Tender Notice

Design, Build and Installation of 300 KWp On-Grid Turnkey Photovoltaic Solar System

Federal Board of Intermediate & Secondary Education, H-8/4, Islamabad invites Technical and Financial bids for the Design, Build and Installation of 300 KW On-Grid Turnkey Photovoltaic Solar System at " Federal Board of Intermediate & Secondary Education, H-8/4, Islamabad " from reputable Firms / Companies / Contractors of Alternative & Renewable Energies (ARE V1), who must be registered with the Government of Pakistan for Sales/NTN and Professional taxes. Prospective Bidders are requested to submit their sealed proposals on or before 18-07-2022 at 02:00 PM in the office of FBISE, Islamabad.

1. Bidding shall be carried out through 'Single stage two envelope' procedure. Envelops shall be marked **FINANCIAL PROPOSAL** and **TECHNICAL PROPOSAL** in bold and legible letters. Financial proposal of bids found technically non-responsive shall be returned un-opened to the respective bidders.
2. Bidders are required to submit Technical and Financial proposals separately.
3. Bidders will be required to deposit **Earnest Money 3% (refundable)** in the form of a Pay Order in favor of Secretary, Federal Board along with their bidding Proposals.
4. A complete set of bidding documents containing detailed information, terms and conditions etc are available and can be collected from the Procurement & Store, FBISE Islamabad upon written request on the company's letterhead and by paying Rs.1000/- (non-refundable) (non-refundable), Challan form can be printed from www.fbise.edu.pk and submitted in any branch of HBL.
5. The bidding proposals should be submitted on or before 02:00 PM by 18,07,2022.
6. Proposals received after due date/time shall not be considered. FBISE Islamabad will not be responsible for any postal delay.
7. Technical proposals will be opened on same date i.e. 18-07-2022 at 02:30 PM in the presence of representative of bidders who intend to witness the proceedings.
8. Financial Bids/Proposals shall only be opened of those bidders, who will qualify in Technical Bids/Proposals. Whereas the Financial Bids/Proposals of unqualified bidders will be returned to them un-opened.
9. The advertisement is also available on FBISE Islamabad website: (www.fbise.edu.pk) and PPRA website: (www.ppra.org.pk).

29/6/22

(RAO ATIQ AHMAD)
SECRETARY
Ph: 051-9269502

Date:21JUNE 2022
TOTAL PAGES INCLUDING COVER: 28

REQUEST FOR PROPOSAL (RFP)

FOR

PROCUREMENT OF300KWpROOFTOP ON-GRID SOLAR PV SYSTEM WITH NET METERING FOR FBUSE ISLAMABAD ON TURNKEY BASIS

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PART B - INFORMATION AND INSTRUCTIONS FOR BIDDERS
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RFP purchased by : Company Name:

Name and address

Issued by (Name and Signature)

REQUEST FOR PROPOSAL (RFP)
FOR
PROCUREMENT OF300KWp ROOFTOP ON-GRID SOLAR PV SYSTEM WITH NET METERING AT FBISE ON TURNKEY BASIS

PART A - INTRODUCTION

FEBERAL BOARD OF INTERMEDIATE AND SECONDARY EDUCATION ISLAMABAD (FBISE) desires to purchase 300KWpRooftop Solar PV on-grid system with net metering on turnkey basis as per following distribution of PV Modules,

ROOFS	UNSHADED AREA FOR SOLAR PV MODULES (SQF)	SIZE OF MODULES (KWp) CAN BE ACCOMDUATED
ROOF-1	6048	65
ROOF-2	2500	27
ROOF-3	5600	60
ROOF-4	3160	34
MASJID ROOF	4300	46
ON WINDOW CELL	4425	48
PARKING	3900	42

SPACE AVAILEBLE IS FOR 322 KWp MODULES BUT YOU HAVE TO SUBMIT PROPOSAL FOR 300KWp SYSTEM.

Roof Area-1 in SQF (108ft x 56 ft.) =6048 SQF

Roof Area-2 in SQF =Lx w (50 x 50) =2500 SQF

Roof Area -3 in SQF =Lx w (140 X 40) = 5600 SQF

Roof area -4 in SQF =Lx w (79 X 40) = 3160 SQF

Roof area– 5 - Masjid Roof Area in SQF= 4300 SQF

Car ParkingShed area– 6 in SQF=3900 SQF

One window Cell Roof Area in SQF-4425 SQF

Sanction load of FBISE is 403 KW and one main Transformer of 630 KVA is energizing the whole FBISE Building through a common LV Panel which is 30ft away from Roof areas. During load shedding Diesel Gen-Set is available which will be synchronized with PV System. Please provide complete PV Diesel Synchronization system enabling automatic start of Gen-Set and synchronized operation of PV system with Gen-Set supplying energy to load in safe manner. ATS is already available.

