Corrigendum

To

Request for Proposal

For

ESTABLISHEMENT OF SOLAR PARK (1 MW) AT BRT CHAMKANI DEPOT

Issued on: December 11, 2024

Procurement No.: TPC/OPS/OCB/Solar-Park/2024-25/009

Client: TransPeshawar (The Urban Mobility Company)

Section II. Data Sheet

This section consists of provisions that are specific to procurement and supplement the information or requirements included in Section I (Instructions to Service Providers). In the event of conflict, the provisions contained herein shall supersede.

A. General

ITSP 1.1	The Client is: **TransPeshawar (The Urban Mobility Company)** The name of procurement: **Establishment of Solar Park (1 MW) at BRT Depot, Chamkani** Procurement No: **TPC/OPS/OCB/Solar-Park/2024-25/009**
ITSP 4.1	The Service Provider must be an Association of Persons (AoP) or company incorporated in Pakistan and registered with Registrar of Firms or Security and Exchange Commission of Pakistan (SECP). Joint ventures are not allowed.
ITSP 4.5	Apart from above stipulated under ITB 4.1, the Service Provider shall be/shall: i. Have a valid license of Pakistan Engineering Council (PEC) in the category C-4 or above with EE-11 Code of Specialization. ii. Registered with FBR for income and sales tax and reflected on Active Tax Payer List; iii. Registered with KPRA for sales tax on services; iv. Registered with Alternative Energy Development Board in ARE-V1/C-1 for net metering; v. As a minimum, the Service Provider's net worth for the last year calculated as the difference between total assets and total liabilities shall be positive. vi. Minimum average annual turnover (business) of PKR. 300 million calculated from submitted financial statements of last three (03) years (2021-23). vii. Successfully or substantially completed (at least 70% or above) at least one contract of similar nature, within last five (05) years (2019-24), having capacity of 1MW (-0.5%) or above. viii. not be blacklisted by any federal or provincial public entity in Pakistan, is neither insolvent nor bankrupt, is not in the process of winding up nor his/her properties are under the control of receiver nor his/her business activities have been suspended nor legal proceedings for any of the foregoing are imminent or have been initiated against him/her and has fulfilled all obligations under law for the time being in force.

B. Contents of Request for Proposal Document

ITSP 10.1	For **clarification purposes** only, the Client's address is: Attention: CEO TransPeshawar TransPeshawar (The Urban Mobility Company) First Floor KPUMA Building, Near Main BRT Depot GT Road Chamkani, Peshawar, KPK Pakistan

	Original Proposal Security shall in PKR to the amount of 2 % of the Financial Proposal Price (written in Financial Proposal Submission Form). Additionally, the service provider shall submit an Affidavit in Technical Proposal stating that 2% proposal security has been placed in Financial Proposal, without indicating the amount. Absence of an affidavit in Technical Proposal shall lead to rejection of proposal.
ITSP 24.1	In addition to the original, the Service Provider shall provide two copies of the Technical Proposal (one copy of technical proposal in hard and one copy of technical proposal in soft).
ITSP 24.2	The written confirmation of authorization to sign on behalf of the Service Provider shall consist of: Power of attorney/Authority to Submit Proposal on the format as provided for in Section IV (Standard Forms) specifying the representative's authority to sign the Proposal for and on behalf of, and to legally bind, the Service Provider.

D. Submission and Opening of Proposals

ITSP 25.1	Service Providers will not have the option of submitting their Proposals electronically.
ITSP 25.1 (d) & 26.1	For **Proposal submission purposes** only, the Client's address is: TransPeshawar (The Urban Mobility Company) First Floor KPUMA Building, Near Main BRT Depot GT Road Chamkani, Peshawar, KPK Pakistan **The deadline for Proposal submission is** **Date:** ~~December 23, 2024~~ January 07, 2025 **Time:** 11:30 AM (PST)
ITSP 29.1	The Proposal opening of Technical Proposals shall take place at: TransPeshawar (The Urban Mobility Company) First Floor KPUMA Building, Near Main BRT Depot GT Road Chamkani, Peshawar, KPK Pakistan **Date:** ~~December 23, 2024~~ January 07, 2025 **Time:** 11:45 AM (PST)

E. Evaluation and Comparison of Proposals

ITSP 36.4	The Price factor is: 30
ITSP 41.1	A margin of preference shall not apply.
ITSP 45	The Client reserves the right to vary the quantities in Section V (Schedule of Requirements) by plus or minus fifteen percent (15%).

qualification, professional experience and relevancy with the task for the assignment under Section-V. The bidder shall provide the information in relevant Standard Form in Section IV. The distribution of marks to assess the capability of each key personnel is as under;

a. Qualification and Certification (Maximum Marks 25)

Bachelor in relevant field (15 Marks) and Master or PhD in relevant field (20 Marks). Five marks will be given if the proposed resource has relevant technical certification.

b. General Work Experience (Any Project) (Maximum Marks 30)

20 Marks if the minimum number of years has been met, up to 30 Marks for additional work experience. 2 Marks will be allocated for each additional year over minimum number of years required.

c. Similar Work Experience (Solar Project) relevant to position proposed (Maximum Marks 45)

35 Marks if the minimum number of years has been met, up to 45 Marks for additional work experience. 2 Marks will be allocated for each additional year over minimum number of years required.

d. The total twenty-five (25) marks, positions and minimum qualification and experience requirements are elaborated below:

S#	Name of Position	Number	Minimum Requirement		
			Relevant Qualification	General Experience	Specific Experience (Solar)
1.	Project Manager	01	BS/BSc. (Electrical)	~~15~~ (10)	05
2.	Coordination Engineer	01	BS/BSc (civil/electrical/mechanical)	~~08~~ (05)	~~05~~ (03)
3.	Site Engineers-I	01	BS/BSc (Civil)	05	03
4.	Site Engineers-II	01	BS/BSc (Electrical)	05	03

Sr.	**Key Resource**	**Quantity**	**Max. Marks Each**
1.	Project Manager	01	12
2.	Coordination Engineer	01	08
3.	Site Engineers-I	01	2.5
4.	Site Engineers-II	01	2.5

2. Qualification

2.1 Eligibility

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
2.1.1 Incorporation					
Company or Firm incorporated/ registered in Pakistan with Registrar of Firms or Security and Exchange Commission of Pakistan (SECP).	Must meet requirement	Not applicable	Not applicable	Not applicable	Form ELI - 1 with attachments
Registered with Alternative Energy Development Board ARE-V1/C-1	Must meet requirement	Not applicable	Not applicable	Not applicable	Form ELI - 1 with attachments
Registered with Pakistan Engineering Council (PEC) in category C-4 with EE-11 code of specialization.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form ELI - 1 with attachments
2.1.2 Nationality					
Nationality of Pakistan	Must meet requirement	Not applicable	Not applicable	Not applicable	Form ELI - 1 with attachments
2.1.3 Conflict of Interest					
No conflicts of interest.	Must meet requirement	Not applicable	Not applicable	Not applicable	Technical Proposal Submission Form
2.1.4 Registration with Tax Bodies					
Registered with FBR for income and sales tax and reflected on active taxpayer list and Registered with KPRA for sales tax on services.	Must meet requirement	Not applicable	Not applicable	Not applicable	Relevant certificates attached with Form ELI - 1
2.1.5 Non-Blacklisting					
not be blacklisted by any federal or provincial public entity in Pakistan, is neither insolvent nor bankrupt, is not in the process of winding up nor his/her properties are under the control of receiver nor his/her business activities have been suspended nor legal proceedings for any of the foregoing are imminent or have been initiated against him/her and has fulfilled all obligations under law for the time being in force.	Must meet requirement	Not applicable	Not applicable	Not applicable	Self-declaration to the effect on stamp paper duly notarized by notary public attached with Form ELI - 1

