**Wind and Solar SPP Solicitation 2016 –**

**Project Proposal**

**for**

**Commercial Operation of Wind and Solar Small Power Projects**

**Forms 1-17 for Solar facilities**

**Instructions**

As explained in the Request for Proposals (RFP), Qualified Bidders are invited to submit a binding Project Proposal in the form of properly completed Forms, Tables, and LRA forms.

Each Qualified Bidder must comply with the Project Proposal Submission Procedures outlined in the RFP. Specifically, a Qualified Bidder must submit three parts:

1. Form of Bid (LRA-1)
2. Technical Proposal (Forms 1-17, Tables 12.1-12.9)
3. Financial Proposal (LRA-2-to LRA-13)

Every data field in every required Form, Table, and LRA form must be completed with a value or the not-available designation “NA.” Incomplete proposals may be rejected.

Qualified Bidders must review the following agreements and Preferred Bidders will subsequently be required to execute the agreements, as applicable:

1. SPPA (LRA-16)
2. Direct Agreement(s), if applicable (LRA-17)
3. Implementation Agreement (LRA-18)
4. Interconnection Agreement(s) (LRA-19)
5. Distribution Agreement (LRA-20)

**SOLAR Forms and Tables**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Technical Assessment** |  | **LRA Forms** |
| **Form 1-3-Solar** | Request for Qualification Forms | **LRA-1** | Project Proposal Submission Letter |
| **Form 4 - Solar** | Exemplary Solar Plant/Wind Farm Design | **LRA-2** | Financial Proposal Form |
| **Form 5 - Solar** | Candidate’s Exemplary Financial Model Information | **LRA-3** | Form of FIRST Bid Guarantee |
| **Form 6- Solar** | Solar Facility Description | **LRA-4** | Declaration of Qualified Bidder |
| **Form 7-Solar** | CAPEX During Construction Period | **LRA-5** | Letter of Intent (Consortium Member or Shareholders) |
| **Form 8-Solar** | Bid Price and Interconnection Facility Cost  | **LRA-6** | Tax Declarations |
| **Form 9-Solar** | Financial Sources and Uses of Project Company | **LRA-7** | Letter of Support from Providers of Corporate Finance |
| **Form 10-Solar** | Solar Field Layout at Location | **LRA-8** | Letter of Support from Providers of Equity Finance |
| **Form 11-Solar** | Proposed Layout and Facility Output Performance | **LRA-9** | Letter of Support from Tier-1 Lender(s) (Senior Debt) |
| **Form 12-Solar** | Solar Site Assessment | **LRA-10** | Resolution of Bidder (if Project Company is established) |
| ***Table 12.1*** | Global Horizontal Irradiation Data Sets Comparison | **LRA-11** | Resolution of Each Member of Consortium or Shareholders |
| ***Table 12.2*** | Bidder-Selected GHI Data Set Simulation | **LRA-12** | Certificate of Independent Bid Determination |
| ***Table 12.3*** | Solar On-Site Measurements | **LRA-13** | Confidentiality Undertaking |
| ***Table 12.4*** | Monthly and Seasonal Variations of Output | **LRA-14** | Withdrawal of Bid |
| ***Table 12.5*** | Monthly Rainfall Pattern at Project Location | **LRA-15** | Form of SECOND Bid Guarantee |
| ***Table 12.6*** | Additional Site Information | **LRA-16** | Standardized Power Purchase Agreement (SPPA) |
| ***Table 12.7*** | Site Infrastructure and Connectivity | **LRA-17** | Direct Agreement(s) |
| ***Table 12.8*** | Site Images Gallery | **LRA-18**  | Implementation Agreement |
| ***Table 12.9*** | Relevant Consents and Permits Checklist Availability | **LRA-19** | Interconnection Agreement |
| **Form 13-Solar** | Deemed Output Model | **LRA-20** | Distribution Agreement |
| **Form 14-Solar** | Organogram of Project Company | **LRA-21** | Withdrawal of Successful Bid |
| **Form 15-Solar** | Project Implementation Schedule |  |  |
| **Form 16-Solar**  | Hybrid and/or Co-generation Projects  |  |  |
| **Form 17-Solar** | Description of Interconnection Facilities |  |  |

**Forms 1-3: Qualification Questionnaire of RFQ**

**Instructions:** Bidders should update the information of Form 3 of the RFQ.

**Form 4-SolarPV: Exemplary Solar Plant Design**

Insert Google Map image. Draw rectangle of PV facility area at construction site.

