INVITATION FOR BID
Prime Minister's Initiate on Clean & Green Energy

Design, Build and Installation of 105 KWp On-Grid Turnkey Photovoltaic Solar System

For promotion & Development of indigenous renewable energy resources in the country, for improving energy mix and to arrest drain of precious foreign exchange due to import of fossil fuels, the federal government (GOP) under the leadership of the Prime Minister of Pakistan has launched multiple Solar Power initiatives. Solarization of Public Sector buildings through transparent competitive bidding process is one of the components of these initiatives.

Federal Board of Intermediate & Secondary Education Invites Bids for design, supply, Installation, Testing & Commissioning of Solar PV System (105 KWP) at its office in H-8/4, Islamabad from the contractors/Firms registered with AEDB.

Single Stage Two Envelope Bidding Process will be adopted. Bidding documents containing detail terms & Conditions are available at FBISE website i.e. *www.fbise.edu.pk* for information of potential bidders. The price of bidding documents is Rs.10,000/-which can be purchased from FBISE on or before 21-08-2025 through Bank Challan in favor of Secretary FBISE. The bids of only those bidders will be considered who have purchased RFP. All bids accompanied by a bid Security amounting to Rs.500,000/- fixed and all other documents as specified in the respective RFP must reach the office of Deputy Secretary (Procurement & Services) FBISE on or before 21-08-2025. The technical bids will be opened on the same date at 10:30am in the presence of bidder's representatives who choose to attend at the same address. This advertisement is also available on *www.fbise.edu.pk* and *www.ppra.org.pk*.

(SHAHAB-U-DIN)
DEPUTY SECRETARY
Procurement & Services
FBISE, Islamabad
Ph: 051-9269515

