’s administrative facilities, to reduce generation costs, increase sustainability, while reducing carbon footprint in line with UN’s Sustainable Development Goals (SDG’s).

**UNICEF’s Administrative Facilities:** Are located worldwide and administratively organized in 8 regions (Refer to **Appendix 8**, Tables A8.1; A8.2; A8.3; A8.4; A8.5; A8.6; A8.7; and A8.8, include the list of countries in each one of the 8 regions, where UNICEF offices are located).

The following is the list of regions:

**REGIONS: ACCRONYM: APPENDIX 8 TABLE:**

1. R1: Middle East and North Africa Region: MENAR A8.1
2. R2: South Asia Region: SAR A8.2
3. R3: Western and Central Africa Region: WCAR A8.3
4. R4: East Asia and the Pacific Region: EAPR A8.4
5. R5: Eastern and Southern Africa Region: ESAR A8.5
6. R6: Europe and Central Asia Region: ECAR A8.6
7. R7: Latin America and Caribbean Region: LACR A8.7
8. R8: Headquarter Locations: HQ A8.9

**Definition of “LOTS”:** Following the scope of this RFPS, the mentioned Solar PV Systems for UNICEF’s administrative facilities are expected to be purchased and operated under the below LOTs which are differentiated based on the commercial modalities (“Solar PV Leasing Services” and “Other Solar PV Alternative Financial Options”) and regions**. Interested service providers can propose to provide services for one or more of the LOT/s**, clearly indicating the service area coverage below that they are interested in. **Proposal for each LOT must be submitted separately.**

**Table 1: List of LOTs**

|  |  |  |
| --- | --- | --- |
| **No.** | **REGION** | **LOT** |
| 1 | R1: Middle East and North Africa Region (MENAR) | LOT 1: Solar PV Leasing Services for Middle East and North Africa Region  LOT 2: Other Solar PV Alternative Financial Options for Middle East and North Africa Region |
| 2 | R2: South Asia Region (SAR) | LOT 3: Solar PV Leasing Services for South Asia Region  LOT 4: Other Solar PV Alternative Financial Options for South Asia Region |
| 3 | R3: Western and Central Africa Region (WCAR) | LOT 5: Solar PV Leasing Services for West and Central Africa Region  LOT 6: Other Solar PV Alternative Financial Options for West and Central Africa Region |
| 4 | R4: East Asia and the Pacific Region (EAPR) | LOT 7: Solar PV Leasing Services for East Asia and the Pacific Region  LOT 8: Other Solar PV Alternative Financial Options for East Asia and the Pacific Region |
| 5 | R5: Eastern and Southern Africa Region (ESAR) | LOT 9: Solar PV Leasing Services for Eastern and Southern Africa Region  LOT 10: Other Solar PV Alternative Financial Options for Eastern and Southern Africa Region |
| 6 | R6: Europe and Central Asia Region (ECAR) | LOT 11: Solar PV Leasing Services for Europe and Central Asia Region  LOT 12: Other Solar PV Alternative Financial Options for Europe and Central Asia Region |
| 7 | R7: Latin America and Caribbean Region (LACR) | LOT 13: Solar PV Leasing Services for Latin America and Caribbean Region  LOT 14: Other Solar PV Alternative Financial Options for Latin America and Caribbean Region |
| 8 | R8: Headquarter Locations (HQ) | LOT 15: Solar PV Leasing Services for Headquarter Locations (North America, Western Europe, etc.)  LOT 16: Other Solar PV Alternative Financial Options for Headquarter Locations (North America, Western Europe, etc.) |

Further explanation on the requested commercial modalities schemes for “Solar PV Leasing Services” and for “Other Solar PV Financial Options” are described in Table 2; Table 3; and Table 4 below.

**Table 2: Solar PV Leasing Services at UNICEF Facilities per Region**

|  |  |  |
| --- | --- | --- |
| **No.** | **Item** | **Comment** |
| 1 | **FOR EACH REGION:**  **LOT “Solar PV Leasing Services”** | 1. Please submit a description of the technical and commercial content of what the “Solar PV Leasing Services” Model would include 2. Please submit a sample leasing agreement |
|  | **Description** |  |
| **2** | **Solar PV Leasing with monthly payments:**  Ownership remains with the service provider until the end of the lease, payments are through monthly invoicing, and includes operation and maintenance by service provider. At the end of the lease period, the ownership of the solar PV system is transferred to UNICEF against payment of a rest value agreed within the contract for leasing services. |  |
| **3** | **Regular Solar PV Leasing with flexible durations:** No transfer of ownership is expected (but it could be possible), includes operation and maintenance (O&M) by the service provider. The end of lease is flexible since the length does not have to fully amortize the asset. |  |

**Table 3: Solar PV Other Financial Options at UNICEF Facilities per Region**

|  |  |  |
| --- | --- | --- |
| **No.** | **Item** | **Comment** |
| 1 | **FOR EACH REGION:**  **LOT “Other Solar PV Alternative Financial Options”** | 1. Please submit a description of the technical and commercial content of what the “Other Solar PV Alternative Financial Options” would include. 2. Please submit a sample leasing agreement for UNICEF review. 3. Other options may be, but not limited to: 4. Financing by deferred payments 5. Capital expense (CAPEX) 6. Extended letter of credit 7. Other options |
|  | **Description** |  |
| 2 | **Financing by deferred payments:** Ownership of the solar PV system is transferred to UNICEF from Day 1 after successful commissioning, includes operation and maintenance by the service provider, until the end of the contract, and UNICEF would continue the ownership and benefit from the continued PV production at no monthly costs. In this case, the service provider is providing the solar PV system as a form of credit to UNICEF. In case of termination of contract, UNICEF commits to redeem the residual value for the remaining contractual period. |  |

**Table 4: Additional SAMPLE Documents to be Included in LOT “Solar PV Leasing Services” and**

**LOT “Other Solar PV Alternative Financial Options” for each region**

|  |  |  |
| --- | --- | --- |
| **No.** | **Item** | **Comment** |
| 1 | PROVIDE SAMPLES OF:  Projects that provide similar service as per UNICEF requirements including information on the contract scope, contract period, and the value of the Contract as well as reference on the kWh of electricity/ energy produced for the contract period or life of the product   * Indicate: country, geo-location, capacity of solar system; tenor; Performance Ratio; Energy Yield; and year of installation. | Please include a description of the content of:  (a) "insurance agreements would cover"; and  (b) application of the defect liability, within a defined period of time. |
| 2 | PROVIDE SAMPLE:  Insurance Package | Please include a description of the content of:  (a) "insurance agreements would cover"; and  (b) application of the defect liability |
| 3 | PROVIDE SAMPLE:  Long Term Service Agreement (LTSA) for Operation and Maintenance (O&M) of the solar PV system | Please include a description of the LTSA content |
| 4 | PROVIDE SAMPLE:  Guarantee of the Performance Ratio (PR) | Please include a description of the guarantee |
| 5 | PROVIDE SAMPLE:  Guarantee of the Energy Yield (EY) | Please include a description of the guarantee |
| 6 | PROVIDE SAMPLE:  Guarantee of Plant Availability (PA) | Please include a description of the guarantee |

**Delivering of Proposals:** The service providers shall deliver their (i) Technical Proposals and (ii) Financial Proposals based on the particular region of their expertise and experience. **The Technical Proposals should be submitted in a separate document from the Financial Proposal and should not contain any pricing information**. Each service provider is free to deliver proposals for any preferred region/s or for all regions for the Solar PV Leasing services and/or the Other Solar PV Alternative Financial Options. **Proposal for each LOT (refer to page 4 of this TOR) must be submitted separately**, as the evaluations would be completed separately against the requirement indicated in this TOR. The LTA/s will be awarded on a LOT by LOT basis.