Solar PV Inverter output will be injected at main LT panel available but Bidder has to provide separate LV Safety Panel dedicated for Solar before injection into the FBISE LT side.
There will be a need for one Net Meter as there is one existing three phase Energy Meter to be replaced with one Net meter.

The bidders must supply LV Safety Panelcomplete with all protections and switching manufactured by a Quality Switchgear Company as per specifications given in technical specifications **PART-C**.

Height of building is approx. 25 meterand injection of AC output will be at main LT Panels available at site and bidders have to visit and decide suitable location for Inverter and LV Panel.

The purpose of RFP is to invite BidsfromAEDB & PEC Licensed Companies having minimum three years of experience in Solar PV and active NTN/Sales Tax registration with FBR for procurement of aggregate "**300KWpRooftop On-Grid Solar PV System at BISE Islamabad.**" on turnkey basis as per technical requirement given in **Part-C** of this RFP.

PART-B. INFORMATION AND INSTRUCTIONS TO BIDDERS

1. Bids must be submitted inone envelope containing two envelopes inside in it.

2. 1st sealed envelopehaving technical offer be marked as"**Technical Bid**".

3. 2nd sealed envelope having financial offer to bemarkedas"**Financial Bid**".

4. Both envelopestobeplaced in aonesealed envelopebearingCompanies' postal / emailaddresses and phone numbers etc. and marked as "**Bid for 300KWpRooftop On-Grid Solar PV System on turnkey basis"**. Bid should be addressedto

Secretary Federal Board of Intermediate and Secondary Education
H-8/4, Islamabad.

5. The project will be implemented on Turnkey basis at rooftops of FBISE on Turnkey basis. Turnkey means design, engineering, supply, installation, commissioning, and trial run with all Civil. Mechanical and Electrical works,warranties, training of client Persons and, after sales services including all permissions and Licenses.

6. 300KWp PV System is to be installed at rooftop of FBISE. By 300KWp solar PV systems means the 300KWp Solar PV modules at STC with total minimum 300 KWp Inverter size complete with mounting structures, DC/AC cables, AC Power Distribution Cabinet (LV Cabinet) with all civil, electrical, and mechanical work on turnkey basis with five years free service (Labor and material). Service means the availability/visit of service person as and when any fault occurs in any part of the system for fault diagnosis/ repair/Replacement.

Response time is within 24 Hours after receiving call/sms/email. Service does not include cleaning of PV modules.

7. The technical proposal must have BOQ of system and the Financial proposal should have prices for same system as per Form C and D. **(Mandatory)**

8. Bidders haveto provide one Original hard copy for Technical and one Original hard copy for Fianancial bid and one soft copy of technicalbid only in USB. **(Mandatory).**First the Technical bid will be opened and technical evaluation will be made as per PART-D then Financial Bid will be opened for only Technically qualified Bidders and bids will be returned to Technically non-qualified bidders.

9. All biddersshall provide complete **Technical BOQin Technical bid as per FORM C**of this RFP(Name of Each Item, Description of Each Item, Brand Name, Country of Origin, Manufacturer Name, Model and QTY) duly signed and stamped**(Mandatory).** Complete BOQ in Technical bid as per **Form C** is**Mandatory** for qualification of Bidand Bids will be rejected without **Form-C**.Technical BOQ must consist of Solar PV modules with MC4 cables and connectors, solar on-gridInverters, Solar Mounting structure (as per PV modules), Combiner Boxes with fuses/circuitbreakers, PV DC Cables, AC Cables, AC Power Distribution Cabinet (must contain circuit breakers, Contactors, Surge Arrestors, Manual On-OFF switch, Unidirectional Energy (KWh) Meter, Voltage, Current and Bus bars complete with cabling and fittings and accessories. Bidders will not be allowed to change brands after the Bidsubmission. One primary and one alternate brand is allowed **for Solar Modules only** and for remaining components only one brand/manufacturer is allowed. **The word equivalent in not allowed at all.(Mandatory)**

10. Quality of solar system will be judged from the best organization of Bid, Quality of system components, SLD (Single Line Diagram up to the point of Injection), and completeness of BOQ and designed AC Injected Energy in terms of KWh per year for 25 years calculated through simulation software Solar PV SYST. The design report must include shading analysis, PV modules arrays, PV Mounting structure AutoCAD drawing converted in pdf showing front, top and side views with gauges, tilt angle, material, Specific Yield KWh/KWp, monthly and yearly AC Injected Energy, Inverters layout/Configuration, details of Losses from PV Modules to grid Injection etc. Designed AC Injected Energy to Grid submitted

by Companies through design software will be taken as yearly committedInjected energy and will be reflected in the contractas minimum guaranteed Energy. AC Energy injected in first year should not be less than 4 KWh/KWp/day (to be calculated by dividing the total first year AC energy by 365 days). The energy committed for first year will be measured after one year of operation starting after net metering and AC energy will be measured for future years after accounting for degradation of 0.7% each year and bidders will pay the penalty for less energy output from its Minimum Generated Energy (MGE) and it will be calculated by multiplying deficient KWh with Grid of-peak tariff of DISCO at that time.