REFERENCE: FBISE/ PVS / 105KWp
TOTAL PAGES INCLUDING COVER: 30

Bidding Document

FOR

PROCUREMENT OF105KWp ON-GRID SYSTEM AT ROOFTOP FOR FBISE ISLAMABAD ON TURNKEY BASIS

RFP Purchased by: _____

Company Name: _____

Name and address: _____

Issued by (Name and Signature): _____

BIDDING DOCUMENT
FOR
PROCUREMENT OF 105KWp ROOFTOP ON-GRID PV SYSTEM
AT FBISE ON TURNKEY BASIS

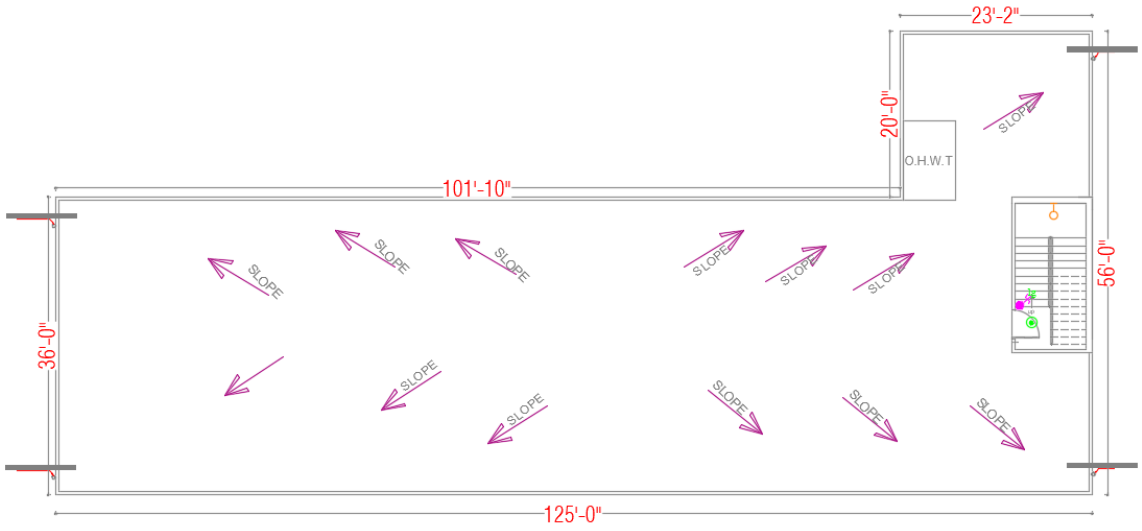
PART A - INTRODUCTION

FEBERAL BOARD OF INTERMEDIATE AND SECONDARY EDUCATION ISLAMABAD (FBISE) desires to purchase 105KWp Roof top Solar PV On-Grid on turnkey basis as per following distribution of PV Modules,

AREA	UNSHADED AREA FOR SOLAR PV MODULES (SQF)	NO OF MODULES (KWp) CAN BE ACCOMDUATED
ROOF	4963.333	105 Nos

NOTE: All bidders will submit bid in Pakistani Rupees.

Roof Area in SQF =4963.333



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 50ft 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. Contractor will recheck the ATS module capacity.

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.

The bidders must supply LV Safety Panel complete with all protections and switching manufactured by a Quality Switchgear Company as per specifications given in technical specifications **PART-C**.
A dedicated room is proposed for the installation of PV inverter on the rooftop. The construction of the PV inverter room, including provision of air conditioning as per design specifications, shall be the responsibility of the contractor.
The purpose of RFP is to invite Bids from AEDB & PEC Licensed Companies having minimum five years of experience in Solar PV and active NTN/Sales Tax registration with FBR for procurement of aggregate "**105KWp Rooftop On Grid PV System at FBISE 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 in one envelope containing two envelopes inside in it.

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

3. 2nd sealed envelope having financial offer to be marked as "**Financial Bid**".

4. Both envelopes to be placed in a one sealed envelope bearing Companies' postal/ email addresses and phone numbers etc. and marked as "**Bid for 105KWpRooftop On-Grid Solar PV System on turnkey basis"**. Bid should be addressed to

The Director (Procurement & Services), Federal Board of Intermediate and Secondary Education, H-8/4, Islamabad.

5. The project will be implemented on Turnkey basis at rooftop of FBISE. 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 (Permissions and Licenses, if any).

6. A 105KWp PV System is to be installed at the rooftop of FBISE. By 105KWp solar PV system, it is meant that the Solar PV modules shall have a combined capacity of 105KWp under Standard Test Conditions (STC). The system shall include a total minimum 105KWp inverter capacity, complete with elevated steel galvanized structures, DC/AC cables, AC Power Distribution Cabinet (LV Cabinet), and all associated civil, electrical, and mechanical works. The complete system is to be delivered on a turnkey basis.
The contractor shall also be responsible for providing five (05) years of free service (both labor and material). Service shall mean the availability and visit of a qualified service person for fault diagnosis, repair, or replacement in the event of any system fault. The contractor must ensure a response time of within 24 hours after receiving a call, SMS, or email from the client.

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 have to provide one Original hard copy and one photocopy for Technical and one Original hard copy one photocopy for financial bid and one soft copy of technical bid 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 bidders shall provide complete **Technical BOQ in 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 Bid and Bids will be rejected without **Form-C**. Technical BOQ must consist of Solar PV modules with MC4 cables and connectors, solar ON-GRID Inverters, elevated steel galvanized structure (as per PV modules), Combiner Boxes with fuses/circuit breakers, PV DC Cables, AC Cables,

AC Power Distribution Cabinet (must contain circuit breakers, Contactors, Surge Arrestors, Manual On-OFF switch, Voltage, Current and Bus bars complete with cabling and fittings and accessories. Bidders will not be allowed to change brands after the Bid submission. 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. The quality of the proposed solar on-grid system will be evaluated based on the overall organization and completeness of the bid, quality of system components, the Single Line Diagram (SLD) up to the point of injection, and the completeness and accuracy of the Bill of Quantities (BOQ). The designed AC output energy in kWh per year for 25 years must be calculated using a recognized simulation software such as PVsyst. The design report must include shading analysis, PV module array configuration, AutoCAD drawings (converted to PDF) of the proposed elevated steel galvanized structure (showing front, top, and side views with material specifications, gauges, tilt angle), inverter layout and configuration, monthly and yearly AC energy output, specific yield (kWh/kWp), and a breakdown of system losses from PV modules to the point of AC injection.

