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Reference No. BD/MZ/NEPRA-0116/2023-1610

October 16<sup>th</sup>, 2023

For kind information please  
Registrar  
Chairman  
1. M (Lic.)  
2. M (Tech.)  
3. M (Trd. & Fin.)  
4. M (Law)  
National Electric Power Regulatory Authority ("Authority")  
NERPA Tower, Attaturk Avenue (East)  
G-5/1, Islamabad

cc- Dir. (IT)

REGISTRAR OFFICE  
Diary No. 14559  
Date 17.10.23

**Subject: OPEN COMPETITIVE BIDDING AND AMENDMENT TO REQUEST FOR PROPOSAL (RFP) FOR 120 MW SOLAR PROJECT (SITE 01) AT DEH HALKANI, DISTRICT WEST (THE "PROJECT")**

Dear Sir,

We write in relation to the Request for Proposal ("RFP") submitted by K-Electric Limited ("KE") for the Project via letter no. BD/MZ/NEPRA-0114/2023-0411 dated 18<sup>th</sup> April 2023, submitted under NEPRA (Electric Power Procurement) Regulations, 2022 ("NEPPR") and KE's latter request to the Authority for approval of Benchmark Tariff with 100% USD indexation for the Project via letter no. BD/MZ/NEPRA-0115/2023-1407 which was submitted on 14<sup>th</sup> July 2023.

Through this letter, we request NEPRA to consider open competitive bidding instead of "reverse auction with benchmark tariff" for the Project, to let the market determine the price of electricity as any benchmark set by the Authority would not be able to account for the rapidly changing market dynamics and may result in negligible participation in the bidding process. It is worth noting that the first few years of the 2020s have seen a number of acute economic, financial, geopolitical and covid related disruptions on a global scale. The Russia-Ukraine war has further exacerbated the economic fall outs from the pandemic leading to broader implications globally, resulting in unprecedented increase in commodity prices, increasing volatility and unpredictability in the global markets.

The economy at present is in a period of massive fiscal and monetary policy interventions that are difficult to capture. The unprecedented change can be seen from the local currency devaluation at a CAGR of 20% since 2020 with current USD/PKR exchange rate at 278, while the inflation rate has grown at 48% CAGR, with more than 100% increase in 2022 alone and 58% in 2023.

Therefore, in a period of unusually heightened volatility, open competitive bidding would be a more prudent approach as this would allow investors to factor in the uncertainty of future market conditions and have the opportunity to make a better representation of the market developments, expected returns, financing mix and its applicable rates, potentially leading to greater participation. In current times of diminishing investor interest in Pakistan, the open bidding mechanism would incentivize the investors and ensure fast track implementation of the Project.

Please also note in the recent decision of the Authority dated 6<sup>th</sup> September 2023 in the matter of review motion filed by PPIB in the matter of RFP submitted by AEDB for competitive bidding of 600 MW solar PV projects at Muzaffargarh, the Authority has permitted open competitive bidding under NEPRA Competitive Bidding Tariff (Approval Procedure) Regulations, 2017 ("NCBTR"). Moreover, the Authority has also approved an indexation

**K-Electric Limited**

39-B KE House Sunset Boulevard, DHA- Phase 2, Karachi, Pakistan



formula in its said decision which allows indexation of awarded tariff for variations in USD to PKR exchange rate and in KIBOR / SOFR.

We understand that the above decision has been made by the Authority considering that no bids were received by AEDB during the reverse competitive bidding process for the said project and that the revised decision on open competitive bidding and indexation formula approved by the Authority is to capture the uncertainties in the current macro-economic environment of Pakistan, as elaborated above.

We would further like to highlight that NEPPR does not expressly restrict the Supplier of Last Resort (SOLR) to only reverse bidding with benchmark tariff. Under Regulation 9(5) of NEPPR, the adoption of open competitive bidding process has been allowed and KE, being the SOLR, has the liberty to procure electric power through any method of competitive auction as provided in Regulation 9(5) of NEPPR (please see extract below):

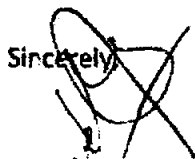
*"Subject to these regulations, the Independent Auction Administrator or the supplier of last resort conducting the competitive auction, as the case may be, may adopt any method of competitive auction as approved by the Authority in the bidding documents."*

In light of the above, we would like to request the Authority for approval of open competitive bidding for the Project and the same indexations as allowed to AEDB consisting of 80% USD based indexation and linkage of Awarded Tariff with SOFR and KIBOR variations along with one-time exchange rate adjustment at COD of the 20% component of the tariff as provided in Section 17.1 of the amended RFP (enclosed as Annexure A).

We believe that open competitive bidding can substantially increase the chances of a successful competitive bidding process and will also establish fairness, transparency, and consistency in the sector as investors participating in the competitive bidding process for KE Renewable projects will be provided similar tariff mechanism as other renewables across Pakistan. **The selection of the successful bidder in any case will be based on the least cost principle, that is, the bidder offering the lowest tariff will be selected for project development subject to approval of the Authority.**

In view of the above, we have proposed amendments to the RFP, enclosed as Annexure-A, and request the Authority to grant its approval of the amended RFP, consistent with the principles and methodologies of open competitive bidding, and the revised indexations mentioned above.

We look forward to favorable consideration by the Authority.

Sincerely,  


Mudassir Zuberi  
Head of Business Development

# K-ELECTRIC LIMITED

## REQUEST FOR PROPOSAL (RFP)

FOR SELECTION OF BIDDERS/ DEVELOPERS FOR  
DEVELOPMENT OF UTILITY SCALE SOLAR POWER PLANT

AT KARACHI SITE 01 - DISTRICT WEST, KARACHI, SINDH,  
PAKISTAN *(APPROX. 120 MW SOLAR PV POTENTIAL - ON SINGLE AXIS TECHNOLOGY), SINDH, PAKISTAN*

UNDER NEPRA (ELECTRIC POWER PROCUREMENT) REGULATIONS, 2022

**DATE: [●] OCTOBER 2023**

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Note to Bidders: Bidders are requested to note that the information set out herein is subject to confidentiality restrictions set out in this RFP. By participating and receiving a copy of this RFP, a Bidder undertakes to keep confidential all information that it receives from K-Electric Limited and all information it provides to K-Electric Limited or will be provided in this process.

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**KE Request for Proposal (RFP) – approx. 120 MW solar power project at District West, Karachi, Sindh, Pakistan  
'Karachi Site 01'**

## **Volume-I: Instructions to Bidders**

## 1 Invitation to Bid

- (a) K-Electric Limited (**KE**) hereby invites, the prequalified applicants, through this Request for Proposal (**RFP**) to submit Bids to develop, design, finance, insure, construct, complete, commission, own, operate and maintain a site-specific solar PV power project having the capacity of approximately 120 MW, to be located at Karachi Site 01, Sindh, Pakistan on Build, Own, Operate and Transfer (**BOOT**) basis, and undertake all activities incidental or ancillary thereto (the **Project**). For avoidance of doubt, the Project will be transferred to the Government of Sindh (**GOS**) after the expiry of the Term.
- (b) The Project is part of Component I (Utility scale solar) of the Sindh Solar Energy Project (**SSEP**) assignment of the Sindh Energy Department (**SED**) which has received support from the World Bank (**WB**) for overall development of utility scale solar parks in Sindh through competitive auctions. This RFP has been prepared in line with the NEPRA (Electric Power Procurement) Regulations, 2022 (**NEPPR**). This RFP sets out, inter alia, the process for the selection of the Successful Bidder via Open Competitive Bidding that will develop the Project on BOOT basis and will be responsible for all activities incidental or ancillary to the Project.
- (c) KE is conducting the competitive auction for the Project in accordance with NEPPR as the Supplier of Last Resort (**SOLR**) within its service territory. The Project is conceived under a joint collaboration between the SED, WB and KE. In order for a Bid to be evaluated, the Bidders must meet all of the eligibility requirements stated herein. For avoidance of doubt, KE shall perform all the obligations as required in the process for competitive auction which includes submission of an Auction Evaluation Report to the Authority and selection of Successful Bidder. The Successful Bidder will form the Special Purpose Vehicle (**SPV**) that will enter into an Energy Purchase Agreement (**EPA**) with KE. For purposes of this Project, KE will be the Purchaser.
- (d) Approximately 612 acres of land shall be provided by the GOS for the construction of the Complex at the Site and the Successful Bidder/SPV shall pay the Solar Park Fee to the GOS (or the nominee of the same) in accordance with the applicable laws. The feasibility study has already been carried out for the Project in accordance with internationally acceptable standards. The Complex shall be connected with the KE grid system at 220 kV voltage level and shall be capable of operating within the range specified in the Grid Code on the 220 kV high voltage system which range shall not be exceeded.
- (e) The Successful Bidder will be issued a Letter of Intent (**LOI**) by KE (being the Purchaser) in the form as appended in Exhibit 14, for formation of the SPV subject to submission of Performance Guarantee. Subsequent to the formation of SPV, the SPV will be required to (i) obtain Generation License and Tariff Approval from NEPRA (ii) enter into EPC contract for the design, construction and commissioning of the Complex (iii) enter into EPA with KE, and other necessary Project agreements (iv) arrange the necessary financing for the Project and achieve financial close (v) construct and implement the Project to achieve Commercial Operation Date (**COD**) within the time period allowed by NEPRA in the Tariff Approval, and (vi) upon Commissioning, operate and maintain the Complex for the Term so as to provide electricity to the Purchaser as per the terms and conditions of the EPA and the Tariff Approval.
- (f) The Successful Bidder will implement the Project awarded to them consistent with the LOI, and the EPA, and shall undertake all activities incidental or ancillary to implementation of the awarded Project in accordance with the said documents within the timelines stated in the Project Development Schedule in section 7.
- (g) KE at its sole discretion may participate as a minority shareholder with up to 49% equity shareholding in the SPV either through its affiliate or its subsidiary.



**KE Request for Proposal (RFP) – approx. 120 MW solar power project at District West, Karachi, Sindh, Pakistan  
'Karachi Site 01'**

- (h) This RFP is structured on a single stage, two-envelope bidding process. The contents required for each envelope and the basis for evaluation of the Bids are detailed in the ensuing Sections of this RFP. Bidders are required to meet the Minimum Technical Requirements (**MTR**) as provided in section 16.2, following which the selection of the Successful Bidder will be based on the financial evaluation criteria defined under Section 13 and technical evaluation criteria as provided in Exhibit 16. The Bidder offering the lowest Bid Tariff will be selected as the Successful Bidder. In the event that the lowest Bid Tariff of two or more Bidders are equal, the Bidder offering the maximum discount to the Bid Tariff will be selected as the Successful Bidder. In the case of default or disqualification of a Successful Bidder, the next in line Bidder with the lowest Bid Tariff will be selected.
- (i) Each Bid must comply with the RFP requirements. The Bids (along with the Bid Bond and the Bid Processing Fee) must be delivered no later than the Deadline specified in Section 12.6 at the address specified in Section 12.7.
- (j) Capitalized expressions used but not defined herein shall bear the meaning ascribed thereto in Section 3.2.
- (k) Unless expressly specified otherwise, all capitalized terms used herein shall bear the meaning ascribed thereto in the Glossary of this RFP.
- (l) This invitation and the RFP are subject to the Disclaimer attached herewith.

All Bids must be submitted, as per the instructions provided in this RFP, to:

**Attention** : Mr. Qasim Mehmud  
Strategic Sourcing Lead – Project Procurement  
K-Electric Limited  
**Address** : 1<sup>st</sup> Floor, Block J Procurement Division, Elander Road Complex, Karachi,  
Pakistan  
**Telephone** : +92 21 387 09132 (Ext: 9424)  
**Email** : [qasim.mehmud@ke.com.pk](mailto:qasim.mehmud@ke.com.pk)  
**Website** : [www.ke.com.pk](http://www.ke.com.pk)

We would like to thank the Bidders for their interest in this Project.

## 2 Disclaimer

- a) This RFP cannot be considered to be a recommendation or encouragement to a Bidder to submit a Bid but is intended to enable the Bidder to submit a Bid. This RFP is not an agreement or offer by KE to the prospective bidders or any other party. The information contained in this RFP has been prepared to assist each Bidder in making its own evaluation of the Project and does not purport to contain all of the information that such Bidder may desire with respect to the Project.
- b) The documentation provided in this RFP is made available to Bidders who: (i) are expected to have the necessary skills and experience to be able to assess the risks inherent in the award procedure and to understand and evaluate the data provided in this RFP; and (ii) are expected to seek the assistance of advisors and consultants to make an analysis of the procedure and the documentation. In all cases, the Bidder is required to conduct its own due diligence, investigation and analysis including but not limited to Site assessment, interconnection assessment, energy yield etc.
- c) KE shall under no circumstances be responsible or liable to reimburse the cost associated with the preparation and submission of the bids regardless of the outcome of the bidding process. KE rejects all liability, of whatever nature, for any damage or loss that a Bidder may suffer as a consequence of the: (i) use of this document, changes to it, or information incorporated into it; (ii) the fact that the Bidder relied on this information; or (iii) the lack of, the irrelevance of, or the interpretation of certain information in this document.
- d) None of KE or its directors, officers, employees or advisors makes any representation or warranty, express or implied, as to the accuracy or completeness of this RFP or the information contained herein and none of KE or its directors, officers, employees or advisors shall not be liable for any of the information contained herein, or omitted from this RFP, nor for any of the written, oral, electronic or other communications transmitted to the Bidder in the course of Bidder's investigation and evaluation of the Project and submission of its Bid pursuant to this RFP. Only those representations and warranties that are made in a definitive written agreement, when and if executed, and subject to any limitations and restrictions as may be specified in such definitive written agreement, shall have any legal effect. Each Bidder shall be responsible for its own independent evaluation and assessment of the Project and should consult its own professional advisors and consultants accordingly.
- e) The Bidder must take this risk into account in its Bid. By submitting a Bid the Bidder accepts this liability disclaimer. The Bidder who, on the basis of the information incorporated into this document or provided up until the submission date, decides not to submit a Bid also accepts this liability disclaimer.

### **3 Interpretation**

#### **3.1 Abbreviations**

AC	Alternate Current
ARE	Alternative and Renewable Energy
BOOT	Build, Own, Operate and Transfer
CCTV	Closed Circuit Television
COD	Commercial Operations Date
DC	Direct Current
DISCOs	Distribution Companies
EPA	Energy Purchase Agreement
ESIA	Environment and Social Impact Assessment
Grid Code	NTDC's grid code 2023 or as amended from time to time
GOP	Government of Pakistan or Federal Government
GOS	Government of Sindh or Provincial Government
HV	High Voltage
IEC	International Electro-technical Commission
IP	Ingress Protection
IPP(s)	Independent Power Producer(s)
KE	K-Electric Limited or Purchaser
kW	Kilowatt
kWh	Kilowatt hour
LOI	Letter of Intent
MV	Medium Voltage
MW	Megawatt
MWp	Megawatt peak
NEPPR	NEPRA (Electric Power Procurement) Regulations, 2022
NEPRA	National Electric Power Regulatory Authority
NOC	No Objection Certificate
NTDC	National Transmission and Despatch Company Limited
O&M	Operation and Maintenance
Pakistan	The Islamic Republic of Pakistan
PKR or Rs	Pakistani Rupees

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PKT	Pakistan Standard Time
PV	Photovoltaic
RFP	Request for Proposal
SED	Energy Department, Government of Sindh
SCADA	Supervisory Control and Data Acquisition
SPV	Special Purpose Vehicle
STC	Standard testing Conditions
TSF	Temporary Site Facility
USD or US\$	United States Dollar
VPN	Virtual Proxy Network
VT	Voltage Transformer

### 3.2 Definitions

<b>Authority</b>	National Electric Power Regulatory Authority (NEPRA) has been appointed as the sole regulator in the power sector by the GoP and is tasked to ensure a transparent, competitive and commercially-oriented power market in Pakistan.
<b>Auction and Evaluation Committee</b>	The committee formulated in accordance with NEPPR.
<b>Auction and Evaluation Report</b>	The report prepared by the Auction and Evaluation Committee and submitted to the Authority after completion of a competitive auction under the bidding documents in accordance with the NEPPR.
<b>Awarded Tariff</b>	The Bid Tariff of the Successful Bidder as per the Tariff Approval
<b>Backup Metering System</b>	The meaning ascribed thereto in the EPA.
<b>Bid</b>	A bid in response to this RFP to implement the Project in accordance with this RFP which shall comprise of all documents including the Technical Proposal and Tariff Proposal.
<b>Bidder(s)</b>	A company incorporated under the Laws of Pakistan or a foreign company registered according to the laws of country of incorporation, a person or a consortium, that is prequalified through the prequalification process for the Project dated [●] and meets the eligibility criteria stated in this RFP.
<b>Bid Bond</b>	An unconditional, irrevocable, on demand bank guarantee issued to KE in an amount equal to USD 1,000/MW by at least an “AA” rated scheduled bank operating in Pakistan, or a corresponding bank in Pakistan (in case of a foreign Bidder), which is acceptable to KE, valid for a period of at least twelve (12) months from the Deadline after the Bid Validity Period (as may be extended pursuant to section 11(d), in the format and language as provided in Exhibit 9, or equivalent in PKR at the T.T/OD PKR/USD sell side rate published by National Bank of Pakistan on the last working day which is five (05) days before the Deadline.
<b>Bid Processing Fee</b>	A non-refundable processing fee of PKR 1,500,000/-
<b>Bid Letter</b>	The cover letter for Bid in the format as provided in Exhibit 2.
<b>Bid Tariff</b>	The non-indexed single tariff for the life of the Project provided by the Bidder in Rs./kWh at Reference Exchange Rate.
<b>Bid Validity Period</b>	The meaning ascribed thereto in Section 12.7.
<b>Capacity</b>	The nominal rated capacity of the Complex of 120 MWp.

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<b>Commercial Operations Date (COD)</b>	The meaning ascribed thereto in the Energy Purchase Agreement (EPA).
<b>Commissioning</b>	The meaning ascribed thereto in the Energy Purchase Agreement (EPA).
<b>Complex</b>	The meaning ascribed thereto in the Energy Purchase Agreement (EPA).
<b>Consumer End Tariff</b>	The meaning ascribed thereto in EPA.
<b>Deadline</b>	The meaning ascribed thereto in Section 12.6.
<b>Energy Purchase Agreement (EPA)</b>	The Energy Purchase Agreement in the form provided in Exhibit 15 to be entered into by and between the Purchaser and the Seller for the purchase and sale of electricity generated by the Complex, which shall be valid for the Term of the Project.
<b>Feasibility Study Report (FSR)</b>	The feasibility study conducted through a reputable consultant for the Complex by the Bidder which shall include but not limited to Geotechnical study, topographic survey, flood risk assessment, meteorological and climate data impact assessment, yield assessment etc.
<b>Financial Close</b>	The meaning ascribed thereto in the EPA.
<b>Generation License</b>	The license to be issued by NEPRA or concurrence under section 14B of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, as amended from time to time, permitting the generation and supply of electricity by the Seller from the Complex in accordance with the terms and conditions of such license/approval, in accordance with Regulation 25 of NEPPR.
<b>Grid Code</b>	The Grid Code 2023 approved by NEPRA, which sets out the technical requirements, guidelines, rules and procedures to be adopted by the System Operator and all Code Participants for effective planning, seeking new connections or modification in the existing ones, reliable and coordinated protection of the National Grid, precise Metering at the Connection points and economic System Operation purposes for normal and abnormal Transmission System conditions, as it may be revised from time to time with any necessary approval by NEPRA and notified to the Bidder and as applicable, to KE
<b>Grid Interconnection Study</b>	The study conducted by a third-party consultant for the evaluation of load flow, short circuit, transient stability, reactive power requirement etc.
<b>Independent Engineer</b>	The firm of engineering consultants to be appointed and hired by the Successful Bidder with the approval of KE, for monitoring the

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	construction and commissioning of the Complex and to deliver related certificates to the Successful Bidder and KE and to carry out all the engineer’s responsibilities to be specified in the EPA.
<b>Interconnection Point</b>	The meaning ascribed thereto in the Energy Purchase Agreement.
<b>K-Electric Limited or KE</b>	An integrated power utility company operating in Karachi and adjoining areas in Sindh and Baluchistan provinces, duly incorporated as a public limited company and existing under the Company Act 2017, having SECP registration number 0000002, with its principal office at KE House, 39-B, Sunset Boulevard, Phase-II, D.H.A, Karachi, Pakistan.
<b>Karachi Site 01</b>	The Site in District West Karachi admeasuring 612 acres for purposes of construction and operations of the Project Complex.
<b>Letter of Intent</b>	The Letter of Intent to be issued by K-Electric Limited to the Successful Bidder in the form provided at Exhibit 14.
<b>Metering System</b>	The meaning ascribed thereto in EPA.
<b>NEPPR</b>	National Electric Power Regulatory Authority (Electric Power Procurement) Regulations, 2022, as amended or superseded by subsequent regulations from time to time.
<b>Open Competitive Auction</b>	The process of competitive auction without the determination of a benchmark tariff.
<b>Performance Guarantee or PG</b>	The bank guarantee in the form provided at Exhibit 13 to be submitted by a Successful Bidder to KE from an “AA” rated scheduled Bank operating in Pakistan which is acceptable to K-Electric, with a validity of 13 months in the sum equivalent to USD 5,000/- per MW, as a condition for the issuance of the LOI payable in equivalent Pakistan Rupees calculated at the average of the National Bank of Pakistan TT & OD selling rate for United States Dollar prevalent on the business day preceding the date of which payment is made under the PG.
<b>Project</b>	The development, design, financing, insurance, construction, completion, Commissioning, ownership, operation and maintenance of the Complex on BOOT basis and all activities incidental or ancillary thereto at the Site.
<b>Provincial Government or GOS</b>	The Government of Sindh.
<b>Purchaser</b>	K-Electric Limited or KE.