11. Financial Bidmust indicate turnkey price system as per **FORM-D** including all applicable taxes and duties and separate price of each component is not required.

12. Financial Bidmust be submitted strictly as per **FORM-D**of this RFP at BidderLetter Headduly signed and stamped in separate sealed envelope: (Mandatory)

13. Bidsmust have minimum validity of **at least 30 days**.

14. Solar PV modules must be of Tier-1 as per BNF LIST 2020 with minimum **10 years replacement warranty and 25 years' performance warranty** with annual degradation of not more than 0.55%, Inverters should have minimum five years' warranty and whole system should have minimum fiveyears' warranty with free labor and parts.

15. Technical Bidmust include following documents-

- **a.** Copy of valid AEDB License for net metering**(Mandatory)**
- **b.** SECP Registration copy of Company incorporation**. (Mandatory)**
- **c.** Valid PEC registration Certificate in Solar category. **(Mandatory)**
- **d.** Valid Income and salestax registration certificates. **(Mandatory)**
- **e.** List of 100KWp or more projects (On-grid Solar PV Plants) completed in last three years with date of completion and name of the customer with address, Cell and phone contact with email address as per Form- B.**(Irrelevantor non-solar PV plant related projects list or data or any attachment can result in rejection of Bid).**
- **f.** QualityCertification(s) as per IEC standards for each component of the system.**(Mandatory)**
- **g.** List of threetrained graduate engineers (one electrical, one mechanical and one Civil) having more than three years' experience of working on Solar PV Plant and copy of valid membership card of Pakistan Engineering Council. **(Mandatory)**
- **h.** System design report generated through solar PV simulation software PV System with year wise AC energy Injection in Grid for 25 years. **(Mandatory)**
- **i.** Forms A, B, Cand D duly filled and stamped**(Mandatory)**
- **j.** Non-refundable RFP Price of Rs.1000 and Earnest money of 2% in the form of DD

(DemandDraft) to be included in technical Bid in favor ofFederal Board of Intermediate and Secondary Education Islamabad.

k. Technical datasheet of each component of Solar PV System offered.

16. The completed work will be verified by consultantas per RFP and Contract. Some Salient verifications/measurements are as follows: -

a. Complete Documentation as per RFP.

b. Quality of System Components, Quality certifications, Energy commitment, Quality of system design report, Quality of workmanship during installations, Solar Mountingstructure design and materials, Service Workers and Engineers Behavior at work,Quality of interactions of staff of the Companies withAskari-V Staff and labeling and tagging of cables and connectors.

c. Compliance with Bid specification and RFP terms.

17. Biddershall beresponsiblefor all the clearances and transportation ofequipment up to/ withinFBISE premisesand provisioning of labor for loading/ un-loading would be the responsibility of the Bidder.

18. Subletting/Joint Venture (JV)/Consortiumis not allowed by the Bidderand it will lead to disqualification of the Bid without any hearing or representation from the Bidder.

19. Submission of Bidsthrough email / fax is not admissible.

20. Bids cannot bewithdrawn after submission.

21. The supplied items must have service and operations manuals and operating software for the components of the system and communication gadgets.

22. Bids shall be rejected if BOQ as per Form-Cand Prices quoted as per FORM-Dare incomplete, unclear, conditional, altered, or ambiguous.

23. Bids shall be rejected if required detail of specifications, brand, origin, make, model, warranty, free service etc. are not clearly quoted / mentioned. No margin shall be given on this account.

24. Late submissions would not be entertained at any cost.

25. RFPdocument isonly aninvitationto offerBids. The competent authority may reject

all Bids or cancel theRFP without any reason.

26. Purchaserwill provide place for safe storage of equipment.

27. The completion time from contract signing to commissioningand Trial run should not be more than **12weeks**from the date of signing of contracte. This period does not include Net Metering time. (Relaxation may be granted as per merit of the case). Trial run will be 10 days after net metering of the system.

28. In the event of any delayin completion period beyond 12weeks, theBiddershall informPurchaser before expiryofsuch period givingreasons / justification for delay. However, purchaserreservestheright to takefollowingactions: -

- **a.** Evaluatetherequest for extensionin completion time asper itsmeritand mayconsiderextension in completionperiod or otherwise.
- **b.** In case of late completion for the reasons well within control of the Bidder, liquidation damages at the rate of 1% per week but not exceeding 10% of the total value of the undelivered stores / items may be levied.
- **c.** Maycancel the contract.
- **d.** Thepurchaser's decisionunder thisclauseshall notbesubjected toarbitration.

29. PurchaserInspectionCommittee including Solar Consultant willinspect and test the suppliedItems asper this RFPafter arrivalat the premises.