Provide WGS84 coordinates of proposed construction site: \_\_\_\_\_\_\_ Latitude and \_\_\_\_\_\_\_ Longitude

|  |  |
| --- | --- |
|  | **Exemplary layout of proposed PV solar power plant 1-10 MW** |
| 1 | Available area for PV solar field | \_\_\_\_\_\_\_\_\_\_ Hectare  |
| 2 | Global irradiation inclined at \_\_\_\_Degree | \_\_\_\_\_\_\_\_\_\_\_ kWh/m**2** per annum |
| 3 | Module inclination at location | \_\_\_\_\_\_\_\_\_\_\_ Degree |
| 4 | Module azimuth | \_\_\_\_\_\_\_\_\_\_\_ Degree |
| 5 | Plant layout pitch | \_\_\_\_\_\_\_\_\_\_\_ meters |
| 6 | Plant space between rows  | \_\_\_\_\_\_\_\_\_\_\_ meters |
| 7 | Shading angle | \_\_\_\_\_\_\_\_\_\_\_\_ Degree |
| 8  | Total installed capacity | \_\_\_\_\_\_\_\_\_\_\_\_ MWp |
| 9 | Number of modules |  |
| 10 | Rated single module capacity | \_\_\_\_\_\_\_\_\_\_\_\_ Wp |
| 11 | Number of modules per string  |  |
| 12 | Number of strings per inverter |  |
| 13 | Number of inverters  |  |
| 14 | Installed inverter capacity | \_\_\_\_\_\_\_\_\_\_\_\_ MVA |
| 15  | Typical module make and type |  |
| 16 | Typical inverter make and type |  |
| 17 | Expected project life cycle output  | \_\_\_\_\_\_\_ MWh sent at Main Meter for \_\_\_\_\_\_ years |
| 18 | **Solar resource assessment**  |  |
| 19 | - GHI resources data bank? Yes/No | Ref: |
| 20 | - On site monitoring? Yes/No | Monitoring since mm/yyyy until mm/yyyy |

**Form 5-Solar: Candidate’s Exemplary Financial Model Information**

|  |  |  |
| --- | --- | --- |
| **Technology: Solar/Wind \_\_ MW installed** | **Plant Capacity Factor \_\_\_\_%** | **Candidate’s response** |
| **#** | **Flag** | **Data specification** | **Value** | **Unit** |
| **1** |  | End of quarter financial model start date  |  | Date |
| **2** |  | Construction duration |  | months |
| **3** |  | Construction delays  |  | months |
| **4** |  | Delay cost per month in primary currency  |  | CCC/month |
| **5** |  | PV facility operational life, which includes ramp up period  |  | Years  |
| **6** |  | Primary/secondary currency pair  | CCC/TZS |  |
| **7** |  | Contingency |  | % |
| **8**  |  | Model start date currency pair value |  | CCC/TZS |
| **9** |  | Power plant name plate (design) capacity |  | MW |
| **10**  |  | Power plant cost in primary currency per MW installed |  | CCC/MW |
| **11** |  | A- Interconnection line to connect to DNO Grid  |  | CCC |
| **12** |  | B- DNO interconnection point upgrading (substation)  |  | CCC |
| **13** |  | C- Reinforcement of DNO grid cost |  | CCC |
| **14** |  | D- Other CAPEX during construction period ( ) |  | CCC |
| **15** |  | Row 10 to 14 fixed asset depreciation  |  | years |
| **16** |  | CAPEX spend profile during construction duration  |  | %/month |
| **17** |  | Degradation of plant output per annum |  | % linear |
| **18** |  | First full year normal operation sent**[[1]](#footnote-1)** MWh per MW  |  | MWh/MW |
| **19** |  | Ramp-up generation period in number of quarters  |  | Number |
| **20** |  | Average reduced output per quarter during ramp up period |  | % |
| **21** |  | Post-tax RoE expectations in primary currency CCC |  | % |
| **22** |  | Senior debt/equity ratio  |  | % /% |
| **23** |  | Senior debt tenor in primary currency  |  | years |
| **24** |  | Grace period senior debt |  | years |
| **25** |  | All-in rate per annum for senior debt  |  | % |
| **26** |  | Loan up-front fee |  | % |
| **27** |  | Commitment fee per annum  |  | %  |
| **28** |  | DSCR lockup |  | x |
| **29** |  | DSCR target for repayment profile |  | x |
| **30** |  | Export guarantee (\_\_\_\_ CCC Million of equipment covered) |  | CCC |
| **31** |  | Export guarantee fee |  | % of row 30 |
| **32** |  | Debt service reserve account DSRA if any (initial balance),  |  | CCC |
| **33** |  | Corporate tax rate |  | % |
| **34** |  | Withholding tax rate on primary currency dividends |  | % |
| **35** |  | Fixed O&M costs per MWand year |  | CCC/MW |
| **36** |  | Fixed O&M nominal cost escalation, per annum |  | % |
| **37** |  | Variable O&M nominal cost  |  | CCC/MWh |
| **38** |  | Variable O&M nominal cost escalation, per annum |  | % |
| **39** |  | Working capital account (if necessary)  |  | CCC |

**Form 5-Solar: Instructions to Complete Form**

Completing Form 5-Solar provides for an overview of the financial model design of the Bidder.