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<b>Reference Exchange Rate</b>	USD to PKR rate of 300.5 or as determined by NEPRA for the purpose of Open Competitive Bidding.
<b>RFP</b>	This document and any appendices, attachments to schedules to this document/RFP.
<b>Site</b>	The parcel of land for the Project identified in this RFP at Karachi Site 01, Sindh, Pakistan and allocated by Land Utilization Department (LUD), GOS for development and construction of the Complex.
<b>Solar Park Fees</b>	Subject to execution of land lease agreement, the Successful Bidder (until such time till the SPV is formed) and following the incorporation of the SPV, the SPV shall make an annual payment amounting to <b>USD 1,105/MW</b> to SSEP which will be inclusive of annual land lease and ancillary charges incurred by the SSEP in respect of the Project.
<b>Special Purpose Vehicle (SPV)</b>	A company to be formed by the Successful Bidder for specific purpose of undertaking the Project.
<b>Successful Bidder</b>	The meaning ascribed thereto in Section 13.
<b>Tariff Approval</b>	NEPRA’s approval of the Tariff of a Successful Bidder in accordance with Regulation 25 of NEPPR.
<b>Tariff Proposal</b>	The proposal submitted by the Bidder in accordance with the requirements outlined in Section 12.5.2 of this RFP and corresponding Exhibits.
<b>Technical Proposal</b>	The proposal submitted by the Bidder in accordance with the requirements outlined in Section 12.5.1 of this RFP and corresponding Exhibits.
<b>Technically Non-Qualified Bidder</b>	The meaning ascribed thereto in Section 11.1.
<b>Technically Qualified Bidder</b>	The meaning ascribed thereto in Section 11.1.
<b>Technically Qualified Bid</b>	The meaning ascribed thereto in Section 11.1.
<b>Technically Non- Qualified Bid</b>	The meaning ascribed thereto in Section 11.1.
<b>Term</b>	The term is twenty-five (25) years from Commercial Operation Date (COD) of the Project as approved by NEPRA and as provided in the EPA.

### 3.3 Rules of Interpretation

In this RFP:



**KE Request for Proposal (RFP) – approx. 120 MW solar power project at District West, Karachi, Sindh, Pakistan  
'Karachi Site 01'**

- (i) headings are only for convenience, and shall be ignored in construing this RFP;
- (ii) the singular includes the plural and vice versa;
- (iii) capitalized terms used herein and not defined in this RFP bear the meanings as ascribed to them in the EPA, provided, terms defined in this RFP and also defined in the EPA shall, for the purposes of this RFP, bear the meaning given in this RFP;
- (iv) unless the context requires otherwise, references to times and dates are, and shall be construed to be, references to Pakistan Standard Time;
- (v) references to clauses, Sections, Proformas and Exhibits are, unless the context otherwise requires, references to clauses, Sections, Proformas and Exhibits to this RFP;
- (vi) a reference to any legislation or legislative provision includes any statutory modification or re-enactment of or legislative provision substituted for, and any subordinate legislation under, that legislation or legislative provision; and
- (vii) the terms "interest" or "markup" is used interchangeably and shall wherever they are used describe or denote the return paid to lenders on debt or profit on debt.

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#### **4 K-Electric Limited**

K-Electric Limited ("KE") is a publicly listed utility company and the only vertically integrated power utility, engaged in the Generation, Transmission, and Distribution of electricity in Pakistan.

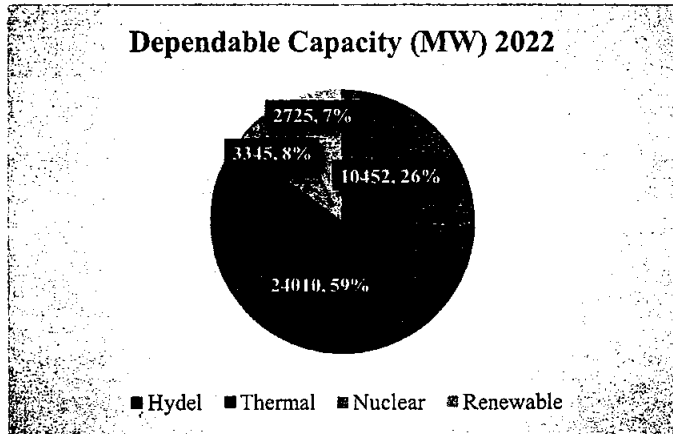
KE not only produces electricity from its own generation units but has arrangements with external power producers as well. KE's licensed installed capacity including 900 MW of BQPS III is 2,817 MW. Further, KE has arrangements with external power producers for over 1,600 MW which includes supply from various IPPs covering gas, coal and solar technologies, and the National Grid without the backing of a sovereign guarantee or government's implementation agreement. Besides this, KE's transmission system comprises of 1,354 km of transmission lines, 71 grid stations and 179 power transformers. KE operates under the regulatory regime of NEPRA.

For purposes of this Project, KE will be the Purchaser. The Successful Bidder will form an SPV that will enter into an Energy Purchase Agreement (EPA) with KE. By participating in the bidding process, the Bidders are deemed to have signified their acceptance to the terms of the LOI and the EPA, drafts whereof are annexed to this RFP. Except for Project-specific additions or modifications required to be made to the EPA, the EPA will be executed by the Successful Bidder and the Purchaser in the form of the drafts appended as Exhibit 15.

## **5 The Power Sector in Pakistan**

As this competitive auction is being held among the Bidders who have been part of the prequalification process, they are deemed to be familiar with the power sector in Pakistan. Further information about the power sector in Pakistan can be gathered by visiting the websites of NEPRA, K-Electric Limited, NTDC and Ministry of Energy. The Bidders however are required to carry out their own independent due diligence and no representation, warranty or assurance as to the accuracy and sufficiency of such information is made or deemed to be made for the purposes of this RFP.

Pakistan currently has around 43.775 (State of Industry Report 2022) GW of installed capacity for electricity generation. Conventional thermal plants (oil, natural gas, coal) account for 60.95% of Pakistan’s capacity, with hydroelectricity making up 24.29%, nuclear 8.27% and renewable (other than small hydro) 6.48%. The total dependable generation capacity of the country, including CPPA-G (national grid system) and KE Systems as on 30-06-2022 was 40,532 MW comprising of 37,858 MW capacity in CPPA-G System and 2,674 MW in KE system. Overall installed capacity of renewable projects as of June 30, 2022 comprises 630 MW solar, 1,838 MW wind and 369 MW Baggase.



Pakistan’s reliance on fossil fuels for energy is jeopardising its economic progress and social development. The major reasons for the energy crises are high costs of electricity, unutilized “Take Or Pay” power generation capacity, weak transmission and distribution system, lack of investment in power sector in the past, non-development of renewable energy sector i.e. small hydel, wind and solar etc. and the depleting of oil and gas reserves. It is imperative for Pakistan to look for indigenous /cheap energy resources for sustainable growth through self-reliance.

## 6 Solar Power

Solar energy has been highlighted as one of the most feasible alternative energy technologies in Pakistan. Solar energy is widely available in Pakistan, as per the meso scale Solar PV map of the Pakistan, the available Solar PV potential ranges between 1200-2020 KWh/KWhp/yr. Till June 2022, a total of seven utility scale solar PV projects of 530 MW capacity were connected to the national grid and 100 MW utility scale capacity of solar is connected to the KE system. In addition to some more utility scale projects being developed in the pipeline.

In order to facilitate development of solar PV power generation, NEPRA in the past has determined a series of cost plus and upfront tariffs for generation of electricity from solar PV power. Considering that the solar PV industry has seen immense growth in the last years, NEPRA is of the view that it is an opportune time to transition from cost plus and upfront tariffs to a competitive bidding model, in line with the Government of Pakistan's overall aims to promote competition within the power sector for the benefit of consumers.

### 6.1 Project Background - The Sindh Solar Energy Project (SSEP)

The Sindh Solar Energy Project (SSEP) falls under the overall ambit of development of Renewable Energy projects in the Province of Sindh. The Energy Department, Government of Sindh (SED) received funding from the World Bank in the form of a loan to finance the studies related development to increase solar power generation and access to electricity in the province of Sindh. For the development of solar power in the province of Sindh, SSEP has the following four components and results targets under the current project design:

1. **Component 1:** 400 MW of Utility-Scale Solar to be developed by the private sector under a competitive bidding model;
2. **Component 2:** 20 MW of Distributed Solar on and around public buildings;
3. **Component 3:** Provision of Solar Home Systems to 200,000 households with low access to electricity; and
4. **Component 4:** Capacity Building and Technical Assistance

With regards to (1) above, SSEP will carry out Component 1 by facilitating the construction of 400 MW of utility-scale solar power capacity by private sector developers across multiple sites. The first site under SSEP has been identified in Manjhund District, Jamshoro, Sindh, Pakistan for development of a 50 MW solar PV plant for power offtake by CPPA. The second site under Component 1 - 'Karachi Site 01' has been earmarked in Karachi (District West), Sindh, Pakistan and the third site under Component 1 - 'Karachi Site 02' has been identified in Karachi (District Malir), Sindh, Pakistan for power offtake by KE. This RFP pertains to Karachi Site 01 which has a solar PV potential of approx. 120 MW.

### 6.2 Salient features of the Project Site

The Project is to be located at latitude of 25.029533°, and longitude of 66.993153° in District West, Karachi, Sindh, Pakistan. The Project site is located at Northern side of the Karachi city in District West near Hazratnabad on Northern Bypass road which is approximately 74.9 km from Port Qasim, Karachi; Pakistan's commercial hub and main port city. The Project site spans across 612 acres of land. The access to the site from Port Qasim will be through the National and Super highway link road then Karachi-Hyderabad M-9 Motorway to Karachi Northern Bypass M10 towards Project site. The major section of the track from Karachi to the site is a multi-lane, relatively flat road.

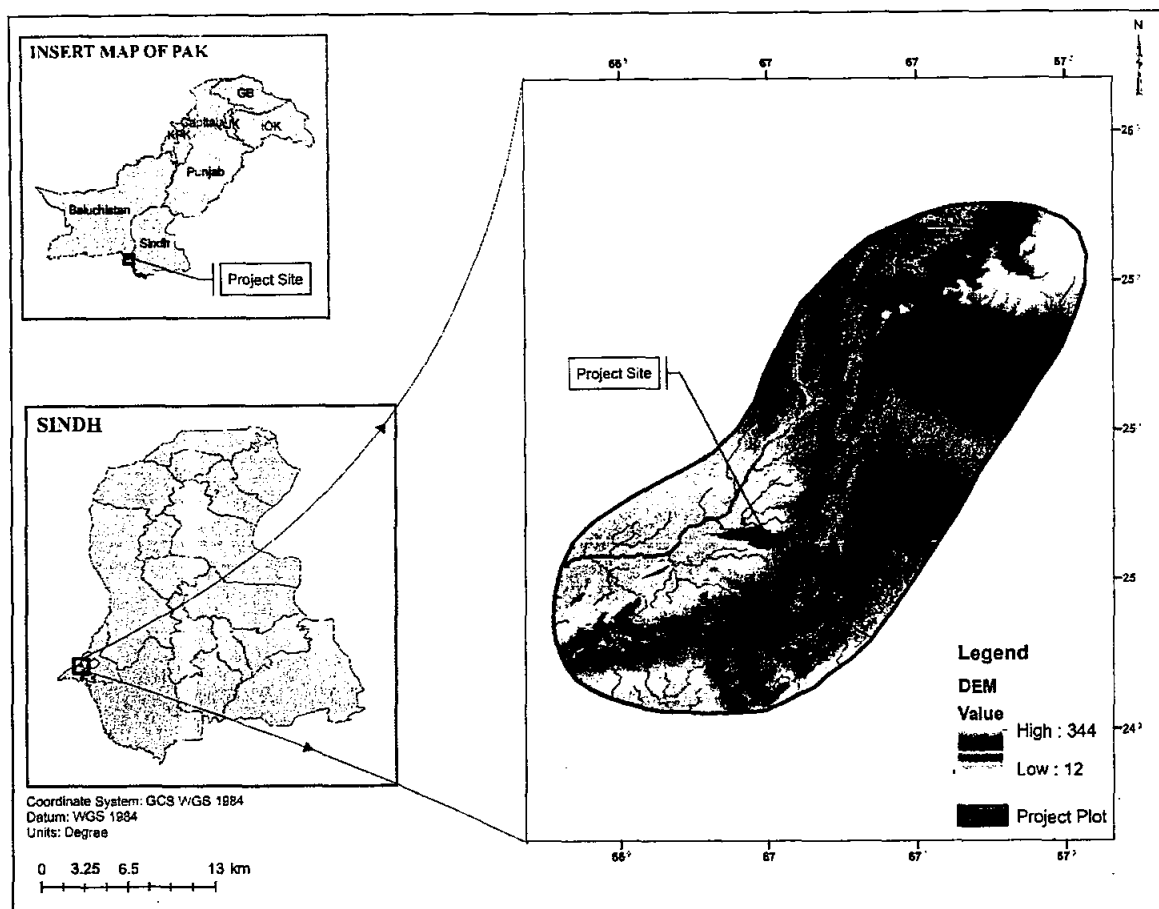
KE Request for Proposal (RFP) – approx. 120 MW solar power project at District West, Karachi, Sindh, Pakistan  
'Karachi Site 01'

The Project site surrounded by the small graveyards, chicken cheds, residential area, connecting road, agricultural land, small goths and hills which is covered in the technical study in details and the outcome of the report shall be considered in the construction phase for safety of the installed Structures and performance of the plant. Situated near the coastal line of the Arabian Sea at an altitude of approx. 50m the Site enjoys high levels of irradiation. Point coordinates of the project are given in below table:

Boundary	Latitude/Longitude	Boundary	Latitude/Longitude	Boundary	Latitude/Longitude
<b>1</b>	<b>25° 2'5.52"N</b>	<b>12</b>	<b>25° 1'26.83"N</b>	<b>23</b>	<b>25° 1'15.10"N</b>
	<b>66°59'40.34"E</b>		<b>67° 0'17.70"E</b>		<b>66°59'46.28"E</b>
<b>2</b>	<b>25° 1'41.85"N</b>	<b>13</b>	<b>25° 1'18.75"N</b>	<b>24</b>	<b>25° 1'13.21"N</b>
	<b>66°59'23.00"E</b>		<b>67° 0'35.75"E</b>		<b>67° 0'0.70"E</b>
<b>3</b>	<b>25° 1'32.20"N</b>	<b>14</b>	<b>25° 1'25.19"N</b>	<b>25</b>	<b>25° 1'24.17"N</b>
	<b>66°59'57.54"E</b>		<b>67° 0'39.43"E</b>		<b>67° 0'8.37"E</b>
<b>4</b>	<b>25° 1'26.07"N</b>	<b>15</b>	<b>25° 1'59.16"N</b>	<b>26</b>	<b>25° 1'43.64"N</b>
	<b>67° 0'1.12"E</b>		<b>66°59'49.57"E</b>		<b>66°59'18.65"E</b>
<b>5</b>	<b>25° 1'25.51"N</b>	<b>16</b>	<b>25° 1'58.64"N</b>	<b>27</b>	<b>25° 2'6.83"N</b>
	<b>67° 0'8.67"E</b>		<b>66°59'49.17"E</b>		<b>66°59'36.35"E</b>
<b>6</b>	<b>25° 1'32.12"N</b>	<b>17</b>	<b>25° 1'59.39"N</b>	<b>28</b>	<b>25° 1'52.56"N</b>
	<b>67° 0'3.27"E</b>		<b>66°59'48.06"E</b>		<b>66°58'12.05"E</b>
<b>7</b>	<b>25° 1'39.39"N</b>	<b>18</b>	<b>25° 1'59.95"N</b>	<b>29</b>	<b>25° 1'51.54"N</b>
	<b>66°59'50.31"E</b>		<b>66°59'48.42"E</b>		<b>66°58'12.10"E</b>
<b>8</b>	<b>25° 1'44.50"N</b>	<b>19</b>	<b>25° 1'35.66"N</b>	<b>30</b>	<b>25° 1'45.09"N</b>
	<b>66°59'45.92"E</b>		<b>66°59'18.32"E</b>		<b>66°57'59.74"E</b>
<b>9</b>	<b>25° 1'46.51"N</b>	<b>20</b>	<b>25° 1'27.04"N</b>	<b>31</b>	<b>25° 1'41.69"N</b>
	<b>66°59'48.33"E</b>		<b>66°59'11.97"E</b>		<b>66°57'59.71"E</b>
<b>10</b>	<b>25° 1'43.71"N</b>	<b>21</b>	<b>25° 1'17.82"N</b>	<b>32</b>	<b>25° 1'35.14"N</b>
	<b>66°59'57.43"E</b>		<b>66°59'32.56"E</b>		<b>66°59'12.26"E</b>
<b>11</b>	<b>25° 1'30.46"N</b>	<b>22</b>	<b>25° 1'17.29"N</b>	<b>33</b>	<b>25° 1'37.49"N</b>
	<b>67° 0'14.77"E</b>		<b>66°59'40.74"E</b>		<b>66°59'13.80"E</b>

Whereas the ground distance between the Site and Port Qasim, Karachi is about 74.9 km. A brief overview of location of site and topography is shown in below image.

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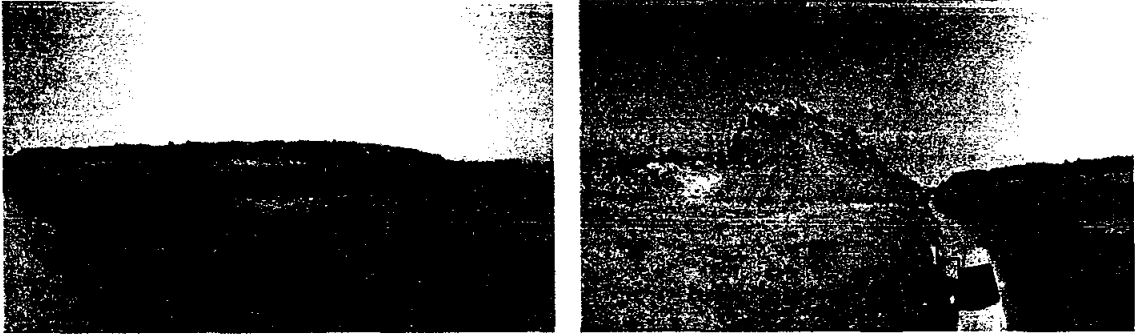


The Project covers an area of 612 acres which is equivalent to 2.47 Square kilometers. The latitudes and longitudes are provided in a table above. The average altitude is 51m above sea level. The satellite map of site is shown above in picture.

### 6.3 Site Images

The Site is mostly arid with scant vegetation under dry climatic conditions, with savanna being the major vegetation, while the terrain is largely flat with small undulations on the Surface. Many small seasonal streams were observed in the proposed land area which can be redirected in the construction phase for safety of the installed Structures in the area. The overall topography and overview of site can be observed in below graphics.

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Further details of the Site including ambient conditions can be accessed in the Project's Feasibility Study Report.

## 7 Bidding and Project Development Schedule

Activity	Calendar Days from Day zero (DO) <sup>1</sup>
NEPRA approval of the RFP	DO
Issuance of RFP to eligible Bidders (last date for issuance of RFP)	7
Deadline for emailing questions and seeking RFP clarifications	30
Pre-Bid meeting(s)	35
Issuance of clarifications on RFP	40
Deadline for submission of Bids <sup>2</sup>	70
Opening of Envelope I (Technical)	71
Evaluation of technical Bids	100
Announcement of Technically Qualified Bidders	105
Opening of Envelope II (Financial) of Technically Qualified Bidders and commencement of evaluation of Envelope II (Financial)	105
Evaluation of Envelope II (Financial) and submission of Auction Evaluation Report to NEPRA pursuant to the NEPPR.	115
Submission of Performance Guarantee by Successful Bidder (post NEPRA’s approval of Auction Evaluation Report)	150
Issuance of LOI by KE to Successful Bidder post submission of Performance Guarantee	160
<b>Post LOI Activities</b>	<b>Days from LOI Issuance</b>
Application to NEPRA by the Successful Bidder for Generation License and Tariff Approval	07
Approval of tariff by NEPRA and intimation to GOP for notification. <sup>3</sup>	68
Execution of other Project Agreements including land lease instrument (from date of LOI)	180
Financial Close	180
Commercial Operation Date (from Financial Close)	365

By submitting a Bid, the Bidder is deemed to covenant to adhere to the above bidding and project development schedule (as may be extended by KE pursuant to Section 11(d)).

<sup>1</sup> Where any day on which an activity is to be performed is not a working day, the activity shall be performed on the next working day and the timeframes shall stand modified accordingly.

<sup>2</sup> In case of any clarifications or corrigenda to the RFP if the need arises, the time taken by NEPRA for approval to be excluded from the stated timeframes. If the corrigenda or clarification is material, KE may announce an extension to the Deadline and the timeframes will stand modified accordingly.

<sup>3</sup> Should NEPRA decide to hold a public hearing pursuant to regulation 12(7) of NEPPR, the time taken in the hearing and the determination thereon shall stand excluded.



## **8 Communications and Clarifications on RFP**

All communications from the Bidder concerning the RFP process, including any clarification, request for extension, scheduling a meeting, shall be submitted before the Deadline by electronic mail addressing:

**Attention** : Mr. Qasim Mehmud  
Strategic Sourcing Lead – Project Procurement  
K-Electric Limited  
**Address** : 1<sup>st</sup> Floor, Block J Procurement Division, Elander Road Complex, Karachi  
**Telephone** : +92 21 387 09132 (Ext: 9424)  
**Email** : [qasim.mehmud@ke.com.pk](mailto:qasim.mehmud@ke.com.pk)

## **9 Equity Shareholding in the Project**

- a) Upon issuance of the LOI the Successful Bidder shall form the SPV.
- b) KE at its sole discretion will participate as a shareholder in the SPV either through its affiliate or its subsidiary, that shall hold up to 49% shareholding in the SPV.
- c) The Successful Bidder shall have management control in the SPV.
- d) The terms and conditions of equity injection will be part of the Shareholders' Agreement which will be negotiated with the Successful Bidder after completion of the Bidding Process.