30. **Payment Milestones**

- **a.** **20%** Mobilization Advance at the time of signing of contract against bank Guarantee of equal amount as security.
- **b.** **45%**upon installation of PV system without net metering.
- **c.** **30 %** after successful trial run of 10days after Net Metering.
- **d.** **5%** after performance evaluation of system upon its completion of first year.

31. **BidReceipt And Opening. Single Stage – Two Envelop**would be adopted for opening of the tenders. Sealedenvelopemust reach on mentioned address by **1200 hours on 13 JULY 2022**.

32. **Pre-BidMeeting Will Not Be Held**. Written queries will be addressed till three days before the Bid submission time.

33. **For Queries (If Any):**Bidders may contact

Arshad Mahmood

Secretary (Procurement and Stores)

Federal Board of Intermediate and Secondary Education, H-8/4 Islamabad
Tel: 051-9269515 Cell: 03335522729
Email: dsg@fbise.edu.pk

34. Warranty and Free Services. Bidders shall provide minimumfiveyears warranty of the whole system with free service(Labor and Parts) in addition to different warranties of the solar PV system components effective from the date of successful installation and commissioning of the System. Whole system warranty will be on bidders' letter. Bidders will be responsible for all repair works with parts onits own arrangements and expenses during the warranty period.

35.Certifications and Test Reports. The Bidder will provide flash report of solar PV modules and complete test report from accredited Lab of quoted solar PV modules as per **IEC Standards 61215 and 61730 latest edition**, IEC Certifications of Inverters mentioned in the RFP and all certifications mentioned in the RFP for all other components. Bidder will provide certificate of origin issued at manufacturer's letter head for solar PV modules and Inverters. Purchaser shall have all the rights to get tested or verified from Laboratories any system component as per standards mentioned in the tender. Purchaser can ask any time any verification and confirmation letter from manufacturer for manufacturing and supply of any component of Solar PV System.

36. After Sales Services and ACEnergy Injection

- **a.** Bidder will guaranteethe availabilityand thesupplyof**Essential MaintenanceSpares**required to keep the equipment operational for aperiod of 10 years.
- **b.** The Bidder would provide free after sales services (Material and Labor) of whole system for five years starting from the date of installation with net metering. Bidder will provide from up-gradation of software or improvements enhancing the efficiency of the system during warranty period.
- **c.** Bidder will guarantee AC Injected energy output not less than 3.8 KWh/KWp/Day average upon completion of first year (Total KWh in first year divided by 365) and for next years by accounting for degradation of 0.7% each year. Bidders can increase the PV modules from Given STC sizes to achieve minimum AC Guaranteed Energy of 4 KWh/KWp/Day or for string balancing. Preference will be given to bidder committing MGE of 4 KWh/KWp/Day upon completion of first year from the date of activation of Net Metering.

37. Taxes, permissions, and Licenses. Bids should include all the taxes, duties, permissions, and Licenses.

38. **Packing & Transportation.**All PV System Components shall beindividuallypacked in standard packingprovidedfor onwardstransportation and delivery to site. Anyitem damaged duringtransportationwill bereplaced bythe bidders at their own cost including freight and insurance charges.

39. **Technical / User Manual/BOX File.**Successful Companieswillbebound toprovidetechnical and operational manuals at thetimeof delivery. Before final inspection, the bidder has to provide one BOX file with complete documentation including copies of RFP, contract, data sheets of all components, company sales and service contacts with cell, emails, inspection report and this will be the reference Box file available to all.

40. **Tool Kits / Accessories / Operations & Maintenance Manuals.**Standard setsofGeneral Tool kit / accessories/ Operations and Maintenance manuals of the system shall besupplied bytheBidderwithin thequoted price.

41. **Arbitration.**In case of any dispute, case shall be reviewed by Purchase InspectionCommittee including Solar Consultant and Bidder's CEO or its representative, decisionshall be final and binding on both the parties without recourse to legal action.

42. **Litigation.**In caseofanyun-resolvable disputeonlyIslamabad court of Law shall havethe jurisdictionto decidethematter.

43. **ForceMajeure.**TheBiddershallnot beheld liableintheevent oftheir failuretocomplywith thedeliveryscheduleoftheordered items(s) for reasonsof ForceMajeureincludingbut not limitedto: war and otherinstabilitiesinvasion, act of foreign enemies, mobilization orembargo, civil war etc.

44. **Grievances.**Grievances (If Any) by any Biddermay be sent / addressed to Secretary Federal Board of Intermediate and Secondary Education Islamabad within 07 days after results announcement.

45. **Evaluation Criteria.** Criteria will be as per PART-D of this RFP.

46. **Irrelevant Documents**. Any irrelevant document beyond RFP requirement will be considered as negative and may lead to rejection of Bid.