The technical proposal should address all aspects and criteria outlined in this Terms of Reference, as well as the Chapter 2 – Qualification and Evaluation Criteria (page 11). It also includes service provider’s response to Appendix 9: Scenario-Based Requirements for the design and costing of the solar PV system. Service providers are expected to provide their financial proposal including but not limited to the areas mentioned in the Price Schedules (Appendix 5 of the RFP), including the price proposal template related to the scenario-based requirements (Appendix 10).

**Note on Countries:** when submitting the proposals, the service providers shall explain for which countries within each of the eight (8) regions their proposal specifically will apply (as it is understood that not every country within the region may be served by the service providers).

## **1.3 UNICEF Responsibilities**

UNICEF shall have no obligation to provide any assistance to the selected service provider in performing the services other than as expressly set forth herein:

* Provide information and feedback in a timely manner and the appointed service provider’s requests for information and feedback are also made to UNICEF within reasonable time.
* Provide the appointed service provider with reasonable and timely access to UNICEF’s personnel as may be required to perform the services.
* Provide the appointed service provider’s personnel with physical access (where applicable) to the necessary work area and equipment and any required identification badges and pass codes before work commences.
* A single point of contact responsible for representing UNICEF and assisting with the decision-making process regarding the engagement.

## **1.4 Scope of Supply of Technical Schemes for the Solar PV Systems**

**Foreword:** The outcome of this RFPS process, UNICEF will select multiple experienced service providers of solar PV systems and services for signing LTAs for a defined period. After signature of the LTAs and during the Project Implementation Phase, UNICEF will request specific technical[[1]](#footnote-2) and financial offers/quotations (from those provider(s) under the LTAs or so called the LTA holders), for furnishing the specific UNICEF facilities with solar PV systems, as described under paragraph 1.2 above.

**LTA Implementation:** UNICEF shall provide specific requirements and time frames for each task for specific UNICEF Facilities, including Head Quarters, Country Offices, and other facilities at Regional Level when required and conduct mini competitions among the LTA holders. The LTA holders will respond to the mini competition using the terms and conditions agreed in the LTA and the agreed rate/fee stated in the LTA will be used to calculate the proposed cost for the specific task. Upon concluding the mini competition, an Institutional Contract will then be issued to the recommended LTA service provider.

UNICEF reserves the right to rescind the Arrangement during the LTA period should performance not meet its requirements. Under a Long Term Arrangement, UNICEF does not warrant that any quantity of services shall be purchased during the term of the Arrangement and is not bound to purchase any minimum amount of services. UNICEF reserves the right to utilize other sources at its discretion.

**Scope at Implementation Stage:** The cost of the generated unit of solar electricity in US-Dollar -cent per kWh will be calculated once:

1. UNICEF administrative facilities have confirmed their willingness to install solar PV in their facilities;
2. UNICEF has provided all requested data needed for conducting the solar PV and electromechanical/civil engineering design.

**Latest Technology:** All equipment used in connection with the Project shall be of proven design for the intended use of the equipment. As a general principle, the latest, commercially proven, most modern and up-to-date technologies will be selected with the objective of maximizing value to the UNICEF.

## **1.5 List of Components of the Solar PV Systems**

Tables 5 to Table 11 include the description of ranges of quantities at RFPS stage needed to benchmark products. In addition, please refer to **Appendix 6: Guidelines on Technical Compliance and Appendix 7: UNICEF Technical Requirements** to see details of the required technical specifications and schedules. For pricing, please refer to **Appendix 5: Price Schedules**.

**Table 5: Components of the Solar PV System: PV MODULES**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Item: 1**  **Range Solar PV Capacity**  **[kWp]** | **Item: 2**  **Solar PV Module**  **[Wp]** | **Item: 3**  **Solar PV Module**  **[Wp]** |
| 1 | 0- 100 | 400 | Other than 400Wp |
| 2 | 101- 200 | 400 |  |
| 3 | 201- 300 | 400 |  |
| 4 | 301- 400 | 400 |  |
| 5 | 401- 500 | 400 |  |
| 6 | 501- 600 | 400 |  |
| 7 | 601- 700 | 400 |  |
| 8 | 701- 800 | 400 |  |
| 9 | 801- 900 | 400 |  |
| 10 | 901- 1,000 | 400 |  |
| 11 | 1,001- 1,250 | 400 |  |
| 12 | 1,251- 1,500 | 400 |  |
| 13 | 1,501- 2,000 | 400 |  |
| 14 | 2,001- 2,500 | 400 |  |
| 15 | 2,501- 3,000 | 400 |  |

**Explanatory Note to Table 5:** The UNICEF project has a pipeline of initially selected solar PV systems, and more will come in the near future. But UNICEF cannot warrant any minimum quantity of services shall be purchased during the term of the arrangement and is not bound to purchase any minimum number of services. UNICEF reserves the right to utilize other sources at its discretion.

Item No 1: Different ranges of quantities for quotation of capacity of solar PV modules.

Item No. 2: The 1st proposed capacity to quote is 400 Wp

Item No. 3: As alternative, the SERVICE PROVIDER may propose any other PV power equal or above 400 Wp, however a capacity slightly below 400 Wp will be also accepted.

Freight (INCOTERMS):

International freight: The transportation and insurance costs between sea-port of deliver to sea-port of arrival will be quoted during the LTA implementation at the time of the mini competition, depending on the location of the agreed sites.

National freight: The transportation and insurance costs between sea-port of arrival and project site will be quoted during the LTA implementation at the time of the mini competition, depending on the location of the agreed sites.

**Table 6: Components of the Solar PV System: INVERTERS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Item: 1**  **Range Solar Inverter Capacity**  **[kW-AC]** | **Item: 2**  **Solar Inverter Capacity**  **[kW-AC]** | **Item: 3**  **Solar Inverter Capacity**  **[kW-AC]** | **Item: 4**  **Solar Inverter Capacity**  **[kW-AC]** |
| 1 | 0- 100 | 25 | 50 | Other than 25kW or 50kW |
| 2 | 101- 200 | 25 | 50 |  |
| 3 | 201- 300 | 25 | 50 |  |
| 4 | 301- 400 | 25 | 50 |  |
| 5 | 401- 500 | 25 | 50 |  |
| 6 | 501- 600 | 25 | 50 |  |
| 7 | 601- 700 | 25 | 50 |  |
| 8 | 701- 800 | 25 | 50 |  |
| 9 | 801- 900 | 25 | 50 |  |
| 10 | 901- 1,000 | 25 | 50 |  |
| 11 | 1,001- 1,250 | 25 | 50 |  |
| 12 | 1,251- 1,500 | 25 | 50 |  |
| 13 | 1,501- 2,000 | 25 | 50 |  |
| 14 | 2,001- 2,500 | 25 | 50 |  |
| 15 | 2,501- 3,000 | 25 | 50 |  |

**Explanatory Note to Table 6:** The UNICEF project has a pipeline of initially selected solar PV systems, and more will come in the near future. But UNICEF cannot warrant any minimum quantity of services shall be purchased during the term of the arrangement and is not bound to purchase any minimum number of services. UNICEF reserves the right to utilize other sources at its discretion.