## **10 The Bidding Process**

### **10.1 Who Can Bid**

- (a) Any Bidder who (i) meets the eligibility criteria set out in section 10.2, and (ii) pays the prescribed fees, can submit a Bid under this RFP.
- (b) Each Bid must correspond to the installed capacity stipulated in the RFP.

### **10.2 Eligibility Requirement**

- (a) The Bidders must meet the prequalification criteria and fulfill the following eligibility requirements, to the satisfaction of the Auction and Evaluation Committee, in order to be eligible to submit a Bid:
  - (i) The Bidder must not be subject to any insolvency or analogous proceedings nor shall any of its shareholders be subject to any insolvency or analogous proceedings in Pakistan or in any other jurisdiction;
  - (ii) Neither any shareholders of the Bidder nor its contractors or suppliers of equipment shall have the nationality, country of incorporation or domicile from amongst the countries proscribed by Pakistan;
  - (iii) The shareholders of the Bidder must be the same as those stated in its application at the prequalification stage. Should there be any change of shareholders since the submission of prequalification documents and up to the date of submission of the Bid, a valid permission from KE must be provided. Once the Bid is submitted, the initial shareholders and the main sponsors shall not be changed prior to the COD and in accordance with the terms of the EPA, thereafter; and
  - (iv) Any pending litigation by the Bidder or its sponsors/shareholders/directors/consortium members against KE, SSEP, or the GOS must be withdrawn before submission of the Bid.
  - (v) Any Bidder found to be in breach of the foregoing eligibility requirements shall stand disqualified. Should such ineligibility surface at any later stage including after the execution of the EPA, the Project award shall stand cancelled.

## **11 Bidding Approach**

- (a) A single-stage, two-envelope bidding approach will be adopted.
- (b) Bidders are required to meet the Minimum Technical Requirements as provided in the RFP, particularly in Section 16.2 of the RFP.
- (c) KE may declare a bid nonresponsive and reject the same, for reasons to be recorded in writing, if the bid is in material deviation from the Bidding Documents, , or if the bid does not provide all the necessary information or meet the tariff structure provided in the bidding documents, or does not meet the Knock-off Criteria. Where all the bids have been rejected KE may call for rebidding and prior to doing so, it shall assess the reasons for rejection and may revise the specifications, evaluation criteria and any other conditions for bidders as deemed necessary, subject to approval of NEPRA.
- (d) Notwithstanding any other section of this RFP or any practice or custom of the trade or industry, KE, in its discretion, reserves the complete right to, at any time and from time to time, amend,

modify, supplement or withdraw, cancel this RFP at any time and to reject any or all of the Bids and/or make no award received without any liability, cost and/or obligation on the part of KE or being under any obligation to inform the affected Bidders of the grounds of rejection/justification for KE's action. At any time KE can reject all proposals and make no award under this RFP. KE is not obliged to proceed to award any contract. KE shall notify the Bidder of the amendment, modification or supplement to the RFP in writing as soon as practicably possible. Any such amendment, modification or supplement to the RFP shall be taken into account by the Bidder. In order to take into account such amendment, modification or supplement in the preparation of the Bids by the Bidders, KE may extend the schedule at its discretion.

- (e) The Bidder shall have the sole responsibility to determine and to satisfy itself by such means as it considers necessary or desirable as to all the matters pertaining to the execution of Project, including the precise location of Project, the weather conditions, the terrain and geological conditions at the Site, availability of resources to be used in Project and all other factors that may affect the cost, duration and execution of Project.
- (f) KE shall assume no responsibility regarding any interpretation made by the Bidder from the information furnished by SSEP including any studies / reports carried out by its consultants.
- (g) No verbal agreement or conversation with any director, officer, employee, representative or agent of KE shall affect or modify any of the terms or obligations of KE and the Bidder contained in this RFP.

#### **11.1 Envelope I – Technical**

- (a) In Envelope-I technical information will be submitted along with the Bid Bond and Bid Processing Fee.
- (b) Contents of Envelope-I will be evaluated for the Bid Evaluation Criteria stipulated under Exhibit 16. A Bid satisfying the Bid Evaluation Criteria and not otherwise found to be non-compliant with the other terms of this RFP shall be declared a qualified Bid (Technically Qualified Bid), and the Bidder submitting the Technically Qualified Bid shall be considered a technically qualified bidder (Technically Qualified Bidder). A Bid not satisfying the Bid Evaluation Criteria or otherwise found to be non-compliant with the other terms of this RFP shall be declared a non-qualified bid (Technically Non-Qualified Bid), and the Bidder submitting the Technically Non-Qualified Bid shall be considered a technically non-qualified bidder (Technically Non-Qualified Bidder).
- (c) A Bidder noted as Technically Non-Qualified Bidder and informed accordingly by KE may make a representation before the Auction and Evaluation Committee challenging its technical non-qualification within fifteen (15) days of its declaration as a Technically Non-Qualified Bidder.

#### **11.2 Envelope II – Financial**

- (a) Envelope-II of only Technically Qualified Bidders will be opened. The Envelopes-II and Bid Bonds of Technically Non-Qualified Bidders will be returned un-opened.
- (b) Envelope-II shall contain the Tariff Proposal by the Bidder along with all required information stated in this RFP. Information given in Envelope-II of Technically Qualified Bidders will be evaluated.

- (c) The contents of Envelope-II shall be consistent with the Bid Tariff structure. Any Bid which is inconsistent with the tariff structure stated in this RFP shall be deemed non-responsive and shall be rejected.

### **11.3 Auction and Evaluation Committee**

The Auction and Evaluation Committee comprises of the following members:

- (i) two representatives from SSEP consultants (having technical and financial expertise)
- (ii) one representatives from the SSEP team;
- (iii) four representatives of the Purchaser; and
- (iv) two independent representatives, each having relevant technical or financial expertise and meeting the criteria specified under NEPPR), where such a person is not an officer of the SED, SSEP, KE or any of its affiliates and does not have a direct or indirect interest, financial or otherwise with the SED, SSEP, KE or any of the qualified bidders in the last three years prior to execution of this RFP.

## **12 Guidelines for Bid Submission**

### **12.1 Responsibility of the Bidders**

- a) The Bidders are advised to carefully note and comply with the requirements of this RFP.
- b) The Bidders are responsible to carry out the necessary due diligence and conduct their own investigations to obtain pertinent information and related data, entirely at Bidders' own risk, costs and consequences. KE, SSEP or GOS does not assume any responsibility for any information provided to the Bidder in connection with this Bid or the Project.
- c) The Bidders shall bear all costs associated with the preparation and submission of their Bids. The KE, SSEP or GOS shall under no circumstance be responsible or liable to reimburse such costs, regardless of the outcome of the bidding or the evaluation process.

### **12.2 Bid Requirements**

- a) The Bid shall be prepared strictly in accordance with this RFP in its entirety. Any conditional Bid will be deemed unresponsive and shall be rejected.
- b) A Bidder may submit only one Bid.
- c) All information pertaining to the Bid must be typed and filled in English language.
- d) Each page of the Bid Letter and its Exhibits as well as each page of the contents of both the envelopes must be numbered, signed and stamped by the Bidder.

### **12.3 Clarifications on RFP**

- a) The Bidder may request clarifications on the RFP by completing the Form of Clarifications to RFP (Exhibit 17).
- b) The Bidder shall make any clarifications requests in writing to the provided email. KE will

respond in writing to any clarification of this RFP provided that such request is received by KE in writing no later than the timeline for clarifications mentioned in (Section 7 Bidding and Project Development Schedule ) above.

- c) KE is, under no obligation to respond to any clarifications received after the clarification deadline mentioned above. KE may also conduct a clarification pre-bid meeting with the Bidders and shall notify each Bidder of the date, time and location for the meetings. The clarification meetings, if required, shall be held in Karachi, Pakistan or online. Bidders shall be responsible for obtaining all visas and necessary travel documents. Any other mode of informal communication will not be permitted during the RFP process and such communication shall be considered invalid.
- d) All clarifications issued by KE will be notified to all the Bidders. Where a clarification request necessitates a material modification to the requirements of this RFP, KE may extend the Deadline for Bid submission subject to NEPRA's approval.

#### **12.4 Pre-Bid Meeting**

A pre-Bid meeting will be held to answer the questions of the Bidders as per the tentative schedule provided in Section 7. KE will notify the Bidders of the date, time and location of the pre-Bid meeting.

#### **12.5 Submission of Bid**

The Bid consisting of the Technical Proposal and Tariff Proposal shall consist of five hard copies (1 original plus 4 copies) and password protected electronic copies in USB and google drive/one drive, clearly marking the hard copy as "Original".

The paper copy shall be an exact color photocopy of the original and well organized in a bound book or ring binder with separators between each section. The PDF copies shall be exact scans of the paper original. Each PDF copy should be provided on a separate USB drive protectively included in the package, with each folder and file clearly and sequentially numbered and identified to allow for easy navigation. Documents that require signatures shall be hand signed by the authorized representative before conversion to PDF format. The authorized representative of the Bidder who signs the Bid must also initial all pages to avoid any discrepancy.

In the event there is any discrepancy between the original hard copies and electronic copies, the hard copy shall govern. It is the Bidder's responsibility to ensure that the electronic copy aligns with the original hard copy. Any prequalified applicant who submits or participates in more than one Bid will be disqualified.

##### **12.5.1 Technical Proposal**

In its Technical Proposal, the Bidder must respond to the requirements stated in the Volume-II of the document.

Technical Proposal should comprise of the following documents:

- a) Bid Letter
- b) Bid Processing Fee

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- c) Confidentiality Agreement
- d) Covenant of Integrity
- e) Affidavit
- f) Power of Attorney
- g) Letter of Acceptance by the Bidder
- h) Bid Bond
- i) Technical Information

The Technical Proposal comprising one paper original, two paper copies, and password protected electronic copies shall be in one sealed envelope labelled "TECHNICAL PROPOSAL", with the Bidder's name clearly displayed.

#### **12.5.2 Tariff Proposal**

In its Tariff Proposal the Bidder must respond to the requirements stated in Volume-III of the RFP. Tariff Proposal shall remain sealed until the assessment of the Technical Proposal has been completed.

Tariff Proposal should comprise of the following documents.

- a) Covering Letter
- b) Letter of equity commitment
- c) Bid Tariff.

The Tariff Proposal shall be submitted as one paper original, two paper copies and password protected electronic copies in one sealed envelope labelled "TARIFF PROPOSAL", with the Bidder's name clearly displayed.

#### **12.5.3 Proposal Package**

The Technical Proposal and Tariff Proposal shall be sealed in separate envelopes. The sealed envelope labelled "TECHNICAL PROPOSAL" and "TARIFF PROPOSAL" shall be placed inside one package. This enclosing package shall be clearly labelled in large, bold lettering as follows:

### **K-ELECTRIC REQUEST FOR PROPOSAL**

#### **120 MW Solar Power Project at Karachi Site 01**

**[Bidder's Name]**

**CONFIDENTIAL**

**DO NOT OPEN EXCEPT IN PRESENCE OF THE AUCTION AND EVALUATION COMMITTEE**

Note: KE does not bear any responsibility for the premature opening or mishandling of the Bid that are not submitted in accordance with the procedure set out in this RFP.

### **12.6 Deadline for Receipt of Bids**

Bid must be delivered as stipulated above on or before [•] hours PKT on [•] (the Deadline). Any Bid received after the Deadline shall not be entertained, (even if dispatched before the Deadline).

### **12.7 Submission and Validity of Bid**

The Bid shall remain valid, and open for acceptance by KE for a period of not less than one hundred and eighty (180) days from the Deadline for receipt of Bids (as may be extended pursuant to the terms of this RFP). Any Bid stated to be valid for a shorter period than the Bid Validity Period will be deemed non-responsive and shall be rejected by KE.

The proposal should be submitted by courier or hand delivery to the following KE representative:

Mr. Qasim Mehmud  
Strategic Sourcing Lead – Project Procurement  
K-Electric Limited  
1st Floor, Block J Procurement Division, Elander Road Complex,  
Karachi, Pakistan  
+ 92 21 387 09132 (Ext: 9424)

### **12.8 Basis for disqualification**

The pre-qualified Bidders are eligible to participate in this process, however a Bid may be disqualified by the Auction and Evaluation Committee subject to following:

- a) after the submission of the Application by the Applicant, if queries are raised by the KE via email and the Applicant is non-responsive for 5 business days.
- b) if the Bidder is currently in willful default of its obligations to any bank or financial institution.
- c) failure of the Bidder to disclose and/or provide any additional information as may be required during the bid evaluation process.
- d) failure to report promptly to KE any material change; in the circumstances of the Bidder affecting its eligibility to submit the Bid or to implement the Project following submission of the Bid;
- e) failure to report to KE any information that at the relevant time or with the passage of time results in or is likely to result in any information provided in the Bid or any documents submitted therewith ceasing to remain accurate or becoming misleading; or
- f) failure to comply with the requirements of this RFP including, without limitation, failure to submit documents and information consistent and compliant with the requirements of this RFP or failure to commit to the required bidding and project development schedule provided in this RFP.
- g) The information submitted materially deviates from the requirements and criteria defined in the RFP or is false, misleading, or materially inaccurate. In this case the Applicant maybe blacklisted for future work with KE without any notice and liabilities on part of KE.
- h) Notwithstanding anything in this section, K-Electric reserves the right to disqualify any Bidder if K-Electric determines, in its sole judgement, that the Bidder is technically and/or financially or otherwise incapable of executing the Project(s) and/or the Tariff Proposal does not meet or reflect

the requirements of the RFP. However, such decision shall be made in compliance of the applicable clauses (if any) under the NEPPR.

### **13 Selection of Successful Bidder for the Project**

Once the Bids are technically evaluated, the Tariff Proposal of only the technically qualified Bidders will be opened. The Tariff Proposal and its evaluation will be done considering following points;

- a) While bidding for the Project, the Bidder shall submit a single tariff for the whole tariff control period (i.e., 25 years).
- b) For the purpose of financial evaluation, the bidder offering the lowest tariff will be selected as the Successful Bidder. In the event that the lowest Bid Tariff of two or more Bidders are equal, the Bidder offering the maximum discount on the Bid Tariff will be declared as the Successful Bidder.
- c) In the event of a default and subsequent disqualification of a Successful Bidder, KE reserves the right to replace such Successful Bidder with the next in line Bidder with the lowest Bid Tariff.
- d) The Auction and Evaluation Committee will conduct the bid evaluation and prepare the Auction Evaluation Report which will be submitted by KE to NEPRA for its approval. Upon NEPRA's approval, KE will request the Successful Bidder to submit the Performance Guarantees and will issue the Letter of Intent (LOI) to the Successful Bidder in the form set out at Exhibit 14 after submission of Performance Guarantees. KE shall simultaneously publish the notification of the Successful Bidder on its website.
- e) In the event that any of the Successful Bidder defaults in fulfilling its obligations under this RFP, the NEPRA's regulatory framework or LOI, or withdraws its Bid, KE may replace such Bidder with the next lowest Bidder, whose financial Bid (Envelope II) was compliant with this RFP and was duly evaluated by KE.
- f) The Successful Bidder will be issued the LOI for the Project against the Performance Guarantee and its Bid Bond shall be released. The validity of the LOI will be one (1) year from its issuance. The terms of the LOI shall govern the processing of the Project and the obligations of the Successful Bidder until Financial Closing.
- g) The Successful Bidder will be required to file an application for approval of their respective Tariffs to NEPRA within the timeframe specified in project development schedule in Section 7.
- h) The Successful Bidder must follow NEPRA's regulatory framework and pay all fees stipulated therein for award of the Generation License and Tariff Approval.
- i) No Bidder may withdraw or revoke its Bid during the Bid Validity Period. In case a Bidder defaults at any stage or does not comply with the requirements of this RFP within the respective timeframes, KE shall encash the Bid Bond of such Bidder.
- j) The Bid Bonds of unsuccessful Bidders will be returned upon the issuance of LOI by KE to the Successful Bidder.
- k) The Successful Bidder will be required to obtain the approval of the IEE/EIA from the relevant Environmental Protection Agency.

#### **13.1 Basis for Rejection of Bids**



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- (a) Without prejudice to the other provisions of this RFP, the following may be the basis for rejection of a Bid by KE in its sole discretion at any stage of the bidding process:
- (i) any Bid which is conditional or which contains or necessitates material deviation from the requirements of this RFP or the drafts of the LOI and the EPA appended with this RFP;
  - (ii) collusion, failure to disclose conflict of interest, fraud, misrepresentation, withholding or concealment of information in the Bid;
  - (iii) failure of the Bidder to disclose or provide any additional information as may be required by KE during the evaluation process;
  - (iv) if the Bidder is currently in willful default of its obligations to any bank or financial institution;
  - (v) if, subject to NEPPR, KE determines in its discretion that the Bidder is prohibited from doing business with the GOP, GOS, SSEP or KE on grounds which may include but are not limited to public policy or national interest;
  - (vi) failure to report promptly to KE any material changes in the circumstances of the Bidder affecting its eligibility to submit the Bid or to perform the Bid and implement the Project following submission of the Bid;
  - (vii) failure to report to KE any information that at the relevant time or with the passage of time results in or is likely to result in any information provided in the Bid or any documents submitted therewith ceasing to remain accurate or becoming misleading;
  - (viii) failure to comply with the requirements of this RFP including, without limitation, failure to submit documents and information consistent and compliant with the requirements of this RFP or failure to commit to the required bidding and project development schedule provided in Section 7; or

#### **14 Applicable Law and Dispute Procedure**

- a) The bidding procedure, the RFP and all related documentation are exclusively governed by the laws of Pakistan.
- b) Any complaints regarding compliance with RFP or NEPPR shall be referred to NEPRA for decision.
- c) Any dispute between the parties involved with the RFP and the bidding procedure shall be submitted exclusively to the courts of Karachi, Pakistan

## 15 Confidentiality

- a) All information supplied to the Bidder by KE and all information which the Bidder provides to KE or will provide as part of the award procedure shall be kept confidential and the Bidder shall not communicate this information to any third parties. The Bidder shall not publish or allow third parties to be informed about the terms and conditions of this RFP, any Bid and/or any information related thereto.
- b) The Bidder shall not make or release any announcements or issue or release any publications, notifications, or correspondence (whether to the media, public or otherwise) regarding its participation in the Project, the award procedure, or this RFP, unless a Bidder has obtained the prior written consent of KE (at KE's absolute discretion).
- c) Bidders may communicate the aforementioned information to their employees and advisors and consultants on a need-to-know basis if their involvement in the award procedure is required, provided that the Bidder procures that such third parties are subject to an equally onerous obligation of confidentiality as set out in this RFP.
- d) This obligation of confidentiality is not applicable if the information is already available to the general public. This obligation of confidentiality is not applicable when expressly permitted by the RFP or when expressly allowed by RFP. If the Bidder is required by applicable laws, or a court or tribunal of competent jurisdiction, or by applicable regulatory requirements, to disclose the information to third parties, for example, on the basis of a legal obligation or within the framework of legal proceedings, the Bidder must (1) notify KE, and (2) limit the information that is provided to third parties as much as possible.

## **Volume-II: Project Technical Requirements**

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## 16 Technical Bid (Envelope I)

### 16.1 Technical Information Pack and Minimum Technical Requirements

- a) Prior to submission of the Bid, the Bidders are expected to have thoroughly reviewed the Feasibility Study Report along with its Annexures, which have been appended to this RFP document in the Technical Information Pack (TIP). However, KE, SSEP or GOS bears no responsibility for the accuracy or completeness of information in the TIP and it is the Bidders responsibility to verify facts and numbers contained therein and conduct their own independent analysis as necessary for arriving at the Bid Tariff.

Sr. No	Annexures to FSR	Annexure
1.	Transportation and Access Study	I
2.	Topographic Survey Map	II
3.	Solar Resource and Energy Yield Assessment	III
4.	Geotechnical investigation and earth resistivity study	IV
5.	Flood risk assessment report	V
6.	Initial Environment Examination	VI
7.	Equipment Datasheets	VII

- b) The offered plant and equipment should be compatible with the Purchaser's system and the Grid Code. Minimum Technical requirements as provided in 17.2 of the RFP in addition to the following, must be complied with:
- (i) Compatibility of the Complex and equipment with technical standards of Grid Code (Power factor, voltage variation, operating frequency range etc.), Distribution Code and other applicable documents etc., at the interconnection point
  - (ii) Energy yield to be greater than 21.5%
  - (iii) The performance parameters of the Complex, including the operating frequency range, shall be in conformity with the Grid Code.
  - (iv) The solar PV panels and inverters shall be designed, manufactured and tested in accordance with the latest International Electrotechnical Commission (IEC) standards. The specific model of solar PV panels and invertors shall be "Type Certified" issued for a design life of [25 years] on latest IEC standards by an international certification body duly accredited by the International Laboratory Accreditation Corporation. If the type certification is in process by the Deadline, then a written commitment from the original equipment manufacturer shall be provided confirming that the Type Certificate shall be available before the Financial Closing at the sole risk of the Bidder. By delivering the aforesaid written commitment, the Bidder is deemed to have undertaken that its Bid or the Project awarded to it will stand disqualified if the requisite Type Certificate is not available prior to Financial Closing.
  - (v) If Type Certificates are not issued for a design life beyond twenty five (25) years, the Bidders will provide certificates from (1) the original equipment manufacturer of the

solar PV panels and inverters, (2) the EPC contractor<sup>4</sup>, and (3) itself, certifying that the plant as a whole will have a design life of twenty five (25) years from the Commercial Operations Date.