47. **RFP Price And Earnest Money**. Bidder must enclose in Technical Bid Rs.1000 as non-refundable RFP price in the form of Demand Draft (DD) and 3% earnest money in the nameof Federal Board of Intermediate and Secondary Education and such securities should be included in Technical Bid. (**Mandatory)**

48.Evaluation of Bids. Evaluation will be made as per PART-D of the RFP as per merit. The purchaser is not bound to award contract to lowest bidder.

49.Performance Bond. Successful bidder has to submit 10% of total value as performanceguarantee in the form of Bank Guarantee upon signing of contract in case of winning of the bid. Performance Guarantee must be valid for one and half year from the date of signing of contract. It will be released after the first year Energy Performance Evaluation by Consultant.

PART- C:TECHNICAL SPECIFICATIONS/REQUREMENTS

SOLAR PV SYSTEM

Solar PV system of 300KWp to be installed on turnkey basis at FBISE.A complete Single Line Diagram (SLD) from PV Modules to Injection must be given. System must include net metering fulfilling all the requirements of net metering SOPs of local DISCO and NEPRA SRO 892(1)/2015. The system must be complete with protections devices (Earthing, Anti-Islanding, AC/DC Disconnects, Manual Switch, Lightning Arrestors, Surge Protection, AC/DC Current and Voltage Monitoring), solar mounting structure at concrete pads at roof top (civil work for concrete pads 12x1x12 Cubic Inches will be responsibility of the Bidder as per drawing by Bidder), AC Power Distribution Cabinet (LV Panel) must house all the AC disconnects, Bus bars, Manual ON/OFF switch, fuses, Uni-directional energy meter, Voltage and Current meters etc.System must be capable of monitoring energy data at remote mobile/Laptop/Computer and Purchaser will provide WIFI connection to Inverter. System must be complete with all components and accessories.

SOLAR SYSTEM COMPONENTS

Solar PV Modules

- Number of Cells and Type= 72 Cells Mono PERC Half Cut Technology
- Solar PV modules should be Tier-1 type as per BNEF List 2020.
- Each PV module not less than 540W MONO PERC Half Cut Technology.
- The modules must have efficiency not less than 20%.
- Fill Factor not less than 0.78%.
- Modules must be TUV Rhineland certified as per IEC standards 61215 and 61730 latest edition.
- Minimum 10 years replacement warranty and 25 years performance warranty
- Size of total PV modules: Not less than 300KWp at STC but bidders can increase size to achieve Minimum Guaranteed Energy (MGE) of 4KWh/KWp/Day upon completion of first year.
- Flash Test report and Module Test report as per IEC Standards 61215 and 61730 (Latest Editions) should be provided after delivery.
- Must be supplied with connected cables and MC4 connectors
- Preferred brands will be JINKO, LONGI and Trina
- Annual degradation should not be more than 2% in First year and subsequently 0.55% annually.

Solar On-Grid Inverters

- Minimum individual Inverter size should not be less than100 KW.
- Type of Inverters = Three phase Grid Tied String Inverters
- 5 years warranty from the date of installation
- Make: EUROPE/CHINA (Preferred brands will be Huawei andSungrow)
- Maximum Efficiency: not less than 98%.
- Total Harmonic Distortion: Less than 3%
- Standards compliance: UL 1741, IEC 62109-1/2, IEC 62116, IEC 61683 and IEC 61727
- Degree of protection: Minimum IP 66
- Built-in SPD on DC and AC side.
- Built with Data Logger, Data Dongle, Communication Interfaces Protections, RS232/Ethernet (Network Supported) And Remote Monitoring Capability.
- Smart Meter should be provided to stop energy export till the net metering is made operational.

Solar Mounting Structure

- Mild Steel Hot Dip Galvanized with SS 304 Nuts, Bolts, anchor boltsand Washers to be mounted on concrete pads each of size 12x12x12 Cubic Inches minimum. Gauge should not be less than 12 SWG. Center support of each mounting frame is must and all frames must be connected with each other through a separate Cross channel on the back to avoid any risk of fly over of modules and vibrations/stress in case of wind storms.
- Structure must withstand at 150 KM per hour wind load and harsh environment.
- Nuts, Bolts, Washers, and other supporting accessories must be of stainless steel with appropriate gauges as per design with rust proof capability.
- Drawing of Structure (AutoCAD drawing converted in pdf) showing side, front, and top view with dimensions of each channel and material type, Tilt Angle, SS Nut, boltsand washers must be provided.**(Mandatory). PV mounting sketch is not allowed.**
- Undersized gauge is not allowed.
- Sagging and material rusting is not allowed.
- The tilt angle of mounting structure must not be less than 26. **(Mandatory).**

- Windstorms are common phenomena in view of climate changes, so mounting design must withstand harsh environments and free from vibrations and rusting.
- Center support in mounting is must to avoid sagging.
- More than two modules in landscape are not allowed at all in each structure frame and more than one Module in Portrait is not allowed
- L2 (Two modules in landscape setting) or P1 (one module in Portrait setting) both are allowed.
- In case of Aluminum Structure, the gauge of each channel must be double the gauge of MS Hot Dip Channel.