Item No 1: Different ranges of quantities for quotation of capacity of solar PV inverters.

Item No. 2: The 1st proposed capacity to quote is 25 kW-AC

Item No. 3: The 2nd capacity to quote is 50 kW-AC

Item No. 4: As alternative, the SERVICE PROVIDER may propose any other inverter, (i) below 25 kW-AC, or (ii) in between 25 kW-AC and 50 kW-AC; or (iii) above 50 kW-AC.

Freight (INCOTERMS):

International freight: The transportation and insurance costs between sea-port of deliver to sea-port of arrival will be quoted during the LTA implementation at the time of the mini competition, depending on the location of the agreed sites.

National freight: The transportation and insurance costs between sea-port of arrival and project site will be quoted during the LTA implementation at the time of the mini competition, depending on site location.

**Table 7: Technical Services (based on 1 kWp): ENGINEERING AND DESIGN**

|  |  |
| --- | --- |
| **No.** | **Item: 1**  **Solar; Electrical, Mechanical,**  **Design & Engineering**  **[Units]** |
| 1 | 1- 10 |
| 2 | 11- 20 |
| 3 | 21- 30 |
| 4 | 31- 40 |
| 5 | 41- 50 |
| 5 | 51- 100 |

**Explanatory Note to Table 7:**

Item No 1: Different ranges of quantities for quotation of numbers of solar PV systems.

**Table 8: Components of the Solar PV System (based on 1 kWp): INSTALLATION KIT**

|  |  |
| --- | --- |
| **No.** | **Item: 1**  **Range Solar PV Capacity**  **[kWp]** |
| 1 | 0- 100 |
| 2 | 101- 200 |
| 3 | 201- 300 |
| 4 | 301- 400 |
| 5 | 401- 500 |
| 6 | 501- 600 |
| 7 | 601- 700 |
| 8 | 701- 800 |
| 9 | 801- 900 |
| 10 | 901- 1,000 |
| 11 | 1,001- 1,250 |
| 12 | 1,251- 1,500 |
| 13 | 1,501- 2,000 |
| 14 | 2,001- 2,500 |
| 15 | 2,501- 3,000 |

**Explanatory Note to Table 8:**

Item No 1: Different ranges of quantities for quotation of capacity of solar PV systems.

**Table 9: Items Included in each INSTALLATION KIT**

|  |  |
| --- | --- |
| **No.** | **Components of the Solar Connection Kit** |
| 1 | DC/AC Cables, Conduits & Cable Tray |
| 2 | Circuit Breakers, Panels & Labelling; Grounding, Lightning; other protections |
| 3 | Data Logging & Monitoring; Measurement |
| 4 | Combiner boxes; electrical boxes; other items |

**Table 10: Components of the Solar PV System (based on 1 kWp): SUPPORTING STRUCTURE**

|  |  |
| --- | --- |
| **No.** | **Item: 1**  **Range Solar PV Capacity**  **[kWp]** |
| 1 | 0- 100 |
| 2 | 101- 200 |
| 3 | 201- 300 |
| 4 | 301- 400 |
| 5 | 401- 500 |
| 6 | 501- 600 |
| 7 | 601- 700 |
| 8 | 701- 800 |
| 9 | 801- 900 |
| 10 | 901- 1,000 |
| 11 | 1,001- 1,250 |
| 12 | 1,251- 1,500 |
| 13 | 1,501- 2,000 |
| 14 | 2,001- 2,500 |
| 15 | 2,501- 3,000 |

**Explanatory Note to Table 10:**

Item No 1: Different ranges of quantities for quotation of capacity of solar PV modules.

**Table 11: Components of the Solar PV System: Battery Energy Storage System- BESS of 5 kWh\*- (unit-based) BESS MUST include charger and management system**

|  |  |
| --- | --- |
| **No.** | **Item: 1**  **BESS (including charger and management system)**  **[Units]** |
| 1 | 0- 10 |
| 2 | 11- 20 |
| 3 | 21- 30 |
| 4 | 31- 40 |
| 5 | 41- 50 |
| 6 | 51- 100 |

\*: BESS is composed by 1 block of 5kWh; or by different blocks adding together 5kWh

**Explanatory Note to Table 11:**

Item No 1: Different ranges of quantities for quotation of numbers of BESS systems.

## **1.6 Scope of Supply of the Financial Schemes for the Solar PV Systems**

**Definition of Financial Schemes:** Following the scope of this RFPS, the mentioned Solar PV Systems for UNICEF’s administrative facilities are expected to be purchased and operated following the below commercial modalities:

1. Solar PV Leasing Services, and/or
2. Other Solar PV Alternative Financial Options

**Data Evaluation:** The SERVICE PROVIDER shall include all requested data described in Table 2; Table 3; and Table 4 in Sub-Chapter 1.2 above.

Further, in the absence of targeted sites with all needed data where it is not possible to evaluate the “Solar PV Leasing Services” and “Other Solar PV Alternative Financial Options” on a standard basis, information received from the service providers that include, but not limited to, the below will be taken into considerations during the evaluation:

1. The information received as a response to Table 2; Table 3; and Table 4
2. The information received as a response to Appendix 9: SCENARIO-BASED REQUIREMENTS FOR THE DESIGN AND COSTING OF THE SOLAR PV and its correspondence SCENARIO-BASED PRICE PROPOSAL (Appendix 10).

# **Qualification and Evaluation Criteria**

The evaluation criteria will be split between technical and financial proposal with a weight of 70% for the technical and 30% for the financial proposals. The evaluation is carried out by, and in accordance with UNICEF’s regulations, rules, and practices. All determinations are made in UNICEF’s sole discretion. The Evaluation Team first reviews the technical aspect of the proposal for each LOT followed by the review of the financial proposal of those service providers who pass the technical evaluation for the respective LOT.

**Proposal for each LOT must be submitted separately as the evaluation for each LOT would be completed separately against the requirements as indicated in this Terms of Reference Sub-Chapter 1.2.** Following the submission of the proposals, UNICEF will carry out the evaluation in the following order:

## **2.1 Responsiveness and Eligibility Criteria**

The following criteria will be used to evaluate service provider’s responsiveness related to the requested financial models (Refer to Appendix 3: Service Provider’s Project Reference Information Sheet, which shall be duly filled out by the service provider submitting the proposal, and Appendix 4: Evaluation Criteria).