2.2 Financial Situation

2.2.1 Historical Financial Performance

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Submission of audited financial statements for the last three (03) years (2021-23) to demonstrate the current soundness of the Service Provider's financial position. As a minimum, the Service Provider's net worth for the last year calculated as the difference between total assets and total liabilities shall be positive.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form FIN - 1 with attachments

2.2.2 Average Annual Turnover (Business)

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Minimum average annual turnover of PKR. ~~200~~ 300 million calculated from submitted Financial Statements of last three (03) years.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form FIN – 2 along with attachment

2.3 Experience

2.3.1 Contracts of Similar Size and Nature

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
A) Successfully or substantially completed (at least 70% or above) at least one contract of similar nature, within last five (05) years (2019-24) having capacity of 1MW (-0.5%) or above. B) The similarity of the contract shall be based on design, procurement, deployment, testing and commissioning of On-Grid Solar System 1MW (-0.5%) or above.	Must meet requirement	Not applicable	Not applicable	Not applicable	Form EXP - 1

FORM TECH 1
CONCEPTUAL DESIGN, DESIGN CRITERIA AND TECHNICAL DETAILS

The Service Provider shall define high-level architecture and functionality of the solar system in line with Schedule-V, "Schedule of Requirements" by submitting Form Tech 1. The Form TECH-1 shall be a maximum of 150 pages.

1. Understanding regarding core requirements, activities, constraints, objectives and goal of the project. Map out various components and features that will be required for successful development, testing, deployment, Operation and Maintenance of solar system in line with Section V, "Schedule of Requirements".

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

Understanding regarding scope of Services, including the specific features, functions, and capabilities that the system will need to include. Overall understanding of scope.

2. Conceptual Design of Mounting Structure

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

The Service Provider shall provide conceptual design of mounting structure (3D or video visualized) along with solar panel tilt and azimuth angles. The title angel of the mounting structure should be carefully selected to obtain maximum solar energy production while ensuring the structure integrity.

3. Complete Plant Electrical Design.

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

The contractor must provide a detailed electrical design layout for the solar power system, including the total number of solar panels and inverters. The design should specify the number of strings and their connectivity to the inverters, including the number of strings entering each MPPT. Additionally, the layout must clearly illustrate the wiring from the PV panels to the inverters and the electrical system, with all safety features such as earthing, protection devices, and surge arrestors properly integrated and shown in relation to the solar system. The design must be thorough and adhere to industry standards to ensure the safe and efficient operation of the solar power system

4. Solar Energy Production Estimation Requirements.

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

Provide an estimate of the annual energy production for a 1 MW solar power system, including a monthly breakdown of expected solar output. Software based simulation of the energy production shall be provided. Ensure that the projections are accurate within ±10%. How will you enable a thorough comparison between the solar energy generated and our monthly energy consumption to evaluate potential savings from the solar installation?

FORM TECH 2
Equipment and Certification of the Proposed System

This section shall not be longer than 150 pages. The Service Provider shall specifically describe the quality and features of the equipment, their functions, certification, life cycle cost etc. to improve efficiency, reduce costs, and enhance quality.

1. Equipment Specification, Brands and Performance:

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.] The Service Provider shall provider detailed list of items/equipment/components of the complete System and elaborate the specification, proposed brand and performance in one-to-one correspondence with Schedule of Requirements.

2. Cost Recovery Analysis and Life Cycle Cost impact over the period of 25 years:

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

3. Service Provider Partnership and Certifications

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

FORM TECH 3
PROJECT MANAGEMENT PLAN
(Implementation Strategy)

The Service Provider shall demonstrate over management of scope, schedule, cost, quality, resource, communication, risk, procurement and stakeholders and their integration to develop a Project Management Plan. The Project Management Plan should not be longer than 150 pages.

1. Method of Performing the Services (Method Statement)

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

The Service Provider is required to submit a narrative outlining the method of performing the Works. The narrative should indicate in detail and include but not be limited to:

i. The sequence and methods in which he proposes to carry out the Services, including the number of shifts per day and hours per shift, he expects to the Services.

ii. A list of all major items of constructional and erection plant, tools and vehicles proposed to be used in carrying out the Works at Site, including number of each kind, make, type, capacity of all equipment, machinery, working condition, which shall be deployed by him for Civil Work and Erection, Testing and Commissioning of the System, in sufficient detail to demonstrate fully that the System will meet all the requirements of the Technical Provisions.

iii. The procedure for installation of the System and transportation of equipment and materials to the site.

iv. Details regarding mobilisation, the type of facilities including personnel accommodation, office accommodation, provision for maintenance and for storage, communications, security and other services to be used.

v. Organisation chart indicating personnel involved in management, supervision and engineering of the Services to be done under the Contract.

2. Proposed Program (Work Schedule)

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

The Service Provider shall provide a programme, in line with Schedule of Requirements, in a bar-chart/CPM/PERT form showing the sequence of work items by which he proposes to complete the work of the entire Contract. The programme should indicate the sequence of work items and the period of time during which he proposes to complete the Works including the activities like designing, schedule of submittal of drawings, ordering and procurement of materials, manufacturing, delivering, construction of civil works, erection, testing and commissioning of Works to be supplied under the Contract.

3. With regard to quality management, the Service Provider shall describe how it will plan quality and how it will manage and control quality.

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

Describe performance measurement system with regard to project and product meeting Key Performance Indicators (KPI) and of contractual obligations. Describe relevant test to be conducted for the system and overall quality assurance and control processes.

4. Proposed organization.

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

The Service Provider shall list down key personnel involved in administration and execution of the Services during design, construction and operational phase together with their names, qualifications, experience, positions held and their nationalities.

5. With regard to operation and maintenance responsibilities, the service provider shall demonstrate on proposed organizational structure/regime to be adopted for maintenance, operation, repair, longer-term inspection, and rectification of identified defects including timeline and normal deterioration of the system.

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

6. SCADA or Remote Monitoring System and Reports

[Fill in the box. Use additional pages as necessary. All relevant responses to this item must appear here. If a key portion of the response also appears in a different section of your submission, reproduce it here as well, avoid incorporation by reference.]

How the proposed system is responding to monitoring and reporting requirements of the System.

Form ELI - 1: Service Provider's Information Sheet

Service Provider's Information	
Service Provider's legal Status (Firm/Company)	
Service Provider's Legal Name	
Service Provider's country of constitution	
Service Provider's year of constitution	
Service Provider's year of Registration with FBR (NTN & STRN) and KPRA	
Service Provider's year of Registration with PEC	
Service Provider's year of Registration AEDB	
Service Provider's legal address in country of constitution	
Service Provider's authorized representative/Signatory to Proposal (name, address, telephone number(s), fax number(s), e-mail address)	

Attached are copies of the following documents:

1. Certificate of registration/incorporation with Registrar of Firms or Security and Exchange Commission of Pakistan of the Firm or Company named above;
2. Authorization/Power of Attorney (on stamp paper duly notarized) to represent the firm or company named above, on Form provided in Section IV (Standard Forms) (Original);
3. Valid Registration with Alternative Energy Development Board;
4. Valid Certificate of Registration with Pakistan Engineering Council (PEC) in category-4 of above and with EE-11 code of specialization;
5. Certificate of Registration with FBR for income tax and Sales Tax (NTN &STRN) and reflected on active taxpayer list;
6. Certificate of Registration with KPRA for sales tax on services;
7. Certificate on stamp paper dully notarized by notary public to the effect that company is not blacklisted by any federal or provincial public entity in Pakistan, is neither insolvent nor bankrupt, is not in the process of winding up nor his/her properties are under the control of receiver nor his/her business activities have been suspended nor legal proceedings for any of the foregoing are imminent or have been initiated against him/her and has fulfilled all obligations under law for the time being in force. (original).

e) Pakistan being a signatory of Kyoto Protocol and other such agreements is taking measures to reduce emissions. Establishment of Solar Park in Zu Peshawar Project will contribute its part in clean energy generation and commitments in COP27.