1. Row 11-13: The total investment costs of interconnection facilities as per DNO design and estimate;
2. Row 19: Enter 0 if the facility output is 100% of Row 18 response for the first year of operation;
3. Row 36, 38: Enter a non-zero inflation rate because the Bid price is fixed over the term of the SPPA.

**Form 5-Solar: Bidder Comments**

**Form 6-Solar**: **Solar Facility Description**

|  |  |  |
| --- | --- | --- |
| # | **Components/Services** | **Installed Capacity: \_\_\_\_\_\_\_MWp on area of \_\_\_\_\_\_\_Hectare** |
| 1 | PV Module (\_\_\_\_Wp/module and No\_\_\_\_\_\_) | S/N: Certifier : Type:Manufacturer: Country:  |
| 2 | Invertors (\_\_\_kVA rating and No:\_\_\_\_\_\_\_\_ ) | S/N: Certifier: Type: Manufacturer: Country:  |
| 3 | Solar combiner boxes (No\_\_\_\_) | S/N: Certifier: Type: Manufacturer: Country:  |
| 4 | Hardware to monitor plant performance  | Manufacturer: Country:  |
| 5 | Underground cable protection material and structure  | Type: |
| 6 | Substation or step-up transformer to feed into interconnection line connecting to grid | S/N: Type:Manufacturer: Country: |
| 7 | PV module support and foundation structure | Company: Type of support (material): |
| 8 | Surveyor services for foundation structure | Company:  |
| 9 | DC wiring (\_\_\_mm**2** and length \_\_\_\_\_\_\_meter**)**(on-site) | S/N: Type:Manufacturer: Country:  |
| 10  | AC wiring (length \_\_\_\_\_\_meter) (on-site) | S/N: Type:Manufacturer: Country:  |
| 11 | Earthing and lighting protection  | (Sub) Contractor or EPC: |
| 12 | Fencing (\_\_\_\_\_\_running meters) | Height: Type and material:Manufacturer: Country:  |
| 13 | Earth movement for access road, cables, leveling, foundations, and substation | (Sub) Contractor or EPC: |
| 14 | Temporary and permanent building construction | (Sub) Contractor or EPC:  |
| 15 | Metrological station  | Type: Manufacturer: Country: |
| 15 | Water supply infrastructure construction and water supply services | Contractor (infrastructure):Water supplier: |

**Form 6-Solar: Instructions to Complete Form**

1. **S/N:** State the relevant standard(s) or norm(s) of the module design
2. **Certifier:** State the name of the agency that has certified compliance with the S/N
3. **Country:** State the country of origin

**Form 6-Solar: Bidder Comments**

**Form 7-Solar**: **CAPEX during construction period of solar project**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # |  **CAPEX Spending; Installed Capacity: \_\_\_\_\_MWp**  | **USD/kWp** | **Total USD**  | **% Local Content** | **% Total CAPEX** |
| 1 | PV Module  |   |  |  |  |
| 2 | Inverter |  |  |  |  |
| 3 | Solar combiner boxes  |   |  |  |  |
| 4 | Hardware to monitor plant performance  |  |  |  |  |
| 5 | Cable protection material and structure  |  |  |  |  |
| 6 | PV facility substation and step-up transformer  |  |  |  |  |
| 7 | PV module support and foundation structure |  |  |  |  |
| 8 | Surveyor services for foundation structure  |  |  |  |  |
| 9 | DC wiring  |   |  |  |  |
| 10  | AC wiring |   |  |  |  |
| 11 | Earthing and lighting protection |  |  |  |  |
| 12 | Fencing of project site |  |  |  |  |
| 13 | Earth movement  |  |  |  |  |
| 14 | Temporary and permanent buildings (except #6) |  |  |  |  |
| 15 | Meteorological station |  |  |  |  |
| 16 | Water supply infrastructure |  |  |  |  |
| 17 | Security services during construction |  |  |  |  |
| 18 | Installation (labor) cost (electrical system parts) |  |  |  |  |
| 19 | Installation (labor) cost (mechanical system parts) |  |  |  |  |
| 20 | Electricity supply during construction |  |  |  |  |
| 21 | Other administration and management cost |  |  |  |  |
| 22 | Subtotal construction cost |  |  |  |  |
| 23 | Interest during construction |  |  |  |  |
| 24 | Withholding tax |  |  |  |  |
| 25 | Upfront fee |  |  |  |  |
| 26 | Commitment fee |  |  |  |  |
| 27 | Export credit guarantee fee |  |  |  |  |
| 28 | MRA Funding |  |  |  |  |
| 29 | DSRA Funding |  |  |  |  |
| 30 | Total turnkey cost |  |  |  | 100% |