* + 1. **RESPONSIVE SOLAR PV LEASING (applicable ONLY for LOT 1, 3, 5, 7, 9, 11, 13, and 15):** The service providers are requested to submit at least two (2) project references related to solar PV engineering (distributed generation in residential, commercial and industrial sites); and at least two (2) project references related to PV leasing business as explained in Sub-Chapter 1.2 of this RFPS. The template for writing the above-requested references is included in **Appendix 3: Service Provider’s Project Reference Information Sheet.**
    2. **RESPONSIVE OTHER FINANCING OPTIONS RELATED TO SOLAR PV (applicable ONLY for LOT 2, 4, 6, 8, 10, 12, 14, and 16):** The service providers are requested to submit at least two (2) project references related to solar PV engineering (distributed generation in residential, commercial and industrial sites); and at least two (2) project references related to PV other financial options as explained in Sub-Chapter 1.2 of this RFPS. The template for writing the above-requested references is included in **Appendix 3: Service Provider’s Project Reference Information Sheet**
    3. **DOCUMENTATION LEASING (applicable ONLY for LOT 1, 3, 5, 7, 9, 11, 13, and 15):** The service providers shall submit all documentation requested in Sub-Chapter 1.2, Table 2 and Table 4.
    4. **DOCUMENTATION OTHER FINANCIAL OPTIONS (applicable ONLY for LOT 2, 4, 6, 8, 10, 12, 14, and 16):** The service providers shall submit all documentation requested in Sub-Chapter 1.2, Table 3 and Table 4.
    5. **FINANCIAL SOUNDNESS:** The service providers must submit copies of their audited financial statements (Balance Sheet; Income Statement; and Cash-Flow Statement) for the last two (2) years, to demonstrate their financial soundness.
       1. External resources available, i.e., network of suppliers, partnerships, and 3rd party alliances
       2. Company’s additional financial capability (other available working capital and/or credit line, but not mandatory if company financially strong)
       3. Description of their preferred insurance product providers
       4. Contractual references with their preferred insurance product providers
       5. Show their relationship with financial service providers including bank references.
    6. **LICENCE:** The service providers must be licensed for the supply, installation and maintenance of PV Systems in their country of origin. Accordingly supporting documents should be provided.
    7. **CONCEPT OF BEING RESPONSIVE:** The service provider shows solid exposure with solar PV engineering business and PV financing modalities.
    8. **CONCEPT OF NOT RESPONSIVE**: The service provider shows a limited or shallow exposure with the solar PV engineering business and PV financing and/or leasing businesses.

**Evaluation Criteria: PASS OR FAIL**

## **2.2 Technical Evaluation**

All qualified (responsive) services providers will then be evaluated under the following technical factors (Refer to Appendix 4: Evaluation Criteria):

* + 1. **DELIVERY SCHEDULE:** The service providers must propose the shortest possible period for supply and installation as well as having the required authorized network in the country/ies that the service providers are proposing to supply the service.
    2. **TECHNICAL COMPLIANCE:**
       1. Compliance with technical specifications
       2. Compliance with technical schedules
    3. **ENGINEERING:** The SERVICE PROVIDERS must show their solar and electrical engineering resources and capabilities available in the company.
    4. **TECHNICAL STAFF**: Service providers are expected to have enough qualified technical staff to perform supply, installation and other related services as required under the contract. Service providers must include to their Proposals resumes showing capacities, experience, years within the firm, years within the solar industry of the following minimum staff:
       1. A qualified project manager and a site engineer, who must have at least a B.Sc. in electrical engineering, mechanical engineering, or any related specialty with a minimum experience of 3 years in similar projects.
       2. A civil engineer/advisor held responsible for managing all structural and civil works on-site with at least a B.Sc. in civil engineering. To be the authorized body to provide the civil certificate for any civil construction work and building integrity.
       3. Qualified foreman and technicians with related experience of the project targets.
    5. **SCENARIO-BASED REQUIREMENTS (Appendix 9):** Quality of the draft design

**Note:** Only those proposals that score at least **49 points** (70% of the total technical score) **and above** will be considered technically compliant and will proceed to Financial Proposal Evaluation.

**TOTAL TECHNICAL SCORE: 70 points**

## **2.3 Financial Evaluation**

Price proposals (Appendix 5 and 10) will only be opened for the service providers that achieve the minimum technical score threshold of 49 points. Proposals meeting the threshold shall be checked for any arithmetic errors in computation and summation. The total allocation for the price component is 30 points (refer to: Appendix 4: Evaluation Criteria) which will be given to the lowest price financial proposal.

All other price proposals will receive points in inverse proportion to the lowest price following the below formula:

|  |
| --- |
| **Maximum score for price proposal \* Price of lowest priced proposal**  **Score for price proposal X = ------------------------------------------------------------------------------------------------------**  **Price of proposal X** |

**Note:** The scores attained by the service providers in the technical and financial evaluation will be combined to attain the overall score and the proposals will be ranked accordingly. Each Proposal will be evaluated against a weight allocation of 70% for the technical proposal evaluation and 30% for the financial proposal evaluation.

**The total maximum obtainable score is 100 points.**

# **Additional Documents to ANNEX B: Appendixes**

This part includes the following list of appendixes to the Terms of Reference:

**Appendix 1: Service Provider’s Information Form (to be completed by the service provider)**

**Appendix 2: Service Provider’s Legal Requirements Checklist (to be completed by the service provider)**

**Appendix 3: Service Provider’s Project Reference Information Sheet (to be completed by the service provider)**

**Appendix 4: Evaluation Criteria**

**Appendix 5A – 5P: Price Schedules - Fixed-Rate Cost for the LTA (enclosed as a separate document) - to be completed by the service provider**

**Appendix 6: Guidelines on Technical Compliance (to be completed by the service provider)**

**Appendix 7: UNICEF Technical Requirements (enclosed as a separate document)**

**Appendix 8: List of Countries with UNICEF Programs**

**Appendix 9: Scenario-Based Requirements for the Design and Costing of the Solar PV System (enclosed as a separate document)**

**Appendix 10 (A&B): Scenario-Based Price Proposal** **(to be completed by the service provider) - enclosed as a separate document**

**Appendix 11: Check List of Document/ Information that need to be provided by the service provider when submitting their proposal for this RFPS**

## **Appendix 1: SERVICE PROVIDER’s Information Form**

Submission for LOT: \_\_\_\_\_\_\_\_\_\_[Insert the LOT number as per Page 4 of the TOR. Proposal for each LOT must be submitted separately]

Date: *[insert date (as day, month and year) of Bid submission*]

Page \_\_\_\_\_\_\_\_ of\_ \_\_\_\_\_\_ pages

|  |
| --- |
| 1. SERVICE PROVIDER’s Name *[insert SERVICE PROVIDER’s legal name]* |
| 2. SERVICE PROVIDER’s actual or intended country of registration: *[insert actual or intended country of registration]* |
| 3. SERVICE PROVIDER’s year of registration: *[insert SERVICE PROVIDER’s year of registration]* |
| 4. SERVICE PROVIDER’s Address in country of registration: *[insert SERVICE PROVIDER’s legal address in country of registration]* |
| 5. SERVICE PROVIDER’s tax payer ID number: |
| 6. SERVICE PROVIDER’s Authorized Representative Information  Name: *[insert Authorized Representative’s name]*  Address: *[insert Authorized Representative’s Address]*  Telephone/Fax numbers: *[insert Authorized Representative’s telephone/fax numbers]*  Email Address: *[insert Authorized Representative’s email address]* |

Signature of the SERVICE PROVIDER’s Authorized Representative:

Date:

## **Appendix 2: SERVICE PROVIDER’s Legal Requirements Checklist**

Submission for LOT: \_\_\_\_\_\_\_\_\_\_[Insert the LOT number as per Page 4 of the TOR. Proposal for each LOT must be submitted separately]

The SERVICE PROVIDERS shall complete the following Legal Requirements checklist and submit it with **their technical proposals:**

| **Description** | **Your response** | | **Comments** |
| --- | --- | --- | --- |
| **Legal Requirements** | **Yes** | **No** |  |
| UNICEF General Terms and Conditions for Services have been reviewed and are fully acceptable.  **Note**: Please note that changes to UNICEF’s General Terms and Conditions will be **viewed less favourable and may result in your proposal not being selected for award**. Likewise, notification of intend of award to a service provider does not mean UNICEF’s acceptance of deviations or modifications on UNICEF GTC’s as proposed by service provider. |  |  |  |

## **Appendix 3: SERVICE PROVIDER’s Project Reference Information Sheet**

Submission for LOT: \_\_\_\_\_\_\_\_\_\_[Insert the LOT number as per Page 4 of the TOR. Proposal for each LOT must be submitted separately]

Please provide the following contact information for each client reference submitted (Please expand the form if needed).