- (vi) The Complex shall be connected with the grid system at 220 kV voltage level and shall be capable of operating within the range specified in the Grid Code on the 220 kV high voltage system which range shall not be exceeded.
- (b) The Bids should clearly indicate the details including the type of units, make and model of the solar PV panels, invertors and other major items of plant and equipment to be installed in the Complex.
- (c) The verification of the new equipment and overall compliance with RFP requirements will be done by the independent engineer at the time of the commissioning of the Complex.
- (d) The Project should achieve Commercial Operations Date within 365 days after Financial Closing.

## **16.2 Minimum Technical Requirements**

*(Capitalized terms used but not defined in this Section shall bear the meaning defined in the drafts or Energy Purchase Agreement provided at Exhibit 15 of the RFP)*

### **16.2.1 Design and Construction Prerequisites**

#### **16.2.1.1 Site Conditions**

The Bidder shall accept the risk of encountering adverse ground conditions or environmental conditions at the Site and shall be responsible for commissioning and undertaking any further investigations and analysis of the area as he considers may be necessary for the execution of the design and construction work. The design shall be suitable for the ground conditions at the Site and the design life of the solar farm, and the environmental conditions at the Site which may be encountered over the design life of the solar farm. The initial information relating to the Site is provided in feasibility documents such as topographic survey, geotechnical investigations and environmental studies. Bidders are required to make themselves fully aware of the local conditions and laws applicable in those areas.

#### **16.2.1.2 Engineering Studies, Surveys and Investigations**

As part of Bidder's package, several engineering studies are provided to Bidders. This package includes topographic study, geotechnical study, Grid Interconnection Study, solar resource assessment, and flood risk assessment. The output of these studies shall be considered as requirement for the Project. The transportation is possible by National Highway N-55 and M-9 Motorway from Karachi to the Site. The nearest port for receiving the shipments and machinery related to project construction and execution is Port Bin Qasim in Karachi.

#### **16.2.1.3 Preparatory Site Activities**

The levelling of Site shall be performed, if required. The Bidder will be responsible to provide lay-down areas for the purposes of executing the works. This includes the upgrading of the road to the Site from the public highway to a suitable standard for the purpose of executing the works. The TSF and temporary offices may be constructed depending on the requirement of bidders.

#### **16.2.1.4 Facility Performance**

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<sup>4</sup> Bidders may undertake the Project development under self-EPC mode which will be evaluated as per the criteria provided in the RFP.

<b>Technical Lifetime</b>
<p>The works within the solar farm shall be designed for a minimum operating life of 25 years and shall be suitable for outdoor operation in an exposed area. When designing for the required life, the Bidder shall take account of the site environmental conditions and the need for a high standard of durability and serviceability with the requirements for minimum maintenance. In all cases equipment shall be selected upon the basis of proven designs.</p>
<b>Operations &amp; Maintenance (O&amp;M)</b>
<p>The Bidder will be responsible for the O&amp;M of the entire Complex, scope of which includes:</p> <ul style="list-style-type: none"> <li>(i) Module cleaning, module connection integrity, junction boxes/combiners inspection, thermographic detection of faults, inverter servicing, mechanical integrity of mounting structure, vegetation control, routine balance of plant servicing/inspection, cable connection tightening/replacement of blown fuses, lightening damage repair, mounting structure/tracking system fault repair, optimized loss due to soiling, additional points for automated cleaning mechanism provision, rectifying SCADA faults.</li> <li>(ii) The Bidder will be responsible to claim any warranties or replacements that will arise during the life of the plant.</li> <li>(iii) The Bidder will have to ensure operations to maintain the proposed availability and capacity factor.</li> <li>(iv) Array inspection and cleaning to maintain the required performance target, inspection of the inverter and rectification of faults to ensure plant availability.</li> <li>(v) Plant availability and performance criteria of O&amp;M operator must be competitive according to the current project scenarios in the premises and approved by the governing bodies.</li> </ul>
<b>Telecommunication and SCADA</b>
<ul style="list-style-type: none"> <li>(vi) SCADA, telecommunication and tele-protection equipment of the Complex side are mandatory and will be covered in the Project cost. Non-compliance to such provision would lead to disqualification.</li> <li>(vii) Specifications of the equipment will be finalized with the consent of KE. Two channels shall be established till load dispatch center for data transfer to SCADA system. All telecom links shall be capable of transmitting speech, telephone signaling, data and tele-protection signals.</li> <li>(viii) Each transmission line will have dedicated protection relays. Bus-bar protection and step-up transformer protection will be as per Complex design.</li> <li>(ix) Telco/Tele protection and SCADA system for visibility of the plant in K-Electric's LDC Control room as per the specs/details provided by K-Electric.</li> </ul>

Health, Safety and Social/Environment
<p>The Bidder shall comply with Environment and Social Management Plan (ESMP) and World Bank EHS requirements necessary for implementation of renewable energy projects. The purpose of the ESMP is to consider and develop adequate measures and controls to minimize and mitigate the potential environmental and social risks and impacts identified during the project implementation. EHS guidelines and practices will take precedence in all the decisions and activities performed during construction and operation of plant. The Bidder shall make sure:</p>
<ul style="list-style-type: none"> <li>(x) To minimize health and safety hazards to our stakeholders and all others influenced by our activities.</li> <li>(xi) To propose an environmental and social monitoring plan to ensure that mitigation measures are implemented during the sub-project execution and timely corrective actions are taken where required.</li> <li>(xii) To ensure compliance with all applicable occupational health safety and environment regulations and other requirements.</li> <li>(xiii) To integrate health, safety and environment procedures and best practices into every operational activity.</li> <li>(xiv) To encourage employees in maintaining a safe and healthy work place through periodic reviews of operational procedures and safe method of work.</li> <li>(xv) To carry out periodic social and environmental monitoring and ensure compliances and reporting non-compliances in accordance with this ESMP.</li> <li>(xvi) To develop a safety culture through active leadership.</li> <li>(xvii) The availability of resources to fully implement health and safety policy of the company.</li> </ul>
<p>The relevant laws and standards from Provincial and Federal authorities are listed below: —</p>
<ul style="list-style-type: none"> <li>(xviii) Environment, Health, and Safety (EHS) Guidelines prepared by International Finance Corporation and World Bank in 2007.</li> <li>(xix) Pakistan Environmental Protection Act 1997 (PEPA 1997).</li> <li>(xx) Sindh Environmental Protection Agency Act (SEPA 2014).</li> <li>(xxi) Environmental &amp; Social Management Plan (ESMP) for 50 MW SSP in Manjhand (as provided in this concession package).</li> <li>(xxii) NOC dated 1st April 2019 provided by Sindh Environmental Protection Agency, Government of Sindh for the Project (as provided in this concession package)</li> <li>(xxiii) The environmental factors including water consumption, waste water treatment, waste disposal, noise emissions, chemical handling etc. shall be as per the above-mentioned laws and standards.</li> <li>(xxiv) The Bidder shall demonstrate a corporate commitment to safety, proven solutions, safe working practices and culture, training and supervision.</li> </ul>

(xxv)	Solar PV power plants represent a large financial investment. The PV modules are not only valuable, but also portable. There have been many instances of module theft and also theft of copper cabling. Security solutions are required to reduce the risk of theft and tampering. These security systems will need to satisfy the insurance provider requirements.
(xxvi)	Bidders must ensure adequate fencing and surveillance to ensure security of the Complex as per the Site condition/requirement. Security systems installation, lighting, security cameras, microwave sensors for security purpose shall also be preferred.
<b>Factory Acceptance Tests (FAT)</b>	
The objective of FAT shall be solely to witness and verify that the manufactured equipment is according to the design duly approved by the Purchaser.	

#### **16.2.1.5 General**

The Bidder shall be handed over the required land and the Bidder shall deliver up and running plant, including but not limited to, all equipment for generation, measuring, delivery to customer, protection schemes, weather monitoring and forecasting equipment, local on-site and remote control systems for substation(s), raw and potable water, appropriate sewerage arrangements, water for panel washing, plant buildings including store building, workshop building, admin building, offices with requisite furniture/fixtures, appropriate residential buildings for operating and maintenance team, master control room equipped with a monitoring host with tables and chairs, plant boundary walls, security check posts, watch towers, street lights, CCTV systems, plant roads etc.

It is added for the avoidance of doubt if anything is missing in the above scope of work which is necessary for plant operations it shall be provided by the Bidder as part of scope of work based on designing.

#### **16.2.1.6 Services**

- (a) The Complex shall be capable of operating in accordance with the guidelines of this RFP as well as subsequent contractual documents entered into between the Bidder and the Purchaser.
- (b) The Bidder shall design and construct the Complex in accordance with the contractual documents and this scope of work and specifications.
- (c) The Complex shall include, but not be limited to perimeter fences, PV modules, structural support systems, module string DC wiring harnesses, DC combiner boxes, inverters, inverter step-up transformers, SCADA system, and ancillary hardware required to connect and operate listed equipment.
- (d) The Bidder shall prepare and submit to the Purchaser Complex design engineering and drawing packages for construction permitting, installation and "as-built" documentation.
- (e) The Bidder shall ensure Complex construction including all site/civil work, structural, electrical, mechanical and monitoring/control systems.
- (f) The Bidder shall ensure Complex and construction management, including quality assurance/quality control, Site safety, site material control and management of all subcontractors.



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- (g) The Bidder shall ensure Complex commissioning and testing in accordance with the agreement.
- (h) The Bidder shall ensure the training and Complex sequence of operations; installation and maintenance documentation.
- (i) The Bidder shall be responsible for obtaining and providing, all permits necessary to support construction and Complex installation.
- (j) The Bidder shall be responsible for connection of the Complex to electrical interface provided by the Purchaser.
- (k) If necessary, the Bidder shall be responsible for establishing and maintaining all restroom, lunchroom and other office and meeting areas for the duration of the construction and commissioning portion of the Complex.
- (l) The Bidder shall provide temporary sanitary facilities with location. Bidder shall be responsible for decommissioning these temporary sanitary facilities at the termination of construction.
- (m) The Bidder shall maintain on-site dumpsters and personnel to maintain a clean and rubbish free work site.
- (n) The Bidder shall be responsible for permitting, installation and removal of all equipment necessary to satisfy water requirements for dust control purposes. Temporary water storage facilities, if used, shall be removed and the area returned to existing grades and surfacing.
- (o) The Bidder shall be responsible for Site security throughout construction duration.
- (p) The Bidder shall provide traffic management as necessary to ensure the safe entry to and exit from public roads for all vehicles and equipment.

**16.2.1.7 Preliminary Studies**

**a) Solar Resource**

Energy yield assessment has already been conducted for the Site and is part of the FSR. Bidder to conduct their own energy yield assessment and shall submit the same along with their Bid.

**b) Geo Technical Investigations**

The geo-technical investigations have already been conducted for the Site and is part of the feasibility study. Bidder may rely on it as first information or may conduct its own investigations if deemed necessary at its own expense.

**c) Flood Risk Assessment**

The flood risk investigations are already conducted for the Site and is a part of Bidder's package. Bidder may rely on it as first information or may conduct its own investigation if deemed necessary at its own expense.

**d) Grid Connection**

The Grid Interconnection Study will be part of Bidder's package.

**e) Accessibility**

Transportation and accessibility are part of feasibility package. Bidder may rely on it as first information or may conduct its own investigation if deemed necessary at its own expense.

**f) Consents**

The Bidder shall obtain and maintain in effect all Consents pertaining to the performance of its obligations hereunder, including, but not limited to:

- (i) all licenses/registrations to permit the Contractor to do business in Pakistan (where the Works are to be performed).
- (ii) all permits to export any item required in connection with the Works to or from any country and including any permit required for the exchange or international movement of currency or funds in any other form, except for payment(s) under the Contract.
- (iii) any permits required by any building regulations.
- (iv) any permits required by any fire regulations.
- (v) any permits required in connection with disposal and/or transportation of any waste materials or products.
- (vi) any permits required in connection with transportation of unusual or abnormal loads.
- (vii) all other consents required by a relevant authority outside of Pakistan (as applicable).

The lists of applicable consents are given below. They shall be required from time to time depending on the need from relevant authority:

- Engineering permit;
- Generation License;
- Security patrolling around Site;
- Arms license;
- Transportation of heavy equipment;
- Explosive materials;
- Electrical connection application;
- Interconnection and synchronization with National Grid;
- Import/ re-export of equipment;
- Import of equipment;
- Work visa;
- Environment permits;
- Wireless license;
- Consents under Electricity Act 1910;

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- License pursuant to Petroleum Rules 1937 to store petroleum products;
- Waste disposal; and
- Stability certificate under Factories Act 1935.

**g) Standard Unit of Measurement**

Metric units of measurement (SI) shall be used with the only exception being pressures, which may be expressed in Pascal or bar/millibar as appropriate.

**h) Standard on Documentation**

- (i) All drawings and documents must be in English and prepared in accordance with the IEC/ISO standards.
- (ii) All layout, detail, general arrangement, sketches, schematics, process drawings, documentation and manuals shall be available.
- (iii) A General arrangement drawing is normally a one-page high level drawing showing the layout of major components which makeup the main subject of the drawing. It may also highlight the main design feature, component numbers, names and main dimensions.
- (iv) A detailed arrangement drawing would show the layout of all components spanning over more than one drawing. A detailed arrangement drawing may contain main dimensions of each component and an exploded view of assembled parts.
- (v) The Bidder is required to implement and update a program of the works, and to regularly report on the actual progress.
- (vi) The requirements for certification to evidence the successful completion of the testing required during the completion of the works.
- (vii) The Bidder shall ensure availability of Project construction program, monthly progress reports, method statements, Quality Inspection Plan (QIP), quality audit reports, testing and commissioning program, all relevant performance and availability tests and others as deemed necessary. All commissioning & testing schedules / programs / method statements shall be submitted to the Purchaser minimum 6 weeks before start of the respective activity.
- (viii) The Bidder shall ensure implementation and documentation of health and safety plan which shall include method statements, risk assessments, drawings, plans, manuals in the scope of Works in accordance with regulations.
- (ix) The Bidder shall ensure availability of O&M manuals, preventive maintenance schedules, and spare parts list necessary for operation of plant.

**16.2.1.8 Construction**

**a) Site Preparation**

Bidder shall be responsible for all site preparation including any demolition, soil stabilization, grading, drainage, flood management, roadways and temporary parking areas.

**b) Civil**

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The scope shall include but not be limited to the following:

- (i) Design and prepare the construction plans, final design reports and Project specifications for the civil site work, including the storm water drainage, grading, roads, temporary construction facilities, etc.
- (ii) Obtain all necessary permitting associated with civil site work construction such as grading permits, haul permits, dust permits, storm water pollution prevention plans, etc., in compliance with local jurisdictional requirements and other jurisdictional government agencies as may pertain.
- (iii) Construction of all civil site work (if determined required), including the storm water drainage infrastructure, earth grading, roads, security fencing, etc., unless otherwise noted.
- (iv) Construction of any temporary civil site work such as temporary security fencing, temporary construction roads, etc.
- (v) If necessary, perform the geotechnical evaluations for the civil site work.
- (vi) Perform all construction surveys.
- (vii) Prepare as-built record drawings.

**c) Erection and Installation**

The Bidder shall ensure safe and acceptable installation of mounting structures, PV modules, junction boxes and other electrical equipment including transformers, sub-station equipment, gantries as per the relevant standards.

**d) Commissioning**

The commissioning process provides a quality-oriented methodology for verifying and documenting the design, construction, functionality and performance of the Project. The commissioning process shall ensure that all system components perform interactively to meet the defined systems' objective and criteria of and requirements of Purchaser.

**e) Performance Tests**

The performance tests shall be conducted at each equipment level as well as at Complex level. These tests shall meet the criteria listed in Energy Purchase Agreement. Additional tests may be conducted to verify the performance of equipment individually.

**16.2.1.9 Equipment**

The equipment/ plant will generally include the following:

- a) PV modules with a capacity of 120MWp, with agreed loss ratio, or higher if loss ratio is higher;
- b) Inverters (string or central type);
- c) All structures/nuts/bolts/clips etc. to install panels;
- d) Cables/wires/joints of various sizes;
- e) Junction boxes/combiner boxes;
- f) AC circuit breakers/DC circuit breakers;

- g) LV/MV transformers according to EPC contractor's approved design;
- h) MV/220kV main transformers according to EPC contractor's approved design;
- i) 220kV substation including connection to the grid;
- j) Energy metering systems;
- k) Online monitoring devices / data loggers for remote sensing and monitoring (hybrid forecasting model);
- l) Reactive power compensation;
- m) Miscellaneous structures and buildings;
- n) Boundary wall;
- o) Meteorological station;
- p) Security cameras;
- q) Internet access devices;
- r) Cable trenches;
- s) Access road and internal roads in the plant area and residential area;
- t) Spare parts;
- u) As-built drawings and operating manuals; and
- v) Training.

#### **16.2.1.10 Design Requirements**

##### **a) Civil Design Criteria**

##### **(i) Standards and Codes**

The design of the civil infrastructure works shall comply with all current Pakistani/international regulations, and international/Pakistani design codes and standards. The Contractor shall be responsible for compliance with the provisions of any order or regulation that may apply to the temporary and permanent buildings erected on the Site.

##### **(ii) Main Design Criteria**

All buildings and module mounting structures installed at project shall have a design life of 25 years. International standards shall be adopted while designing the equipment, plant, and civil structures of Complex. The appearance of the substation building, and the type and color of materials used to build the substation shall comply with the requirements of the appropriate authority before construction commences. The layout of the building shall be reviewed and approved prior to construction.

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The architectural layout of substation shall be according to the requirements of the Purchaser and the provisions of the EPA. The substation shall consist of:

- a) High and medium voltage switchgear room(s);
- b) Low voltage switchgear room;
- c) SCADA room or control room. Panels for HV control protection. Substation remote control panels and CCTV and Human Machine Interface shall be housed in the control room. The control room shall be in accordance with the requirements of the Purchaser and the provisions of the EPA and shall not be less than 150 m<sup>2</sup>;
- d) Telecommunication room;
- e) Battery room;
- f) Metering room;
- g) Three offices;
- h) Meeting room;
- i) LV/DC panel room;
- j) Kitchenette;
- k) Toilets and washroom facilities sufficient for the proposed operational personnel;
- l) Storage area of a minimum of 100m<sup>2</sup> for the storage of spare parts, this shall contain:
  - o Racking for the storage of small parts;
  - o Bunded area for the storage of oils and chemicals;
  - o Climate controlled area for parts that require specialized storage conditions;
- m) Rooms shall be fitted with the following as appropriate:
  - o Power and lighting (including a minimum of two 240V and two 110V standard power sockets above that specified for other equipment within this document);
  - o Suspended ceiling (for control room only);
  - o Emergency lighting;
  - o Fire detection and alarm system in accordance with BS 5839 (or equivalent international European or Pakistan Standard) for displaying in control room;
  - o Space cooling systems for living spaces and equipment rooms, as necessary for environmental conditions and consistent with good local practice for occasional day accommodation and electrical equipment rooms;
  - o Ventilation designed to avoid rainwater or sand ingress;
  - o Durable floor covering;
  - o Phone sockets as required (control room, and office space);
  - o Network sockets as required (control room and office space); and

- Two externals portable 110V power adaptors.

The Complex shall have buildings for accommodation, offices, control room, workshop, warehouse, auxiliary building and any other requirement for smooth operation of the plant. Civil design of plant must have provision for flood water outlet. All civil works associated with the provision of temporary and permanent access roads on the site with suitable drainage arrangements. Feasibility Study Report will provide further detailed analysis of flooding at Site.

Bidder shall provide all civil works associated with watch towers. Bidder shall also consider the topography while designing to cater the shading impact.

**b) Electrical Design**

**(i) PV Module**

Panels considered for the Project shall be produced by Tier 1 manufacturer as determined by BNEF, which shall be certified and listed with third party insurance company providing worldwide coverage such as SolarIF, PowerGuard etc. or equivalent. The module manufacturer shall have fully automated production cycle, and reduced sources of variation in production. Manufacturer shall have their own in-house solar cell and solar panel manufacturer facility. However, the solar panel shall meet the requirement set in IEC 61215:2016, IEC 61730-1:2004 or latest and IEC 61730-2:2004 or latest, IEC 61701(latest), / international standards. The additional specifications for the PV module are also given below.

- a) The PV modules must be PID compliant, salt, mist and ammonia resistant and shall withstand weather conditions for the project life cycle.
- b) The PV modules must qualify (enclose test reports/certificates from IEC/NABL accredited laboratory) as per relevant IEC standard. The performance of PV modules at STC conditions must be tested and approved by one of the IEC/NABL accredited testing laboratories.
- c) PV modules shall be poly/mono crystalline high efficiency (minimum 20%) with 3% or more positive power tolerance.
- d) PV modules used in solar power plant/ systems must be warranted for 10 years for their material, manufacturing defects, workmanship. The output peak watt capacity which shall not be less than 90% at the end of 10 years and 80% at the end of 25 years.
- e) Flash test reports from manufacturer for each panel given for sample.
- f) The modules must be framed in such a way as to allow secure connection to the module mounting structure.
- g) The PV system shall be grounded against atmospheric discharges, static and lightening etc.
- h) The PV module have an ability to work well with high-voltage input Inverters/ charge controllers.
- i) The terminal box on the module shall have a provision for opening for replacing the cable, if required and it shall be waterproof.
- j) Each PV module used in any solar power project must have a durable permanent identification tag, which must contain market standard information for PV modules.

All information regarding solar panel with above mentioned featured data shall be accessible and verifiable online on manufacturer website or verifiable in writing from manufacturer through fast-track courier.

The PV modules shall have a product warranty of minimum 25 years counting from the Commercial Operation Date.

