PROJECT PROPOSAL FOR INSTALLATION OF INDIVIDUAL SOLAR ROOF TYPE POWER PLANT

30 KW PV system at Chennai

Customer : Shree Mithai (P) Ltd.

Location : No. 39/1A,
Poonamallee Bypass Road,
Poonamalle, Chennai, 600 056

CUSTOMER	PARTNER
Shree Mithai (P) Ltd. No. 39/1A, Poonamallee Bypass Road, Poonamalle, Chennai, 600 056	JJ PV SOLAR PVT LTD Survey No.236, Plot No.2, Village: Veraval (Shapar), Taluka: Kotda Sangani Rajkot-360 024. Gujarat (India)

JJ PV SOLAR

CONTENTS

1. INTRODUCTION

COMPANY PROFILE

JJ PV SOLAR PVT LTD Is Manufacturer of crystalline solar PV modules, Integrators & Service providers of Solar PV Systems. We have collaboration with European technology providers, our world class team has decades of PV industry experience, a unique development approach & innovative proprietary processes that enable us to deliver leading edge solar module performance wild cutting the cost of the PV value chain.

Vision:

Our vision is to become the global leader in manufacturing & providing high quality and cost effective complete solar system & solutions that will provide clean, reliable & grid-competitive electric power around the world.

Mission:

Our mission is to continue to help expand the global solar energy industry to make solar power a clean, reliable & reachable energy source for everyone in the world.

Core Value:

We always believe and follow our core values of
Teamwork
Sincerity
Passion
Commitment

Our Milestone

- Solar PV Modules are approved by MNRE & IEC (TUV).
- Channel Partner with MNRE
- Solar ROOF TOPSystem is also approved By MNRE & NSIC.
- System integrator & Channel Partner for Off-Grid PV Solar Programme under JNNSM
- ISO 9001:2008 Company
- ISO 14001:2004 Company
- Registered under NSIC.
- Electrical Contractor License Holder (Gov. of Gujarat)

We are dedicated to provide the best PV solutions through innovative business approach, operational excellence & technological experts.

2, SCOPE OF WORK

JJ PV is providing the Turnkey solution for roof top solar photovoltaic power plant which will include,

- System Design & Engineering
- Supply of all project related material (Such as PV modules, inverters, control panels etc.,)
- Civil activities which shall consist of pedestal and cable conduit fittings.
- Installation & commissioning of all electrical components
- Project planning & controlling
- All the technical support & documentation required for statutory and regulatory approvals will be supported by JJ PV SOLAR PVT LTD.

The activities that JJ PV SOLAR PVT LTD, shall exclude from its scope of work are as follows:

- Area preparation for plant set up
- Preparation for Manpower and material moment
- Cutting / Trimming the trees nearby installation area to avoid shading
- Statutory and regulatory approvals from the local or relevant authorities for plant set up and commissioning
- Awareness programmes for Renewable Energy.

3. SYSTEM DESIGN

Customer Requirement

The Customer is *interested* to install *Off Grid SOLAR ROOF TOP system for electricity purpose.*

Proposed Technology

The solar ROOF TOP system here is consisting of Multi crystalline solar modules with fixed angle mounting systems and the solar inverters shall be of off grid system without battery backup.

Benefits of Proposed Technology

The benefit of crystalline technology as compared to other existing technologies is as follows;

- It occupies less area when compared to other thin film technologies
- Proven technology over years
- Proven Long-term performance (25 Years)
- Abundant semiconductor materials to support high volume production and demand.
- High volumes of production facilities throughout world

4. DESIGN SUMMARY

Solar ROOF TOP system for 2KW system

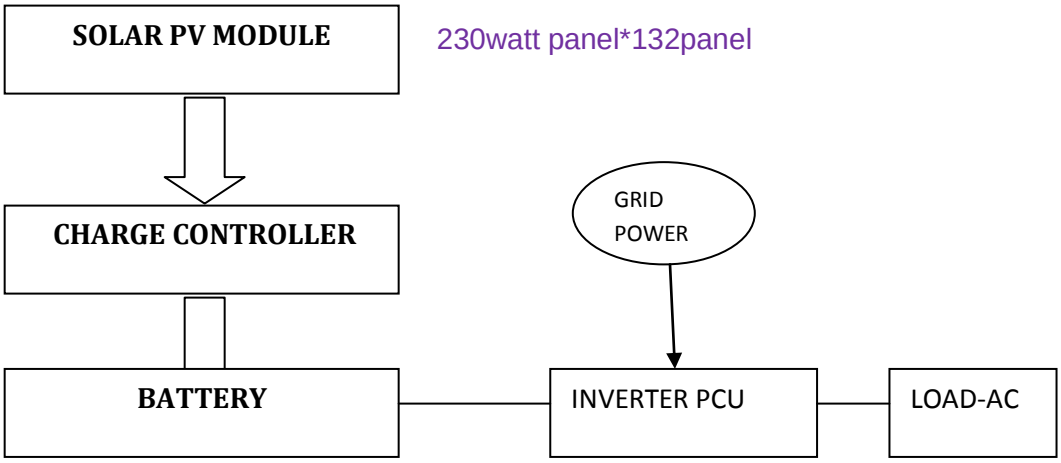
Site	No. 39/1A, Poonamallee Bypass Road, Poonamalle, Chennai, 600 056
Location	Latitude –13.0800° N, Longitude – 80.2700° E
Module Facing	South(MANUAL Tracking)
Module Tilt Angle	13°
Horizon	Free Horizon
Near Shading	No shading
No. Of modules in series	11
No. Of modules in parallel	12
Total No. Of Modules	132 (Module Wattage = 230 WP each)
Battery Bank	12V 150Ah*20set
Inverter	30 KW
Nominal Operating collector Temperature (NOCT)	45°C

** Note:

The above values are indicative for the location based on the radiation data. The actual data may vary depending on the site conditions.