**PROJECT REFERENCE**

|  |  |
| --- | --- |
| **Company Name:** |  |
| **Contact Name and Title:** |  |
| **Phone:** |  |
| **E-mail:** |  |
| **Address:** |  |
| **Value of Contract:** |  |
| **Company Size 1 (number of employees)** |  |
| **Industry/Market Sector (private, public, non-for profit).** |  |
| **Duration of the services (months):**  **Start date (month/year):**  **Completion date (month/year):** |  |
| **Detailed description of the actual services provided by your company for this client:** | |

## **Appendix 4: Evaluation Criteria**

**Table A4.1: Evaluation of Responsiveness and Eligibility Criteria**

|  |  |  |
| --- | --- | --- |
| **No.** | **Description** | **Pass**  **Yes/No** |
| 1 | **RESPONSIVE SOLAR PV LEASING (applicable ONLY for LOT 1, 3, 5, 7, 9, 11, 13, and 15):** Two (2) project references related to solar PV engineering (distributed generation in residential, commercial and industrial sites) and at least two (2) project references related to PV leasing business (the template for writing these references is included in **Appendix 3**). |  |
| 2 | **RESPONSIVE OTHER FINANCING OPTIONS RELATED TO SOLAR PV (applicable ONLY for LOT 2, 4, 6, 8, 10, 12, 14, and 16):** Two (2) project references related to solar PV engineering (distributed generation in residential, commercial and industrial sites) and at least two (2) project references related to PV other financial options (the template for writing these references is included in **Appendix 3).** |  |
| 3 | **DOCUMENTATION LEASING (applicable ONLY for LOT 1, 3, 5, 7, 9, 11, 13, and 15):** The service providers shall submit all documentation requested in Sub-Chapter 1.2, Table 2 and Table 4. |  |
| 4 | **DOCUMENTATION OTHER FINANCIAL OPTIONS (applicable ONLY for LOT 2, 4, 6, 8, 10, 12, 14, and 16):** The service providers shall submit all documentation requested in Sub-Chapter 1.2, Table 3 and Table 4. |  |
| 5 | **FINANCIAL SOUNDNESS:** Submit copies of audited financial statements (Balance Sheet; Income Statement; and Cash-Flow Statement) for the last two (2) years. |  |
| 6 | External resources available, i.e., network of suppliers, partnerships, and 3rd party alliances. |  |
| 7 | Company’s additional financial capability (other available working capital and/or credit line, but not mandatory if company financially strong). |  |
| 8 | Description of the service providers preferred insurance product providers, including contract references. |  |
| 9 | The service providers relationship with financial service providers and bank references. |  |
| 10 | **LICENCE:** License for the supply, installation and maintenance of PV Systems in the country of origin. Evidence of supporting document to be provided |  |
|  | **FINAL** | **Pass/ Fail** |

**Table A4.2: Evaluation of the Technical Proposal**

|  |  |  |
| --- | --- | --- |
| **No.** | **Description** | **Points** |
| 1 | **DELIVERY SCHEDULE:** The service providers must propose the shortest possible period for supply and installation as well as having the required authorized network in the country/ies that the service providers are proposing to supply the service. | **5** |
| 2 | **TECHNICAL COMPLIANCE 1:** Compliance with technical specifications | **10** |
| 3 | **TECHNICAL COMPLIANCE 2:** Compliance with technical schedules | **10** |
| 4 | **ENGINEERING:** The service providers must show their solar and electrical engineering resources and capabilities available in the company | **10** |
| 5 | **TECHNICAL STAFF:** Service providers are expected to have enough qualified technical staff to perform supply, installation and other related services as required under the contract. Service providers must include into their proposals resumes showing capacities, experience, years within the firm, years within the solar industry of the following minimum staff: |  |
| 5.1 | **MANAGER:** A qualified project manager (either in-house or external) and a site engineer, who must have at least a B.Sc. in electrical engineering, mechanical engineering, or any related specialty with a minimum experience of 3 years in similar projects. | **10** |
| 5.2 | **ENGINEER:** A civil engineer/advisor (either in-house or external) held responsible for managing all structural and civil works on-site with at least a B.Sc. in civil engineering. To be the authorized body to provide the civil certificate for any civil construction work and building integrity. | **10** |
| 5.3 | **INSTALLERS TEAM:** Qualified team of foremans and technicians with related experience of the project targets. | **10** |
| 6 | **SCENARIO-BASED REQUIREMENTS FOR EVALUATION PURPOSE (Appendix 9):** Quality of the draft design based on the provided information | **5** |
|  | **Total** | **70** |

**Table A4.3: Evaluation of the Financial Proposal**

|  |  |  |
| --- | --- | --- |
| **No.** | **Description** | **Points** |
| 1 | Price Proposal (Appendix 5: Price Schedules Fixed-Rate Cost for the LTA) | 30 |
| 2 | Price Proposal (Appendix 10: Scenario-Based Price Proposal) |
|  | **Total** | **30** |

## **Appendix 5A – 5P: Price Schedules (Fixed-Rate Cost for the LTA)**

Enclosed as a separate document

## **Appendix 6: Guidelines on Technical Compliance**

The purpose of Appendix 6 is to provide guidance about expected quality and technical details that are expected to follow by the SERVICE PROVIDERS when proposing engineering and labour services at the RFPS stage and later on during the LTA implementation when executing project implementation at contractual stage. This Appendix 6 is linked with **Appendix 7, UNICEF Technical Requirements** (also called “Employer’s Requirements”), which will be the standard applicable practical document to follow for designing, supplying, installing, testing and commissioning on-grid Solar PV systems.

The specifications in Appendix 6 and Appendix 7 shall be followed when calculating the scenario-based price proposal requested in Appendix 10.