The yearly AC energy output submitted in the design software report will be treated as the contractor's committed minimum guaranteed energy output. For evaluation purposes, the first-year AC output should not be less than 4 kWh/kWp/day (calculated by dividing total first-year AC energy by 365). Although net metering is not part of the system scope, the system's energy output will still be monitored and evaluated. The committed first-year energy will be verified after one year of operation. For subsequent years, energy output will be assessed after accounting for an annual degradation rate of 0.7%. In case of underperformance against the committed minimum generated energy (MGE), the contractor shall be liable to pay a penalty, calculated by multiplying the energy shortfall (in kWh) by the prevailing off-peak grid tariff of the relevant DISCO at that time.

11. Financial Bid must indicate turnkey price system as per **FORM-D** including all applicable taxes and duties and separate price of each component is required.

12. Financial Bid must be submitted strictly as per **FORM-D** of this RFP at Bidder Letter Head duly signed and stamped in separate sealed envelope: **(Mandatory)**

13. Bids must 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 five years' warranty with free labor and parts.

15. Technical Bid must include following documents:-

- **a.** ISO certification 9001-2025 **(Mandatory)**
- **b.** Copy of valid AEDB Certificate **(Mandatory)**
- **c.** SECP Registration copy of Company incorporation**. (Mandatory)**
- **d.** Valid PEC registration Certificate in Solar category. EE11(XVII), EE11(III), EE11(VI), EE11(XXV), ME07 (V), M05 **(Mandatory)**
- **e.** Valid Income tax registration certificates. **(Mandatory)**
- **f.** Valid Sales tax registration certificates. **(Mandatory)**
- **g.** List of 105KWp or more projects (Hybrid / On-grid Solar PV Plants) completed in last five years with date of completion and name of the customer with address, Cell and phone contact with email address as per Form- B. **(Irrelevant or non-solar PV plant related projects list or data or any attachment can result in rejection of Bid).**
- **h.** Completion certificates of completed projects. **(Mandatory)**
- **i.** Quality Certification(s) as per IEC standards for each component of the system. **(Mandatory)**
- **j.** List of three trained graduate engineers (one electrical, one mechanical and one Civil) having more than five years' experience of working on Solar PV Plant and copy of valid membership card of Pakistan Engineering Council. **(Mandatory)**
- **k.** System design report generated through solar PV simulation software (e.g., PVsyst), showing year-wise projected AC energy output from the ON-GRID system for 25 years. **(Mandatory)**
- **l.** Forms A, B, C and D duly filled and stamped **(Mandatory)**
- **m.** Non-refundable RFP Price of Rs.10000 and Bid Security money Rs.500,000/- of total quoted amount in the form of bank guarantee to be included in technical Bid in favor of Secretary Federal Board of Intermediate and Secondary Education Islamabad.
- **n.** Technical datasheet of each component of Solar PV System offered.

16. The completed work will be verified by consultant as 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 Elevated steel galvanized structure design and materials, Service

Workers and Engineers Behavior at work, Quality of interactions of staff should be professional and experienced. Staff, labeling and tagging of cables and connectors.

- **c.** Compliance with Bid specification and RFP terms.

17. Bidder shall be responsible for all the clearances and transportation of equipment up to/ within FBISE premises and provisioning of labor for loading/ un-loading would be the responsibility of the Bidder.

18. Subletting/Joint Venture (JV)/Consortium are not allowed by the Bidder and it will lead to

disqualification of the Bid without any hearing or representation from the Bidder.

