

PRE-QUALIFICATION DOCUMENT
Firms for Provision of
50 Watt, Solar Energy Systems



November, 2019

Project Management Unit
Tribal Area Development Project
Government of the Punjab



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Introduction

1.1 Tribal Area Development Project (TADP) (**hereinafter referred to as “THE EMPLOYEEE”**) has been established by the Planning and Development Department, Government of Punjab, with a total cost of Rs.8,959 Million and envisages improvement of social and physical infrastructure of tribal areas situated in Dera Ghazi Khan and Rajanpur Districts, thereby reducing poverty and enhancing the income generating capacity of the tribal inhabitants.

1.2 The tribal belt is spread over an area of 10,350 Sq. Km bordering Dera Ismail Khan District of KPK on Northern side, Kashmore District of Sindh on Southern side and Districts of Barkhan and Mousa Khail of Baluchistan on Western Side. The area serves as a buffer zone between these districts and settled areas of Punjab. The tribal belt is situated on Koh Suleman range of mountains and the terrain is very difficult to access due to the mountainous nature. The difficulty in access has caused serious flaws in service delivery of Health, Education, Agriculture and Livestock Sectors. The area is divided into ten (10) union councils (Berote Mandwani, Mithwan, Fazla Katch, Barthi, Theekar, Mubarki, Tuman Khosa, Tuman Leghari Zareen, Tuman Leghari Bala and Mut Khund) and nine tumans/ tribes reside in these union councils with the total population of 246,660. (*Source: Population Census 2017*)

1.3 The Employer intends to provide technical guidance and support to the Community Organizations (COs) for purchase of 50 Watt Solar Energy Systems (with standardized specifications by the Energy Department) from pre-qualified supplier/ firms/ companies of the national repute.

- 1.4 Evaluation of Pre-qualification Applications;
- a. An applicant, whose prequalification application, is determined by the employer to be responsive and as per meeting the Pre-qualification Criteria, specified in section 3 shall be designated as a “Pre-qualified Bidder”
 - b. An applicant, whose prequalification application, is determined by the employer to be non-responsive and as not meeting the Pre-qualification Criteria, specified in section 3 shall be designated as a “Non Pre-qualified Bidder”

2. INSTRUCTIONS TO APPLICANTS

2.1 Application for pre-qualifications (one original and five (5) copies must be received in the sealed envelope to be delivered by hand or through registered mail to;

**Community Development Specialist,
Tribal Area Development Project, (TADP)
House No. 347, Opp. Govt. Girls Model School, Gadai
Quetta Road, Dera Ghazi Khan.
Email: pdtadp@gmail.com**

2.2 The application for Pre-qualification be delivered not later than 15.00 hours on December 12, 2019 (Pre-qualification Application Deadline date) and be clearly marked as “Application for Pre-qualification for 50 Watt Solar System”.

2.3 Application shall be submitted using Application Form (A-1 to A-6) annexed with the document

2.4 The name and mailing address may clearly be mentioned/ marked on the envelope

2.5 Application must be submitted in English Language and all relevant forms may be filled out in English, or English translations be annexed. Non compliance of the same would result in disqualification of the applicant.

2.6 Applicant must respond to all questions and provide complete information as advised in this document (Application Forms A-1 to A-6). Failure to provide the information may result in disqualification of the applicant.

2.6 The Employer reserves the right to cancel the prequalification process and reject all applications without liability or obligation to inform Applicants.

3. **PREQUALIFICATION CRITERIA**

3.1 Applicants shall be evaluated on the following criteria set out below regarding financial soundness, experience and technical strength (as demonstrated by the Applicant's response in the Application Letter (A-1) and Application Forms (A2 to A6) annexed with this document)

Sr.#	Financial Soundness (20 Points)		
		Max Score	Positive Score (Mandatory)
F-1	Average Annual Turnover (Last 3 financial years) < PKR 100 Million = 0 Points >= PKR 500 Million = 10 Points values in between shall be prorated	10	05
F-2	Average Net Profit (Last 3 financial years) < 0% = 0 Points > 10% = 10 Points values in between shall be prorated	10	05