4. OPERATOR/SERVICE PROVIDER REQUIRED SERVICES

This Schedule of Requirements specify the Required Services which broadly includes design, procurement, supply, installation, commissioning and provision of operation and maintenance services for establishment of Solar Park at BRT Chamkani Depot. The Service Provider shall be responsible for all costs of Required Services mentioned in RFP, Agreement, Schedule of Requirements and their annexures/ attachments. The Required Services have broadly two phases classified as follows;

A) Phase-I of the Required Services

This Phase includes design, procurement, supply, installation, commissioning and testing of Solar Park at BRT Chamkani depot. The major activities under this category are as follows while details specifications are given later in this document;

a) Design of Solar Park at BRT Chamkani Depot having capacity of 1 MW (-0.5%) in accordance with standard specification notified under applicable law;

b) Obtaining of Licensing for 1 MW (-0.5%) net-metering system from concerned Government department as per Applicable Law;

c) Procurement of equipment which are required for intended use of Solar Park and make it ready to use. This includes but not limited to Photo-Voltaic cells, weather station, inverter, ~~step-up transformer,~~ ~~Synchronization panel,~~ ~~Diesel Generator~~, SCADA / RMS system, cables, servers, lights, PV Genset synchronization ~~panels~~ module, all protection devices, earthing pit, bi-directional energy meters/ net-metering, interconnection facility, and any other equipment which is required for ready to use system;

d) Meeting all requirements (hardware, documentation, fees, software etc.) for Solar Park which are required by Distribution Company (PESCO), NEPRA or requirements of NEPRA (Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations, 2015 or any other relevant agency;

e) Engagement of approved Environmental Expert and allied tools/ services for estimation of carbon credits / saving of the project at inception of the project;

f) Power Factor Correction Panels of capacity UP to 500KVAR. The exact size of the PFI shall be calculated by the service provider after load assessment during the 3 month of commissioning period.

g) Removal of existing Street lights poles from depot and installation of under shed Canopy lights at BRT depot to achieve lux level of 100 Lm at ground;

h) Required civil (any room etc.,), mechanical and electrical works for establishment of Solar Park. The work also requires if any changes required in existing infrastructure (civil, mechanical, electrical etc.);

i) Construction of room for keeping safe all the invertors and other related electrical equipment including cooling system;

j) Provide six-month completion work Plan within 15 days of signing of the Agreement and mentioning delivery of equipment which shall not be beyond four (04) months from the date of signing of contract; and

k) Any other activity which is required for successfully commissioning and ready to use system.

l) Provision of following key human resource during design, development and deployment

S#			Minimum Requirement

	Name of Position	Number	Relevant Qualification	General Experience	Specific Experience (Solar)
1.	Project Manager	01	BS/BSc. (Electrical)	~~15~~ (10)	05
2.	Coordination Engineer	01	BS/BSc (civil/electrical/mechanical)	~~08~~ (05)	~~05~~ (03)
3.	Site Engineers-I	01	BS/BSc (civil)	05	03
4.	Site Engineers-II	01	BS/BSc (Electrical)	05	03

B) Phase-II of the Major Required Services

a) From date of Operation Notice, the Service Provider shall be responsible for all operation and maintenance of Solar Park for ten (10) years (Term), installed by Service Provider and other components required for its intended use;

b) All required insurances for accidental, and incidental damages to Solar Park;

c) Monitoring, maintenance & reporting of the Solar Park;

d) Responsible for preventive maintenance and corrective maintenance including cleaning of panels;

e) Replacement / repair of any system component or part required due to whatsoever reason;

f) Deployment of the required human resource, equipment, tools & tackles for monitoring & Maintenance; and

g) Other activity which is required for functioning of system as per SoR's.

5. LOW LEVEL DESIGN (LLD) APPROVAL

The Service provider shall submit to TransPeshawar LLD document for approval within 20 days from the Letter of Award. TransPeshawar accord approval within 15 days. However, the approval shall not relieve Service Provider from their obligation as mentioned or committed in RFP/ Tender Document, Technical Proposal, Agreement, Schedule of Requirements, Applicable Laws or any other document. The Low-Level Design shall include but not limited to:

a) Detailed Civil Structure Design for holding of Solar System

b) Detailed BOQ of Civil Structure and Equipment

c) Detailed Equipment List with brand / manufacturer, origin of country. The equivalency in standards is acceptable subject to substantiation.

d) Detailed Engineering Design / Layout of Solar System

e) Detailed Specification of each equipment and cables used in Solar Park

f) Calculation that the proposed PV panel or the design will generate 1 MW (-0.5%) energy

g) Justification of Equipment that how the system will work and useful for 25 years

h) Test to be conducted at commissioning/ completion.

i) Any other detailed required by TransPeshawar

6. HANDING OVER OF SOLAR PARK

6.1.1 The Solar Park established under this agreement will be handed over to TPC in running and healthy condition at end of Term in accordance with scope of this Agreement or in case of early termination.

6.1.2 If both parties do not agree to extend the Agreement, the Service Provider shall seek in writing a Hand Over Certificate (HOC) from the TPC at least 60 days before the expiry of the Agreement. The TPC will issue such a certificate within 45 days provided that the equipment handed over to TPC in good condition. Upon obtaining the HOC, the Service Provide shall be deemed clear of all obligations. However, until issuance of HOC which does not affect liability of Service Provider to keep System in fully operational condition even after expiry of Agreement, the Service Provider shall be bound to continue rendering O&M services, and the TPC shall continue to pay for such additional O&M Services. In addition, during this period, TPC and the Service Provider shall work jointly to solve any pending issues (if any). The Performance Guarantee and Final Invoice will be settled after HOC.

6.1.3 The performance of the Solar Park at end of Term shall be at least equal to the rated performance less depreciation at @ 0.75 % per year.

6.1.4 The Service Provider shall be responsible for warranty of all installed equipment during Term of the Contract.

7. SPECIAL OBLIGATION REGARDING DESIGN, PROCUREMENT AND INSTALLATION OF MOUNTING STRUCTURE

The Service Provider shall;

7.1.1 Design frame structure for solar panels in BRT Chamkani depot with minimum clearance height of 18 feet from ground level for circulation/ movement/ docking of buses. The purpose is to ensure buses circulation, parking and emergency repair from top of the buses;

7.1.2 Take prior permission from TPC for location of foundation/ structural columns, layout of structure, and submit other necessary details which may be required by TPC to grant approval. Furthermore, approval of final location of solar PV panels is mandatory requirements of agreement;

7.1.3 The structure design shall meet the intended purpose of Solar Park and at least meet the following requirements;

a) Mounting structure should be able to allow air circulation for cooling in high temperature and withstand highest wind speed of 150 Km per Hour.
b) The structure should have provision for ease of maintenance and accessibility for cleaning and repair or replacement of system components.
c) The frame structure shall have ~~suitable angle adjustment~~ a fixed angle.
d) Design shall be vetted by professional structural engineer (registered with PEC having Valid license).
e) Structure of the Solar Park shall have life of 25 years.