19. Submission of Bids through email / fax is not admissible.

20. Bids cannot be with-drawn 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-C and 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. RFP document is only an invitation to offer Bids. The competent authority may reject all Bids or cancel the RFP without any reason.

26. Purchaser will provide place for safe storage of equipment.

27. The completion time from contract signing to commission and Trial run should not be more than **6 weeks** from the date of signing of contract. (Relaxation may be granted as per merit of the case). Trial run will be 10 days after installation.

28. In the event of any delay in completion period beyond 6 weeks, the Bidder shall in form Purchaser before expiry of such period giving reasons / justification for delay. However, purchaser reserves the right to take following actions: -

- **a.** Evaluate their quest for extension in completion time as per its merit and may consider extension in completion period 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.** May cancel the contract.
- **d.** The purchaser's decision under these clauses will not be subjected to arbitration.

29. Purchaser Inspection Committee including Solar Consultant will inspect and test the supplied Items as per this RFP after arrival at the premises.

30. **<u>Payment Milestones</u>**

a. No advance payment
b. **40%** against non-perishable items (structure, PV panels, inverters)
c. **25%** during installation phase
d. **25%** upon successful installation after 3 months
e. **10%** after one-year performance evaluation

31. **Bid Receipt and Opening. Single Stage – Two Envelop** would be adopted for opening of the tenders. Sealed envelope must reach on mentioned address by **21-08-2025.**

32. **Pre-Bid Meeting 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 Mr. Shahab-ud-din
Deputy Secretary (Procurement and Services), Federal Board of Intermediate and Secondary Education, H-8/4 Islamabad
Tel: 0332-5303442
Email: secretary@fbise.edu.pk

34. **Warranty and Free Services.** Bidders shall provide minimum five years 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 on their 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 editions**, 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. Consultant shall have all the rights to get tested or verified from Laboratories any system component as per standards mentioned in the tender. Consultant 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 AC Energy Injection**

- **a.** Bidder will guarantee the availability and the supply of **Essential Maintenance Spares** required to keep the equipment operational for a period 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. Bidder will provide from up-gradation of software or improvements enhancing the efficiency of the system during warranty period.
- **c.** The bidder shall guarantee an average AC energy output of not less than 3.8 kWh/kWp/day upon completion of the first year, calculated based on the total AC energy output in the first year divided by 365 days. This calculation shall be made excluding periods of power outage or grid unavailability. For subsequent years, the energy output shall be evaluated after accounting for an annual degradation rate of 0.7%.
  To meet the minimum guaranteed energy output (MGE), bidders are allowed to increase the number of PV modules beyond the nominal 105 kWp STC rating, either for achieving the required AC energy output of 4 kWh/kWp/day or for string balancing purposes. Preference will be given to bidders committing to an

MGE of 4 kWh/kWp/day in the first year from the date of system commissioning.

Note: As the system is On-Grid setup, the committed energy shall reflect the usable on-site AC output delivered to the connected loads.

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

38. Packing & Transportation. All PV System Components shall be individually packed in standard packing provided for onwards transportation and delivery to site. Any item damaged during transportation will be replaced by the bidders at their own cost all inclusive.

39. Technical / User Manual/BOX File. Successful Companies will be bound to provide technical and operational manuals at the time of 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 sets of General Tool kit / accessories/ Operations and Maintenance manuals of the system shall be supplied by the Bidder within the quoted price.

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

42. Litigation. In case of any un-resolvable dispute only Islamabad court of Law shall have the jurisdiction to decide the matter.

43. Force Majeure. The Bidder shall not be held liable in the event of their failure to comply with the delivery schedule of the ordered items(s) for reasons of Force Majeure including but not limited to: war and other instabilities invasion, act of foreign enemies, mobilization or embargo, civil war etc.

44. Grievances. Grievances (If Any) by any Bidder may 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.10000/- as non-refundable RFP price in the form of Demand Draft (DD) and Rs.500,000/- amount as Bid Security in the name of Secretary 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.