Sr.#	Experience (30 Points)		
		Max Score	Positive Score (Mandatory)
E-1	Time since commencing operation < 1 year = 0 Points > 5 year = 10 Points values in between shall be prorated	10	5
E-2	Previous experience of completing similar projects in Pakistan in last 10 years < 10 Million = 0 Points >=100 Million = 10 Points values in between shall be prorated	10	

E-3	Previous Working in Tribal areas of Dera Ghazi Khan and Rajanpur < 1 year = 0 Points >= 5 year = 10 Points values in between shall be prorated	10	
Sr.#	Technical Strength (15 Points)		
T-1	Office in Dera Ghazi Khan or Rajanpur < 1 Years = 0 Points >= 5 Years = 5 Points values in between shall be prorated	05	
T-2	No of Technical and qualified Personal =< 5 Employees = 0 Points >= 10 Employees = 10 Points values in between shall be prorated	10	

3.2 Sample 50 Watt Solar System

The firm shall supply a sample of 50 Watt solar system to the PMU for examination and standardization. In case of shortlisting/ pre-qualification of a firm/ supplier, all systems shall be as per the standardization given in **Annex-A. Prototype Solar systems of 50 watt shall be provided as sample**, if found below standardized specification, will result in disqualification of the applicant.

Sr.#	Sample 50 Watt Standardized System (35Points)		
S-1	50 Watt sample standardized system as per the specifications attached with the Pre-Qualification Document (100% compliant with the standards provided to the PMU)	35	35

Note: Prototype system would be got tested at the Government Approved Institute/ UET.

3.3 A short-list of (7) highest ranked Applicants or less, scoring more than a minimum of 70 Points shall be established for further process, as per the document.

3.4 Applicants shall submit, with appropriate referring in Application Form where required, the following documents as proof of its eligibility.

3.5 All incomplete applications or applications with false/ fabricated information would be rejected.

3.6 All documents/ applications received after the last date/ time would be rejected and would be returned un-opened to firms/ suppliers.

3.7 TADP reserves the right to reject all bids or proposals at any time prior to the acceptance of a bid as per Rule No.35 of Punjab procurement Rules 2014.

3.8 **Documents Required:**

- a) Copy of registration with Security & Exchange Commission or Registrar of Firms.
- b) Copy of Memorandum & Article of Association, if required.
- c) Copy of National Tax Number (NTN) certificate.
- d) Complete company/ firm profile.
- e) Address of office in D G Khan, if any and since when.
- f) List of similar works completed by the firm during last five (5) years (duly certified by the employer that the work was successfully completed) and similar works in hand.
- g) Certificate/ affidavit that the firm has not been blacklisted or debarred by any Government/ Autonomous Body.
- h) Demand draft of Rs:1,000/- in favour of the Project Director, Tribal Area Development Project (TADP), Dera Ghazi Khan or copy of cash deposit receipt of Pre-qualification charges from PMU office in the said account.

3.9 **Procedure of Procurement by Community Organizations from the Pre-Qualified Firms/ Suppliers:**

- a) The firm/ suppliers would be shortlisted/ Pre-qualified by the Employers, as per the requirements given in this document.
- b) The Employer, would notify the list of the shortlisted firms/ suppliers to the Community Organizations (COs), with approved energy sub-project.
- c) The community organizations, having an approved solar sub-project from the Tribal Area Development Project, would directly place orders of procurements would enter in the agreements directly from the shortlisted firms/ suppliers.

- d) The shortlisted/ prequalified firms/ suppliers, who enter into agreement with the community organizations, would supply the standardized 50 Watt Solar Systems to the community organizations.
- e) The companies shall provide solar systems, as per the Prototype sample approved by the Project, failure of which would result is complete replacement of the lot at the cost of the supplier
- f) The technical committee of Tribal Area Development Project would inspect all the units before delivery to the community organizations.
- g) Periodically random samples would be got tested at Government approved Institute/ UET at the cost of the supplier
- h) The community organizations would make payments directly to the supplier out of the joint account opened with co-signatory of Community Development Consultant (NGO).
- i) The payment would be made two (2) installments to the supplier by the community organization.