5. SYSTEM DESCRIPTIONS

System Block Diagram



General:

Solar-ROOF TOP System consists of many sub systems. The major sub systems in the system are:

- Solar PV Module Array
- PCU
- CHARGE CONTROLLER
- Module Mounting Structure
- Cables, Earthing
- Electrical Distribution Board /isolator/Controller
- Cable

Each of the sub systems has been described for the functionality and operation modes. The physical construction of the system follows a modular approach, which is field-tested and is regularly used for delivery of power systems.

Solar PV Modules / Array:

Solar cells produce direct current from light, which can be used to power equipment or to recharge a battery. Cells require protection from the environment and are usually packaged tightly behind a glass sheet. When more power is required than cells are electrically connected together to form photovoltaic modules. A photovoltaic module is a packaged interconnected assembly of photovoltaic cells, which converts sunlight into electrical power. The cells are hermitically sealed between glass and back cover (Toddler) to protect them from harsh environments.

The detail technical specifications of both types of modules are provided below.

Module Mounting Structures:

The module mounting structure is designed for holding suitable number of modules in Series/Parallel. The frames and leg assemblies of the module mounting structures is of Mild Steel power coated of suitable sections of Angle, Channel, Tubes or any other sections . All hardware considered for fastening modules with this structure are of very good quality of GI or powder coated MS. The module mounting structure is designed in such a way that it will occupy minimum space without sacrificing the output from SPV panels at the same time it will withstand severe wind speed up to a maximum 120 KMPH.

Technical Specification – Module Mounting Structures

Material	MS Powder Coated
Coating	Black colour, 15 micron Powder coating
Tilt angle	FIXED
Foundation	PCC for roof top fixing
Hardware	GI or MS with powder coating

Monitoring System:

Not required, however warranty includes regular check up with system overall functionality.(IN BUILTS)

Cables:

The size of the cables between array interconnections, array to junction boxes, junction boxes to Isolator and ROOF TOP etc., is so selected to keep the voltage drop and losses to the minimum.

Technical Specification – Cables

Type	PV Insulated, sheath & UV resistance
Material	Copper
Voltage	Max. 1100V
Test Voltage	650V/1.1KV
Temperature	10 – 70 °C
Colour	Red/ Black / Green

The bright annealed copper conductors that offer low conductor resistance, they result in lower heating thereby increase in life and savings in power consumption. These wires are insulated with a special grade PVC compound formulated and manufactured in-house. The skin coloration offers high insulation resistance and long life.

Earthing:

Earthing: The array structure of the PV Panels will be grounded properly using adequate number of Earthing kit. All metal casing / shielding of the plant shall be thoroughly grounded to ensure safety of the Solar ROOF TOP system.

PCU

MAKE : Enertech /consul(As per MNRE standard) equalling

Capacity : 30 KW

Dc volts : 240

Output : 415V.

Battery: EXIDE

- 12v , 150Ah *20 sets
- 12 volts cells ,c/10
- 5 years warranty.
- With battery Rack.

6. SYSTEM CONFIGURATION

The major components of the proposed solar ROOF TOP system are as follows:

Sr. No.	Item	Description
1	Module	Poly Crystalline solar modules each of 230 Watt X 132 panel Make : JJ PV Solar
2	Structure	Fixed Mounting
3	INVERTER	30 KW
4	battery	12v 150 Ah
5	Cables	PVC Cu Cables
6	Accessories	Accessories for cable interconnection & installation kit & conduits
7	Earthling	Earthling kit

Data sheet ofJJPVSolar module

Characteristic	Value
Open-Circuit Voltage (Voc)	37 V
Maximum Power Voltage (Vmp)	29.2V
Short-Circuit Current (Isc)	8.4 A
Maximum Power Current (Imp)	7.9 A
Maximum Power	230 Wp
Efficiency	15%
Power Tolerance	+3%
Temperature coefficient of Pmax	-0.44%/Kelvin
Temperature coefficient of Voc	-2.13 mV/Kelvin
Temperature coefficient of Isc	4.46 mA/Kelvin
Operating Temperature	47± 2

Following is the system bill of material

Solar Power pack system (30 KW - Off Grid system)				
Sr. No.	**Description**	**Technical Description**	**Quantity**	**Remarks**
1	Panels 30000 WP	230 W X 132 panel ,IEC ,MNRE Approved	1 Set	
2	Module Mounting Structure	M.S.Poweder/G.I Coated fixed.	1 Set	
3	Array Junction	IP-55	1 Set	
4	Main Junction Box	IP-65	1 No.	
5	Inverter 30 KW	30 KW Pure Sine Wave	1 Set	
6	Battery 2V cells	12V 150Ah	020 Set	
7	Charge Controllers	Inbuilt	1 Set	
8	Battery Stand	With Fiber Coating	4 Nos	
6	Earthing and Lighting Kit	Standard Make	1 Set	
7	Inter connection cable & Parts	ISI, TUV Approved cable	1 Set	

7, Cost of the system

Load Pattern	Load (Wp)	Cost (Rs)
30 KW roof top system	30000W	4800000
Government Subsidy 30%		1440000
Cost after subsidy		336000

8 WARRANTY CLAUSE

1 **Two Year warranty of the system**

2 **Additional three years comprensive maintenance contract free of cost.**

3 **Total service contract including warranty and comprensive maintenance contract is five years against any manufacture defect.**

NOTE:- Natural calamities, Theft, fire , wrong handling , damage and other incident to solar power plant is not cover under warranty/Annual maintenance contract/Comprensive maintenance contract.

9. CONTACT DETAILS

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SITE PHOGRAPHS

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