7.1.4 Be responsible for procurement, and erection of designed mounting structure;

7.1.5 ~~Be responsible for painting of structure which includes primer (red oxide) and two coats of enamel paint with colour as approved by TPC~~. The frame supporting panel shall be hot dip galvanized. All structural components, including C-channels, should be hot-dip galvanized with a minimum average thickness of 80 microns. To ensure optimal performance and longevity, no on-site cutting or welding is permitted. All fasteners, such as nuts and bolts, must be made of stainless steel;

7.1.6 Procure and install structure in accordance with best international practices for such systems;

7.1.7 Accommodate the requirements of bus operation/ circulation in design, procurement and installation with fair level of margin of safety of hitting the structure;

7.1.8 Safety precaution shall be fully observed in accordance with practices during installation for safety of workers;

7.1.9 Execute required civil and mechanical works which are required for Solar systems;

7.1.10 Plan and get approval from TPC for working in depot for storage of material, installation etc.;

7.1.11 Reflective strips shall be pasted on each solar structure column to enhance visibility;

7.1.12 Clear the site from debris, left-overs, material, etc. after completion of works.

7.2 Special Obligation Regarding Design and Installation of Solar Park

7.2.1 The Service Provider shall design to the extent required in the Contract, procure, install, commission, operate and maintain the System in compliance with the provisions of the Contract or, where not so specified, in accordance with good industry practice. The useful life of the equipment shall be 20 years.

7.2.2 The Service provider shall prepare LLD document, installation procedure, storage of equipment, equipment approval etc. from TPC.

7.2.3 The Service Provider shall provide compliance certificates for all equipment of the Solar System from third party independent accredited testing agency. Furthermore, the Service Provider shall be responsible for procurement, installation and commissioning of the Solar System including but not limited to labour, material, testing etc. TPC is authorized to interrupt during installation and authorized to verify equipment, detailed drawings, specification and should have the power to reject any work or materials, which are in TransPeshawar judgment are not in full accordance therewith. The Service Provider shall ensure given specification for Solar Park.

7.2.4 The Service Provider shall engage firm / individual to estimate environmental benefits of this Solar Park project and estimate reduction in carbon foot prints, reduction in greenhouse gases, carbon credits of the project and any other factors. TransPeshawar have the full right of claim against environmental benefits achieved from the project. The Consultant / service provide shall use standard procedure for estimation of environmental benefits / carbon credit estimation as approved by TransPeshawar.

7.3 Special Obligation Regarding Solar Park Components.

7.3.1 Photovoltaic (PV) Module

a) The photovoltaic (PV) module shall be Longi, Canadian, Astro-Energy, Jinko Solar, Trina, or equivalent. brand.

b) The total installed PV capacity must be no less than 1.0 MWp (-0.5%) (Megawatt-peak). All PV modules must be Tier-1 quality, and a wattage rating of 585 Watt or higher.

c) All PV modules comprising the 1 MWp (-0.5%) solar power plant must be identical in terms of brand, model, and technical specifications.

d) The PV module(s) shall contain ~~Mono~~ Bi-facial crystalline (PERC-N) silicon solar cells.

e) Submit as part of Low-Level Design (LLD) PV module make, model no, capacity, type, cell quality and certification from testing agencies. All the supportive valid, genuine and traceable documents must be provided

f) Provide PID free certificate.

g) The PV module have an ability to work well with high-voltage input Inverters/ charge controllers

h) The PV Panel must have clear anodized aluminium frame with Anti-reflection cover glass

iv) Inverter equipped with array ground fault detection option.

v) On-grid Inverters should have anti-islanded features built in and should continuously monitor the condition of the grid and in the event of grid failure; The solar system should be resynchronized within ~~two minutes~~ minimum possible time after the restoration of grid or DG set.

vi) Grid voltage should 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 should be disconnected from the grid within the set time. Both over voltage and under voltage relays should have adjustable voltage (50% to 130%) and time settings (0 to 5 seconds).

vii) The inverter control unit should 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.

viii) The inverter should be a true sine wave for a grid interactive PV system.

ix) The degree of protection of the outdoor inverter panel should be at least IP-65.

x) Typical technical features of the suggested inverters must mention as per following sequence.

- Continuous output power rating (1.1 times for 60seconds)
- Nominal AC output voltage and frequency
- Accuracy of AC voltage control ±1%
- Accuracy of frequency control ±0.5%
- Grid Frequency Control range +/- 3 Hz
- Maximum Input DC Voltage range
- MPPT Range DC
- Ambient temperature -10 deg C to 55 deg C
- 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 97%
- Liquid crystal display should at least be provided on the inverters front panel or on separate data logging/display device to display following

    a. DC Input Voltage
    b. DC Input current
    c. AC Power output(kW) and Energy harnessed in kWh
    d. Current time and date
    e. Time active
    f. Time disabled
    g. Time Idle
    h. Temperatures (C)
    i. Converter status

- Following should 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.)

xi) Nuts & bolts and the inverter enclosure should have to be adequately protected taking into consideration the atmosphere and weather prevailing in the area.

xii) Dimension and weight of the inverter should be indicated by the bidder in the offer.

xiii) All doors, covers, panels and cable exits should be gasketed or otherwise designed to limit the entry of dust and moisture.

xvi. Operation Mode:

a. 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 2 W per 5 kW.
b. Standby mode: where the control system continuously monitors the output of the solar generator until pre-set value is exceeded (typically 10 W).
c. Operational of MPP tracking mode: the control system continuously adjusts the voltage of the generator to optimize the power available. The power conditioner should automatically re-enter standby mode input power reduces below the standby mode threshold. Front panel should provide display of status of the inverter. The offered inverter must comply with following standards.
UL1741, IEEE1547, UL 1998, CE, EN 50178, EN 62109-1, EN 62109-2, EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12, FCC Part 15,
NEMA3R/ NEMA 3R, DIN VDE V 0126-1-1, ENEL Guidelines (DK 5940)
AS 4777, RD 1663/2000, RD 661/2007, EN 50178, IEC 62103, EN 55011,
IEC 61000-3-11, IEC 61000-3-12, IEC 61000-6-3

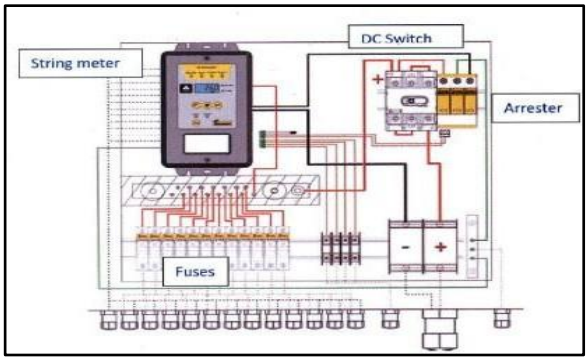
Note: Bidder should justify the specs with appropriate lab test reports/certifications from the principal manufacturer.

7.3.3 Junction Boxes

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 PV plant. The junction boxes shall have suitable arrangement for the followings.

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 inter connect the Solar PV array.
e) Junction Box shall be IP 66 with 1000 V(IEC) insulation class or higher ratings.
f) To include data collector for Monitoring System.
g) A DC string meter is integrated into a DC box to provide the capability of collecting the required data/information of string level.

The system diagram of junction box is shown below.