(COMMUNITY DEVELOPMENT SPECIALIST)

Tribal Area Development Project
Dera Ghazi Khan

General, Financial and Managerial Inquiries	
Contract 1	Telephone 1
Contract 2	Telephone 1

Technical Inquiries	
Contract 1	Telephone 1
Contract 2	Telephone 1

4. This application is made with the full understanding that:
- a) Bids by pre-qualified Bidders will be subject to verification of all information submitted for prequalification at the time of bidding.
 - b) TADP reserves the right to reject or accept any application, cancel the prequalification process, and reject application; and
 - c) TADP shall not be liable for any such actions or consequence of and shall be under no obligation to inform us of the ground for actions at 5(b) here above.

[Applicants who are not joint ventures should delete para 5 & 6]

5. Appended to this application, we give details of the participation of each, including capital contribution and profit/loss agreements, to the joint venture or association. We also specify the financial commitment in terms of the percentage of the value of the contract, and the responsibilities for execution of the contract.
6. We confirm that in the event that we bid, that bid as well as may resulting contract will be
- a) Signed so as to legally bind all partners, jointly and severally; and
 - b) Submitted with a joint venture agreement providing the joint and several liability of all partners in the event the contract is awarded to us.
7. Appended to this application are the documents indicated by the checklist below. We accept that missing documents may result in our disqualification from the prequalification process.

Document checklist	
Registration Certificate/ Certificate of incorporation ²	
Memorandum an Articles of Association (If applicable)	
Audited financial statements <ul style="list-style-type: none"> • FY 2016-17 • FY 2017-18 • FY 2018-19 	
National Tax number certificate	
Income tax return <ul style="list-style-type: none"> • FY 2016-17 • FY 2017-18 • FY 2018-19 	
Sales Tax Registration certificate	
Reference letters from two clients	

8. The undersigned declare that the statements made and the information provided in the duty completed application are complete, true , and correct in every detail .

Signed	Signed
Name	Name
For and on behalf of (name of Applicant or lead partner of a joint venture)	For and on behalf of (name and signature o other partners of the joint venture)

²For application joint ventures, all the information request in the prequalification documents is to be provided for the joint venture, if it already exists and for each party to the joint venture separately. The lead partner should be clearly identified. Each partner in the joint venture shall sign the letter.

General Information

[Application or each partner of a joint venture applying for pre-qualification is required to complete the information in this form.]

1	Name of Firm	
2	Head Office Address	
3	Telephone	Contact Person: Name: Title:
4	Fax	Telex
5	Place of Incorporation/ registration	Year of Incorporation/ registration
6	No. of permanent employees	No. of permanent professional staff
7	Other officers Employees	City Country
	1.	
	2.	
	3.	
	4.	
	5.	

Joint Venture/ Consortium Summary

Name of all Partners of a Joint Venture/ Consortium
1. Lead Partner
2. Partner
3. Partner
4. Partner
5. Partner
6. Partner

Financial Information

Name of Applicant or partner of a joint venture

[The information supplied should be supported with audited financial statements of the Applicant of lead partner of a joint venture]

Year	Annual Turnover	Currency	Reference
FY: 2016-17			
FY: 2017-18			
FY: 2018-19			