**Form-7-Solar: Instructions to complete form**

1. First, complete data input for Column **“Total USD.”** Next, calculate specific costs and complete data input for Column **“USD/kW.”** Completing the latter Column is required by the Authority to analyze economy-of-scale variations and sensitivities.
2. Column **“% Local Content”**: Estimate the value of local services, goods, and materials in TZS for each CAPEX variable in rows 1 to 21, and then convert to USD at a normative FOREX rate of 1 USD = 2 000 TZS to calculate the percentage of local content in USD.
3. Column **“%Total CAPEX”:** Calculate percentage of each CAPEX Spending by dividing each “**Total USD”** for Rows 1-21 into “**Total USD”** of Row 22. Assume “**Total USD”** for Row 22 equals 100% of **“% Total CAPEX.”**
4. Calculate the total turnkey costs of Row 30 as the sum of subtotal construction cost of Row 22 and costs stated in Rows 23-29.
5. State the CIF price of CAPEX spending of rows 1 – 4.
6. Financial and insurance costs during construction are information to be provided in Rows 23 - 29 and should be copied from Form 8-Solar.

**Form 7-Solar: Bidder Comments**

**Form 8-Solar**: **Bid Price and Interconnection Facilities Cost Determination Instructions**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Example calculation[[2]](#footnote-2)**

|  |  |  |
| --- | --- | --- |
| **Price** | **Cents/kWh** | **%** |
| **BP1** | 17.16 | 79.22 |
| **Δ 1** | 1.05 | 4.85 |
| **Δ 2** | 3.45 | 15.93 |
| **Δ 3** | 0.00 | 0 |
| **BP** | **21.66** | 100% |
| The bid price refers to kWh recorded at the Main Meter located at the high voltage side of the RE facility step up transformer |

 |
| 1. Bid Price (BP) is referenced to the Main Meter at the high voltage side of the step-up transformer of the RE facility. This reference point allows a fair comparison of the generation cost of kWh injected via the interconnection facilities into the DNO grid.
2. Under the SPP competitive bidding procedure and the SPPA the bidder will also pay for all interconnection infrastructure investments such as the interconnection line between the RE facility and the DNO substation, any upgrading of the DNO substation or construction of a new substation, and any investment in the reinforcement of the DNO grid to allow for a safe injection and distribution of RE power.
3. Interconnection facilities specification based on technical requirements as prescribed by the grid code and turnkey cost estimates are provided by the DNO to the bidder to enable the bidder to calculate the bid price BP as shown in the example.
4. All interconnection facilities will become property of the DNO at the Commercial operation Day (COD).
5. Operation and maintenance and associated O&M costs are the responsibility of the DNO after the COD.
 |

**Form 9-Solar:**  **Financial Sources and Uses of Project Company**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SOURCES**  | Million USD | % |  | **USES** | Million USD  | % |
| USD Equity |  |  |  | Construction Costs |  |  |
| USD Grant |  |  |  | Interest During Construction  |  |  |
| Senior 1 |  |  |  | Withholding Tax |  |  |
| Senior 2 |  |  |  | Upfront Fee |  |  |
| Senior 3 |  |  |  | Commitment Fee |  |  |
| Senior 4 |  |  |  | Export Credit Guarantee Fee |  |  |
| Senior 5 |  |  |  | MRA Funding |  |  |
| Mezzanine Debt  |  |  |  | DSRA Funding |  |  |
| Sum |  | 100% |  | Sum |  |  100% |
| **Upfront transaction costs before commencement of construction, Million USD** |
| **Lead Sponsor** |  | **Consortium Members**  |  |

**Form 9-Solar:** **Instructions to complete form**

1. The sum of sources must equal the sum of uses
2. “USD Grant” is either a one-time cash grant by a donor agency and/or the project lifetime avoided interest cost in case concessional interest rates of development banks are provided under senior debt coverage.
3. Upfront transaction costs are considered expenses directly related to the planning of the solar project and the establishment of the Project Company, and which may or may not be part of the Project Company balance sheet.
4. DSRA Funding may be necessary to cover risk of loss of sales revenues due to
	1. Significant seasonal variations in solar irradiation, and
	2. Default or delayed payment by offtaker.

**Form 9-Solar: Bidder Comments**

**Form 10-Solar: Solar Field Layout at Location**

**Instructions:**

(i) Insert map image of suitable resolution. Draw periphery of construction site and provide it’s rectangular or polygon WSG84 coordinates.

(ii) Overlay a sketch of the solar field layout and indicate geographic South.

P-1: (Latitude, Longitude)

P-2: (Latitude, Longitude)

P-3: (Latitude, Longitude)

P-4: (Latitude, Longitude)

….

…..

…..

…..