Combiner Boxes

Must be manufactured with GI material with 100% copper strips in it for termination of PV arrays. Must comply with IP 67 and must house fuses/Circuit Breakers.

MC4 Connectors

- Qty: As per design
- Current rating: As per design
- Ingress protection: IP 67
- Standard Compliance: EN 50521:2008

Remote Monitoring At Common Monitoring LED

Whole System must have capability to monitor Power and energy data at minimum 50 Inch Smart LED display of Samsung/SONY Make. Bidders have to supply LED along with any interfacing, hardware/Software required for display of health of the system at LED. Energy parameters displayed must be Load watts, Export to Grid, Energy consumed, PV watts, DC Energy (KWh) and AC KWh injected energy by each system, Total DC and AC KWh, String Monitoring, data graphs, Alarms and patterns etc.LED will act as Dashboard to be installed at suitable visible place.

Civil Work

Civil work for high Quality concrete pads having minimum dimensions of **12x12x12 Cubic Inches**will be the responsibility of Bidderas per drawing provided by the Bidder as per Module sizing. Concrete pads quality must be excellent. Concert pads should be placed at 5 inches Nails set of QTY 04 having some penetration in roof to avoid dragging of the Concrete pads in case of hurricanes.

Manuals

The successful Bidder will supply all the service and maintenance manuals in hard and soft

copy of each component of the system along with the supply.

System Protections

a. System must be complete with all protections including DC and AC Disconnects, DC/AC Surge protection, Lightning arresters and Grounding etc.
b. Surge protection shall be provided on the DC side and the AC side of the PV system.
c. The Lightning Arresters must be provided and numbers to be designed as per site conditions to avoid any damage because of Lightning.
d. A minimum of two separate dedicated copper earth electrodes (DC and AC) connected through a copper wire with the Earthing rods in two pits must be used for the Earthingat DC and AC side of solar PV system (structure, Inverter, SPDs etc.) with a total earth resistance not exceeding 3 ohms at DC and AC Side.
e. All metallic Chassis of DC and AC PV Components requiring Earthing must be earthed separatelyas per net metering SOP of local DISCO.

Net Metering

Solar system must comply with the SRO 892(1) 2015 and DISCO SOP for net metering. Bidder will process the net metering license as per DISCO SOPs and NEPRA SRO during the installation to save time. Bidder should include all expenses for net metering as integral part of Bid. Bidder must have net metering permission License from AEDB. Smart Meter must be installed with system on operation for zero export of extra energy to Grid till the net metering will be active.

PV DC Cables

- Single core 99.9% copper cable with conductor withstanding at temperature of 120 Degree maximum.
- Cables must be double insulated tested at 1.5 KV.
- Weather resistant, UV resistant, Ozone corrosion resistant, halogen free and flame resistant.
- XLPE/XLPO Insulation withstanding temperature range from -4-degree C to 120 Degree C.
- Cable must be tested as per Solar PV standard IEC 51608 or IEC 62930 and test report must be provided along with Type Tested certificate.
- In case of cable from Local manufacturer, the warranty must be minimum five years at Manufacturer’s letter head and compliance as IEC 50618/62930 Must be assured.

AC Power Distribution/LV Cabinet

AC Power Distribution Cabinet (LV Cabinet) must contain AC circuit breakers, contactors, bus bars, KWh energy meter, AC SPD and OFF/ON main switch with monitoring of Voltage,

current, Power and, Energy. The components must of high-quality complying with national standards of switchgears.

Preferred brands are Tariq Electric, Technob Engineering, Southern Electric Asian Concern, Bilal Switchgear Engineering, MK Engineering or any reputedQuality switchgear manufacturer.

Injection of Energy

Energy will be injected at 440V Existing Distribution panel available, but the Bidder has to supply separate AC Power distribution cabinet (LV cabinet) with built-in protection, automatic and manual isolation from the distribution circuit.

Technical Datasheets

Technical datasheet of each PV component must be provided in technical Bid. **(Mandatory).**

PV DIESEL SYSTEM CONTROLLER/SYNCHRONIZER

PV DIESEL Synchronizer/controller should provide harmony and smooth operation of PV with Diesel GenSet providing intelligent control mechanism for joint operation of PV and Diesel set with the objective of optimum and reliable power to the load. It must guarantee a constant power balance (reactive and active) within a PV GENSET system at all times. ATS is already Present with GenSet for auto-start of diesel generator. Diesel Generator set of 400 KVA is already available.