**KEY TECHNICAL GUIDANCE PART 1**

* 1. **Design and Supply of Solar PV Systems** (refer to Table A6.8 below)
     1. PV system design & simulation must guarantee that the proposed Performance Ratio (PR) not be lower than 80% of the proposed values for the first, second and third years of system operation.
     2. The **suitable inclination & orientation angles** of the PV system at each area at the site of installation **to achieve ultimate energy yields to be guaranteed as per design and simulation of the system.**
     3. Proposed PV system must comply with local laws and regulations of the power distribution company, including valid local grid-code.
     4. Health & Safety (H&S) Plan and Environment Plan must be developed and submitted by the Service Provider, to be approved by UNICEF, prior to the installation. These plans need to comply with H&S and Environment guidelines.
     5. An updated working plan needs to be submitted after signing the Contract and be approved by UNICEF, prior to installation.
  2. **Requested Installation Process of Solar PV Systems**
     1. The Service Provider will be provided with a list of country offices selected by UNICEF. The Service Provider must visit and verify that these locations comply with technical requirements set in this tender document.
     2. The Service Provider must determine appropriate area for installation of system, taking into consideration the capacity of the roof to carry necessary weights and loads. The Service Provider must provide an appropriate engineering and load design certified by an accredited engineering office.
     3. The system will be installed nearest to the point of utility meter to avoid electrical losses.
     4. The Service Provider will cover the cost of any works required for site development under the responsibility of the Service Provider (i.e. Mechanical, Electrical and civil).
     5. The Service Provider will be responsible for and bear all fees for connecting the system to the electricity company’s network. The Service Provider will also be responsible for all associated costs of the Preliminary Study and/or Grid Impact Study if required by the relevant electricity company. Cost of application to the Utility will be covered by UNICEF.
     6. The Service Provider will be responsible for any damages or maintenance resulted from drilling, transporting or installing the system. The Service Provider will not make any penetration to rooftops. The parapets in case of penetration must be sealed and fixed.
     7. On the day of operating/commissioning, the Service Provider must provide theoretical and practical training to UNICEF designated team, which includes:
        1. Introduction to the solar PV system
        2. Description of the installed system by connection diagrams and pictures of actual components of solar PV system;
        3. Description of expected problems and step-by-step troubleshooting procedures;
        4. Explanation of preventive maintenance and cleaning procedures;
        5. Tour of the system.
     8. The Service Provider will provide full documentation for UNICEF, i.e., as built drawings, designs, calculations and data sheets with copies of approvals, and official documents.
     9. Once the system is fully installed and documentation is accepted by UNICEF, a Certificate of Acceptance will be issued.
  3. **Testing and Commissioning of Solar PV Systems**
     1. UNICEF Site Inspectors will conduct inspection visits to the sites to verify that the installed systems conform to the Scope of Work and Technical Specifications.
     2. The Service Provider may be requested by UNICEF technical team to conduct measurements at the site to validate conformity of the installed system. All costs related to inspection and testing will be borne by the Service Provider.
  4. **Warranty & Maintenance of Solar PV Systems**
     1. Depending of the financial modality chosen the Service Provider must include a long-term service agreement (LTSA) for operation and maintenance (O&M) from the date of the official meter change.
     2. Preventive and corrective maintenance shall be included. Corrective maintenance must be completed within the established contractual period after receipt of claim, whether it was caused by manufacturer or the Service Provider’s fault during installation.
     3. A maintenance log, reporting all corrective claims and resolutions, must be provided annually during the agreed warranty period after the installation.
  5. **Applicable Technical Specifications for Solar PV Systems**

Solar PV Modules (refer to Table A6.1 below)

The following are the minimum specifications of the selected PV Modules:

1. PV cells should be Tier one, others will not be acceptable.
2. Cell Type: 72 Cells mono-crystalline. At least 4BusBars (4BB); most effective technology is preferred, taking into account area requirements and energy yield
3. The output power of the Mono-crystalline module should be between above 400 Wp at standard test condition (STC).
4. Module’s maximum system voltage should not be more than 1000 V.
5. Module Efficiency should NOT be less than 20%.
6. Tolerance level should be positive only.
7. Module's temperature sensitivity at peak power should not exceed - 0.4 %/C.
8. Operating PV temperature should be between -10 oC and + 85 oC.
9. Socket: Protection Class IP65/ IP67/ IP68
10. Plug-in system: Plug/socket IP67/ IP68
11. The warranty for module defects after installation should be at least 10 years
12. The nominal output power warranty shall guarantee that the loss of the output is not more than 10% during the first 10 years and up to 20% in total after 25 years.
13. PV module design and type approval qualification standard: IEC/EN 61215.
14. PV module safety qualification standard: IEC/EN 61730 for safety class II Along with TUV, CE compliant and UL certification, Accredited salt mist/Ammonia resistance should be provided
15. Mechanical load test within 5400 Pa (5.4kN/m2), Damp Heat, Thermo Cycle and Humidity and Freeze tests.

On Grid – Inverter or Hybrid Inverter (Refer to Annex 6, Table A6.2)

1. Capacity of the inverters: in kW-AC
2. The inverters must comply with IEC standards and test certificate must be submitted.
3. AC wave form is pure sinusoidal and Grid frequency range is (60 Hz or 50Hz ±2%)
4. The Inverter should operate at the maximum efficiency load at full load (MPPT).
5. Maximum input DC voltage is 1000V
6. Rated Power: Covering at least the required system capacity.
7. European Standard efficiency (Euro-ETA) should not be less than 96%.
8. Operating temperature should be between -20 oC and 60 oC.
9. Total harmonic distortion (THD) should not exceed 3%
10. Adjustable Power factor according to the grid requirements.
11. Maximum humidity 0 – 95% without condensation.
12. Transformer less inverter with high voltage protection (surge arrestor), with integrated fuses, DC switch, as well as protections; reverse current protection, input over voltage & over current via fuse.
13. The Inverter shall be provided with screen to provide instantaneous information about the system and the output; such as daily energy production, life time energy production, grid voltage, PV array voltage & PV array current (optional).
14. The inverter should be equipped with Bluetooth connectivity.
15. The inverter should be able to be connected to web-based monitoring system through Ethernet port.
16. IP protection grade of at least 65 in case of outdoor installation.
17. European Standards and related certifications to be provided.
18. Manufacturer warranty should not be less than 5 years
19. The inverter should be supplier with proper enclosure in accordance of the manufacturer ventilation requirements.

AC Cable Conduits & Cable Tray (refer to Table A6.3.1 below):

1. AC cables should comply with TUV and IEC standards
2. Operation temperature for DC cables should be up to +90oC
3. AC cables should be UV resistant, flame retardant, and with low smoke characteristics.
4. AC cables should comply with local, international standards and Distribution Utility specification.
5. AC cables should be insulated, sheathed copper cables drawn from the PV system up to the electrical panel board.
6. All external cables must be installed inside galvanized cable tray.
7. All cables shall carry 1000 Volt
8. All cables shall be marked properly by means of good quality labels or by other means so that cable can be easily identified.
9. All connections must be made through suitable size plug sockets/ terminals crimped or soldered properly and with the use of cable glands.
10. Factory warranty should not be less than 10 years

DC Cable Conduits & Cable Tray (refer to Table A6.3.2 below):

1. DC cables should comply with TUV and UL 4703 standards
2. Operation temperature for DC cables should be up to +90oC
3. DC cables should be UV resistant, flame retardant, and with low smoke characteristics.
4. DC cables should comply with local, international standards and Distribution Utility specification.
5. All external cables must be installed inside galvanized cable tray.
6. All cables shall carry 1000 Volt
7. All cables shall be marked properly by means of good quality labels or by other means so that cable can be easily identified.
8. All connections must be made through suitable size plug sockets/ terminals crimped or soldered properly and with the use of cable glands.
9. Factory warranty should not be less than 10 years

Circuit Breakers, Panels & Labelling; Grounding; Lightning; other protections (refer to Table A6.4 below)

1. All circuit breakers shall comply with national and international standards, where CB shall at least comply with IEC 60898-1 for AC and DC circuit breakers.
2. All outdoor panels should be weather proof with at least IP 67.
3. Labelling should be done by a highly luminous material and withstands the outdoor conditions.
4. All breakers and panels should be labelled in accordance to the single line diagram and the as built drawings.
5. Grounding to be provided
6. Lightning to be provided
7. Set of standard protections to be provided

Data Logging & Monitoring; Measurement (refer to Table A6.5 below)

Inverter:

* The inverter must be equipped with Ethernet connection, that enables Real Time Data Logging with all related hardware and software required.
* CAT6 data cable should be included in the installation with separated labelled conduit to the nearest approved internet point.