PART- C: TECHNICAL SPECIFICATIONS/REQUREMENTS

SOLAR PV SYSTEM

A Solar PV system of 105KWp is to be installed on a turnkey basis at FBISE. A complete Single Line Diagram (SLD) from PV modules to the point of injection must be provided. The system must be equipped with all necessary protection devices, including earthing, anti-islanding protection, AC/DC disconnects, manual switch, lightning arrestors, surge protection, and AC/DC current and voltage monitoring instruments. The solar PV modules shall be mounted on elevated steel galvanized structures, fixed on concrete pads at the rooftop. The civil work for these concrete pads (minimum size 12" x 12" x 12") grating with roof slab shall be the responsibility of the bidder, including casting, curing, and placement, as per the structural drawing provided by the bidder.

A dedicated inverter room is to be constructed at Roof Top. The construction of the inverter room, including civil, electrical, and environmental provisions (such as air conditioning/ventilation) as per design requirements, shall be the full responsibility of the bidder. The room shall be weatherproof, properly ventilated, and securely lockable.

The AC Power Distribution Cabinet (LV Panel) must include all AC disconnects, bus bars, manual ON/OFF switch, fuses, voltage and current meters, and any other required components. The system must support remote monitoring of energy data via mobile, laptop, or computer; the Purchaser shall provide a Wi-Fi connection to the inverter. The system must be delivered complete in all respects, including all components, accessories, and installation works.

SOLAR SYSTEM COMPONENTS

Solar PV Modules

- Number of Cells and Type= 172 N-Type monocrystalline, bifacial (double glass) technology.
- Solar PV modules should be Tier-1 type as per BNEF List 2020.
- Each PV module not less than 585W N-Type monocrystalline, bifacial (double glass) 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 105KWp 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 LONGI, JINKO & JA
- 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 than105 KW.
- Type of Inverters = Three phase On-Grid Inverter
- 5 years warranty from the date of installation
- Make: Preferred brands will be Huawei, Solis, Goodwe (Imported)
- 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 21
- 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.

Solar Elevated steel galvanized structure

- Mild Steel Vertical beam / Columns (11G) & Horizontal Beams (16G), MS Angle Red Oxide with double quoted paint and C angle 14G 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 14 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 elevated steel galvanized structure must not be less than 20. **(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.

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, 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 (grating with roof slab)** will be the responsibility of Bidder as 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.

A dedicated inverter room is to be constructed at Roof Top. The construction of the inverter room, including civil, electrical, and environmental provisions (such as air conditioning/ventilation) as per design requirements, shall be the full responsibility of the bidder. The room shall be weatherproof, properly ventilated, and securely lockable.

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 Earthing at 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 separately as SOP of local DISCO.

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 (low smoke zero halogen) 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, 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 Bilal Switchgear Engineering, MK Engineering, & Capital Electro Engineering or any reputed Quality 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

Final bid evaluation shall be carried on quality cost method with 60%:40% weightage for Technical and Financial bid respectively.

Bids shall be technically evaluated first 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 60%

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 Registration Certificates	Yes/No	-	
7	Valid Sales Tax Registration Certificates	Yes/No	-	
8	Earnest Money attached.	Yes/No	-	
9	Provision of Non Black Listing record on company letter head duly signed and stamped on company letter head*	Yes/No	-	
10	PEC Certificate	Yes/No	-	
11	AEDB Certificate	Yes/No	-	
12	Duly filled and stamped FORM A, B, C and D	Yes/No	-	
13	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**	**Marks Obtained**	**Total**	
1	Solar PV Module TIER-1 with Complete test report as per IEC 61215 and 61730 (Latest Edition)		20	