Year	Net Profit	Currency	Reference
FY: 2016-17			
FY: 2017-18			
FY: 2018-19			

Details of Contractors

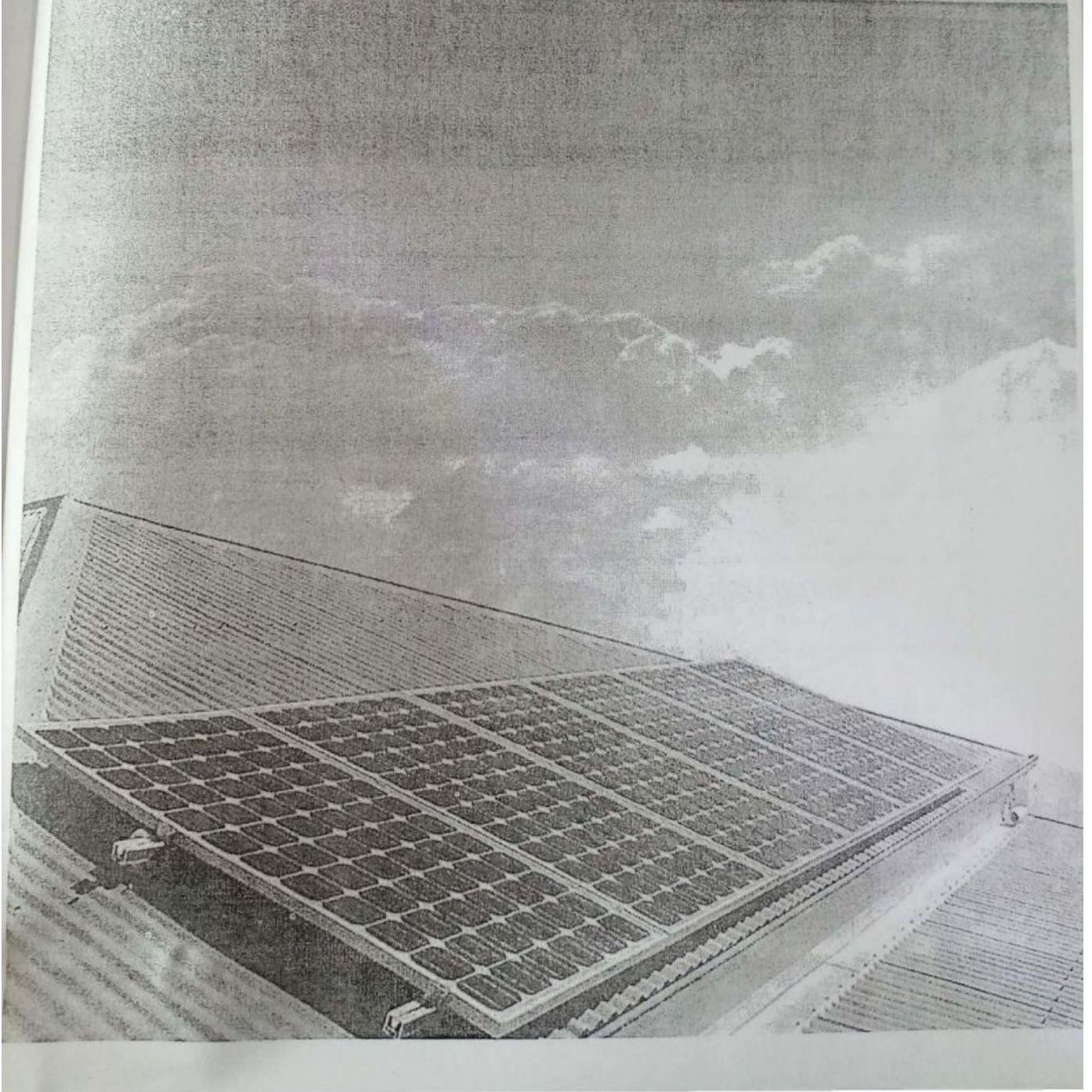
Name of Applicant

[Use a separate sheet for each contract]

1	Name of Contract
	Location
2	Name of Employer
3	Employer Address
4	Nature of work and similarity to this project
5	Contract Role (Tick One) (a) Sole Contractor (b) Sub-Contractor (c) Partner in a Joint Venture
6	Value of the total contract (in PKR) at completion or at date of award for current contract
7	Date of Award
8	Date of Completion
9	Contract Duration (Years and Months) Years Month
10	Contract Requirements
11	Reference ¹

¹Each copy of form from A-5 must be accompanied by a reference letter from respective employer

Technical Specification of Standardization of 50Wp Solar System



1. Photovoltaic Module

Parameters	Min. Specifications required
Module Make	Brand should be verifiable
PV Module model No	
PV Module origin	
PV Module Capacity	50 watt or above
PV Module Type	Mono/Polycrystalline
Cell Quality	A Grade
Efficiency	≥ 15% or higher for Poly
Power Tolerance	Must be +2 or more
Operating Temperature	-40°C to +85°C
Temperature Coefficient	-0.43%/°C or less
Bypass Diode	1 or more
Bus Bar	2 or higher
Certification	IEC 61215, IEC 61730, IEC61701 ED2 or equivalent
Frame	Must Withstand 5400 PA Load
Junction Box	IP 65
Cable	4mm ² (IEC)/12Awg(UL), 1000mm
Connectors	MC4 or Comparable