Dash Board Screen:

* + Indicative LED IP65 dash board shall be installed as indicated in the Technical specification part of this document indicating:
    - * Instantaneous generation
      * Daily generation.
      * Total Energy Generated
      * CO2 Reduction

Measurement:

* Energy metering
* Performance metering
* Full data metering

Weather Station for measuring and recording Solar Radiation & Temperature:

1. Measuring range 0- 1500W/m2
2. Sensor: Thermo element or photo cell
3. Solar spectrum: 250 – 2800 nm
4. Non linearity: < 0.2% at 0 -1000W/m2
5. Tilt angle for sensor preferred to be the same as the PV module tilt angle
6. Tutorial for a nominated UNICEF personnel shall be provided to utilize the weather station for educational and awareness purposes including training of data logging and downloading/retrieving data and analysing them.

PV Mounting Structure (refer to Table A6.7 below)

1. Considering flat concrete roof. No penetration for the roof shall be made nor acceptable, and the structure shall be installed on concrete blocks.
2. Designed to carry on a wind speed of at least 140 km/h with approved Wind load assessment.
3. Made of Aluminium or an Aluminum Alloy.
4. All screws, washers and nuts are made by guarantee to withstands the weather conditions and prevent corrosion.
5. Robust and rigid structure.
6. Manufacturer's warranty should be at least 10 years

**KEY TECHNICAL GUIDANCE PART 2**

Submission for LOT: \_\_\_\_\_\_\_\_\_\_[Insert the LOT number as per Page 4 of the TOR. Proposal for each LOT must be submitted separately]

The following Tables include the main components of the solar PV system and shall be completed by the SERVICE PROVIDER:

**Table A.6.1 Solar PV Module**

|  |  |  |
| --- | --- | --- |
| **No** | **Item** | **Remarks and Explanations** |
| 1 | MONO-CRYSTALLINE-PV Module: **Tier1** |  |
| 2 | Efficiency of Module (> 20%) |  |
| 3 | Module Output Power (Wp) at Standard Test Conditions (STC) |  |
| 4 | Number of Busbars at least 4BB |  |
| 5 | Technical standards PV Module |  |
| 6 | Technical standards Power Inverter |  |
| 7 | Provide details of Quality Management System used to ensure quality of production and testing procedure, e.g. Certificate of Registration under BS EN ISO 9001: 2000/2008. |  |
| 8 | Annual PV Module degradation: |  |
| 9 | Guarantee for Module Power output for 25 years (linear, stepped, include data) |  |
| 10 | Power Tolerance Level |  |
| 11 | Operating temperature range °C: |  |
| 12 | Nominal Operating Cell Temperature °C: |  |
| 13 | Voc, Isc and Power Temperature Coefficient (%/°C) |  |
| 14 | Electrical connection Terminal Block Insulation rating (IP65/67) |  |
| 15 | Warranty for Modules (number of years against manufacturing defects) |  |
| 16 | Mechanical load tests |  |
| A | Energy Yield of the system [kWh/year] |  |
| B | Specific Yield of the system [kWh/kWp/year] |  |
| C | Performance Ratio [%] |  |

**Table A.6.2 On – Grid Inverter (or Hybrid Inverter)**

Please state how many inverters and what sizes you are proposing. It is up to the SERVICE PROVIDER to make a decision about how many inverters they propose – keeping in mind the cost of their bid vs the benefits of having more than one inverter (such as to reduce the disadvantage of losing power by shading). If you are proposing more than one inverter, please fill for each inverter if they are different sizes

|  |  |  |
| --- | --- | --- |
| **No** | **Item** | **Remarks and Explanations** |
| 1 | Does the AC power output from the Inverter synchronize automatically with AC voltage and frequency of the grid |  |
| 2 | How many inverters sizes (individual capacity) |  |
| 3 | How many Maximum Power Points (MPP) |  |
| 4 | Inverter is transformer less (Yes/no) |  |
| 5 | Inverter efficiency at max power and the European Standard Efficiency |  |
| 6 | Inverter is provided with integrated fuses and AC & DC switches (yes / no, provide details) |  |
| 7 | Inverter can be connected to an external display to show energy and power outputs (yes / no) |  |
| 8 | Inverter protections, list all (reverse current, input over voltage & over current via fuses) |  |
| 9 | Operating Temperature Range ºC: |  |
| 10 | Maximum relative humidity without condensation |  |
| 11 | Harmonic distortion is less than 3% (yes/no) |  |
| 12 | Power Factor Adjustability (Yes/No) |  |
| 13 | Protection Rating (IP65) |  |
| 14 | Cooling type (i.e. Fan or natural ventilation) |  |
| 15 | Make and model of inverter |  |
| 16 | Warranty after installation (5 years) |  |

**Table A.6.3.1 AC Cables**

|  |  |  |
| --- | --- | --- |
| **No** | **Condition** | **Remarks and Explanations** |
| 1 | AC cables should comply with TUV and IEC standards |  |
| 2 | Operation temperature for AC cables (-25 ºC to +90 ºC) |  |
| 3 | Quality of AC cables (e.g. UV resistant, flame retardant, low smoke – list all that is applicable). |  |
| 4 | AC cables are insulated as requested |  |
| 5 | All designs of external cables to be inside galvanized cable tray |  |
| 6 | Source of Equipment (own production, third party manufacturer – if sourced from third party, state the name of the manufacturer) |  |
| 7 | Warranty Period (5 years) |  |

**Table A.6.3.2 DC Cables**

|  |  |  |
| --- | --- | --- |
| **No** | **Condition** | **Remarks and Explanations** |
| 1 | DC cables should comply with TUV and UL 4703 standards |  |
| 2 | Operation temperature for DC cables (-25 ºC to +90 ºC) |  |
| 3 | Quality of DC cables (e.g. UV resistant, flame retardant, low smoke – list all that is applicable). |  |
| 5 | All designs of external DC cables to be inside galvanized cable tray |  |
| 6 | Source of Equipment (own production, third party manufacturer – if sourced from third party, state the name of the manufacturer) |  |
| 7 | Warranty Period (5 years) |  |

**Table A.6.4 Circuit Breakers, Panels & Labelling; Grounding; Lightning; Protections**

|  |  |  |
| --- | --- | --- |
| **No** | **Condition** | **Remarks and Explanations** |
| 1 | Circuit breakers comply international standards at least IEC 60898-1 (Yes/No) |  |
| 2 | Outdoor Panels and distribution boards are weather proof and IP67 (Yes/No) |  |
| 3 | Grounding; lightning; protection |  |
| 4 | Other components |  |
| 5 | Make |  |
| 6 | Warranty Period |  |

**Table A.6.5 Data Monitoring and Display System**

|  |  |  |
| --- | --- | --- |
| **No** | **Condition** | **Remarks and Explanations** |
| 1 | Type of Monitoring and data logging  Please provide details. |  |
| 2 | Energy meter. Please provide details |  |
| 3 | Inverter shall be able to connect via Ethernet port for real time monitoring via web-based monitoring system or mobile application. Please provide details |  |
| 4 | Warranty period for this system |  |
| 5 | Ability to be connected to Weather station i.e. At least Temperature & Solar irradiation sensors (Yes/No) |  |
| 6 | GSM data logging  Please provide details |  |
| 7 | Weather station  Please provide details |  |
| 8 | Type of data cabling proposed.  Please provide details |  |