Confirmed total area available for solar field in hectares:

Total installed capacity, MWp:

**Form 11-Solar: Proposed Layout and Solar Facility Output Performance**

|  |  |  |
| --- | --- | --- |
| 1 | Available area for PV solar field | \_\_\_\_\_\_\_\_\_\_ Hectare  |
| 2 | Global irradiation inclined at \_\_\_\_ Degree | \_\_\_\_\_\_\_\_\_\_\_kWh/m**2** per annum |
| 3 | Module inclination at location | \_\_\_\_\_\_\_\_\_\_\_Degree |
| 4 | Module azimuth | \_\_\_\_\_\_\_\_\_\_\_Degree |
| 5 | Plant layout pitch | \_\_\_\_\_\_\_\_\_\_\_ meters |
| 6 | Plant space between rows | \_\_\_\_\_\_\_\_\_\_\_ meters |
| 7 | Shading angle | \_\_\_\_\_\_\_\_\_\_\_\_Degree |
| 8  | Total installed capacity | \_\_\_\_\_\_\_\_\_\_\_\_MWp |
| 9 | Number of modules |  |
| 10 | Rated single module capacity | \_\_\_\_\_\_\_\_\_\_\_\_Wp |
| 11 | Number of modules per string  |  |
| 12 | Number of strings per inverter |  |
| 13 | Number of inverters |  |
| 14 | Total installed inverter capacity | \_\_\_\_\_\_\_\_\_\_\_\_MVA |
| 15 | Module type |  |
| 16  | Module Manufacturer | Name:Country of Origin: |
| 17 | Imported from which country? |  |
| 18  | Module Certifier based on IEC EN 61215 or IEC EN 61646  | Name:Country: |
| 19 | Module Certifier based on safety test in accordance with IEC EN 61730-1/2 | Name:Country:  |
| 20 | Inverter type |  |
| 21 | Inverter manufacturer | Name:Country of Origin: |
| 22 | Imported from which country? |  |
| 23 | Inverter safety standards Certifier based on IEC 62 109-1 and IEC 62 109-2 | Name:Country: |
| 24 | Inverter grid connection standards Certifier on IEEE 1547 and IEEE 1547.1 | Name:Country: |
| 25 | Inverter MPPT efficiency testing Certifier based on EN 50530 and IEC 61683 | Name:Country: |
| 26 | Bidder’s expected project lifecycle output  | \_\_\_\_\_\_\_ GWh sent over \_\_\_\_\_\_years (PPA term) |
| 27 | Bidder’s expected design energy output  | \_\_\_\_\_\_\_\_\_ average MWh sent per year |
| 28 | Estimated loss of sales volume due to scheduled outages of the PV facility  | \_\_\_\_\_\_\_\_\_average MWh per year |
| 29 | Estimated loss of sales volume due to non-scheduled outages of the PV facility | \_\_\_\_\_\_\_\_\_average MWh per year |
| 30 | Estimated loss of sales volume due to scheduled or non-scheduled outages of the facilities owned and operated by DNO  | \_\_\_\_\_\_\_\_\_average MWh per year |
| 31 | Bidder’s expected sold energy output | \_\_\_\_\_\_\_\_\_ average MWh per year |

**Form 11-Solar: Instructions to complete form**

1. Row 26: The GWh sent with a probability of at least 90% and recorded at the Main Meter;
2. Row 27: The MWh sent with a probability of at least 90% and recorded at the Main Meter;
3. Row 31: Subtract the sum of row 28, 29 and row 30 values from row 27 value;
4. Multiplying the result of row 31 by the term of the SPPA represents the total MWh sold by the project company to the DNO under the SPPA.

**Form 11-Solar: Bidder Comments**

**Form 12-Solar:** **Site Assessment (Latitude\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Longitude \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**

**Table 12.1:** **Overview of Source Used for Global Horizontal Irradiation (GHI) Data Assessment**

|  |
| --- |
| **Comparison of Available Data Sets** |
|  | **Data Set -1** | **Data Set-2** | **Data Set-3** |
| **Name of Data Set**  |  |  |  |
| **Acquisition Period (yyyy - yyyy)** |  |  |  |
| **Units** | **kWh/m2** | **kWh/m2** | **kWh/m2** |
| Jan |  |  |  |
| Feb  |  |  |  |
| Mar |  |  |  |
| Apr |  |  |  |
| May |  |  |  |
| Jun |  |  |  |
| Jul |  |  |  |
| Aug |  |  |  |
| Sep |  |  |  |
| Oct |  |  |  |
| Nov |  |  |  |
| Dec |  |  |  |
| Total |  |  |  |
| Difference to Data-Set-1 in (%) | **0%** |  |  |