**(ii) Power Inverters**

Bidders are allowed to use string inverters or central inverters based on their own Complex design to achieve low LCOE within the boundaries mentioned in the technical specifications. The DC power produced is fed to inverter for conversion into AC. In a grid interactive system AC power shall be fed to the grid at three phase AC bus. Inverter shall supervise the grid condition continuously and in the event of grid failure (or) under voltage (or) over voltage. Other important features/protections required in the inverter are:

- a) Grid voltage shall also be continuously monitored and in the event of voltage going below a pre-set value and above a pre-set value, the solar system shall be disconnected from the grid within the set time. Both over voltage and under voltage relays shall have adjustable voltage (50% to 130%) and time settings (0 to 5 seconds).
- b) The inverter control unit shall be so designed so as to operate the PV system near its maximum Power Point (MPP), the operating point where the combined values of the current and voltage of the solar modules result in a maximum power output.
- c) The inverter shall be a true sine wave for a grid interactive PV system.
- d) The degree of protection of the outdoor inverter panel shall be at least IP-65.
- e) Inverters are procured from companies in the manufacturing business for at least 10 years which are used in Commercial/Utility scale projects (5MW and above) and operational.
- f) Provision of product warranty covering defects in materials and workmanship of at least ten (10) years counting from the Commercial Operation Date, and option with extendable warranty from supplier.
- g) Typical technical features of the suggested inverters must mention as per following sequence:
  - Nominal AC output voltage and frequency.
  - Continuous output power rating (1.1 times for 60 seconds).
  - Accuracy of AC voltage control  $\pm 1\%$ .
  - Accuracy of frequency control  $\pm 0.5\%$ .
  - Grid frequency control range  $\pm 3$  Hz.
  - Maximum input DC voltage range.
  - Maximum Power Point Tracker (MPPT) range DC.
  - THD 2.5% or lesser.
  - Ambient temperature -10 deg. C to 55 deg. C.



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- Humidity 95 % non-condensing.
- Protection of enclosure IP-65 (minimum).
- Grid Voltage tolerance -20% and + 15%.
- Power factor control 0.95 inductive to 0.95 capacitive.
- No-load losses < 1% of rated power.
- Inverter efficiency (minimum) plus 98%.
- h) Following shall also be displayed like protective function limits, over voltage, AC under voltage, over frequency, under frequency, ground fault, PV starting voltage, PV stopping voltage, over voltage delay, under voltage delay over frequency, ground fault delay, PV starting delay, PV stopping delay.
- i) Nuts and bolts and the inverter enclosure shall be adequately protected taking into consideration the atmosphere and weather prevailing in the area.
- j) Dimension and weight of the inverter shall be indicated by the bidder in the offer.
- k) All doors, covers, panels and cable exits shall be gasketed or otherwise designed to limit the entry of dust and moisture.
- l) Operation Mode:
  - **Night or sleep mode:** where the inverter is almost completely turned off, with just the timer and control system still in operation, losses shall be less than 2W per 5kW.
  - **Standby mode:** where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically 10W).
  - **Operational of MPP tracking mode:** the control system continuously adjusts the voltage of the generator to optimize the power available. The power conditioner shall automatically re-enter standby mode input power reduce below the standby mode threshold. Front panel should provide display of status of the inverter.
  - **Junction Box / Combiner Box**

SMART Junction boxes with the multi-function of string monitor to detect each string's voltage, current, and power, plus fault detection and surge protection function. The array junction box has been suitably designed to be integrated into the Complex. The junction boxes shall have suitable arrangement for the following:

- a) Provide arrangement for disconnection for each of the groups.
- b) Provide a test point for each sub-group for quick fault location.
- c) To provide group array isolation.
- d) The current carrying ratings of the junction boxes shall be suitable with adequate safety factor to interconnect the solar PV array.
- e) To include data collector for monitoring system. A DC string meter is integrated into a DC box to provide the capability of collecting the required data/information of string level.

**(iii) Terminal points**

- a) The Project is expected to be connected to the 220kV grid station of KE network which is located near the project Site. A detailed Grid Interconnection Study is also conducted for the project which provides further details about inter-connection.
- b) The interconnection point will be droppers from the terminal tower connected to the gantry of 220kV transmission lines. The interconnection point shall be the HV line bushings installed at the gantry of the Complex. The interconnection point shall represent the boundary of responsibility between the project facility and system operator.
- c) The interconnection between the Complex and the Grid System shall be through 220kV double circuit transmission lines for looping in-out arrangement of the existing 220kV network.
- d) Power evacuation and interconnection scheme shall be as per performed Grid integration study and guidelines and policies applicable by the Purchaser. The same study and its NOC are shared along with this RFP.

**(iv) SCADA, Tele-Communication and Protection Schemes**

- a) The Complex is remotely monitored and controlled (at Site) through a SCADA system, which will be used for online operation, monitoring, processing of user-defined reports and statistics as well as remote monitoring of entire Complex for operation and maintenance purpose.
- b) 24h/10m Log: The data available in the 24h/10m log are a group of analogue data stored as average values of 10 minutes over the latest 24 hours. In the menu of the controller, it can be configured and is available for presentation.
- c) Production Overview Log: The production overview log provides information on energy produced by PV arrays during certain period.
- d) Availability Log: The availability log allows information on amount of time PV array has been available for production during a certain period. It is measured in percentage and is calculated through the ratio between the amount of time a PV array produced energy and the total amount of time in the given period where the irradiation is above or equal to a defined value.
- e) Plant Overview: An overview screen gives a current data list view over all PV arrays in the Complex.
- f) Weather Station Data: The weather station panel shows weather conditions at the Complex site.
- g) The bidder shall be responsible to arrange all the equipment and material brand new from internationally reputable manufacturers in compliance with the relevant international standards.
- h) The Bidder will transmit the data as required by the System Operator for the monitoring of the Complex parameters at their end and would establish a robust communication system for the purpose. the key features of the communication solutions will be as under:
  - o A V-SAT link or cable net shall be installed as the primary link.

- Internet connectivity via V-SAT/ cable net will be established for Remote Monitoring of Plant through Plant SCADA system.
  - The Bidder will install firewall devices and configure VPN (virtual private network) infrastructure for secure remote access.
  - Remote users will be able to access the system web portal only by signing into their respective VPN accounts.
  - Voice communication system at plant and System Operator's.
  - i) The protection schemes by the Bidder for the Complex and interconnection facilities shall be in accordance with System Operator's technical specifications. Interconnection facilities shall include back-up metering system along with set of dedicated cores of CTs and VTs with accuracy class of 0.2S, protection relay and switching equipment, protective devices and safety equipment and tele-protection system up to the interconnection point.
- (v) 220kV Substation**
- a) The entire Complex and grid connection works shall be able to operate in accordance with the relevant local grid code and distribution code and local technical and operational standards and requirements concerning embedded generation of this type and capacity. The Bidder shall be responsible for meeting these requirements and those of regulator and transmission system operator.
  - b) The HV side of the sub-station works shall confirm to the relevant requirements of the Grid Code and Purchaser requirements.
  - c) 220kV grid connection cable/conductor (whichever is applicable) emanating from the solar farm substation and interfacing with system operator grid connection interface point.
  - d) Communication lines as required by the system operator for network control and protection.
  - e) Provision of all necessary primary and secondary equipment required at solar farm substation or grid connection interface including but not limited to switchgear, cables, termination, protection, CT's, VT's earthing, surge arrestors, lightning protection and metering to terminate the 220kV overhead line, to allow export of power to the national/regional grid.
  - f) HV switchgear shall comply with the latest editions of IEC 60298, ISO 60694, IEC 62271-100, IEC 62271-102 and IEC 62271-203, IEC 60265 - 1 standards for equipment of this type or the relevant Pakistan standards.
  - g) The Bidder shall confirm with system operator, the scope of works for the 220kV protection systems and the technical requirements for the protection equipment and equipment design fault level.
  - h) The following electrical design limits must be adhered to with regards to the Complex:
    - The Complex shall be designed to operate within a power factor range as per Grid Code.
    - The Complex shall operate within the range as per Grid Code.

- The Complex shall be able to operate within the frequency range as per Grid Code.
  - The Complex shall operate within the harmonics range as per Grid Code.
  - i) The HV switchgears shall be type approved by the System Operator to which they will be connected and to ensure connection to the local 220kV system, shall be of the metal type switchgear and vacuum/SF6 circuit breaker.
  - j) All MV and LV switchgear shall comply with the relevant National standard or the latest edition of the relevant part of the IEC 60947 standards for this type of device.
  - k) Switchboards/panels (as applicable) installed within the solar farm substation shall have a method of preventing condensation, an internal light and a standard 10A power socket outlet to National standards or IEC 60309-2 equivalent.
  - l) 220kV Switchyard of the Complex can be Gas or Air Insulated Switchgear based on the choice of the bidder and available spacing at the project Site.
  - m) The Switchyard will be double bus-bar single breaker scheme comprising two transmission line bays so as to provide 220kV double circuit in-out arrangement and remaining bays will be as per plant design.
  - n) The GIS switchgear shall have a product warranty covering defects in materials and workmanship of at least five (5) years counting from the Commercial Operation Date.
- (vi) Power Transformer and Switchyard Equipment**
- a) The Complex design will include the step-up transformer considering (N-1) contingency. Step-up Transformer shall comprise of adequate electrical and mechanical protections to ensure safety and reliability. The step-up transformer shall be oil immersed, ONAN, dual-low-voltage and core type. Transformer is Insulation Class A. Transformer routine tests are carried out as per IEC standard or equivalent. The type test reports shall be provided. Over and under voltage limits shall be controlled by ON load tap changer at each tap position shall be governed by relevant IEC standard applicable to oil filled transformers.
  - b) The following accessories are provided with the transformer for protection against internal faults:
    - Oil temperature indicator.
    - Pressure relief device.
    - Oil level gauge.
    - Buchholz relay.

All outdoor equipment i.e. Surge arrestors, line traps, coupling capacitors, capacitive voltage transformers, line coupling device equipment and etc. shall be provided having adequate rating and as per given IEC standards later in coming section.

The Transformers shall have a product warranty covering defects in materials and workmanship of at least 2 years counting from the Commercial Operation Date.

**(vii) Metering System**

- a) For export and import metering, the Complex shall be provided at the Complex' interconnection point with the Metering System on the HV side of the switch gear at the sub-station. The metering system shall provide record of kWh (import / export) and kVARh (import / export) exchange between the Complex and the system operator at HV side. The Bidder shall provide independent current transformers (switchyard) of accuracy class 0.2S and voltage transformers (switchyard) of accuracy class 0.2S at the substation for input to the Energy Meters. The Metering System's overall measuring error shall be within 0.2%. A separate walled room in the Sub-station of the Complex shall be provided for metering system. All cabling between the meters and associated current transformers and voltage transformers shall be laid in rigid conduits as per the design standards.
- b) Back-up metering system installation is mandatory and must be as per EPA.

**(viii) Earthing**

- a) The Complex shall have a dedicated earthing system. The earthing for array and LT power shall earthing be designed and installed as per the provisions of applicable international standards.
- b) System shall connect all non –current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV module mounting structures in one long run. The earth strips shall not be bolted. Earthing GI strips shall be interconnected by proper welding.
- c) The earthing conductor shall be rated for 1.56 times the maximum short circuit current of the PV array. The factor 1.56 considers 25 percent as a safety factor and 25 percent as albedo factor to protect from any unaccounted external reflection onto the PV modules increasing its current.
- d) Earth resistance shall not be more than 5 ohms.
- e) The equipment grounding wire shall be connected to earth strip by proper fixing arrangement.
- f) Each strip shall be continued up to at least 500mm from the equipment.

**(ix) Lightning Protection**

- a) The Complex shall be provided with lightning and over voltage protection. The source of over voltage can be lightning or other atmospheric disturbance. The lightning conductors shall be made as per applicable international standards in order to protect the entire array yard from lightning stroke.
- b) Lightning Protection System shall comprise of air terminations, down conductors, test links, earth electrode etc. as per approved drawings from the Purchaser and standards.
- c) The protection against induced high voltages shall be provided by the use of surge protection devices (SPDs) and the earthing terminal of the SPD shall be connected to the earth through the earthing system.

**(x) Balance of System**

- a) The Bidder shall design, construct and commission an MV substation [indoor], which shall

mainly comprise the following:

- MV switchgear including control and protection relays.
- Auxiliary transformer.
- Fire detection and alarm system.
- Emergency lighting shall be provided in the MV switchgear room. This shall be automatically activated on the failure of the AC supply.
- b) MV Switchgears of metal-enclosed indoor type with SF6 Circuit Breakers. The SF6 circuit breaker is maintenance-free. The position of the power and grounding contacts are clearly visible on the front of the switchboard.
- c) MV (11/22/33 KV) Switchgear supplier is accredited to ISO 9001 and MV (11/22/33 KV) Transformer supplier is accredited to ISO 9001 and IEC 60085 certified. IEC 60214 certified transformers for tap changers and transformer warranty period of minimum 2 years. Efficiency of Transformer at least 96%.
- d) Medium Voltage Cables will be Cross Linked Polyethylene (XLPE) insulated with Copper Conductors suitable for laying in ground for interconnection between PV array and MV switchgear room at the Sub-station.
- e) The sizing of MV cabling accommodates 0.9 to 1.1p.u. voltages and 0.85 leading and 0.95 lagging power factor at the substation bus and Site-specific thermal resistivity. All the cables are laid as per prudent engineering practices and also based on relevant IEC standards.
- f) AC cables IEC-60502 certified (1 to 36KV) or IEC-60840 certified (30 to 150KV). Reputable AC cable supplier accredited to ISO 9001. Minimum 2-year warranty period of AC cables. AC cables are UV radiation and weather resistant.
- g) The Bidder ensures that all cables, materials, design, manufacture and test procedures are in accordance with the applicable IEC Standards and equivalent. DC Cables shall be used before the inverter in the topology and AC cables shall be used after the inverter. Communication between PV area and inverter station shall be done through copper cables and communication from inverter to main control room through fiber optic cables.
- h) The extent of works shall comprise proper cable sizing, cable routing from the Combiner Box of the PV arrays to the MV Substation, laying and termination of underground fiber optic and communication cables including related civil works.
- i) Well-defined row spacing to reduce inter-row shading and associated shading losses, layout to minimize cable runs and associated electrical losses, sufficient distance between rows to allow access for maintenance purposes etc. shall be evaluated under design criteria.
- j) The power from each inverter station shall be transformed to the MV via the transformer. From the transformer the same shall be interconnected with one another by underground power cables and fed into MV substation at the site.
- k) Diesel engine and UPS shall be provided in all Control room to provide minimum of 12 hours of back up for the SCADA system. In the inverter rooms, the inverter could work by the auxiliary transformer of 33KV step-up substation.
- l) One 33kV/400V Auxiliary Power Transformer of rating up to 400 kVA with manual

change-over arrangement shall be provided. The Auxiliary transformer shall be connected to the main 33kV bus bar via breaker and supply the Main Distribution Board at 400V with circuit breakers. The transformers will be three phase, delta star connected with impedance value of 5%.

- m) AC Distribution Board (ACDB) shall control the AC power from inverter and shall have necessary surge arrestors.
- n) An ACDB panel shall be provided in between PCU and utility grid. It shall have MCB/MCCB/ACB or circuit breaker of suitable rating for connection and disconnection of PCU from grid.
- o) The connection between ACDB and Utility grid shall be of standard cable/conductor with suitable termination. It shall have provision to measure grid voltage, current and power.
- p) The incomer shall be selected at required rating. The ACDB enclosure shall be of good protection and suitable for mounting on the trenches / on wall.
- q) All the 415 V AC or 230 V AC devices/equipment like bus support insulators, circuit breakers, SFU isolators (if applicable), SPD, etc. mounted inside the switch gear shall be suitable for continuous operation.
- r) Switches/ circuit breakers/ connectors meeting general requirements and safety measurements as per IEC 60947 part I, II and III.
- s) Junction boxes, enclosures, panels for inverters/ Controllers shall meet IP 54 (for outdoor)/ IP 65 (for indoor) as per IEC 529.
- t) The earth system for the 220kV Substation is designed in accordance with applicable IEC Standards and shall ensure safe step and touch potentials in the event of a fault or lightning strike. All grounding works in substation area shall be of copper.
- u) The PV panels / system's grounding system is an interconnected network of flat strips made of galvanized iron. The system is provided to protect plant personnel and equipment from the hazards, which can occur during power system faults and lightning strikes. In the substation, "danger mark" will be installed to remind staff.
- v) Use of fuses when arrays formed of four or more strings for over-current protection.
- w) Double-pole DC switches usage to block both positive and negative PV array cables. DC switches used rated for system voltage and maximum current expected and DC switches equipped with safety signs.
- x) Module cables have a temperature range -55 to 125°C. Single core double insulated DC cables used with mechanical resistance (animal proof/compression/tension/bending etc.).
- y) Relevant fire safety protection guidelines must be adopted.
- z) Lighting shall be provided at regular intervals to ensure required visibility at night.
- aa) The MV switchgears shall have a product warranty covering defects in materials and workmanship of at least 2 years counting from the Commercial Operation Date.
- bb) The solar cables shall have a product warranty covering defects in materials and workmanship of at least 2 years counting from the Commercial Operation Date.

**(xi) Security and Surveillance System**

- a) A galvanized steel wire mesh fence with anti-climb protection shall be provided.
- b) Watch towers shall be provided to meet the security requirements all over the project boundary.
- c) Street lights shall be provided in accommodation area and inside the sub-station and around watch towers to ensure security personnel can see outside and inside of the boundary.
- d) Bidder shall provide at least day/night cameras for security and surveillance purposes. Cameras shall ideally have strong zooming capabilities and shall be easy to manipulate remotely (e.g., with the help of pan-tilt-zoom support) for external users to be able to identify sources of intrusion with more ease. Day/night cameras typically have ranges of 50m to 100m and are coupled with infrared illuminators.

**16.2.1.11 Standards Compliance**

**Note:** Equivalent standards can be considered based on International and local practices.

**a) PV Modules**

Standard	Description
IEC 61215	Crystalline silicon (c-Si) terrestrial PV modules – Design qualification and type approval
IEC 61646	Thin-film terrestrial PV modules - Design qualification and type approval
IEC 60364-4-41	Protection against electric shock
IEC 61701	Resistance to salt mist and corrosion
IEC 62804	System voltage durability test for c-Si modules
UL 1703	Comply with the National Electric Code, Occupational Safety and Health Administration and the National Fire Prevention Association. The modules perform to at least 90% of the manufacturer's nominal power.
IEC 62738	Plant Design
EN-50380	Datasheet and Nameplate information of PV modules as per standard
IEC 61724-1-2-3	Performance monitoring-Capacity Evaluation-Energy Evaluation
IEC 63049	PV System Installation
IEC 62446-2	System Maintenance
IEC 62446-1	Documentation, Test and Inspection
<u>IEC 60904-1</u>	Measurements of PV current-voltage characteristics
<u>IEC 60904-5</u>	Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method
<u>IEC 60904-7</u>	Computation of the spectral mismatch correction for measurements of photovoltaic devices



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<u>IEC 61345</u>	UV test for photovoltaic (PV) modules
<u>IEC 61730-1</u>	Scope of the work in progress includes PV module safety qualification requirements for construction
<u>IEC 61730-2</u>	Photovoltaic (PV) module safety qualification
<u>IEC 61829</u>	Scope of the work in progress includes on-site measurement of I-V characteristics for crystalline silicon PV array
<u>IEC 61853-1</u>	Scope of the work in progress includes irradiance and temperature performance measurements and power rating for PV module performance testing and energy rating
<u>IEC 61853-2</u>	Scope of work in progress includes spectral response, incidence angle and module operating temperature measurements for PV module performance testing and energy rating
<u>IEC 62716</u>	Ammonia corrosion testing of photovoltaic (PV) modules
<u>IEC 62446</u>	Grid connected photovoltaic systems – Minimum requirements for system documentation, commissioning tests and inspection
82/618/NP	Specification for solar trackers used for photovoltaic systems.
ISO9001	Type tested and comply to ISO9001
NFPA Article 690	Solar Electric Systems
NFPA Article 705	Interconnected Electrical Power Production sources

**b) Inverters**

<b>Standard</b>	<b>Description</b>
IEC 61683	Photovoltaic systems—Power conditioners—Procedure for measuring efficiency
IEC 61721	Characteristics of the utility interface
IEC 62116	Islanding prevention measures for utility-interconnected photovoltaic inverters
IEC 62109-1 and 2	Safety of power converters for use in photovoltaic power systems
EN 61000-6-2 and 4	Electromagnetic Compatibility (EMC)
EN 50178	Electronic equipment for use in power installations
EN 50524	Datasheet and Nameplate for Inverters
EN 55022	Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement.
EN 61000	Electromagnetic compatibility (EMC). Immunity for residential, commercial and light-industrial environments
IEC 62548	Installation and Safety Requirements for wiring
IEC 61683	PV systems – Power conditioners – Procedure for measuring efficiency

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IEC 62093	Balance-of-system components for photovoltaic systems – Design qualification natural environments.
IEEE 519 1992	Compliance to Total Harmonic Distortion levels
UL 2703	Rack Mounting Systems and Clamping Devices for Flat-Plate Photovoltaic Modules and Panels
UL 3703	Trackers

**c) Switchyard Equipment**

Standards	Description
IEC 60076/60354	Power transformer selection as per IEC-60076 and IEC 60354 certified for type of installation
ISO9001	Transformer supplier is accredited to ISO 9001
IEC 60085	Certified transformers for electrical insulation
IEC 62271-203	Gas insulated metal enclosed switchgear for rated voltages above 52kV
IEC 62271-100	High voltage alternating current circuit breakers
IEC 62271-102	Alternating current disconnectors and earthing switch
IEC 60296	Certified for Oil specification
IEC 60137	Certified for Primary and Secondary Bushings
IEC 60214/ IEC 60542	Certified transformers for tap changers
IEC 61869-1	Instrument transformers - Part 1: General requirements
IEC 61869-5	Instrument transformers - Part 5: Additional requirements for capacitor voltage transformers
IEC 61869-3	Instrument transformers - Part 3: Additional requirements for inductive voltage transformers
IEC 60099-4	Surge arresters - Part 4: Metal-oxide surge arresters without gaps for A.C.
IEC 60353	Line traps for A.C. power systems
IEC 60358-1	Coupling capacitors and capacitor dividers - Part 1: General rules
IEC 66044-1 & 2	Current transformers and voltage transformers
IEC 60694	Common clauses for high voltage switchgear and control gear standards

**16.2.1.12 Mounting Structure**

Photovoltaic arrays must be mounted on a stable, durable structure that can support the array and withstand wind, rain, and other adverse conditions. The module mounting structures shall have adequate strength and appropriate design suitable to the locations, which can withstand the load and high wind velocities. Stationary structures shall support PV modules at a given orientation, absorb and transfer the mechanical loads to the surface properly. Mounting System shall be ICC ES AC428 and UL 2703 certified.