**Table A.6.6 BESS: Battery Energy Storage System**

|  |  |  |
| --- | --- | --- |
| **No** | **Condition** | **Remarks and Explanations** |
| 1 | Lithium Ion |  |
| 2 | (5 kWh) packs (Yes/No) |  |
| 3 | EUROBAT Norms (Yes/No) |  |
| 4 | Protection  Please provide details |  |
| 5 | Other components  Please provide details |  |
| 6 | Make |  |
| 7 | Warranty Period |  |

**Table A.6.7 Supporting structure**

|  |  |  |
| --- | --- | --- |
| **No** | **Condition** | **Remarks and Explanations** |
| 1 | Aluminium (Yes/No) |  |
| 2 | Resistance to winds of 150 km/ (Yes/No) |  |
| 4 | Fixing type  Please provide details |  |
| 5 | Other components  Please provide details |  |
| 6 | Make |  |
| 7 | Warranty Period |  |

**Table A.6.8 Engineering and Design**

Please complete the table below and add any other work that will be done by a third party.

|  |  |  |
| --- | --- | --- |
| **No** | **Condition** | **Remarks and Explanations** |
| 1 | Solar, electrical, mechanical design and engineering for one (1) installed kWp of complete solar PV system |  |
| 2 | Testing and commissioning for one (1) installed kWp of complete solar PV system |  |
| 3 | Other |  |

## **Appendix 7: UNICEF Technical Requirements**

Enclosed as a separate document

## **Appendix 8: List of Regions and Countries with UNICEF Programs**

UNICEF has operation in 8 different regions worldwide. Each table summarizes one geographical region.

Table A8.1

|  |
| --- |
| Middle East and North Africa |
| Algeria |
| Djibouti |
| Egypt |
| Iran (Islamic Republic of) |
| Iraq |
| Israel |
| Jordan |
| Lebanon |
| Libya |
| Morocco |
| Oman |
| Saudi Arabia |
| Sudan |
| Syrian Arab Republic |
| Tunisia |
| Yemen |

Table A8.2

|  |
| --- |
| South Asia Region |
| Afghanistan |
| Bangladesh |
| Bhutan |
| India |
| Maldives |
| Nepal |
| Pakistan |
| Sri Lanka |

Table A8.3

|  |
| --- |
| Western and Central Africa Region |
| Benin |
| Burkina Faso |
| Cabo Verde |
| Cameroon |
| Central African Republic |
| Chad |
| Congo |
| Côte D'Ivoire |
| Democratic Republic of the Congo |
| Equatorial Guinea |
| Gabon |
| Gambia (Republic of The) |
| Ghana |
| Guinea |
| Guinea Bissau |
| Liberia |
| Mali |
| Mauritania |
| Niger |
| Nigeria |
| Sao Tome and Principe |
| Senegal |
| Sierra Leone |
| Togo |

Table 8.4

|  |
| --- |
| East Asia and the Pacific Region |
| Cambodia |
| China |
| Democratic People's Republic of Korea |
| Fiji |
| Indonesia |
| Lao People’s Democratic Republic |
| Malaysia |
| Mongolia |
| Myanmar |
| Papua New Guinea |
| Philippines |
| Thailand |
| Timor-Leste |
| Viet Nam |

Table A8.5

|  |
| --- |
| Eastern and Southern Africa Region |
| Angola |
| Botswana |
| Burundi |
| Comoros |
| Eritrea |
| Eswatini |
| Ethiopia |
| Kenya |
| Lesotho |
| Madagascar |
| Malawi |
| Mozambique |
| Namibia |
| Rwanda |
| Somalia |
| South Africa |
| South Sudan |
| Uganda |
| United Republic of Tanzania |
| Zambia |
| Zimbabwe |

Table A8.6

|  |
| --- |
| Europe and Central Asia Region |
| Albania |
| Armenia |
| Azerbaijan |
| Belarus |
| Bosnia and Herzegovina |
| Bulgaria |
| Croatia |
| Georgia |
| Greece |
| Kazakhstan |
| Kyrgyzstan |
| Montenegro |
| North Macedonia |
| Republic of Moldova |
| Romania |
| Serbia |
| Tajikistan |
| Turkey |
| Turkmenistan |
| Ukraine |
| Uzbekistan |

Table A8.7

|  |
| --- |
| Latin America and Caribbean region |
| Argentina |
| Barbados |
| Belize |
| Bolivia (Plurinational State of) |
| Brazil |
| Chile |
| Colombia |
| Costa Rica |
| Cuba |
| Dominican Republic |
| Ecuador |
| El Salvador |
| Guatemala |
| Guyana |
| Haiti |
| Honduras |
| Jamaica |
| Mexico |
| Nicaragua |
| Panama |
| Paraguay |
| Peru |
| Uruguay |
| Venezuela, Bolivarian Republic of |

Table A8.8

|  |
| --- |
| **Headquarter Locations (North America, Western Europe, etc.)** |
| Belgium |
| Denmark |
| Hungary |
| Italy |
| Japan |
| Republic of Korea |
| Switzerland |
| United States of America |

## **Appendix 9: Scenario-Based Requirements for the Design and Costing of the Solar PV System**

Enclosed as a separate document

## **Appendix 10 (A&B): Scenario-Based Price Proposal**

Enclosed as a separate document

## **Appendix 11: Check List of Document/ Information that need to be provided by the Service Provider when submitting their proposal for this RFPS**

1. **Page 5 of the TOR**:
   1. Refer to Table 2 (applicable for bidders that submit proposal for LOT 1, 3, 5,7, 9, 11,1 3, and 15)
   2. Refer to Table 3 (applicable for bidders that submit proposal for LOT 2, 4, 6,8 ,10, 12, 14, and 16)
2. **Page 6 of the TOR**: Refer to Table 4 (applicable for all LOTs)
3. **Page 10-12 of the TOR**: Qualification and Evaluation Criteria (applicable as per the relevant LOTs)
4. **Page 14 of the TOR**: Appendix 1 - SERVICE PROVIDER’s Information Form (applicable for all LOTs)
5. **Page 15 of the TOR**: Appendix 2 - SERVICE PROVIDER’s Legal Requirements Checklist (applicable for all LOTs)
6. **Page 16 of the TOR**: Appendix 3: SERVICE PROVIDER’s Project Reference Information Sheet (applicable for all LOTs)
7. **Page 25 - 28 of the TOR**: KEY TECHNICAL GUIDANCE PART 2 (applicable for all LOTs)
8. **Appendix 5A-5P: Price Schedules** - Fixed-Rate Cost for the LTA (applicable as per the relevant LOTs)
9. **Appendix 7: UNICEF Technical Requirements** - Technical Schedules of the Grid Connected Solar PV System (Page 23-35)
10. **Appendix 10A: Scenario-Based Price Proposal** (applicable for bidder that submit proposal for LOT 1, 3, 5,7, 9, 11,1 3, and 15)
11. **Appendix 10B: Scenario-Based Price Proposal** (applicable for bidders that submit proposal for LOT 2, 4, 6,8 ,10, 12, 14, and 16)
12. **Page 3 of the RFPS document**: Request for Proposal Services Form (applicable for all LOTs)
13. **ANNEX C - Vendor Registration Template** (applicable for all LOTs)

-----END-OF-DOCUMENT------

1. **Note:** Technical information will be needed during Implementation Phase as well, either to confirm equipment offered here or in case of future changes in technology or standards. [↑](#footnote-ref-2)