General Engineering Work

The cable laying ducts/Channels from PV Modules to Inverters must be of MS Hot dip with no possibility of entering of any sects or animals and all internal cable laying channels/ducts connecting the Inverters, Ducting and cable laying must be of perforated MS Galvanized/Slotted high quality PVC duct. Interconnection of PV modules must be through MC4 cables/connectors without any joint and MC4 cables interconnecting PV Modules must not be very tight and should have some play to avoid cable cracking. All concrete pads must be high quality martial mix and must be at same level so that the structure should not look as curved or raised at some point. Earthing material and work should be of high quality. Earthing required is at DC and AC with two separate bores. The structure must be vibration and rust free and must withstand harsh environments. The workmanship should be high quality through trained and experienced technicians and engineers. All thimbles and connectors must be of high quality.

PART D- EVALUATION OF BIDS

Bids shall be technically evaluated as per the following technical evaluation criteria. One part is mandatory without which the bids will be rejected without further evaluation. Second part is numbered evaluation and passing marks are 80%

Sr.	Evaluation Parameters	Status	YES/NO	Remarks if any
A - MANDATORY ITEMS – NON-NUMBERED *				
1	COMPLETE BOQ as per FORM D	Yes/No	-	
2	SYSTEM DESIGNED AS PER RFP	YES/NO	-	
3	SYSTEM DESIGN REPORT WITH year wise INJECTED AC ENERGY with minimum 4 KWh/KWp/Day in first year	YES/NO	-	
4	DATASHEETS AS PER SPECIFCATIONS(Clearly readable) *	YES/NO	-	
5	Five years warranty of whole system with free material and labor at bidder's letter head.	Yes/No	-	
6	Valid Income. Tax & Sales Tax Registration Certificates	Yes/No	-	
7	Earnest Money attached.	Yes/No	-	
8	Provision of Non Black Listing record on company letter head duly signed and stamped on company letter head*	Yes/No	-	
9	PEC and AEDB Certificates	Yes/No	-	
10	Duly filled and stamped FORM A, B, C and D	YES/NO		
11	PV Cable test report from accredited LAB as per IEC 50618 or 92930.	Yes/NO		
BIDS WILL BE DISQUALIFIED IF ANY OF ABOVE ITEM IS MARKED "NO"				
B	**MANDATORY – NUMBERED ITEMS**	**Obtained**	**Total**	
1	Solar PV Module TIER-1 with		20	**20 Number for TIER-1 with complete Test report and zero for others**

	Complete test report as per IEC 61215 and 61730 (Latest Edition)			
2	INVERTER as per preference with IEC certificates mentioned in PART C of RFP.		20	**20 Number for Inverter with Test reports and zero for others**
3	NUMBER OF THREEGRADUATE ENGINEERS WITH VALID PEC CARD HAVING MORE THAN THREE YEARS EXPERIENCE		10	**10 for Five Graduate Engineers with three years' experience and 05 for less experience**
4	Clearly Readable Technical Datasheets of each component provided as per BOQ		10	**10 for complete and 0 for incomplete literature.**
5	100KWp Solar On-grid Projects Completed successfully with attached Performance certificates		10	**10 for three Projects and zero for others.**
6	PEC and AEDB Certificate		10	**10 for certified and zero for non-certified**
7	Company Experience from the date of its incorporation		10	**10 for 03 years ad zero or others**
8	Last Month Bank Statement having closing balance of more than 40 million		10	**10 for Rs.10 M balance and five for others**
Total Technical Marks		-	100	
Minimum Technical Qualification Marks			80	
Marks Obtained				

PART E - FORMS TO BE SUBMITTED

FORM-A

At BidderLetter Head

BID SUBMISSION UNDERTAKING

Secretary
Federal Board of Intermediate and secondary Education
H-8/4, Islamabad
Karachi.

Dear Sir

1. We, the undersigned, offer to provide our system with services for "300KWp rooftop On-grid Solar PV System on Turnkey basis" in accordance with your RFPDocument NumberFBISE **SOLAR / 300KWp** dated **----------, 2022.**

We are hereby submitting our Bid, which includes technical as well as financial Bid as per instructions.

2. We hereby acknowledge and agree to all terms, conditions, special provisions, and instructions included in the above-referenced RFPdocument.

3. We understand and agree that the decision of the procurement / evaluating committee shall be final and cannot be challenged on any ground at any forum and the procurement / evaluating committee will not be liable for any loss or damage to any party acting in reliance thereon.

4. Furthermore, we hereby certify that, to the best of our knowledge and belief: -

a. We have no close, financial or familial relationships with any Askari-Vstaffmembers.

b. We have no close, financial or familial relationships with any other Bidder submitting Bids in response to the above-referred RFPdocument.

c. The prices in our offer have been arrived independently, without any consultation, communication, or agreement with any other Bidder or competitor for the purpose of restricting competition.

d. All information in our Bid and all supporting documentation are authentic and accurate.

e. We understand and agree to FBISE prohibitionsagainst fraud, bribery, and kickbacks.