7.3.4 Wires and Cables

a) The cables shall be Pakistan cables, Fast cables or equivalent brands.

b) All DC Cables shall be XLPO/XLPO/Copper Tin Coated, while all AC cables shall be XLPE/PVC/Copper.

c) The main cable and LT cables of appropriate sizes from transformer/PESCO (Changeover switch) supply of all buildings to inverter rooms shall be 1.1 grade, heavy duty, stranded copper conductor, PVC type A insulated, galvanized steel wire/strip armoured, flame retardant low smoke (FRLS) extruded PVC type ST-1 outer sheathed. The cables shall, in general conform to IS-1554 P+I & other relevant standards.

d) External cables should be specifically adapted to outdoor exposure (see IEC 60811). Especially the outer insulation must be sunlight (UV)-resistant, weatherproof and designed for underground installation. Preferably tin coated copper UV resistant DC cables shall be used.
e) The temperature resistance of all interconnecting wires and cables should be > 75° C. The minimum acceptable cross-section of the wire in each of the following sub circuits is as in ISO IEC prescription:
f) All wiring should be color-coded (and/ labelled in case of service providers.)
g) All supplied wires must be in UV-resistant conduits or be firmly fastened to the building and/or support structure. Cable binders, clamps and other fixing material must also be UV-resistant, preferably made of polyethylene (for the case of service providers)
h) All connections should be properly terminated, soldered and/or sealed from outdoor and indoor elements. Relevant codes and operating manuals must be followed.
i) The cable rating should be explicitly mentioned in the technical document i.e. the size, current rating & voltage rating and ohmic drop information etc.
j) GI cable trays for DC, earth and communication cables to be placed as required.
i) All exposed wiring (with the possible exception of the module interconnects) must be covered in conduits/duct. Wiring through roofing, walls and other structures must be protected through the use of bushings.

j) No conduit or fitting shall be attached directly to thatch or any other non-supportive surface.

k) All wires must be terminated with proper end sleeves and wire thimbles with different colours for positive and negative polarity.

l) Size, voltage grade and manufacturer name should be printed on every cable.
m) The cable shall have 1000 V (IEC) insulation class or higher quality.
n) Cable specifications are as followed with BS/IEC standards compliance

7.3.5 ~~Diesel Generator &~~ PV-Genset Synchronizer/Controller

In the event of a grid outage, the PV plant and the existing 500KW generator need to work together seamlessly to ensure continuous power supply. ~~Both the DG set &~~ PV Genset controller/Synchronization ~~Panel~~ module shall be the responsibility of service provider. The system should allow the generator to start automatically, synchronize with the PV system, and then prioritize between solar generation and existing 500KW generator, When the grid power is restored, the system should switch back to the grid while turning off the generator. This scenario shall ensure that the PV system continues to generate power during grid outages by synchronizing with the generator. The generator provides initial backup power, but once the PV system is synchronized, it takes over most of the load, reducing the generator's output. When grid power is restored, the system switches back to grid-tied mode, turning off the generator and resuming normal PV operation. This process ensures uninterrupted power supply, fuel efficiency, and optimal system performance.

i. ~~The Diesel Gen-set shall be of an 100KW capacity to run the system smoothly~~.
ii. The Synch ~~Panel~~ module must be compatible with a ~~1 MW~~ solar power plant and generator
iii. Capable of synchronizing PV output with ~~both~~ the generator and the grid.
iv. Compatible with ATS for auto-start of the diesel generator
v. Ensure smooth transition between grid power, generator power, and solar power to avoid power interruptions.
vi. Compatible with the voltage levels of the solar PV system and the generator

7.3.6 Protections and Control

i. PV system software and control system should be equipped with islanding protection. In addition to disconnection from the grid (islanding protection i.e. on no supply), under and over voltage conditions, PV systems should be provided with adequate rating fuses, fuses on inverter input side (DC) as well as output side (AC) side for overload

and short circuit protection and disconnecting switches to isolate the DC and AC system for maintenance as needed. Fuses of adequate rating should also be provided in each string of solar module to protect them against short circuit.

ii. A manual disconnect switch beside automatic disconnection to grid should also be provided at utility end to isolate the grid connection by the utility personal to carry out any maintenance. This switch should be locked by the utility personal.

iii. Emergency switch should be part of scheme to disconnect the entire PV plant in case of emergency.

iv. The solar plant should be able to supply power to all faculties during the WAPDA outage.

7.3.7 Earthing& Protection System from Lightening

Earthing is essential for the protection of the equipment & manpower. Two main grounds used in the power equipment are:

- System earth
- Equipment earth

The complete set suitably designed Lightening protection and earthing system should be installed for 1.0MW (-0.5%) solar power plant. For this purpose, appropriate units of lightening arrestor shall be set up to sufficiently cover the radius of the power plant (as per site map) for its protection from lightening. These shall operate by acting as receptors capturing the lightening and defusing it before it reaches the PV or other sub-system components.

i. System earth is earth which is used to ground one leg of the circuit. For example, in AC circuits the Neutral is earthed.

ii. In case of equipment earth all the non-current carrying metal parts are bonded together and connected to earth to prevent shock to the man power & also the protection of the equipment in case of any accidental contact.

iii. To prevent the damage due to lightning the one terminal of the lightning protection arrangement is also earthed. The provision for lightning & surge protection of the SPV power source is required to be made.

iv. In case the SPV Array cannot be installed close to the equipment to be powered & a separate earth has been provided for SPV System, it shall be ensured that all the earths are bonded together to prevent the development of potential difference between two earths.

v. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earths are bonded together to make them at the same potential. vi. The Earthing conductor should be 1.56 times the short circuit current. The area of cross-section shall not be less than 1.6 sq mm in any case.

vi. The array structure of the PV modules shall be grounded properly using adequate numbers of earthing pits. All metal casing/ shielding of the plant shall be thoroughly grounded to ensure safety of the power plant.

vii. The Service Provider shall be responsible for the complete design, calculation, installation, testing, and commissioning of all necessary lightning arrestors and surge protectors to safeguard the entire solar power system against lightning strikes and electrical surges. These devices shall be compatible with the overall system design, meet or exceed applicable industry standards, and be adequately sized to protect all system components and serve the intended purpose of safeguarding the system against lightning and surge-induced damage. Detailed calculations and design documentation for the lightning/surge/earth protection system shall be submitted as part of the proposal.

7.3.8 Breakers for AC and DC Power:

a) Circuit Breaker Voltage rating must be greater than the maximum circuit voltage and current

8.6.1 TPC shall have the right to inspect random sample of 1% from whole lot of solar panels by laboratory testing at the University of Engineering and Technology, Peshawar (UET Peshawar), prior to installation at the service provider's cost and risk. These tests must be conducted to ensure that the panels meet all applicable industry standards and specifications.

8.6.2 TPC shall have the right to inspect and/or test the Services or any part thereof, as specified in the SOR, or specify such tests to be executed by the Service Provider, to confirm their good working order and/or conformity to the Contract at the Site at contractor risk and cost.

8.6.3 If the Services or any part thereof fails to pass any test and/or inspection, the Service Provider shall either rectify or replace such the Services or any part thereof and shall, at its own cost, repeat the test and/or inspection.

9. MONTHLY OPERATION REPORT

No later than 17:00 PM on the 3rd Business Day of each month, starting on the last Business Day of the first Calendar month after the Commencement Date, the Service Provider shall submit to TPC a report (if requested by TPC) on the Performance of its obligations under the Agreement during the previous month, covering at a minimum:

a) Energy Ledger;

b) Incident reports;

c) Detail record of all service, repair and maintenance;

d) List of tools, software, diagnostic equipment etc. maintained;

e) Performance on KPIs;

f) Items required by TPC for monitoring and performance evaluations; and

g) Other indicator as agreed between the Service Provider and TPC.