**Figure 12.1: Comparison of GHI Data**

**Table 12.2: Solar Simulation Data of Project Site Location**

|  |
| --- |
|  **Bidder selected data set number used for simulation:** |
|  | **GHI** | **Ambient Temperature** | **RH** |
| **Month** | **kWh/m2** | **Degree Celsius** | **%** |
| Jan |  |  |  |
| Feb  |  |  |  |
| Mar |  |  |  |
| Apr |  |  |  |
| May |  |  |  |
| Jun |  |  |  |
| Jul |  |  |  |
| Aug |  |  |  |
| Sep |  |  |  |
| Oct |  |  |  |
| Nov |  |  |  |
| Dec |  |  |  |
| Year |  |  |  |
| **Monthly Statistics (kWh/m**2) |  |  |  |
| Minimum |  |  |  |
| Maximum |  |  |  |
| Average |  |  |  |
| Standard Deviation |  |  |  |
| Relative Standard Deviation (%) |  |  |  |
| **Hourly Statistics (W/m2)** |  |  |  |
| Minimum |  |  |  |
| Maximum |  |  |  |
| Average |  |  |  |
| Standard Deviation |  |  |  |
| Relative Standard Deviation (%) |  |  |  |

**Table 12.3: On Site Measurements**

|  |  |  |
| --- | --- | --- |
| Meteorological measuring station installed  | Yes /No | Since (mm/yyyy): |
| Manufacturer(s) and Type  |  |
| Sensors-1 |  GHI  |  Temperature |  Relative Humidity |
| Sensors-2 |  Wind direction  |  Wind speed |  Rainfall |
| Data transfer |  Manual download  |  ireless terestrial  |  Satellite |
| Full name, address, email of advisor for data collection, analysis, accuracy, and reporting  |
| Date of latest measurement report (mm/yyyy): |

**Table 12.4**: **Monthly and Seasonal Variation of Design- and Sold-Energy Output**

1. Total-D must equal Row 27 of Form-11;
2. Total–S must equal Row 31 of Form-11;

|  |
| --- |
| **Table-D: Design Energy Output**  |
| **Month** | MWh/MW | Seasonal Output MWh/MW |
| January |  |  |
| February |  |  |
| March |  | Quarter-1: |
| April |  |  |
| May |  |  |
| June |  | Quarter-2: |
| July |  |  |
| August |  |  |
| September |  | Quarter-3 |
| October |  |  |
| November |  |  |
| December  |  | Quarter-4: |
| **Total-D** |  |  |

|  |
| --- |
| **Table-S: Sold Energy Output**  |
| **Month** | MWh/MW | Seasonal Output MWh/MW |
| January |  |  |
| February |  |  |
| March |  | Quarter-1: |
| April |  |  |
| May |  |  |
| June |  | Quarter-2: |
| July |  |  |
| August |  |  |
| September |  | Quarter-3 |
| October |  |  |
| November |  |  |
| December  |  | Quarter-4: |
| **Total-S** |  |  |
| Reduction % |  | = (1- ((Total-D)-(Total-S)))/(Total-D) |

**Table 12-4: Bidder Comments**

**Table 12.5: Monthly Rainfall Pattern at Project Location**

|  |  |
| --- | --- |
| **1** | **Data Source:** |
| **2** | **Acquisition Period:** |  |
| **3** | **Month** | **mm** | Insert graphic of average monthly rainfall pattern: |
| **4** | Jan |  |
| **5** | Feb |  |
| **6** | Mar |  |
| **7** | Apr |  |
| **8** | May |  |
| **9** | Jun |  |
| **10** | Jul |  |
| **11** | Aug |  |
| **12** | Sep |  |
| **13** | Oct |  |
| **14** | Nov |  |
| **15** | Dec |  |
| **16** | **Total** |  |

**Table 12.6: Additional Site Information**

|  |  |  |
| --- | --- | --- |
| **1** | **Vegetation** |  |
| **2** | **Fauna** |  |
| **2** | **Land Category**  |  |
| **3** | **Soil Type** |  |
| **4**  | **Max Elevation Difference**  |  |
| **5** | **Seismic Activities** |  |
| **6** | **Flooding history** |  |

**Table 12.7: Project Site Infrastructure and Connectivity**

**Note:** Review and update information already provided under RFQ

**A. Information on the location of the proposed construction site**

1.1 Region 1.2 District

1.3 Wards 1.4 Postal Code

1.5 GPS position (WGS84) 1.5.1 Latitude 1.5.2 Longitude

­­­­­­­­­­­­­­­­­­­­­­­­­

**B. Additional supplementary information on the proposed construction site**

2.1 Present legal owner of the land

2.1.1 Name 2.1.2 Surname

2.1.3 Company (If the owner is a legal partnership or legal person)

2.1.4 Approximate size of proposed construction site in Hectare

2.1.5 Present use of land: Commercial Industrial Agricultural Herding None

**2.2** C**onnectivity of location to public and private infrastructures and water**

2.2.1 Distance to nearest sealed public road in km 2.2.2 Public road number

2.2.3 Distance to nearest interconnection point with the grid in km 2.2.4 Grid voltage kV

2.2.5 Distance to the nearest DNO substation in km

2.2.6 Distance to nearest water supply in km

 xx

2.2.7 Type of water supply: Piped Well River Creek

2.2.8 Distance to nearest railway station in km

2.2.9 Distance to nearest village, dwelling or hamlet in km 2.2.10 Number of residents

2.2.11 Nearest transponder for mobile terrestrial telecommunication in km

Land Line:

Mobile:

2.2.12 Landline/mobile network operators

 **Table 12.8: Images of Proposed Construction Site**

**Instructions:** Review and update if necessary images provided in RFQ Qualification Questionnaire.

|  |  |  |  |
| --- | --- | --- | --- |
| **1** |  | **2** |  |
| Title: | Title: |
| Date taken:  | Date taken: |
| **3** |  | **4** |  |
| Title: | Title: |
| Date taken: | Date taken: |

|  |  |  |  |
| --- | --- | --- | --- |
| **5** |  | **6** |  |
| Title: | Title: |
| Date taken: | Date taken: |
| **7** |  | **8** |  |
| Title: | Title: |
| Date taken: | Date taken: |
| **9** |  | **10** |  |
| Title: | Title: |
| Date taken: | Date taken: |
| **11** |  | **12** |  |
| Title: | Title: |
| Date taken: | Date taken: |

**Table 12.9:** **Consents and Permits Checklist**

Each Qualified Bidder must produce evidence, that the following is in place when a Project Proposal is submitted:

Instructions**:** Select appropriate block and blacken it by using the shading button of MS word, and attach proof/documentation for response chosen.

|  |  |  |
| --- | --- | --- |
| **#** | **Consent/Permit** |  |
| **1** | **Land Rights**  |  |
| **1.1** | Copies of the title deeds evidencing ownership of the project site by the Qualified Bidder. |  |
| **1.2** | An option, lease, or sale of land agreement from the legal owner exercisable at the Qualified Bidder’s instance and unconditional in all significant respects. |  |
| **1.3** | Proof that all necessary applications, including but not limited to land use change, subdivision, removal of restrictive conditions, and zoning applications have been made by the Qualified Bidder to secure the right to lawfully use the Project Site for the intended purpose of constructing and operating the proposed Facility. |  |
| **2** | **Environmental Consents (fauna, flora, water, soil, air, protected sites)** |  |
| **2.1** | All the requisite Environmental Consents for the project have been obtained. |  |
| **2.2** | Qualified Bidder has identified all other Environmental Consents that are required for the proposed Facility to be lawfully developed, constructed, and connected to a Distribution System or a Transmission System, and operated in accordance with the SPPA. |  |
| **2.3** | Full description of the progress made by Qualified Bidder in obtaining any Environmental Consents which may be required for the Project that have not been obtained at Bid Submission Date, and indication by when the Bidder anticipates being able to secure these;  |  |
| **2.4** | Hard copy of the Environmental and Social Impact Assessment approved for the site, and include substantive details of all objections to the development of the Facility received during any public participation process conducted and any appeals that may be necessary for Project environmental clearance. |  |
| **3** | **Others**  |  |
| **3.1** | 3.1.1 Written confirmation of a water allocation for all the water consumption needs of the Project from a water services provider or a written non-binding confirmation of water availability for the Project from <Water Authority>.3.1.2 Consent of the <Civil Aviation Authority> to erect a potential obstacle to aviation or confirmation from the <Civil Aviation Authority> that no such consent is necessary. |  |

**Form 13-Solar**: **Deemed output model**

Qualified Bidder is hereby advised of constrained off or down events (CODE) and associated risks of loss of sales volume and revenues. Loss of revenues may be or may be not compensated by the DNO under provisions of the SPAA depending on the nature of the CODE.

(i) **Qualified** **Bidder’s proposed methodology of determination of deemed output:**

(ii) **Monitoring system, prognosis software and sensors to record output performance of solar facility in support of the methodology to determine deemed output**

**Form 14-Solar:** **Organogram of Project Company registered under the Laws of Tanzania**

**Instructions:** Show hierarchy, responsibilities, and relationships.

**Form 15-Solar: Project Implementation Schedule**

**Instructions**:

(i)Provide a detailed project implementation schedule using a software package to show the following minimum details:

* Activities and milestones
* Dependency constrains
* Slacks
* Critical path
* Concurrent and/or overlapping activities
* Activities that cannot be done until their predecessor activity is complete

(ii) Bidders should be aware that obtaining permits and consents as required under the Laws of Tanzania to construct and operate a Project facility may take considerable time and efforts that may go well beyond the efforts to provide for the information in this Project Proposal.

(iii) Bidders should be prepared to allocate sufficient time to provide during financial close negotiations with equity and debt providers significantly more comprehensive and more detailed information, as compared to the information provided in the Project Proposal, particularly regarding:

* Project location, technology choice, relevant component choice, plant design and performance,
* Renewable energy resource availability and seasonal variations,
* Qualification of relevant advisors and EPC contractor,
* Qualification, solvency and experience of subcontractors and equipment suppliers, and
* Financial and technical risk mitigation strategies concerning loss of sales volumes and/or loss of revenues due to circumstances beyond the control of the Project Company.