5. We hereby certify that the enclosed representations, certifications, and all other submitted documents / statements are accurate, current, and complete.

Authorized Signature and stamp
M/s (Bidder's Name)
Dated

FORM –B

LIST OF 100KWp and above On-grid Solar PV projects Completed in Pakistan Mandatory for Last 03YEARS

Name of Project	Client Name	Contact Nr (Cell and Landline)	Client Complete Address	Date of Completion

NOTE: No project other than PV Plant of less than 100KWp

FORM -C(TECHNICAL BOQ)

(ToBe Included In Technical Bid)

TECHNICAL BOQ FOR 300KWp Solar PV On-Grid System

Component Name	RATING/Specifications	QTY (Nr / Set/Job)	Manufacturer Name/Supplier Name	Brand/Model	Country of Origin	Local/Imported	Warranty as per RFP
PV Modules	----------Wp Tire-1 PV Module Mono PERC Half Cut	------					10 years replacement and 25 years performance
Three Phase PV Inverter	----------KW On-grid with Wi-FiDonggle	01					Five Years warranty
Data logger	----------	01					
PV Cables	Single core PV Cable-------mm as per IEC 50618/62930	As per System					Five years warranty in case of Local
PV Mounting structure	Hot Dip 12 Guage mounting structure with SS Nuts and Bolts	As per System					10 years warranty
AC Cables	Four Core----------mm	As per					Five Years

	cable	system					warranty
Earthing Package including boring, cables and material	As per DISCO/NEPRA SRO 892/2015 as per RFP	01 Job					Five years warranty
Power Distribution Cabinet (LV Cabinet)	MS powder coated Panel having bus bars, circuit breakers, disconnects, manual switch, Energy Meter etc.	01					Five years warranty
Lightening Arrestors	Copper lightening arrestor for radius coverage of ---------- meter with ---------- spikes.	03					Five years warranty
Net Meter	NTDC/IESCO Approved Net Meter	01					Five years warranty
Outside Main Disconnect	440V/----A AC disconnect switch	01					Five years warranty
PV GenSet Synchronization	PV Diesel GenSet Synchronization system	01 set					Five Years warranty

	including controller, switching, cabling and Interfaces						
Services	Design, Supply, installation, commissioning, Testing & Net metering	01 Job					Five Years Warranty

Turnkey System is complete with Civil, Mechanical, Electrical work, Net Metering and training of client persons.

Notes: Two brands one primary and one alternate are allowed only for Solar Modules and one brand for all other items, and word Equivalent is not allowed.(Mandatory)

Where manufacturer is not available, write supplier name and do not leave any cell empty.

FORM -D(FINANCIAL BID)

(ToBe Included InFinancial Bid at Bidder's Letterhead)

PRICE FOR 300 KWp Solar PV On-Grid System

Component Name	RATING/Specifications	QTY (Nr / Set/Job)	Manufacturer Name/Supplier Name	Brand/Model	Country of Origin	Local/Imported	Warranty as per RFP

PV Modules	----------Wp Tire-1 PV Module Mono PERC Half Cut	------					10 years replacement and 25 years performance
Three Phase PV Inverter	----------KW On-grid with Wi-FiDonggle	01					Five Years warranty
Data logger	----------	01					
PV Cables	Single core PV Cable-------mm as per IEC 50618/62930	As per System					Five years warranty in case of Local
PV Mounting structure	Hot Dip 12 Guage mounting structure with SS Nuts and Bolts	As per System					10 years warranty
AC Cables	Four Core----------mm cable	As per system					Five Years warranty
Earthing Package including boring, cables and material	As per DISCO/NEPRA SRO 892/2015 as per RFP	01 Job					Five years warranty
Power Distribution Cabinet (LV	MS powder coated Panel having bus bars, circuit breakers,	01					Five years warranty

Cabinet)	disconnects, manual switch, Energy Meter etc.						
Lightening Arrestors	Copper lightening arrestor for radius coverage of ---------- meter with ---------- spikes.	03					Five years warranty
Net Meter	NTDC/IESCO Approved Net Meter	01					Five years warranty
Outside Main Disconnect	440V/----A AC disconnect switch	01					Five years warranty
PV GenSet Synchronization	PV Diesel GenSet Synchronization system including controller, switching, cabling and Interfaces	01 set					Five Years warranty
Services	Survey, Design, Supply, installation, commissioning, Testing and Net metering	01 Job					Five Years Warranty

TURNKEY PRICE FOR 300 KWp Solar ON-Grid System = Rs.----------

In words: ----------

Turnkey System is complete with Civil, Mechanical, Electrical work, Net Metering and Training of Client Persons.

Notes: Two brands one primary and one alternate areallowed only for Solar Modules and one brand for all other items, and word Equivalent is not allowed.(Mandatory)

Where manufacturer Name is not available write supplier name and do not leave any cell empty.

Signed and stamped.

----------END----------