The Complex shall only be designed with single-axis trackers. Other tracker designs or fixed mounting structure design will not be accepted.

Mounting Systems having tracking system provision shall have warranty of 10 years or above for both movable and non-movable parts.

#### **16.2.1.13 Single Axis Tracking**

The trackers shall fulfil following requirements:

- a) The tracker system shall be of proven design and shall be based on trackers systems that have been deployed in the field in at least three (3) PV power plants with a minimum of two (2) years of successful operation each and with a respective capacity of at least 20 MW.
- b) The structure and the materials selected by the Contractor shall have a product warranty of at least 10 years for mounting structure performance including mechanical stability and 10 years for corrosion warranty from the manufacturer. The warranty conditions must cover any damage (deformation, cracking, corrosion, etc.) caused by conventional use or during extreme environmental conditions as specified in the design data (wind force, etc.).
- c) The tracker system shall be electrically driven and shall meet all the seismic and wind loading requirements of the applicable local codes and local wind conditions.
- d) Mounting structure and tracker structure shall be made of Aluminum or Hot Dip Galvanized Steel, able to withstand at least 25 years of outdoor exposure without special signs of corrosion or fatigue at site conditions.
- e) The minimum thickness of galvanization for hot dip galvanized mild steel shall be at least 80 microns.
- f) Mounting structure shall be supported by foundations which shall be designed according to recommendations of dedicated geotechnical soil test report (e.g. driven piles, earth-screws, helical piles, casted foundations).
- g) Dynamic wind analysis shall be performed considering torsional galloping and aeroelastic instability. Wind tunnel test report shall be submitted by the Contractor for approval.
- h) Once fully constructed, the trackers shall be able to support the weight of PV modules, equipment such as weather monitoring station, cables as well as the weight of the operations and maintenance personnel (O&M) if any and associated machines/tools.
- i) The design of the tracker shall enable the assembly/disassembly and replacement of any unit.
- j) Each tracker must be specially constructed to prevent the accumulation of water or moisture on or in the structure and allow the adequate flow of water to the outside of the structure.
- k) Bonding jumper cables shall be installed between trackers for proper grounding.
- l) Ground strap shall be installed between the torque tube and the motor support for proper grounding.
- m) Tracking range shall be at least of 120° [-60°; +60°].
- n) The trackers shall be self-powered.
- o) The time to stow at 0° from full tilt shall be inferior to 5 minutes.
- p) The communications shall be wireless.

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- q) Equipped with GPS to ensure the accuracy of time.
- r) The tracker shall present a minimum steep-slope tolerance to 15% grade on NS axis.
- s) Tracker stowing system shall be provided which shall be capable of reliable operation independent of the AC grid supply.
- t) Automatic tracking without manual debugging.
- u) Remote communication, group control for multi-equipment.
- v) The mounting structure must be engineered for wind resistance of minimum 130km/h.
- w) The structure shall be designed to withstand operating environmental conditions for a period of minimum 25 years and shall be free from corrosion while installation.
- x) Modules shall be fixed with the frame through pure SS Rawal bolts. The bolts shall be tightened at the required angle.
- y) The nuts, bolts and washers/spring washers for modules & mounting structures must be stainless steel material with appropriate gauge (14 or plus).
- z) Screw fasteners shall use existing mounting holes provided by module manufacturer. No additional holes shall be drilled on module frames.
- aa) Minimum distance between the lower level of PV module and the ground shall be 0.6m from the ground level.
- bb) The PV panel area shall be accessible for cleaning and for any repair work.
- cc) Trackers shall be reprocessed and recyclable at the end of their technical life.

**16.2.1.14 Testing & Commissioning**

Bidder shall successfully complete the Commissioning testing in accordance with the Commissioning Test and Reliability Run Test requirements as per EPA.

**16.2.1.15 Test Duration**

Purchaser shall approve the Commissioning Test and Reliability Run Test procedures prior to execution of the testing.

**16.2.1.16 Performance Verification**

All commissioning activities shall be executed under a phased approach. Activities of each phase shall be documented and submitted to Purchaser for review, acceptance, and documentation under the requirements of Energy Purchase Agreement.

- a) Physical inspections.
- b) O&M manual review.
- c) Warranty review.
- d) Commissioning manual.

- e) Performance verification.
- f) Reliability run test.

#### **16.2.1.17 Back-up Metering System**

Back-up metering system installation is mandatory, non-compliance of which would result in disqualification.

Back-up metering shall include ISKRA MT860 AMR meters of 0.2 accuracy class, dedicated CTs of 0.2 accuracy class, dedicated VTs and dedicated metering panels. All cabling between the meters and associated current transformers and voltage transformers shall be laid in rigid conduits as per the design standards.

#### **16.2.1.18 Weather Station**

Meteorological Stations shall be setup at the Complex capable of monitoring ambient temperature, wind speed, wind direction, irradiation, rainfall and any other relevant component as necessities by the requirement of HFM. Moreover, through the equipped data acquisition system and communication port, the relevant parameters can be uploaded to Complex SCADA system which shall also be accessible to System Operator.

Provision of Hybrid forecast model (HFM) where Hybrid Forecast Model means predictive tool/software prepared and operated by the forecasting consultant to generate energy forecast for the Complex is required for the Project. HFM uses physical data which at least includes:

- a) Global horizontal irradiance.
- b) Ambient temperature.
- c) Cloud motion data.
- d) Numerical weather predictive model.
- e) Wind speed.
- f) Past statistical data to extrapolate and model the future prediction of MW output of the plant. The prediction error (MAE).
- g) Mean bias error (MBE).
- h) Model output statistics (MOS),

curve then is corrected through various error removing techniques which at least include:

- i) Root mean square error (RMSE).
- j) Mean absolute.

#### **16.2.1.19 Irradiance measurement protocol**

Irradiation and temperature measurements are to be recorded at intervals of ten minutes or less. Particular care must be taken, that the measuring equipment conforms to environmental conditions of the Complex location. The equipment shall have the capability of recording and storing data for 24 hours.

The irradiation measurement equipment shall be calibrated by an independent certified third party every two years. The calibration shall be compliant with international standards. Two pyranometers shall be placed for each system: one for measuring the horizontal plane irradiation and the other for the in-plane irradiation. The pyranometers shall conform to the standards of ISO (International Organization for Standardization) 9060 (SR5: secondary standard) or the WMO classification, and IEC 60904. Thermopile sensors are preferable to silicon photodiodes. A sensor calibration tolerance of +/-2% is expected.

(Optional): The ground-based sensor data is to be supplemented with bankable satellite data to quantify longer-term variations (e.g. Solar GIS or any other company).

Ambient air and the module temperature shall be measured in conformity with IEC 60751 AA. Particular care shall be taken about the method of attaching the temperature sensor on the back of the module. The dependence of the system's sub-system performance on temperature variations shall be characterized by SCADA.

A weather-monitoring station shall be provided with redundant humidity sensors, a rain gauge, and a wind profiling unit/anemometer (speed and direction), preferably capable of data telemetry or other electronic connectivity to the SCADA server. The environmental analysis is important to understand any unexpected degradation effects in the modules or other system components.

The use of consolidated measuring equipment; supported by an integrated UPS, with the above-mentioned functionality and modeling software capable of predictive functions is required.

#### **16.2.1.20 Spare Parts and Special Tools**

The bidder shall list and provide the spare parts required for the commissioning of the works. A full inventory of these spare parts shall be ready for use and store either on site or locally.

One set of special tools (especially for electrical equipment) necessary for proper installation, operation, maintenance and monitoring of the plant shall be provided by the bidder. In addition, the bidder shall provide required sets of electrician's tools, each including a high-quality multimeter (e.g. FLUKE) and housed in a suitable tool chest or cabinet inside the substation store/ workshop room.

#### **16.2.1.21 Operation & Maintenance (O&M)**

During the Operation and Maintenance period of the project, O&M operator must fulfill the below requirements:

- a) Comply with the Dispatch Instructions under the EPA.
- b) Maximize the power generation and plant availability.
- c) Maximize the useful life of the Complex as per the term of the EPA.
- d) Minimize Complex down time and disruptions.
- e) Minimize operation and maintenance costs consistent with Prudent Electrical Practices and

Prudent Utility Practices.

- f) Minimize Complex and capacity degradation.
- g) Minimize the possibility of default under the EPA.
- h) Minimize the incident, severity and duration of Forced or Partial Forced Outages, Maintenance Outages and Scheduled Outages; and maximize availability and reliability of the Complex.
- i) Run the Plant as per EPA, Prudent Utility Practices and according to the terms and conditions of the Agreement.
- j) Provide operational services including such number of personnel as specified in the Agreement in accordance with the Plant design and engineer's recommendations, the equipment manufacturer's recommendations and the Company's recommendations.
- k) Perform and record periodic operational checks and tests of equipment in accordance with original equipment manufacturers' recommendations, applicable law, Energy Purchase Agreement and the Company's recommendations.
- l) Maintain and provide to the Purchaser, upon request, operating logs, records and reports for operation of the plant in English language.
- m) Undertake Schedule Outages, Maintenance Outages, routine maintenance services and provide technical supervision of any maintenance activity carried out by original equipment manufacturer.
- n) Coordinate with the Purchaser/company to arrange times for maintenance as required.
- o) Keep the Plant in proper state and shall maintain in good condition all furniture, goods and other items provided, including all electrical equipment, tools, and communication systems etc.
- p) Be responsible to maintain liaison with the Purchaser and provide all information as per the agreed EPA.
- q) Operator will deploy sufficient staff required for necessary and smooth operation of the plant.

## **Volume-III: Tariff Proposal Requirements**



## 17 Quoted Tariff and Commercial Requirements

The Tariff Proposal shall be consistent with the tariff structure given below. Any Bid which is inconsistent with the tariff structure shall be rejected.

### 17.1 Bid Tariff

The Bidders may bid a Bid Tariff for the Project, rounded off to four decimal places for the Term.

The indexation applicable to the Bid Tariff will be as follows:

$$\text{Revised AT} = \text{AT} * \text{Kx}\% \left[ \frac{\text{Rev KIBOR}}{\text{Ref KIBOR}} - 1 \right] + \text{AT} * \text{Sx}\% \left[ \frac{\text{Rev SOFR}}{\text{Ref SOFR}} - 1 \right] + \text{AT} * 80\% * \left[ \frac{\text{ER Rev}}{\text{ER Ref}} - 1 \right] + \text{AT} * 20\% * \left[ \frac{\text{ER Rev (one time)}}{\text{ER Ref}} - 1 \right] + \text{AT}$$

AT	Awarded Tariff
Kx%	Percentage of AT to be indexed with KIBOR variation (to be determined by the Authority)
Sx%	Percentage of AT to be indexed with SOFR variation (to be determined by the Authority)
Rev SOFR	Quarterly revised Term or Daily SOFR, as the case may be based on GOP policy decision on the transition from LIBOR to SOFR, as on the last day of the preceding quarter
Rev KIBOR	Quarterly revised 3-month KIBOR, as on the last day of the preceding quarter
Ref KIBOR	23.08% <sup>1</sup>
Ref SOFR	5.4039% <sup>1</sup>
ER Ref	300.5 Rs./USD
ER Rev	The revised exchange rate as on the last day of the preceding quarter
ER Rev (one time)	The revised exchange rate as average of the exchange rates of each day during the maximum construction period of 12 months starting from the date of Financial Close. Thus, making this portion of tariff fixed throughout the control period.

The Bidders will have the flexibility in choosing the mix of debt-to-equity, including the mix of the local and foreign debt, along with debt tenor. However, the above formula shall not be subject to change due to actual debt-to-equity ratio and any combination of local and foreign financing and shall apply to the Awarded Tariff.

For the submission of the Bid, the following reference values shall be taken into account by the Bidders:

Description	Values	Remarks
Reference KIBOR	23.08% <sup>1</sup>	3-month KIBOR as of August 25, 2023
Reference SOFR	5.4039% <sup>1</sup>	Term SOFR as of August 25, 2023
Reference Exchange Rate	300.5	PKR/USD as of August 25, 2023 (NBP)
1. Or as otherwise approved by NEPRA		

### 17.2 Bid Tariff Assumptions

- a) All invoicing and payment terms are assumed to be in accordance with the standard EPA, to be issued to the Bidder.
- b) No adjustment for certified emission reductions should be accounted for in the Bid Tariff.

### 17.3 Pass-through Items

Subject to the approval of NEPRA in Consumer End Tariff, following items shall be considered pass-through:

- a) If the Successful Bidder is obligated to pay any tax on its income from electricity generated from the Project, or any duties, cess or taxes not being of refundable nature are imposed on the Successful Bidder, the exact amount paid by the Successful Bidder on these accounts will be reimbursed by KE and on production of original filing documents.

In case of the above scenario, the Successful Bidder shall also submit to KE the details of any tax savings and KE shall deduct the amount of these savings from its payment to the Successful Bidder on accounts of taxation. The adjustment for duties and taxes will be restricted only to the extent of duties and taxes directly imposed on the Successful Bidder. No adjustment for duties and taxes imposed on third parties such as contractors, suppliers, consultants, etc., will be allowed.

- b) In case any Bidder proposes to import any plant, machinery or equipment that is also manufactured locally in accordance with the Customs General Order of the FBR, the Bid should account for the additional duties so that the Bid Tariff by the Bidder is inclusive of customs duty; pass-through of such duty subsequent to the bidding is not allowed. However, in such cases where the local procurement is not viable for the Project due to genuine technical constraints, import duties on such items shall also be considered as pass-through subject to fulfillment of conditions given in ARE Policy, 2019, for which relevant certification shall be obtained by the Bidder from AEDB.

The Bidder is expected to have knowledge of applicable laws and regulations and shall not in any case hold KE accountable for information not provided under this document.

- c) Payment into Worker's Profit Participation Fund and Worker's Welfare Fund.
- d) Withholding tax on dividend will not be a pass-through item.
- e) The solar resource risk will not be borne by the Purchaser.

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## **Exhibits**

**KE Request for Proposal (RFP) – approx. 120 MW solar power project at District West, Karachi, Sindh, Pakistan  
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## **Exhibit 1: Form of Acknowledgement**

### **1.1. Instructions**

If Bidder wishes / does not wish to participate in the bidding process for this Project, then the Bidder must submit the form of acknowledgement letter prior to bid submission (within 03 days from the date of receipt of RFP Package) via email at following email addresses:

[Qasim.mehmud@ke.com.pk](mailto:Qasim.mehmud@ke.com.pk)

The Bidder to submit the hard copy of this form of acknowledgement letter to K-Electric along with the Bid.

### **1.2. Template**

[On Bidder's corporate letterhead]

[Date]

Mr. Qasim Mehmud

Strategic Sourcing Lead – Project Procurement

K - Electric Limited

1st Floor Procurement Division

Building J

Elander Road (Power House) Complex, Karachi, Pakistan

**Subject: K-Electric, Request for Proposal for Development of 120 MW Solar Project –  
Acknowledgement Letter**

Dear Mr./Ms. \_\_\_\_\_,

In response to the Request for Proposal dated [xxx], we hereby duly acknowledge receipt of the Instructions to Bidders, Attachments and Exhibits that constitute the complete Request for Proposal. We would like to confirm:

☐ That we intend to participate in the Request for Proposal process and will submit our proposal as per your schedule.

or

☐ That we do not intend to participate in the Request for Proposal process.

For and on behalf of

Bidder company name: \_\_\_\_\_

Name of Bidder's authorized person: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

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Signature: \_\_\_\_\_

## Exhibit 2: Bid Letter

Date: [•]

[•]

[K-Electric Limited]]

[Insert address]

**Subject: Bid of [•] for [•] MW Solar IPP at [•]**

I [Title/Position, Company], acting as the duly authorized representative for and on behalf of [name of the Bidder] ("Bidder") confirm the Bidder's interest in developing, financing, insuring, installing, testing, commissioning, owning, operating and maintaining a [•] MW solar power project ("the Project") at [Site 02] in furtherance whereof I on behalf of the Bidder hereby certify, represent, warrant and agree that:

- (a) This Bid Letter, along with all its annexes, and contents of Envelopes I and II, forms our Bid and is submitted pursuant to the Request of Proposal (RFP) dated [•] issued by the K-Electric ("KE").
- (b) Having examined and being fully familiar with all the provisions of the RFP (including its proformas and exhibits), receipt of which is hereby duly acknowledged, and having evaluated, following our own studies undertaken under our responsibility, the nature and scope of the contractual obligations to be executed, the financing structure, the Purchaser profile, the EPA, and the applicable legal framework, the Bidder hereby offers to undertake the development of its [•] MW Project:
  - (i) on BOOT basis in compliance with all requirements of the RFP,
  - (ii) on Tariff as offered in Envelope II of our Bid, subject to NEPRA's approval.
- (c) We hereby agree that our Bid constitutes our unconditional, firm, irrevocable offer that is binding upon us and will remain valid for the Bid Validity Period.
- (d) We have provided and attached hereto a Bid Bond dated [•] issued by [name of issuing bank] in the amount of [PKR/USD state amount in words] (PKR/USD [show amount in figure]) in accordance with Exhibit 9 of the RFP.
- (e) We certify that (i) the information submitted as part of our Bid is complete and accurate, (ii) the Bidder will be bound to this Bid and to the development of the Project, and (iii) we accept the documents, terms and conditions of the RFP.
- (f) We understand the evaluation criteria and the process for selection of Successful Bidder and acknowledge that Auction and Evaluation Committee is not obligated to accept our Bid and may at any time reject our Bid at its sole discretion.

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- (g) We commit ourselves, if required, to extend the validity of our Bid and the Bid Bond until the issuance of the LOI to the Successful Bidder, pursuant to section 11(d) of the RFP.
- (h) We confirm our commitment to the bidding and project development schedule stated at Section 7 of the RFP. We further commit ourselves, if advised by KE to do so, to furnish the Performance Guarantee, the EPA and any other agreement ancillary to it consistent with the aforesaid bidding and project development schedule.
- (i) We commit to hold at least fifty-one percent (51%) of the total issued and paid-up share capital of the SPV and maintain such shareholding for the till the sixth anniversary of the Commercial Operations Date,
- (j) We further commit ourselves to provide any additional information, clarification and data in respect of the Bid, if required by KE and to pay all fees and charges in terms of the RFP.

Capitalized terms used and not defined herein carry the meanings assigned thereto in the RFP.

In *[location]*, on this *[date]*.

The undersigned is duly authorized to execute the Bid for and on behalf of the Bidder.

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*[Signature and Seal]*

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**Annexure 1: List of Annexes to Bid Letter**

**Envelope I**

<b>Exhibit</b>	<b>Description of Items</b>	<b>Completed and submitted</b>
2	Bid Letter with Annexure	
3	Bid Processing Fee	
4	Confidentiality Agreement	
5	Covenant of Integrity	
6	Affidavit	
7	Power of Attorney	
8	Letter of acceptance by the Bidder	
9	Bid Bond (in the form of bank guarantee)	
10	Technical Information with Annexures	



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**Envelope II**

<b>Exhibit</b>	<b>Description of Items</b>	<b>Completed and submitted</b>
11	Bid Tariff with Annexure	
Annexure-I	Bidder's confirmation on tariff requirements	
12	Equity commitment from sponsors	

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**Exhibit 3: Bid Processing Fee**

**[Original Pay Order]**

#### Exhibit 4: Confidentiality Agreement

##### **CONFIDENTIALITY AGREEMENT (on stamp paper)**

This Confidentiality Agreement ("Agreement") is made at Karachi on this \_\_\_\_ day of \_\_\_\_\_, 2022  
("Effective Date").

##### **By and between**

**K-Electric LIMITED**, a public limited company duly incorporated and existing under the laws of Pakistan and having its registered office at KE House, 39B, Sunset Boulevard, Phase-II, DHA, Karachi, Pakistan, (hereafter referred to as "**KE or Disclosing Party**").

##### **And**

[-----], [registered address] (hereinafter "**Company of Receiving Party**")

(**KE and Company** are hereinafter individually referred to as a "**Party**" and collectively as the "**Parties**").

##### **WHEREAS:**

1. KE is in process of obtaining bids for the Development of approx. 120 MW solar power project at Deh Halkani, District West, Karachi, Pakistan
2. As part of these discussions, the Parties (either directly or through a representative) have and may in the future exchange Confidential Information pertaining to the Project.
3. COMPANY and KE wish to enter into this Agreement to safeguard the confidentiality of such Confidential Information.