10. KEY PERFORMANCE INDICATORS

10.1 Liquidated Damages for Phase-I

For not achieving Operation Date, TPC shall encash the Performance Guarantee in the following manner:

a) Delay up to one (1) month beyond Commencement Notice- Deduct amount equivalent to 10% of the total Performance guarantee from Phase-I Payment.
b) Delay of more than One (1) month and up to two (2) months beyond Commencement Notice - Deduct amount equivalent to 30% of the total Performance Guarantee from Phase-I payment.
c) Delay of more than Two (2) months and up to three (3) months beyond Commencement Notice - Deduct amount equivalent to 60% of the total Performance Guarantee from Phase-I payment.
d) Delay of more than three (3) months from Commencement Notice - Deduct amount equivalent to the remaining Performance Guarantees from Phase-I Payment.
e) Delay in the timelines for over and above four (4) months beyond Commencement Notice will lead to create the necessary grounds for TPC for termination of Contract.
f) Liquidated damages of 1% of the Performance Guarantee per occurrence for any act/instance that is non-conforming or a violation of Contract, Schedule of Requirements, Rules or Regulations of TPC, instructions given by the TPC or violation of Protocol.
g) Non-availability of the any key staff as per the minimum proposed staff for more than a week shall be liable to be deducted equivalent amount of 0.25% per week of the total performance guarantee from Phase-I Payment.

ANNEXURE-D.

PAYMENT CALCULATION SCHEDULE

1. PAYMECH MECHANISM IN PHASE-I

TransPeshawar shall pay the Service Provider according to the categories and in the manner specified below in Phase-I.

1.1 Contract Price (Price Schedule No. 1) (Phase-I)

a) 10% of Contract Price of Phase-1 upon submission and approval of the engineering design (including both civil structure and electrical design);
b) 20% of Contract Price of Phase-1 upon supply, delivery and acceptance of the Solar structure material at BRT Chamkani Depot Peshawar. The invoice shall include Delivery Inspection Report, in accordance with equipment list provided with LLD;
c) 20% upon supply, delivery and acceptance of Solar electrical components and/or equipment at BRT Chamkani Depot Peshawar. The invoice shall include Delivery Inspection Report, third party/laboratory test certificates, equivalency certificates, if applicable, or any other documents required by TransPeshawar as per the contract, in accordance with equipment list provided with LLD;
d) Thirty percent (30%) of the entire Contract Price of Phase-I shall be paid against Installation at BRT Chamkani Depot Peshawar upon receipt of an invoice by TransPeshawar. The invoice shall include field test reports, inspection reports and any other documents required by TransPeshawar as per the contract;
e) Twenty percent (20%) of the entire Contract Price of Phase-I shall be paid against Completion and three months of satisfactory performance of Solar Park during commercial operation.
f) Payments shall be made promptly by TransPeshawar, but in no case later than thirty (30) days after submission of a valid invoice by the Service Provider.

2. MONTHLY PAYMENTS IN PHASE-II/ RECURRENT COSTS

TPC shall pay the Service Provider according to the manner specified below from Notice of Operation. For clarity, the Notice of Operation shall be issued upon Completion of the system.

For each Month (m) following Date of Operation Notice, the Service Provider shall be entitled to a payment (**Monthly Payment**) calculated in accordance with the following formula:

Monthly Payment $_m$ = **Kilowatt Hours ~~Consumed~~ Produced x Kilowatt Hour Charge x (1-Performance Payout Percentage) - RF**

Where:
Kilowatt Hour Charge means Kilowatt hour charge expressed in PKR and offered by the Bidder in Financial Proposal as a percentage of electricity rate notified by National Electric Power Regulatory Authority (NEPRA) for the category of General Services classified in

Category A-3a(66) and updated from time to time. The NEPRA rate for this category on September, 2024 is Rs. 43.64. This is calculated from the percentage quoted by the Bidder and is multiplied by the NEPRA rate (as updated from time to time).

Kilowatt Hours ~~**Consumed**~~ **Produced** means the number of Kilowatt hours actual ~~consumed by the ZU Complex~~ produced by the solar park and adjusted by PESCO in monthly bills. Readings from the bill received from PESCO or other mechanism decided by TPC shall be used for calculation. No compensation or charges shall be paid to service provider for units consumed/purchased from PESCO.

% Bid means the bid quoted by the bidder in Financial Proposal Form

NEPRA Rate means rate notified by NEPRA for the category of General Services classified in Category A-3a (66) as updated from time to time. The NEPRA rate for this category on September, 2024 is Rs. 43.64.

Performance Payout Percentage means ten percent (10%).

RF means any amount to be retained in relation to the provisioning of the Reserve Fund.

The Service Provider shall raise an invoice to the TPC for an amount equivalent to the Monthly Payment for Month (m) (plus any applicable Sales Tax on Services). The Monthly Payment for Month (m) shall be made by the TPC within twenty (20) Business Days of receiving such copy. TPC will notify Performance Deduction Percentage for Month (m) in accordance with the provisions of Operation Specification Schedule to the Service Provider for deduction from the Monthly payment in first 10 Business days of the Month. Service Provider will have right to defend the Performance Deduction Percentage to TPC. Monthly payment will be paid in local currency only.

3. Monthly Performance Payment

3.1 For each Month (m), the Service Provider shall be entitled to a payment (**Monthly Performance Payment**) calculated in accordance with the following formula:

$$\text{Monthly Performance Payment}_{m} = (1 - PD\%_{m}) \times MP_{m} \times \frac{PP\%}{(1 - PP\%)} - RF$$

where:
MP_m means the Monthly Payment which the Service Provider is entitled to for Month (m) excluding Reserve Fund.

$PD\%_m$ means the Performance Deduction Percentage applicable to the Service Provider for Month (m).

PP% means the Performance Payout Percentage, which shall be ten percent (10%).

RF means any amount to be retained in relation to the provisioning of the Reserve Fund.

3.2 Within ten (10) days of start of the month, TPC shall notify the amount of the Monthly Performance Payment. The Service Provider shall raise an invoice to TPC for an amount equivalent to the Monthly Performance Payment for Month (m) (plus any applicable Sales Tax on Services). The Monthly Performance Payment for Month (m) shall be made by the Fund Manager within five (5) Business Days of TPC receiving such invoice.

3.5 Subject to the fulfilment by the Service Provider of all of its obligations under this Agreement, the Performance Guarantee shall be released by TPC within thirty (30) days after the Termination Date.

3.6 All fees, taxes and expenses associated with preparing, providing, issuing, extending, replacing, replenishing or stamping (if applicable) of the Performance Guarantee shall be borne by the Service Provider.

4. Payment for Services

4.1 Payment to the Service Provider for the provision of the Services shall be made in accordance with the Payment Calculation Schedule.

4.2 TPC shall be entitled to adjust any amount in upcoming payment which are due to either Party.

4.3 Any payment to the Service Provider shall not constitute a waiver of any right held by TPC in respect of a breach of this Agreement by the Service Provider.

5. Tax

5.1 To the extent that the Services or any additional activities and/or services offered by the Service Provider pursuant to this Agreement are taxable, the Service Provider agrees to bear all Applicable taxes, charges, duties and/or tariffs by itself (Except Sales Tax on Services) and, upon request from TPC, provide proof that such obligations have been satisfied in full.

5.2 In respect of tax-exempt Services, if any, the Service Provider shall at all times be in possession of a valid tax clearance certificate and shall provide the same to TPC on an annual basis and to the extent that the Service Provider is not in possession of a valid tax clearance certificate, it shall immediately provide TPC with satisfactory proof of its application for such tax clearance certificate.