2	INVERTER as per preference with IEC certificates mentioned in PART C of RFP.		20	
3	NUMBER OF THREEGRADUATE ENGINEERS WITH VALID PEC CARD HAVING MORE THAN FIVE YEARS EXPERIENCE		10	
4	Clearly Readable Technical Datasheets of each component provided as per BOQ		10	
5	100KWp Solar On-grid Projects Completed successfully with attached Performance certificates		10	
6	PEC and AEDB Certificate		10	
7	Company Experience from the date of its incorporation		10	
8	Three years Bank Statement having closing balance of more than 10 million		10	
Total Technical Marks		-	100	
Minimum Technical Qualification Marks			70	
Marks Obtained				

PART E - FORMS TO BE SUBMITTED

FORM-A

At Bidder Letter Head

BID SUBMISSION UNDERTAKING

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

Dear Sir

1. We, the undersigned, offer to provide our system with services for "105KWp rooftop On-grid Solar PV System on Turnkey basis" in accordance with your RFP Document Number FBISE **SOLAR / 105KWp** dated **21st August, 2025.**

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 RFP document.

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 FBISE staff members.
- **b.** We have no close, financial or familial relationships with any other Bidder submitting Bids in response to the above-referred RFP document.
- **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 prohibitions against 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 105KWp and above On Grid / Hybrid Solar PV projects Completed in Pakistan Mandatory for Last 05YEARS

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

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

FORM -C (TECHNICAL BOQ)

(To Be Included In Technical Bid)

TECHNICAL BOQ FOR 105KWp 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	610 Wp Tire-1 PV Module N-Type monocrystalline, bifacial (Double Glass)	172					10 years replacement and 25 years performance
Three Phase PV Inverter	125 KW On-Grid with Wi-Fi Dongle	01					Five Years warranty
Data logger	Built In	01					Five Years warranty
PV Cables	Single core PV Copper DC Cable 6mm^2 XLPE/ PVC as per IEC 50618/62930	As per System					Five years warranty in case of Local
PV Elevated galvanized structure	Mild Steel Vertical beam / Columns (11G) & Horizontal Beams (16G), MS Angle Red Oxide with double quoted paint and C angle 14G galvanized with SS Nuts and Bolts	As per System					10 years warranty

AC Cables	04 Core 70 mm^2 Copper/PVC AC-Cable As per BSS & IEC standard	300 ft (Approx)					Five years warranty
Permanent Earthing <10 ohms 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, SPDs & Energy Meter etc.	01					Five years warranty
Lightening Arrestors	Copper lightening arrestor with spike for radius coverage of as per roof area and with copper earthing rod 19mm^2 thick & 3 meter long	03					Five years warranty
Outside Main Disconnect	440V/250-A AC disconnect switch	01					Five years warranty
PV Gen Set Synchronization	PV Diesel Gen Set Synchronization system including controller, switching, cabling and Interfaces	01 set					Five Years warranty

Services	Design, Supply, installation, commissioning & Testing	01 Job					Five Years Warranty
Additional Works							
Installation & configuration	440V/250-A AC 3P-MCCB Brands: ABB, Schneider, Terasaki	02					Five years warranty
Cable Supply, Installation & Excavation Work	4 core x 150mm^2 Copper/PVC AC-Cable As per BSS & IEC standard	270 ft (Approx)					Five years warranty
Cable Supply, Installation & Excavation Work	4 core x 50mm^2 Copper/PVC AC-Cable As per BSS & IEC standard	350 ft (Approx)					Five years warranty
Cable Tray Supply & Installation	9” x 4” Perforated cable, hanging rods, nut/bolts complete in all respects	50 Rft					Five years warranty
Supply, Installation & configuration	440 V/400-A 3P-MCCB Brands: ABB, Schneider, Terasaki	03					Five years warranty
Mini Split AC, Supply, Installation & Configuration	1.5 Ton, Brands: Gree, Daikin, Midea						