NOW THEREFORE, in consideration of the mutual agreements contained herein, the Parties agree as follows:

1. In this Agreement, unless the context requires otherwise, the following terms shall have the meaning given below:

"**Affiliate(s)**" means in relation to a Party, any, corporation, partnership or other legal entity: (i) that is, directly or indirectly, controlled by such Party; or (ii) that directly or indirectly controls such Party; or (c) that is, directly or indirectly, controlled by a Party that also, directly or indirectly, controls such a Party. For the purpose of this definition, a Party is directly controlled by another Party which owns or controls shares or other interests carrying in the aggregate at least fifty percent (50%) of the voting rights exercisable at a general or shareholders meeting of the first-mentioned Party or the right to appoint or dismiss a majority of the directors thereof.

"**Confidential Information**" means all information (in whatever form, including, but not limited to, oral, visual, written or electronic, or in any medium or by any method) relating to the Project, including but not limited to, all manuals, specifications, drawings, letters, telexes and any other material containing Confidential Information disclosed to the COMPANY by or on behalf of the KE in writing, in drawing or in any other form or acquired by the COMPANY from the KE regardless of whether such information was obtained prior to or after the Effective Date. Confidential Information shall also include all memoranda, reports, valuations, analyses and

summaries of Confidential Information that the Receiving Party or any of its Affiliates derives from Confidential Information disclosed by the Disclosing Party.

2. Each Party agrees that the Confidential Information received by it shall be kept strictly confidential, shall only be used in relation to the Project and shall not be sold, traded, published or otherwise disclosed to anyone in any manner whatsoever, including by means of photocopy or reproduction, or electronic transmission, without the prior written consent of the Disclosing Party.
3. Receiving Party further agrees that, unless otherwise expressly permitted in this Agreement, it shall not disclose, and shall cause its representatives not to disclose (i) the existence or terms and conditions contained in this Agreement, (ii) the fact that Confidential Information has been made available to the Receiving Party or its representatives; (iii) the fact that discussions or negotiations are or were taking place concerning the Project, and (iv) the terms, conditions or other facts with respect to any such Project, if any, including the status thereof, to any third parties (other than such third parties who are permitted to receive Confidential Information hereunder) without the prior written consent of Disclosing Party.

3.1 The Receiving Party may disclose Confidential Information without the Disclosing Party's prior written consent only to the extent such information:

- (i) is required to be disclosed under applicable laws, rules or regulations, including a governmental order or decree, a ruling or judgment of a court of competent jurisdiction, arbitrator or the rules of any recognized stock exchange ("Applicable Laws") (provided that the Receiving Party shall promptly give a written notice to the Disclosing Party prior to such disclosure, limit the disclosure to the extent legally allowable and seek to protect such information from further disclosure;
- (ii) is disclosed to the employees, officers or directors of Receiving Party and to their employees, officers or directors on a 'need to know' basis; or
- (iii) is disclosed to any professional consultant, legal counsel or agent retained by the Receiving Party where bona fide necessary for the proper performance of their duties in relation to the Project.

3.2 The following shall not constitute Confidential Information:

- (i) was in the lawful possession of the Receiving Party at the time of its receipt and can be proven by the Receiving Party that it did not have an obligation to keep it confidential;
- (ii) was in the public domain at the time of receipt or disclosure or subsequently becomes so through no fault of the Receiving Party or any person to whom Receiving Party disclosed Confidential Information;
- (iii) is developed by or for the Receiving Party at any time independently of the Confidential Information disclosed to it, as evidenced by its written records; or

- (iv) has been or hereafter is rightfully acquired from third parties who rightfully have possession of such information without an obligation to keep it confidential.

3.3 The Receiving Party shall not be liable for such inadvertent or unauthorized disclosure if it has used the same degree of care in safeguarding such Confidential Information as it uses for its own Confidential Information of like importance.

- 4. The Receiving Party shall be responsible to Disclosing Party for the compliance of the persons listed in paragraph 3.1(i) and (iii) to whom the Receiving Party has disclosed Confidential Information as though such persons and entities were Receiving Party. Prior to any disclosure to persons listed in paragraph 3.1(iii) Receiving Party shall obtain a written undertaking of confidentiality from such persons in the same form as this Agreement. The Receiving Party shall not make any statements and/or issue any press releases concerning the Project without the prior written consent of the Disclosing Party.
- 5. Any Confidential Information disclosed by or on behalf of the Disclosing Party shall remain the property of the Disclosing Party, and the Disclosing Party may demand the return thereof at any time upon giving written notice to the Receiving Party. The Receiving Party shall not acquire any right, title, interest or license in Confidential Information it receives pursuant to this Agreement and no actions pursuant to this Agreement shall be construed as conferring on the Receiving Party any license under any patent, copyright or future patent owned by the Disclosing Party, its Affiliates or any of their shareholders or any other intellectual property right. Within thirty (30) days of receipt of a request to return Confidential Information, a Receiving Party shall return all original Confidential Information it has received and destroy, or procure the destruction of, all other Confidential Information, including any information retained on computer backup system, copies and reproductions (both written and electronic), in its, its Affiliates and any persons' to whom it was disclosed.
- 6. This Agreement shall terminate on the earlier of the third (3<sup>rd</sup>) anniversary of the Effective Date or receipt of written notice of termination. In addition to the obligation to return and/or destroy set forth in paragraph 5, following termination, the obligations of confidentiality set forth herein shall continue until the third (3<sup>rd</sup>) anniversary of the termination date. The provisions of this Agreement  
  
shall however apply retrospectively to any Confidential Information which may have been disclosed in connection with discussions and negotiations regarding the Project prior to the Effective Date. Notwithstanding anything else contained herein either Party has the right to terminate this Agreement at any time by furnishing the other Party with a one (01) month prior written notice without giving any reason for termination.
- 7. The Disclosing Party hereby represents and warrants that it has the right and authority to disclose the Confidential Information to the Receiving Party. The Disclosing Party, by providing such Confidential Information or otherwise, neither makes nor gives any representation, warranty or undertaking, express or implied, concerning the quality, reliability, accuracy, completeness or reasonableness of the Confidential Information. The Receiving Party shall use any Confidential Information at its own risk and the Disclosing Party shall have no liability to the Receiving Party resulting from the Receiving Party's use

of such Confidential Information. Nothing contained herein shall be construed as requiring the Disclosing Party to enter into any business dealings, to negotiate in good faith, or to hold or to continue discussions concerning the Project with the Receiving Party. Neither this Agreement nor any actions of the Parties shall constitute or be construed to constitute a partnership, joint venture or any other cooperative relationship between the Parties. The obligations and liabilities of the Parties to this Agreement are several, not joint, or joint and several.

8. The liability of the Parties to each other for breach of this Agreement shall be limited to actual direct and foreseeable damages. In no event shall the Parties be liable to each other for any other damages, including loss of profits or business interruptions, or indirect, incidental, consequential, special, exemplary or punitive damages, decline in market capitalization, however caused, regardless of negligence or fault. Receiving Party acknowledges and agrees that Disclosing Party may be irreparably harmed by the breach of this Agreement and damages may not be an adequate remedy. Disclosing Party shall be entitled to seek an injunction or specific performance for any threatened or actual breach of this Agreement by Receiving Party or any other person receiving Confidential Information pursuant to this Agreement. In addition to the above, the Disclosing Party may in its sole discretion pursue any and all other remedies available to it for such violation, breach or threatened breach including recovery of compensatory damages.
9. This Agreement shall be governed by and construed in accordance with the laws of Islamic republic of Pakistan. All claims, demands, causes of action, disputes, controversies and other matters in question ("Dispute") arising out of, relating to, or in connection with this Agreement, including any question regarding its existence, breach, validity, or termination, which cannot be amicably resolved by the Parties, shall be settled before a two (02) arbitrators appointed mutually by both the Parties and one (01) umpire appointed mutually by the two (02) arbitrators. For purposes of clarity, the arbitrators and the umpire shall be retired confirmed judges of the High Court of Sindh at Karachi. Such arbitration shall be held in accordance with the provisions of the Arbitration Act, 1940. The venue of such arbitration shall be Karachi, Pakistan and the language of arbitration proceedings shall be English in effect as of the Effective Date. Judgment upon such award may be entered in any court having jurisdiction thereof. A dispute shall be deemed to have arisen when either Party notifies the other Party in writing to that effect. Receiving Party acknowledges that remedies at law may be inadequate to protect against breach of this Agreement; accordingly, the arbitrator may award both monetary and equitable relief, including injunctive relief and specific performance. The Disclosing Party may apply to any competent judicial authority for interim or conservatory relief; an application for such measures or an application for the enforcement of such measures ordered by the arbitrator shall not be deemed an infringement or waiver of the agreement to arbitrate and shall not affect the powers of the arbitrator.
10. This Agreement shall constitute the entire agreement between the Parties with respect to the subject matter hereof and neither Party shall have any obligation, express or implied by law, with respect to trade secret or proprietary information of the other Party except as set forth herein. This Agreement may not be modified or amended except in writing and signed by a duly authorized representative of each of the Parties. No failure or delay in exercising or any single or partial exercise, of any right, power or privilege under this Agreement shall operate as a waiver or preclude any further exercise of any right, power or privilege under this Agreement or otherwise. If any provision of this Agreement (or part thereof) is or becomes unlawful, invalid or void, the legality, validity, and enforceability of any other part of that

provision or any other provision of this Agreement shall not be affected but shall continue in full force and effect. The unlawful, invalid or void provision shall be deleted from this Agreement but only to the extent of the invalidity so as to preserve this Agreement to the maximum extent possible.

11. All notices and other communications given under this Agreement shall be in writing in the English language and shall be deemed to have been properly given or made if: (a) personally handed to an authorized representative of the Party for which intended; (b) sent by postage prepaid, registered (return receipt requested) mail (airmail if international); (c) transmitted by facsimile with confirmation of receipt; or (d) transmitted by email (such notice by email shall be contained in an attachment and not in the body of the email); in each case at or to the address of the Party for which intended, as indicated below, or other address as may be designated by notice given in accordance with this paragraph:

To XYZ:	To: K-Electric Limited
Attention: [name]	Attention: Qasim Mehmud
Telephone: [number]	Facsimile: 1st Floor, Block J, Procurement Division, Elander Road Complex, Karachi, Pakistan
Facsimile: [number]	<b>Postal Code:</b> 74200, Karachi, Pakistan
Email: [name@XYZ.com]	Email: Qasim.mehmud@ke.com.pk

Notices and other communications given in accordance with this paragraph 11 shall be effective (a) on receipt by the addressee if personally delivered or transmitted by mail, and (b) on transmission to the addressee if transmitted by facsimile (with the correct recipient confirmation) or by email during normal business hours at the place of the addressee or, if so transmitted outside such hours, at the opening of business on the next business day at such place.

12. This Agreement may be executed in two (02) counterparts and each of which shall be deemed an original, with the same effect as if the signatures on the counterparts were upon a single engrossment of this Agreement provided that this Agreement shall not be effective until all the counterparts have been executed.

**KE Request for Proposal (RFP) – approx. 120 MW solar power project at District West, Karachi, Sindh, Pakistan  
'Karachi Site 01'**

IN WITNESS THEREOF, the Parties have caused this Agreement to be signed by their duly authorized representatives.

**Bidder Company**

**K-Electric Limited**

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

**Signed in the presence of the following witnesses:**

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_



## **Exhibit 5: Covenant of Integrity**

### *5.1 Instructions*

The Bidder must promptly execute the Covenant of Integrity on its corporate letterhead. The executed Covenant of Integrity must be submitted to K-Electric.

### *5.2 Template*

[On Bidder letterhead]

[Date]

Attention:

Mr. Qasim Mehmud

Strategic Sourcing Lead – Project Procurement

K-Electric Limited

1st Floor Procurement Division

Building J, Elandar Road Complex,

Karachi - 74200,

Pakistan

[www.ke.com.pk](http://www.ke.com.pk)

**Subject: Covenant of Integrity**

Dear Recipient,

The Bidder hereby undertakes that the bid was not concluded under the influence of an agreement, decision or conduct which influences an open and fair competition negatively. In addition, the Bidder hereby warrants and covenants that neither it, nor its affiliates or representatives has made, offered, promised, requested, solicited or accepted or authorised regarding the bid, nor will make, offer, promise, request, solicit or accept or authorise regarding the matters that are the subject of the bid, any payment or any transfer of anything of value, including without limitation any gift, service or entertainment, or other advantage, or a so-called facilitation payment, whether directly or indirectly, to or for the use or benefit of:

- (i) any public official including without limitation any person holding a legislative, administrative, or judicial office, including any person employed by or acting for a public agency, or public international organization or providing a public service;
- (ii) any director, officer or employee of a government owned or controlled company or any company or enterprise in which government owns an interest;
- (iii) any political party or political party official or candidate for office;
- (iv) any director, officer or employee of any other party or any of their respective affiliates;
- (v) any close family member of any of the foregoing;

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- (vi) any other third party; or
- (vii) any agent or intermediary for the purposes of subsequent transfer (in whole or in part) to one or more of the foregoing, in each case where the payment, gift, service, entertainment, or advantage:
  - (A) would violate the laws of any jurisdiction applicable to the subject matter of, and its performance of its obligations under, the bid;
  - (B) would violate the laws of the country of formation of it or its ultimate parent company, the country where it or its ultimate parent company's shares are listed, or the countries where it or its ultimate parent company carry on business; or
  - (C) is for the purpose of:
    - (1) influencing the individual receiving such payment, gift, service, entertainment or advantage to act or refrain from acting in the exercise of his or her official duties;
    - (2) seeking with a view to obtaining from such individual any undue advantage; or
    - (3) inducing such individual to act or refrain from acting in the exercise of his or her official duties in order to obtain or retain business or other undue advantage in relation to the bid,

in each case, in violation of the principles set forth in articles 15, 16, 18 and 21 of the "United Nations Convention Against Corruption" signed by the Islamic Republic of Pakistan on 9 December 2003 and ratified by the Islamic Republic of Pakistan on 31 August 2007, and to the extent otherwise not in conflict with (A) or (B).

In the case of breach of any of the above warranties and/or covenants, without prejudice to any other right and remedy provided by law, equity or by contract, the Bidder shall indemnify and hold K-Electric harmless from and against all claims, damages, losses, expenses, fines or any third-party liability claims (excluding any consequential losses) arising out of or in connection with such breach.

For and on behalf of

Bidder company name: \_\_\_\_\_

Name of Bidder's authorized person: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

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## Exhibit 6: Affidavit

*(The Bidder must execute the Affidavit on stamp paper and submit to K-Electric along with complete Bid)*

### AFFIDAVIT

I, \_\_\_\_\_ S/o \_\_\_\_\_, permanent Resident of \_\_\_\_\_ holding CNIC/Passport No. \_\_\_\_\_ being a duly authorized representative of the \_\_\_\_\_ ("Applicant") \_\_\_\_\_ (designation), do hereby declare as under:-

1. That I am the deponent of this affidavit and fully conversant with the facts stated herein and nothing has been concealed or mis-declared.
2. That the Bidder has applied to bid for the Project of K-Electric Limited.
3. That the country of origin of Bidder is not any country upon which the government of Pakistan has imposed any trade embargo and/or sanctions, including but not limited to Israel and India.
4. That the Bidder and its members, representatives, personnel's etc. do not have any restrictions with respect to travel in Pakistan.
5. That the Bidder does not have a conflict of interest with any of the parties involved in the bidding process of KE and further the Applicant hereby agrees that if the Applicant is found to be in conflict of interest with one or more parties involved in the bidding process, at any time, KE, shall have the right to disqualify the Bidder.
6. The Bidder is considered to be in a conflict of interest with KE, if the Bidder and the other parties in the bidding process including but not limited to have:
  - a) controlling shareholders in common or
  - b) a relationship with each other, directly or through common third parties, that puts the Bidder in a position to have access to material information about or improperly influence the proposal of any other Bidder involved in the bidding process or influence the decisions of KE regarding the bidding process
7. That the information and the assumptions provided by the Bidder are correct and complete and no material information is concealed by the Bidder in its Bid including any supporting documents;
8. The Bidder, if declared the Successful Bidder, will execute the project unconditionally;
9. That the Bidder and its members (in case of the Bidder being a consortium/joint venture) have not defaulted in their payment obligations and/or performance of major contracts over the past five years.
10. The Bidder or any officer, director or owner thereof, has not been in substantial noncompliance of the terms and conditions of prior project contracts.
11. That the Bidder and its members (if any) are solvent and have no liquidation application pending against them in any court of law.
12. That the information provided by the Bidder, on any litigation or arbitration resulting from contracts completed or under execution over the last five years is accurate and will not adversely affect KE in

any way whatsoever. That the Bidder understands that a consistent history of award against the Bidder may result in rejection of the Bid of the Bidder by KE.

13. That the Bidder and its members (in case of the Bidder being a consortium/joint venture) have been compliant of the prevailing regulations over the past five years. The composition or the constitution of the consortium shall not be altered without the prior consent of the KE.
14. That all members shall be severally liable and the Main Sponsor shall, in addition to the members' several liability, be jointly and overall liable for all obligations and responsibilities of the members under the consortium agreement, the bidding proposal and all ancillary documents, to the KE till the lock-in period of the Project(s).
15. The Bidder, its owners, directors, and key employees, have not been prosecuted, blacklisted or barred during the past five years by KE or any federal or provincial agency or any international DFI and are not subject to any international sanctions;
16. The Bidder should affirm that it has not been the cause of any serious health, safety, or environment hazard in any of its projects in Pakistan or any other place in the world over the past five years.
17. That the Bidder shall submit his statement on separate affidavit, in case the Bidder is claiming no litigation.
18. The Bidder hereby agrees if any provision of this RFP document is, against the law of Pakistan the remaining provisions of this RFP document shall remain in full force and effect.
19. The Bidder shall confirm that there has been no material change in records provided at the time of prequalification. In case of any material change, the Bidder shall submit a separate statement of changes.

Whatever stated above is true and correct to the best of my knowledge and belief.

**DEPONENT**

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Dated: \_\_\_\_\_

## Exhibit 7: Power of Attorney

*(The Bidder must execute the Power of Attorney on stamp paper and submit to K-Electric along with the Bid)*

### POWER OF ATTORNEY

TO ALL WHOM PRESENT, these presents shall come. \_\_\_\_\_, having its registered office at \_\_\_\_\_ (hereinafter called the "Company") send greetings.

WHEREAS the Company was incorporated under the \_\_\_\_\_ as a \_\_\_\_\_.

WHEREAS, by virtue of the powers conferred upon them by Article \_\_\_\_ of the Company's Articles of Association, the Board of Directors of the Company have passed the resolution dated \_\_\_\_\_ and entrusted to and conferred upon \_\_\_\_\_, the \_\_\_\_\_ of the Company. The following powers which shall be exercisable by him from the date that a power of Attorney enumerating the same is executed in his favor by \_\_\_\_\_.

NOW THESE PRESENTS WITNESS THAT, \_\_\_\_\_ s/o \_\_\_\_\_ holder of CNIC/Passport No. \_\_\_\_\_ is holding the position of \_\_\_\_\_ in the Company, is hereby appointed Attorney of the Company to act in the name and on behalf of the Company to do and perform the following act and things only:

1. To sign the application and its ancillary documents on behalf of the Company with respect to the bidding process for the Project(s) as specified in the Request for Proposal.
2. The Company hereby agrees to ratify and confirm all and whatever the said Attorney shall lawfully do or cause to be done by virtue of this Power of Attorney.
3. This Power of Attorney, unless earlier revoked, shall be valid until the completion of execution of bidding process and shall stand immediately revoked upon the execution of the same.

IN WITNESS WHEREOF the Common Seal of the Company has been affixed hereto at \_\_\_\_\_ on this \_\_\_\_\_ by the undersigned \_\_\_\_\_ of the Company pursuant to the resolution dated \_\_\_\_\_ passed by the Board of Directors of the Company.

Signature of Attorney

\_\_\_\_\_  
THE COMMON SEAL of the Company  
is hereunto affixed in the presence of

**KE Request for Proposal (RFP) – approx. 120 MW solar power project at District West, Karachi, Sindh, Pakistan  
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\_\_\_\_\_  
**Director**

\_\_\_\_\_  
**Director**

**WITNESSES:**

1. \_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### **Exhibit 8: Letter of Acceptance by the Bidder**

*(to be submitted on stamp paper)*

The Bidder is obliged to accept the following in order to proceed with bid evaluation:

1. It is necessary that the Bidder accepts all '**terms and conditions**' specified in the RFP.
2. Bidder has accepted the '**Energy Purchase Agreement**' shared by KE with RFP.
3. It is required from Bidder to accept the '**Equity Structure**' specified in Section 10 of RFP.
4. The Bidder must conform the timelines stipulated in Section 7 of the RFP document. Any change to the project timeline will be communicated by KE to the Successful Bidder at the time of LOI issuance.



**Exhibit 9: Bid Bond (in the Form of a Bank Guarantee)**

**FORM OF BID BOND**

(Bank Guarantee)

Guarantee No. \_\_\_\_\_

Executed on \_\_\_\_\_

Expiry date \_\_\_\_\_

Strategic Sourcing Lead – Project Procurement

K-Electric Ltd.,

1st Floor, Block J Procurement Division

Elander Road Complex

Karachi, Pakistan

Name of Guarantor (Bank) with address: \_\_\_\_\_

Name of Principal (Bidder) with address: \_\_\_\_\_

Penal Sum of Security (express in words and figures): \_\_\_\_\_

Bid Reference No. and Date: \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bid and at the request of the said Principal, we the Guarantor above-named are held and firmly bound unto the K-Electric Limited (hereinafter called The "Company") in the sum stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Bid numbered dated as above for [the Development of the Project].

WHEREAS, the Company has required as a condition for considering said Bid that the Principal furnish a Bid Bond in the above said sum to the Company, conditioned as under:

- (1) That the Bid Bond shall remain valid for a period of nine (09) months from the bid submission deadline.
- (2) That in the event of:
  - a) The Principal withdraws his Bid during the period of validity of Bid, or
  - b) Failure of the Successful Bidder to:

furnish the required Performance Guarantee, in accordance with Request for Proposal, Then the entire sum be paid immediately to the said Company as liquidated damages and not as penalty for the successful Bidder's failure to perform.