5.3 TPC may cease all payments to the Service Provider in respect of any period during which the Service Provider is not in compliance with the provisions of clauses 5.1 and 5.2 above. Upon such compliance by the Service Provider, TPC shall affect payment of all amounts that had been withheld pursuant to this clause.

PART B - THE SOLAR PARK

6. The Solar Park

6.1 1 Mega Watt Solar Park

6.1.1 The Service Provider shall design, procure, supply, install, commission Solar Park having capacity of 1 MW (-0.5%) and provide operation and maintenance services for the Equipment and Allied Facilities of Solar Park at its own cost.

6.1.2 For the duration of this Agreement, unless agreed otherwise in writing by the Parties, the Service Provider shall use the Solar Park solely for the provision of the Services in accordance with this Agreement.

6.1.3 Legal title and ownership of the delivered Solar Park (including all associated tools and equipment) shall be the property of TPC. ~~at the end of term.~~

6.1.4 The Service Provider shall not create or allow the creation of any Encumbrance in any manner of the Solar Park without the prior written consent of TPC.

7. Delivery, Operation and Maintenance of the Solar Park

7.1 The Service Provider shall design, procure, supply, install, and commission (Phase-I) Solar Park of 1 MW (-0.5%) capacity and provide Operation and Maintenance Services (Phase-II) the Solar Park as per Milestone and the Service Provider shall be obliged to accept such Milestone in accordance with this Agreement.

15.2 The Check-in and Check-out of Employees and Equipment from Depot shall be through SOP and with the written permission of TPC.

16. Monitoring of the Services

16.1 TPC shall be entitled to require regular written reports by the Service Provider in such reasonable form, detail and frequency as may be determined by TPC or to call meetings with the Authorised Representative of the Service Provider on reasonable notice, for any purposes regarding the performance of the Services and/or the implementation of this Agreement.

16.2 An Authorised Representative of TPC shall at all reasonable times be given access to the Solar Park, the Equipment, and any place where the Services (or any portion thereof) are being performed to satisfy itself as to the Service Provider's compliance with its obligations under this Agreement and for purposes of assessing the Service Provider's performance against agreed KPIs.

17. Provision of Financial Information

17.1 ~~For the duration of this Agreement, the Service Provider shall deliver to TPC audited annual financial statements of the Service Provider within One-fifty (150) days after each relevant Financial Year-end.~~

17.1 The Service Provider shall provide TPC with all information as TPC may be required to provide to any Regulatory Bodies, from time to time.

17.2 The Service Provider shall furnish to TPC, within three (03) Business Days of receipt by it of written demand from TPC, all such additional information as may be reasonably required by TPC from time to time.

17.3 The Service Provider shall notify TPC in writing, immediately (but in all events within seven (7) days) upon the occurrence of any of the following events:

17.3.1 if the Service Provider considers or resolves to seek any insolvency, bankruptcy or similar protection under Applicable Law.

17.4 If the Service Provider notifies TPC pursuant to clause 17.3, such notice shall set out the full details of the Financial Distress or the actual or proposed action, and TPC shall be entitled, without derogating from and/or diminishing any rights and/or entitlements it may have under this Agreement, under Applicable Law or otherwise, to do all things it deems necessary in order prevent any potential disruption to the Services.

18. Incident Reporting

18.1 Should the Service Provider become aware of events or circumstances which have prevented, are preventing or will prevent the Service Provider from providing the Services, the Service Provider shall immediately after becoming so aware, advise TPC of such events or circumstances and also indicate the manner in which the provision of the Services were, are or are going to be impacted.

18.2 In addition to any obligations under Applicable Law, the Service Provider shall immediately after its occurrence notify TPC or its Authorised Representative of any accident relating to the Services in which persons have been injured or killed.

18.3 The Service Provider shall be required to report all other incidents as may be further defined by a Protocol, excluding such incidents as described in clause 18.2 above, to TPC in writing within two (2) Business Days of the Service Provider becoming aware or where a prudent Service Provider should have reasonably become aware of the incident.

18.4 The Service Provider shall report:

18.4.1 any acts of vandalism or damage to the Solar Park;

18.4.2 the obvious need for replacement of Equipment; and

31.2.8 fails to obtain or maintain as required any of the necessary Operating Licences/permits to be used in the rendering of the Services or has such necessary Operating Licences withdrawn, cancelled, suspended or revoked; or

31.2.9 acts or attempts to act in a fraudulent or otherwise illegal manner in obtaining or executing a contract with any government department, provincial administration, municipality, public body, company or person; or

31.2.10 violates or attempts to violate any Applicable Law or otherwise commits any criminal act; or

31.2.11 enters into any agreement or arrangement, whether legally binding or not, with any other person, firm or company to refrain from formally responding to TPC's calls for proposals or the entering into of any negotiations with TPC in relation to this Agreement; or

31.2.12 Abandons, suspend services or otherwise repudiates the Services or any of its obligations under this Agreement; or

31.2.13 consistently fails to observe any provision of this Agreement or the Schedule of Requirements (despite being given notice in relation thereto), whether or not Liquidated Damages have been imposed, with the result that the Services may be regarded by TPC as being materially defective; or

31.2.14 incurs Liquidated Damages equal to or exceeding the maximum amount of Liquidated Damages as indicated in the Schedule of Requirements consecutively for few months.

31.3 If TPC:

31.3.1 commits a material breach of this Agreement (other than a breach of payment obligations) and fails to remedy the breach within ten (10) Business Days after receipt from the Service Provider calling upon it to do so; or

31.3.2 commits a breach of any payment obligation in accordance with this Agreement and fails without justification to make payment within thirty (30) Business Days after receipt from the Service Provider of a notice calling upon it to do so, then the Service Provider shall be entitled, in addition to and without prejudice to any other right it may have under Applicable Law or under the terms of this Agreement, to seek specific performance of the terms of this Agreement or to terminate this Agreement upon sixty (60) days' notice to TPC and in either event, to recover such costs, losses and damages as it may have sustained.

31.4 Termination for Convenience by the TPC:

31.4.1 During term of the agreement, TPC reserve the right to terminate the contract with the Service Provider without any cost and risk to the TPC, if per unit O&M cost of electricity produced through solar reaches to 80% of the NEPRA applicable tariff at that time for a period of one year. The O&M vs NEPRA cost assessment shall be conducted on quarterly basis.

31.5 In the event of termination of this Agreement:

31.5.1 TPC shall be entitled to immediately take possession of Solar Park and the Service Provider shall be required to surrender its Operating Licences/permits and do all things necessary to transfer ownership of the Solar Park and other assets required for the performance of the Services to TPC; and

31.5.2 TPC may immediately appoint auditors to check and verify all relevant books, records and other data of the Service Provider and the Service Provider shall give full cooperation in that regard and make all such information available to TPC on request.