2. PV Inverter

Parameters	Min. Specifications required
Inverter Make	Brand should be verifiable
Inverter model No	
Inverter origin	
Continuous Output Load Capacity	
Surge Capacity	500Watt or above
Inverter Type	800Watt ~ 1000Watt
No Load Power Consumption	Modified sine wave
Grid Input (AC)	Less than 3 watt
Input Voltage Range	Preferable
Frequency	180-260VAC
AC Output	47-51Hz
Output Voltage Range	Modified sine wave/Step sine wave
Frequency	220-230VAC
Standby power consumption	50Hz
Efficiency	≤ 10Watt.
Switch/Transfer time	≥90%
Battery	≤ 10ms
Battery Charge Control unit	Built-in Charge controller (preferable)
Charge Controller	PWM (MPPT is preferable)
Nominal Battery Voltage	12/24VDC
Battery Charging Current	(10 – 20) A
Standard Compliance	RoHS compliant per directive 2011/65/EU/ CE/IEC 62103/IEC 60664-1/VDE 0126-1-1/EN 5038
Protections	<ul style="list-style-type: none"> ▪ Short Circuiting ▪ Surge Protection ▪ DC reverse polarity protection <p>Input</p> <ul style="list-style-type: none"> ▪ Over voltage (Grid) ▪ Over voltage (PV) ▪ Over voltage (Battery) <p>Output</p> <ul style="list-style-type: none"> ▪ Over voltage (AC) ▪ Over charging voltage (Battery)
Operating temperature	0 to 45°C
Humidity	10 ~ 90%RH

3. Battery

Parameters	Min. Specifications required
Battery Make	Brand should be verifiable
Battery model No	
Battery Origin	
Battery Type	AGM
Battery Capacity(Ah)	65Ah or higher, 12Volt
Battery Life Cycle	1000 or higher
Depth of Discharge (DOD)	50%
Self-Discharge	The maximum permissible self-discharge rate is max.5% percent of rated capacity per month at 25°C.
Relief Valves	Self-regulating pressure relief valve
Operating temperature	-5°C ~ 50°C
Batteries tested and certified in accordance with	IEC60896-21/22, ISO9001(TUV), DIN43539-T5, IEC61427, DIN40742, CE, TL, Storage Standard GB/T 22473
Manufacturing Date	≤2Month
Performance guarantee	At least 2 years
Brands (equivalent or better)	Narada, Fiamm, Haze, Trojan, Concordia, Sacredsun or better.

4. Cabling

1. 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. Wiring through roofing must form a waterproof seal (applicable for wiring only).
2. For conduit and duct flexible PVC material with ½ inch size must be used.
3. Field-installed wiring must be joined using terminal strips or screw connectors. Soldering or crimping in the field must be avoided if at all possible. Wire nuts are not allowed. The rated current carrying capacity of the joint must not be less than the circuit current rating. All connections must be made in junction boxes. Fittings for lights, switches, and polarity sensitive socket outlets may be used as junction boxes where practical.
4. All wiring shall be color coded and/or labeled.

	Description
Battery housing	Inverter.
Harness	Should be in a vented compartment that prevents users from coming in contact with Battery terminals.
Dimensions	Enclosure should have neat and clean appearance and have good harness even inside.
Finishing	Should be calculated according to the Inverter and Battery size for proper and easy operation and maintenance.
	The sides of the Enclosure and its compartments must be closed and opened through screws for easy installation and maintenance.
	The sides of enclosure must be strip overlapped for safety and protection from rain.
	There should be a proper arrangement of ventilation especially for Inverter.
Screen Printing	Enclosure casing must be screen printed of all the components installed on the enclosure like switches, sockets, fuses and indications name.
Indications	There should be some indication for PV, Battery, Inverter and load ON/OFF with their name.
Enclosure must have followings connectors, Sockets and switches.	