CONSTRUCTION OF SOLAR INVERTER ROOM AT STRONG ROOM BUILDING ROOF					
Sr.No.	Description	Qty	Unit	Rate	Amount
01.	P.C.C. (1:2:4) UNDER FLOOR Providing, and laying cement concrete not leaner than (1:2:4) using screened crushed stone graded aggregate 3/4 inch (19 mm) and sand from approved source in foundations, including form work and its removal, compacting, levelling and curing etc. complete as directed by the Engineer Incharge.	75	CFT		
02.	BRICK MASONRY FOR PARTITION WALLS I) 9"~ 13.5" THICK WALLS Providing and laying first class solid burnt brick masonry, set in cement mortar (1:5) for arches in straight or curved wall 9"to 13½" (229mm to 343mm) thick includes scaffolding, formwork and its removal, racking out joints and curing etc. including the cost of L shape bracket on every 8th course complete in all respect or as directed by the Engineer in charge.	250	CFT		
03.	PLASTER Providing 13mm thick cement plaster (1:4) on soffits of cantilever slabs, sides and soffits of beams, slabs R.C.C and brick walls (using Lawrence pur sand) etc., in any floor including making edges, corners, curing staging and scaffolding etc. including cost of Providing and fixing chicken mesh with nails over all joints of walls with columns, beams and slab, complete as directed by the Engineer Incharge.	800	SFT		
04.	PLASTIC EMULSION Painting with (ICI/Berger Robbaliac/Nippon or approved equivalent) VIP plastic emulsion paint of approved shade two coats over primer applied over putty filled surface prepared with sand papering including the cost of one priming coat complete in all respect over plastered surface on walls and ceiling etc. at any	600	SFT		

	height and any floor or as directed by the Engineer Incharge.				
05.	GRAPHY Providing & laying 1st class Graphy on outers walls make approved shade on including the cost of making cracks-filling the holes, scaffolding if any at any height in any floor as directed by the in charge.	300	SFT		
06.	MS / STEEL DOOR Supply and fix steel door size 3.5'x7' press moulded sheet with pipe frame of 16 SWG for door with additional mesh door including frame outside of main door with complete frame including hold fasts, fixing etc. including the cost of enamel paint with complete finishing	01	Job		
07.	FIBER SHADE Providing and fixing of 3 ply fiber shade for door using 1"x1" iron pipe 18gage frame, with complete fixing in all respects size 5'x4' at door level	01	Job		
08.	CONCRETE ROOF SLAB Pouring of concrete (1:2:4) for roof slab including cost of p/f the steel 4# bar for shorter span and 3# steel bar for longer span with the spacing of @7 C/C, including the cost of fixing and its removal of frame work, curing, rain drain pipe etc complete in all respect.	200	SFT		

Turnkey System is complete with Civil, Mechanical, Electrical work, 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)

(To Be Included in Financial Bid at Bidder's Letterhead)

PRICE FOR 105 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	610 Wp Tire-1 PV Module N-Type monocrystalline, bifacial (Double Glass)	172					10 years replacement and 25 years performance
Three Phase PV Inverter	125 KW On-Grid with Wi-Fi Dongle	01					Five Years warranty
Data logger	Built In	01					Five Years warranty
PV Cables	Single core PV Copper DC Cable 6mm^2 XLPE/ PVC as per IEC 50618/62930	As per System					Five years warranty in case of Local
PV Elevated galvanized structure	Mild Steel Vertical beam / Columns (11G) & Horizontal Beams (16G), MS Angle Red Oxide with double quoted paint and C angle 14G galvanized with SS Nuts and Bolts	As per System					10 years warranty
AC Cables	04 Core 70 mm^2 Copper/PVC AC-Cable	300 ft (Approx)					Five years warranty

	As per BSS & IEC standard						
Permanent Earthing <10 ohms 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, SPDs & Energy Meter etc.	01					Five years warranty
Lightening Arrestors	Copper lightening arrestor with spike for radius coverage of as per roof area and with copper earthing rod 19mm^2 thick & 3 meter long	03					Five years warranty
Outside Main Disconnect	440V/250-A AC disconnect switch	01					Five years warranty
PV Gen Set Synchronization	PV Diesel Gen Set Synchronization system including controller, switching, cabling and Interfaces	01 set					Five Years warranty
Services	Design, Supply, installation, commissioning & Testing	01 Job					Five Years Warranty