1.1.52 "**Regulatory Body**" means any governmental, semi-governmental, administrative, fiscal or judicial ministry, department, commission, authority, tribunal, agency, municipality or body, and shall include the provider of electricity, gas, water, wastewater, telecoms and other such public services, and anybody with a regulatory function under the Applicable Law;

1.1.53 "**Reserve Fund**" means the fund to be established as a security in accordance with clause 22;

1.1.54 "**Service**" or "**Services**" means the design, procurement, supply, installation, commissioning and provision of maintenance and operation services and/or any other services to be rendered by the Service Provider on the terms and conditions of this Agreement including Annexures;

1.1.55 "**Service Notice**" means a notice given to the Service Provider by TPC in accordance with this Agreement;

1.1.56 **"Solar Park"** means the frame structure and Solar system established by the Service Provider to generate 1 MW power (-0.5 %) and includes all equipment mentioned in Schedule of Requirements as well as Allied Facilities;

1.1.57 **"Solar System"** means the equipment installed by Service Provider as approved by NEPRA to generate 1 MW (-0.5 %) energy in line with Distributed Generation and Net-Metering Regulation, 2015;

1.1.58 "**Surviving Provisions**" means clauses 1 (Preliminary Matters); 31 (*Breach and Termination*); 32 (*Dispute resolution*); 34 (*Intellectual Property*); 37 - 57 (*Part J - Final Provisions*) and this Annex A;

1.1.59 "**Termination Date**" means the tenth (10^{th}) anniversary of the Date of Operation or the date on which an earlier termination pursuant to the terms of the Agreement takes effect;

1.1.60 "**Uniform**" means the uniform to be worn by those Employees of the Service Provider required to fulfil their duties in view of members of the public, as prescribed by TPC and includes the name tag issued to each Employee by Service Provider;

1.1.61 "**Warranty**" means the warranties and undertakings given to TPC by the Service Provider, set out in clause 28;

1.1.62 "**Week**" or "**Weekly**" means the period commencing at 00h00 on Monday and ending at 24h00 on Sunday each calendar week.

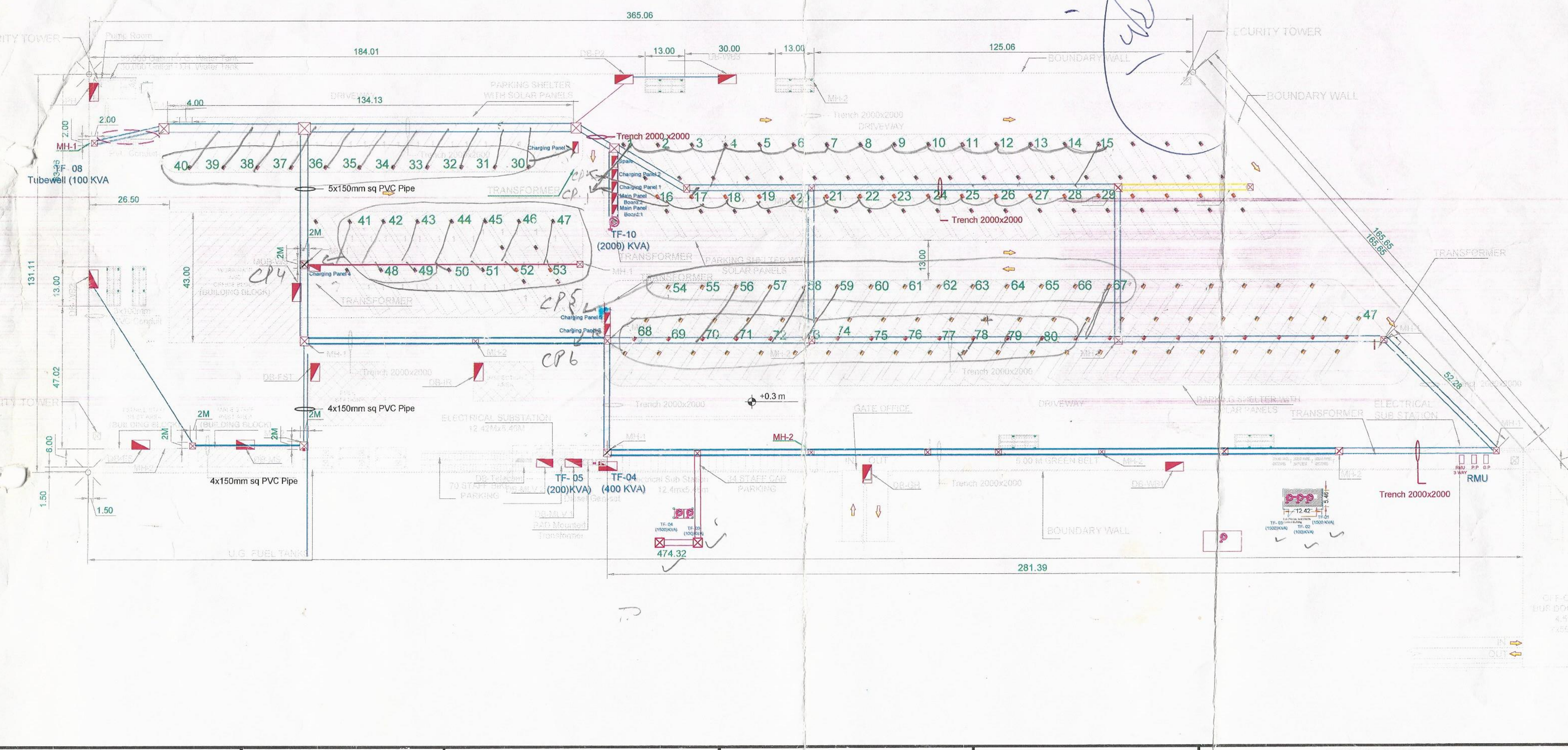
1.1.63 **"ZU Complex"** means Chamkani Station, Zu Business Centre, Chamkani Depot, KPUMA Building and STP area and surrounding areas of these buildings;

2. Interpretation

2.1 In the Agreement:

2.1.1 in the event of conflict between the Annexes and the provisions of this Agreement (excluding the Annexes), the provisions of the Agreement shall prevail;

2.1.2 any definition in this Agreement, shall bear the same meaning and apply throughout this Agreement including Annexes hereto, unless otherwise stated or inconsistent with the context in which it appears;



365.06
SECURITY TOWER
Pump Room
184.01
13.00
30.00
13.00
125.06
BOUNDARY WALL
DB-P2
PARKING SHELTER WITH SOLAR PANELS
DRIVEWAY
134.13
4.00
2.00
MH-1
TF 08
Tubewell (100 KVA
Trench 2000x2000
Charging Panel 1
Charging Panel 2
Main Panel Board 2
Main Panel Board 1
TF-10
(2000) KVA)
5x150mm sq PVC Pipe
26.50
TRANSFORMER
Charging Panel 4
Charging Panel 5
Charging Panel 6
MH-1
MH-2
2M
43.00
131.11
13.00
47.02
6.00
1.50
1.50
DB-FST
DB-IR
4x150mm sq PVC Pipe
ELECTRICAL SUBSTATION
12.42Mx5.49M
TF- 05
(200)KVA)
TF-04
(400 KVA)
474.32
U.G. FUEL TANK
+0.3 m
GATE OFFICE
DRIVEWAY
PARKING SHELTER WITH SOLAR PANELS
ELECTRICAL SUB STATION
TRANSFORMER
165.65
52.28
5.00 M GREEN BELT
DB-GH
DB-WB1
RMU
Trench 2000x2000
12.42
5.46
281.39
IN
OUT

LEGENDS:

- Earthing
- Electrical Manhole
- Transformer
- RMU
- Telecom Distribution Board
- Electrical Distribution Board

trench 2000x2000

trench 2000x2000

trench 2000x2000

trench 2000x2000

trench 2000x2000

trench 2000x2000

Bore Type Earth

Rod Type Earth

Tube Well

TF - 06
TubeWell (200 KVA

Wash Bay

TF-09
Future (KVA)

MLV

TF-10
(2000) KVA)

TF-07
Future (KVA)

TF-11
Future (KVA)

4x150mm sq PVC Pipe

TF-05
(200)KVA)

TF-04
(400 KVA)

(1500x2)KVA

(200 KVA)

TF- 03
(400)KVA)

TF- 02
(100)KVA)

TF-01
(630 KVA)

RMU

SECURITY TOWER

BOUNDARY WALL

TRANSFORMER