NOW THEREFORE, if the Successful Bidder shall, within the period specified therefore, on the prescribed form presented to him for signature enter into a Letter of Intent with the said Company in accordance with his Bid as accepted and furnish within thirty (30) days of his being requested to do so, a Performance Guarantee with good and sufficient surety, as may be required, upon the form prescribed by the said Company for the faithful performance and proper fulfilment of the said Letter of Intent or in the event of withdrawal of the said Bid within the time specified then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

PROVIDED THAT the Guarantor shall forthwith pay to the Company the said sum stated above upon first written demand of the Company without cavil or argument and without requiring the Company to prove or to show grounds or reasons for such demand, notice of which shall be sent by the Company to the Guarantor at its address given above.

PROVIDED ALSO THAT the Company shall be the sole and final judge for deciding whether the Principal has duly performed his obligations to sign the Letter of Award and to furnish the requisite Performance Guarantee within the time stated above or has defaulted in fulfilling said requirements and the Guarantor shall pay without objection the sum stated above upon first written demand from the Company forthwith and without any reference to the Principal or any other person.

IN WITNESS WHEREOF, the above bounden Guarantor has executed the instrument under its seal on the date indicated above, the name and seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

Guarantor (Bank)

Signature: \_\_\_\_\_

**Witness:**

1. \_\_\_\_\_

Name: \_\_\_\_\_

\_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

*Corporate Secretary (Seal)*

*Corporate Guarantor (Seal)*

1. \_\_\_\_\_

**Name, Title & Address (Seal)**

## **Exhibit 10: Technical Information**

### **Annexure 1: Technical Data**

#### **Solar Plant:**

Name of Manufacturer

Capacity of Complex (MW)

Design Life, years

#### **Generator and Accessories (per unit):**

Manufacturer

Type/model/ year of manufacture

Rated voltage at generator terminal, kV

Rated output (MW)

Annual Plant Capacity Factor

Frequency range (Hz)

Power factor: (lagging and leading)

Transformers

## **Annexure 2: Energy Yield Report**

*(To be inserted by the bidder)*

[Note: The yield assessment is to be given as net generation delivered at the Interconnection Point, being gross generation less all auxiliary losses. All panel degradation losses are to be factored in the yield assessment for the Term of the EPA.]

This report must include the annual energy yield numbers at different probability levels after incorporation of all the applicable losses.

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### **Annexure 3: Brochures and Technical Details for Power Plant**

Instructions for Bidder:

Bidders are required to submit the following documents pertaining to an approximately 120 MW solar PV power project Complex at Karachi Site 01 Pakistan:

- (a) Information Brochure.
- (b) Technical details / manuals for the solar plant and main equipment.

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**Annexure 4: Type Certificate and Letter from the Manufacturer**

Type Certificate and letter from the manufacturer confirming design life of 25 years and Bidder confirming operability of plant for 25 years

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**Exhibit 11: Bid Tariff**

Bid Tariff in Rs./kWh.

**Exhibit 12: Equity Commitment from Sponsors**

Bidders shall provide the evidence of available funding mechanism including signed equity commitment from sponsors.

### Exhibit 13: Performance Guarantee

#### PERFORMANCE GUARANTEE

Guarantee No: \_\_\_\_\_

Executed on: \_\_\_\_\_

Amount: \_\_\_\_\_

Expiry Date: \_\_\_\_\_

Strategic Sourcing Lead – Project Procurement

K-Electric Ltd.,

1st Floor, Block J Procurement Division

Elander Road Complex

Karachi, Pakistan

Name of Guarantor (Bank) with address: \_\_\_\_\_

Name of Contractor with address: \_\_\_\_\_

Amount of Guarantee: \_\_\_\_\_

(Express in words & figures)

RFP Date: \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the RFP (hereinafter called the Documents) and at the request of the said Bidder being our Client, we, the Guarantor above named hereby irrevocably and unconditionally bind ourselves to K Electric (hereinafter called the Company) in the sum of [●] for the payment of which sum well and truly to be made to the said Company to pay the Company on its first demand in writing without raising any cavil or objection whatsoever.

We understand that the Bidder has been notified dated \_\_\_\_\_ by the Company as the Successful Bidder for the development of the Project.

WHEREAS:

- A. The Bidder has been declared as the Successful by the Company to set up the solar power plant at [location] in accordance with the terms of the Request for Proposal.



- B. As required by the Beneficiary prior to the issuance of the Letter of Intent (the "LOI") to the Successful Bidder, and in consideration thereof, the Guarantor, at the request and on behalf of the Successful Bidder, hereby furnishes this irrevocable, unconditional, without recourse, on demand bank guarantee (hereinafter referred to as the "Performance Guarantee") in favor of the Beneficiary in order to secure the performance of the Successful Bidder's obligations under the LOI.

We, the Guarantor, under the contract do hereby irrevocably and unconditionally guarantee to pay to the Company immediately without any delay upon the Company's first written demand without cavil or arguments and without requiring the Company to prove or to show grounds or reasons for such demands any sum or sums up to the amount stated above without reference to the Contractor or any other third party. Any demand by the Company shall be final and conclusive for all the purposes whatsoever. For the avoidance of doubt, time shall be of the essence of this Guarantee and the liability of the Guarantor shall be valid until expiry date continuing and co-extensive with that of the Contractor and shall be valid up to (Date) and shall not be diminished by any partial claim or demand made on the Guarantor under this Guarantee by the Company.

This Guarantee shall be solely governed and construed by the substantive and procedural laws of the Islamic Republic of Pakistan.

This guarantee shall come into force at once and be valid for a continuous period of [●] months ending on [expiry date]. Any demand by the Company should reach the Guarantor before (time and date)

IN WITNESS WHEREOF, the above-bounden Guarantor has executed this instrument under its seal on the date indicated above, the name and corporate seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Notwithstanding anything herein above this guarantee is [●] (in words) valid until [●] after which date the guarantee will become null and void irrespective of whether or not the original guarantee is returned to the bank for cancellation. Any claim made under this guarantee must be in writing and delivered to the bank's office at [●] on or before (time and date) after which we will no longer be liable to make payment to you.

\_\_\_\_\_  
Guarantor (Bank)

Signature: \_\_\_\_\_

**Witness:**

1. \_\_\_\_\_

Name: \_\_\_\_\_

\_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

Corporate Secretary (Seal)

Corporate Guarantor (Seal)

1. \_\_\_\_\_

Name, Title & Address (Seal)

**Exhibit 14: Letter of Intent**

**LETTER OF INTENT**

[Insert Name]

[Date]

[Designation]

[Address]

**Subject: Letter of Intent (“LoI”) to Successful Bidder for Development of one Utility Scale Solar Power Plant on a Build Own Operate Transfer (BOOT) Basis at District West Karachi, Sindh, Pakistan of 120 MW – (Karachi Site 01) Project”**

Dear [ ],

This LOI is executed in Karachi on \_\_\_\_\_ (“Effective Date”) by and between:

- 1 **K-Electric Limited**, a public limited company duly incorporated and existing under the laws of Pakistan and having its registered office at KE House, 39-B, Sunset Boulevard, Phase-II, DHA, Karachi, Pakistan (hereinafter referred to as “KE”), which expression shall include wherever the context permits its successors-in-interest and assigns, and
- 2 **(SUCCESSFUL BIDDER), (COMPANY DETAILS)** which expression shall include wherever the context permits its successors-in-interest and permitted assigns;

**KE and Successful Bidder** may hereinafter be individually referred to as a “Party” and collectively as “Parties”.

**WHEREAS:**

- A. This LOI is being awarded to the Special Purpose Vehicle created by the Successful Bidder.
- B. The SPV will be responsible to develop, construct, own and operate the [ ] MW Independent Power Plant (“IPP”) based on solar photovoltaic modules and technical requirements as mentioned in RFP, to be located in [ ], in accordance with the milestones specified by the Successful Bidder in response to RFP of the Project.
- C. Subsequent to the formation of SPV, the SPV will be required to (i) obtain Generation License and Tariff Approval from NEPRA (ii) enter into EPC contract for the design, construction and commissioning of the Complex (ii) enter into **Energy Purchase Agreement (“EPA”)** with KE, in accordance with the Exhibit [5] of RFP, and other necessary Project agreements (iii) arrange the necessary financing for the Project(s) and achieve financial close (iv) construct and implement the Project within the time period allowed by NEPRA in the Tariff Approval, and (v) upon commissioning, operate and maintain the Complex for the Term to provide the generated electricity to KE.

- D. SPV shall be duly licensed by National Electric Power Regulatory Authority (“NEPRA”) under the Regulation of Generation, Transmission and Distribution Act, 1997 (“**NEPRA Act**”) as amended by NEPRA Act 2018 and the Securities and Exchange Commission of Pakistan (“**SECP**”) to undertake this Project.
- E. SPV shall develop the Project under BOOT basis for a period of twenty-five (25) years post Commercial Operations Date (“**CoD**”); and transfer the Project to the [Government of Sindh/Sindh Solar Energy Project] after the end of the said term.

Now, therefore, in consideration of the mutual promises and covenants of the Parties set forth in this LoI, the Parties agree to the following:

**1. Term and Termination**

- 1.1 The Parties agree that this LoI shall be remain effective from the Effective Date and shall remain valid for a period of one (1) year (“**Term**”).
- 1.2 The Parties agree to complete the Milestones during the term of this LoI. In the event that the LoI is terminated under Clause 1.3 (a), KE shall have the right to encash the Performance Guarantee as per the terms of this LoI.
- 1.3 This LoI shall become effective from the Effective Date and shall remain in force and valid until the occurrence of the following, whichever comes first:
  - (a) Expiry of the term of this LoI, without renewal in writing between Parties; or
  - (b) Achievement of Financial Close by SPV as stated in the Milestones; or
  - (c) Expiry of the Performance Guarantee

**2. The Project**

- 2.1 For the purposes of this LOI, Main Sponsor shall be the same person as submitted by Successful Bidder in their RFQ. For the purposes of this LOI irrespective of any other Sponsor being added to the Project in the future, SPV or its designated affiliate shall remain as the developer for the Project for all intents and purposes and in its dealings with KE. The equity shareholding of the Successful Bidder shall not be less than 51% of the SPV’s equity during the Lock-In Period whereas in cases where the Successful Bidder is a consortium, the Main Sponsor is required to hold at least 51% of Consortium’s total equity in the SPV during the Lock-in period. Any change in the shareholding during the Lock-in period will require prior approval of KE which shall not be unreasonably withheld.
- 2.2 SPV shall be responsible for raising financing of the Project and to successfully achieve all the Project Milestones as following:

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<b>S.No.</b>	<b>Milestone</b>	<b>Days of LOI Issuance</b>
1.	Filing of Tariff and GL Application to NEPRA	07
2.	GL and Tariff Approval by NEPRA	68
3.	Finalization of Project Agreements including land lease instrument	180
4.	Financial Close	180

***Table – 1 Project Development Activities***

- 2.3 KE shall ensure that the Project is connected to its grid network. The cost and arrangement of interconnection up to the interconnection point to be situated at the Project site would be borne by KE.
- 2.4 [Main Sponsor] of the SPV shall take all the risks and liabilities of development of the Project and shall contribute the finances, expertise and overall business development in respect of the Project.
- 2.5 SPV shall comply with all the regulations, which include warranties related to the performance of such plants in line with requirements mentioned in the Request For Proposal ("RFP") and in the EPA and/or the applicable laws and regulations of the Islamic Republic of Pakistan. In addition, SPV shall be responsible for obtaining license/authorization from NEPRA under the NEPRA Act as well as ensuring that all relevant performance standards of NEPRA for the grant of any generation license in favor of SPV are duly complied with.
- 2.6 The Parties agree that SPV shall file tariff application with NEPRA and tariff approval shall be used for the purposes of the EPA.
- 2.7 The Successful Bidder has submitted a Performance Guarantee in the form acceptable to KE prior to execution of this LoI.
- 2.8 Notwithstanding anything in this LoI, KE shall have the right to encash the Performance Guarantee to its full outstanding value in case of any breach of the terms and conditions hereof.
- 2.9 SPV shall regularly update KE on the progress of the Project at monthly intervals. The scope of the progress report shall include both technical and commercial areas which shall be presented by SPV to KE's designated team. Without prejudice to the foregoing, KE shall be entitled to demand and receive from time-to-time specific information/reports/data on the progress of the Project and/or achievement of milestones.
- 2.10 The Parties agree that upon end of the Term, the Project will be transferred to [Sindh Solar Energy Project (SSEP)/Government of Sindh].

### **3. Confidential Information**

- 3.1 For the purposes of this LOI, "Confidential Information" shall mean any information, knowledge or data relating to the subject matter of this LOI which is not in the public domain and is disclosed by the disclosing party to the receiving party and is other than intellectual property of the disclosing party. All Confidential Information shared by the disclosing party to the receiving party shall remain the exclusive property of the disclosing party and the receiving party shall not disclose the same to any other person or entity not being a signatory to this LOI unless:-
- (a) the said information/data is already in the public domain;
  - (b) such disclosure is required by the order of the competent authority or judicial forum subject to prior intimation to the disclosing party.
- 3.2 No Party shall issue or make any public announcement or disclose any information regarding this LoI and its objects unless prior to such public announcement or disclosure it furnishes the other Party with a copy of such announcement or information and obtains the approval of the other Party to its terms. However, no Party shall be prohibited from issuing or making any such public announcement or disclosing such information if it is necessary to do so to comply with any applicable laws or regulations including but not limited to the listing regulations of the Pakistan Stock Exchange.
- 3.3 This clause 3 of the LoI shall survive termination or expiry of this LoI and continue for a period of [ten (10)] years thereafter.

### **4. Miscellaneous**

- 4.1 Neither Party may assign, novate, substitute, sub-delegate, sub-contract or otherwise transfer any or all of its rights and obligations under this LoI, whether in whole or in part, without prior specific written consent of the other Party.
- 4.2 This LoI may not be released, discharged, supplemented, interpreted, amended, varied or modified in any manner except by an instrument in writing signed by duly authorized representatives of both the Parties to this LoI.
- 4.3 The validity, construction and implementation of this LoI shall be solely governed by the substantive and procedural laws of the Islamic Republic of Pakistan. Any disputes or claims arising under or in connection with this LoI shall be subject to the exclusive civil jurisdiction of the High Court of Sindh at Karachi to which the Parties to this LoI hereby irrevocably submit.
- 4.4 Neither of the Parties shall be liable to the other Party in contract, tort, negligence, breach of statutory duty, trust or otherwise for any indirect, direct and/or consequential losses or damages of whatsoever nature for any breach of the provisions of this LOI whether intentional or otherwise. In no way shall either Party be liable to the other for any loss of profits or loss of business opportunities for any delay or non-achievement of the milestones set out in this LOI whether under the provisions of the law of contract, tort, trust or any other theory of law.

- 4.5 Each Party warrants to the other that the person(s) signing below have all necessary capacity and authority, corporate or otherwise, to enter into, execute and implement this LOI in good faith on behalf of the Parties to this LOI.
- 4.6 All notices and other communications required under this LOI shall be given in writing, through personal delivery, courier mail or by facsimile transmission and shall be addressed to the following:

**KE:**

Attention: [•]

Designation: [•]

Address: KE House, 39-B, Sunset Boulevard, Phase II, DHA, Karachi

Facsimile: 021 99205192

**SPV:**

Attention: [Name]

Designation:

Address:

- 4.7 Any notices sent under this LoI above shall be deemed to be duly received where sent during normal business hours by personal delivery or facsimile transmission on the same business day as it was sent, and where sent by courier within three (3) business days of dispatch.
- 4.8 The provisions of this LoI are severable in nature and in the event that any one or more of its provisions are incapable of being implemented for any reason, this shall not affect the validity of the remaining provisions of this LOI and the Parties shall in good faith enter into negotiations to come up with an alternative provision which best reflects the understanding and mutual intention of the Parties at the time of entering into this LoI.
- 4.9 Notwithstanding anything to the contrary contained herein, this LoI shall be legally binding on the Parties.
- 4.10 Neither of the Parties shall be liable to the other Party in contract, tort, negligence, breach of statutory duty, trust or otherwise for any indirect, direct and/or consequential losses or damages of whatsoever nature for any breach of the provisions of this LoI whether intentional or otherwise.
- 4.11 In no way shall either Party be liable to the other for any loss of profits or loss of business opportunities for any delay or non-achievement of the milestones set out in this LOI whether under the provisions of the law of contract, tort, trust or any other theory of law.

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- 4.12 The SPV shall comply with all the applicable laws/regulations/standards in line with good industry practices and lender's requirements.
- 4.13 Nothing in this LOI shall be deemed to constitute a partnership or the formation of a joint venture between the Parties.
- 4.14 Neither Party makes any representations or warranties to the other Party under this LoI and each Party shall be responsible for conducting its own due diligence with regard to the subject matter of this LoI. Accordingly, each Party shall be strictly responsible for its own costs.
- 4.15 For the avoidance of doubt, time shall be of the essence of this LoI for Parties.
- 4.16 This LOI is personal in nature and does not create any third-party rights or interests in favor of any person or entity who is not a signatory to this LoI.
- 4.17 The terms defined in this LoI shall have the meaning set out herein and for all the Capitalized terms undefined in this LoI shall have the same meaning as set out in the RFP.

In witness thereof, the Parties hereby put their respective signatures on the date and year first above written.

***For and on behalf of KE:***

\_\_\_\_\_

Name

[Designation]

***Acknowledged by and on behalf of***

***Successful Bidder:***

\_\_\_\_\_

Name

[Designation]

**Exhibit 15: Energy Purchase Agreement**



## Exhibit 16: Bid Evaluation Criteria

### 16.1 Knock-Off Criteria

1. Compatibility of the Complex and equipment with technical standards of Grid Code (Power factor, voltage variation, operating frequency range etc.), Distribution Code and Other applicable documents etc.
2. Yield – Greater than 21.5%

### 16.2 Technical Evaluation

Detailed Technical Scorecard is given below according to which, minimum criteria for qualification of Bidder is **75** out of **100** marks after passing the Knock-off criteria provided above. Applicants failing the Knock-off Criteria will be rejected and will not be technically evaluated.

Sr. No	Technical Evaluation Criteria	Overall Score	Score
<b>1</b>	<b>Components/equipment and technical solution</b>	<b>90</b>	
<b>1.1</b>	<b>Solar Panels</b>		<b>10</b>
	Efficiency		
	Annual degradation / guarantee		
	Lifetime		
	Compliance with RFP		
	Track record		
<b>1.2</b>	<b>Power Inverters</b>		<b>10</b>
	Efficiency		
	Track record		
	After sales service		
	Compliance with RFP		
<b>1.3</b>	<b>Mounting Structures</b>		<b>03</b>
	Trackers – single axis tracking system		
	Track record		
	Material of structure		
	Protection coating		
	Compliance with RFP		
<b>1.4</b>	<b>Balance of Plant</b>		<b>10</b>

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Sr. No	Technical Evaluation Criteria	Overall Score	Score
	Track record of key equipment		
	Cable selection and sizing		
	Auxiliary facilities and back up		
	Security, surveillance and fire fighting		
	Earthing, grounding, lightning protection		
	Overall layout of plant		
	Compliance with RFP		
<b>1.5</b>	<b>SCADA and Telecommunication system</b>		<b>04</b>
	Manufacturer track record		
	Monitoring parameters and integration		
	Data backup and storage		
	Compliance with RFP		
<b>1.6</b>	<b>O&amp;M Methodology</b>		<b>08</b>
	Key staff (organization; qualification/experience and facilities)		
	Emergency spares, list and necessary stock		
<b>1.7</b>	<b>220kV Switchgear</b>		<b>10</b>
	Compliance with RFP, grid code and applicable policies by Power Purchaser		
	Track record & quality of main equipment		
	Historical performance in local environment		
<b>1.8</b>	<b>Civil Works and Infrastructures</b>		<b>03</b>
	Buildings and ancillary facilities		
	Flood mitigation measures		
	Plant accessibility - internal & external roads; fencing		
<b>1.9</b>	<b>HSE</b>		<b>02</b>
	Compliance with RFP and all necessary regulatory standards		
<b>1.10</b>	<b>Plant performance; guarantee values</b>		<b>15</b>

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<b>Sr. No</b>	<b>Technical Evaluation Criteria</b>	<b>Overall Score</b>	<b>Score</b>
	Performance Ratio		
<b>1.11</b>	<b>Warranty</b>		<b>15</b>
	PV Modules		
	Inverters		
	Mounting structures (single axis)		
	Switchgears		
	Transformers		
	Cables		
	Terms of warranty and warranty period		
	Extended warranty option		
	Compliance with RFP		
<b>2</b>	<b>Execution &amp; timeline</b>	<b>05</b>	
	Detailed, structured and logic time schedule		2.5
	Suitability and feasibility of proposed tasks		2.5
<b>3</b>	<b>Ability to contribute to local economic development</b>	<b>05</b>	<b>05</b>
	<b>TOTAL</b>	<b>100</b>	<b>100</b>

### **16.3 Financial Evaluation**

- a) The selection will be based on the lowest Bid Tariff.
- b) The lowest Bid Tariff in accordance with Section 13 of a technically compliant Bid will be selected as Successful Bidder.

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19				
29				
30				

For an on behalf of

Bidder Company Name:

\_\_\_\_\_

Name of Bidder's authorized person:

\_\_\_\_\_

Title:

\_\_\_\_\_

E-mail:

\_\_\_\_\_

Date:

\_\_\_\_\_

Signature:

\_\_\_\_\_

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**Exhibit 18: Hazard Substance Management Procedure**

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**Exhibit 19: Waste Management Procedure**