Additional Works							
Installation & configuration	440V/250-A AC 3P-MCCB Brands: ABB, Schneider, Terasaki	02					Five years warranty
Cable Supply, Installation & Excavation Work	4 core x 150mm^2 Copper/PVC AC-Cable As per BSS & IEC standard	270 ft (Approx)					Five years warranty
Cable Supply, Installation & Excavation Work	4 core x 50mm^2 Copper/PVC AC-Cable As per BSS & IEC standard	350 ft (Approx)					Five years warranty
Cable Tray Supply & Installation	9” x 4” Perforated cable, hanging rods, nut/bolts complete in all respects	50 Rft					Five years warranty
Supply, Installation & configuration	440 V/400-A 3P-MCCB Brands: ABB, Schneider, Terasaki	03					Five years warranty
Mini Split AC, Supply, Installation & Configuration	1.5 Ton, Brands: Gree, Daikin, Midea						

CONSTRUCTION OF SOLAR INVERTER ROOM AT STRONG ROOM BUILDING ROOF					
Sr.No.	**Description**	**Qty**	**Unit**	**Rate**	**Amount**
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02.	BRICK MASONRY FOR PARTITION WALLS I) 9"~ 13.5" THICK WALLS Providing and laying first class solid burnt brick masonry, set in cement mortar (1:5) for arches in straight or curved wall 9”to 13 ½” (229mm to 343mm) thick including scaffolding, formwork and its removal, racking out joints and curing etc. including the cost of L shape bracket on every 8^{th} course complete in all respect or as directed by the Engineer in charge.	250	CFT		
03.	PLASTER Providing 13mm thick cement plaster (1:4) on soffits of cantilever slabs, sides and soffits of beams, slabs R.C.C and brick walls (using Lawrence pur sand) etc., in any floor including making edges, corners, curing staging and scaffolding etc. including cost of Providing and fixing chicken mesh with nails over all joints of walls with columns, beams and slab, complete as directed by the Engineer Incharge.	800	SFT		
04.	PLASTIC EMULSION Painting with (ICI/Berger Robbaliac/Nippon or approved equivalent) VIP plastic emulsion paint of approved shade two coats over primer applied over putty filled surface prepared with sand papering including the cost of one priming coat complete in all respect over plastered surface on walls and ceiling etc. at any	600	SFT		

	height and any floor or as directed by the Engineer Incharge.				
05.	GRAPHY Providing & laying 1st class Graphy on outers walls make approved shade on including the cost of making cracks-filling the holes, scaffolding if any at any height in any floor as directed by the Incharge.	300	SFT		
06.	MS / STEEL DOOR Supply and fix steel door size 3.5'x7' press moulded sheet with pipe frame of 16 SWG for door with additional mesh door including frame outside of main door with complete frame including hold fasts, fixing etc. including the cost of enamel paint with complete finishing	01	Job		
07.	FIBER SHADE Providing and fixing of 3 ply fiber shade for door using 1"x1" iron pipe 18gage frame, with complete fixing in all respects size 5'x4' at door level	01	Job		
08.	CONCRETE ROOF SLAB Pouring of concrete (1:2:4) for roof slab including cost of p/f the steel 4# bar for shorter span and 3# steel bar for longer span with the spacing of @7 C/C, including the cost of fixing and its removal of frame work, curing, rain drain pipe etc complete in all respect.	200	SFT		

TURNKEY PRICE FOR 105 kWP Solar On-Grid System = Pakistani Rupees_____

In words: _____

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

Notes:

1. ***Submit Price is Pakistani Rupees.***
2. ***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)***
3. ***Where manufacturer Name is not available write supplier name and do not leave any cell empty.***

Signed and stamped.

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