**Form 16-Solar:** **Hybrid and/or Co-generation Projects**

**Instructions:**

(i)Complete this Form only if the solar facility is connected to a main grid or mini grid.

(ii) Use Form also for a solar co-generation facility exceeding the 10 MW SPP statutory capacity limit but **no** existing power facility #1.

(iii) Use Form also for a solar co-generation facility exceeding the 10 MW statutory capacity limit **and** existing power facility #1.

|  |  |  |
| --- | --- | --- |
| **1** | **Existing or new power facility #1** | Capacity: MW installed; Capacity Factor: %; Primary energy type: |
| **2** | **Legal Owner/operator of #1** |  |
| **3** | **Exported output in MWh of #1** | 2011: ; 2012: ; 2013: ; 2014: ; 2015  |
| **5** | **Self-Consumed MWh of #1** | 2011: ; 2012: ; 2013: ; 2014: ; 2015  |
| **4** | **Power facility #1 connected to** | Main Grid; Mini Grid; Neither    | Buyer:  |
| **6** | **Proposed solar facility #2** | Capacity: MW installed; Design output: MWh sent/year; Capacity factor: % |
| **7** | **Solar facility #2 connected to** | Main Grid; Mini Grid; the captive power busbar of partial self-consumption    |
| **8** | **Exported output in MWh of #2**  | Estimates: 2017: ; 2018: ; 2019: ; 2020: ; 2021  |
| **9** | **Self-Consumed MWh of #2** | Estimates: 2017: ; 2018: ; 2019: ; 2020: ; 2021  |
| **10** | **Legal owner/operator of #2** |  |
| **8** | **Solar project site** |  Within site of #1; Adjacent to #1 ; Distanced from #1 by \_\_\_\_\_km  |
| **9** | **Purpose(s) of solar facility**  |  Fossile fuel saver; Capacity addition; Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  |
| **10** | (i) Provide system diagram (Figure 16-Solar) showing:* Existing or new power generation facility #1 as the case may be
* Proposed PV facility #2
* Interconnection of facility #1 with Main Grid or Isolated Mini-Grid, if applicable
* Interconnection of facility #1 with facility #2
* Interconnection of solar facility #2 with Main Grid or Isolated Mini-Grid

 (ii) Clearly indicate in Figure 16-Solar typical expected annual export and self-consumption MWh streams of the output of facility #2 and the output of existing or new facility #1 , or provide a Sankey diagram. |

**Figure 16-Solar: Hybrid System Diagram and Energy Flow Streams**

**Form 16-Solar: Bidder Comments**

**Form 17-Solar: Description of Interconnection Facilities**

**Instructions:** Provide below information (indicate “Yes”, “No” or “NA”) about the status of Bidder’s negotiation with the relevant DNO concerning shared responsibilities of engineering, procurement, construction and O&M of the three sections that constitute the interconnection facilities. Refer to Table 17-Solar for guidance about shared responsibilities as prescribed by the SPP legal framework.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Subject** | **Inter****Connector** | **DNO****Substation** | **DNO Grid** |
| 1 | Agreement reached on Main Meter location  |  |
| 2 | Agreement reached on cost estimates of construction of interconnection facilities  |  |  |  |
| 3 | Agreement reached on ownership, form and manner of EPC contract(s) to construct interconnection facilities  |  |  |  |
| 5 | Agreement reached on which party covers O&M cost over the term of the SPPA |  |  |  |
| 6 | Agreement reached on O&M responsibility of interconnection facilities over the term of the SPPA |  |  |  |
| 7 | Agreement reached on shared responsibilities with respect to agreed commercial operation date (COD) |  |  |  |
| 8 | Agreement reached on shared responsibilities of reimbursement for loss of revenues due to CODE |  |  |  |
| 9 | Agreement reached on form and manner of transfer of ownership of interconnection facilities as the case may be  |  |  |  |

**Form 17-Solar: Bidder Comments**

**Table 17-Solar: Shared responsibilities of engineering, procurement, construction, operation and maintenance of interconnection facilities**

****

\* After Project Company (PC) has transferred fixed assets to DNO and as per provisions of the Interconnection Agreement

\*\* Refers to construction and financing of a new substation or retrofitting an existing substation to accommodate the additional RE capacity

\*\*\* Bid price in Cents/kWh: BP = BP1 + **Δ**P1 + **Δ**P2 + **Δ**P3

**Figure 17-Solar:** **Proposed Layout of Interconnection Facilities**

1. “Sent” MWh refers to energy recorded at the Main Meter location of the PV facility [↑](#footnote-ref-1)
2. NOTE: The figures included in the Example are illustrative only and do not reflect any real pricing information. [↑](#footnote-ref-2)