Sockets for DC connection

S.no	Description	Qty
1	PV Input socket (with reverse polarity protection)	01
2	DC LED light socket (with reverse polarity protection)	04
3	USB for mobile phone charging	01

Sockets for AC connection

S.no	Description	Qty
1	Inverter AC output socket for Energy Saver and fan etc.	01

Switches

S.no	Description	Qty
1	Battery ON/OFF	01
2	Inverter Input ON/OFF	01
3	Mobile, Energy saver and Fan ON/OFF.	01

Note:

5. Installation including wiring shall meet the requirement and recommendations given in 8.3 of IEC 62124 ed 1.
6. The commissioning and acceptance will be subject to the fulfillment of all requirements specified in the above mentioned paragraphs of IEC62124 ed.1 and additional requirement as detailed below.
7. No conduit or fitting shall be attached directly to thatch or any other non-supportive surface
8. Especially avoid to install the conduit direct over the roof, there must be distance not less than 3 inch between the roof surface and conduit/duct.
9. Cables must be joined by the use of uncton boxes, screw-connectors, and block connectors.
10. All wires must be terminated with proper end sleeves and wire thimbles with different colors for positive and negative polarity.
11. Field installed wiring must be joined using terminal strips or screw connectors. Soldering or crimping in the field must be avoided if at all possible. Wire nuts are not allowed.
12. The rated current carrying capacity of the joint must not be less than the circuit current rating.
13. Fittings for PV, lights and battery must be with polarity sensitive socket outlets to avoid short circuiting.
14. Cable specifications are as followed.

Item	Requirement
1. PV to inverter:	4mm ² or higher, 99.99% pure copper (Stranded and flexible)
2. Grid to inverter:	40/0.76 or higher, 99.99% pure copper (Stranded and flexible)
3. Inverter to Load D.B:	40/0.76 or higher, 99.99% pure copper (Stranded and flexible)
4. Inverter to Battery:	4mm ² or higher, 99.99% pure copper (Stranded and flexible)

5. Enclosure/Cabinet for Inverter and Battery

	Description
Enclosure Material	M.S sheet
Gauge	SWG 16 or better.
Color	Enclosure must be Powder coated (Black or computer texture color) with lacquer coating.
Opening and Closing	Must be separate and isolated for Battery and

- Circuit Breaker Voltage rating must be greater than the maximum circuit voltage and current rating must be between 125% - 150% of the maximum design current for the circuit.
- Switches must have a clear visual indication of their state(ON/OFF or I/O)

Fuses

S.no	Description	Qty
1	Battery	01
2	PV module (HRC type)	01
3	DC LED light	01
4	Mobile, Energy saver and Fan ON/OFF.	01

Note: Fuse Holders must be used on outside the enclosure for easy replacement.

6. PV Mounting Structure

Description	Requirement
Structure material	Mild steel
Material Gauge	SWG 10 or less
Wind loading	Mounting system should be able to allow air circulation for cooling in high temperature and withstand wind speed of 180 Km/hour at 3 sec gust
Adjustable mounting structure	Angle adjustment between 28° -40°
Material surface protection	Mounting structure should be Galvanized not less than 90 microns.
Operation and maintenance	Structure should be accessible for personnel to allow regular cleaning of the solar module

7. LED Lights

1. 3x4W LED lamps shall be used.
2. The luminous efficiency of the light, must be 90 lumens/watt with 5 lux at the distance of 2 meter, with any reflectors, lenses, covers or grids (if used) in place; The light would white soft, without black bands and glares, light should be constant throughout the duty cycle. The Lamp electronics efficiency should not be less than 80%, angle of deflection 120deg with minimum 50,000 hours life.

3. Light fittings must be insect proofed and corrosion and weather protected. The lamp should be housed in: an assembly, suitable', for. indoor: use with an appropriate heat sink to dissipate heat generated during operation. -The temperature of LED should not be increased more than 10° above, room temperature
4. Light fittings must be marked with the manufacturer, model number, rated operating voltage, rated current and date of manufacture or batch number.