Techno-Commercial offer-
For 5MWp Roof mounted Solar PV Plant at Rajasthan

Project Name	5MWp Roof Mounted Solar Power
Customer Name	OPPL SPV CG PVT LTD
Supplier Name	Oriana Power Pvt. Ltd.
Product/Solution	5MWp Roof Mounted Solar
Offer reference /Rev.	OPPL/RFP/21-22/650/(Rev. 0)
Offer date	01/03/2023

Introduction

Date: 1st Mar, 2023

To,

Rupal Gupta,
OPPL SPV CG Pvt Ltd
Noida

Subject: Techno-commercial offer setup of 5MWp Roof Mounted Grid Tie Solar PV plant at multiple locations in Rajasthan.

Dear Sir,

Thank you very much for your interest in our product & solutions.

ORIANA POWER is a MNRE approved channel partner and an industry leader in **Solar EPC / Design & Supply of BOS (Balance of System – Module Mounting Structure, LT/ACCB/ACDB/DCCB Panel, Weather Monitoring Sensors, LA, Earthing, Cable Tray etc.)** for PV Solar Plant in India. Through our inhouse production facility for most of the components, ORIANA POWER has emerged as a leader with their best in class product available in the market. Our products are developed as per the international standards applicable in all the products. We believe in optimization and innovation and same is our primary focus. As on date we have delivered world class projects (more than 20MW Total Installed capacity) with our products.

ORIANA POWER is an associate company of Trinix Impex & BCS Switchgear Industries. We have been servicing the market more than two decades with highly qualified & experience workforce.

In addition to supply of various components, we do have Engineering Design & Execution Team to offer you complete package of BOS supply and I&C together to optimize the cost and share the benefits together.

ORIANA POWER has got wide product range for all categories of solar application exist in market i.e. Ground mount/ RCC Roof/ Industrial Roof/ Car Parking/ Custom solutions.

With Pride ORIANA would like to name our key clients – NISE-MNRE, CREST, C&S Electric, SOLARIS, AZURE, AMP SOLAR, ACME, RENEW POWER, JAKSON, SANKALP, SAURYA ENERTEC, HERO FUTURISTIC ENERGIES, SUNSOURCE, many more..

Please find enclosed our techno-commercial offer for quotation for supply of **design, supply, erection , commissioning of 5MWp DC Roof Mounted Grid Tie Solar PV plant**. The offer consists of detailed technical specifications of our product/services as well as a price overview. In choosing Oriana Power's product and our dedicated support, you are taking advantage of our short lead times and optimized run-up times. In addition, our products are designed to provide the greatest technical availability and yield, which ensure relevant end product quality and low cost of ownership.

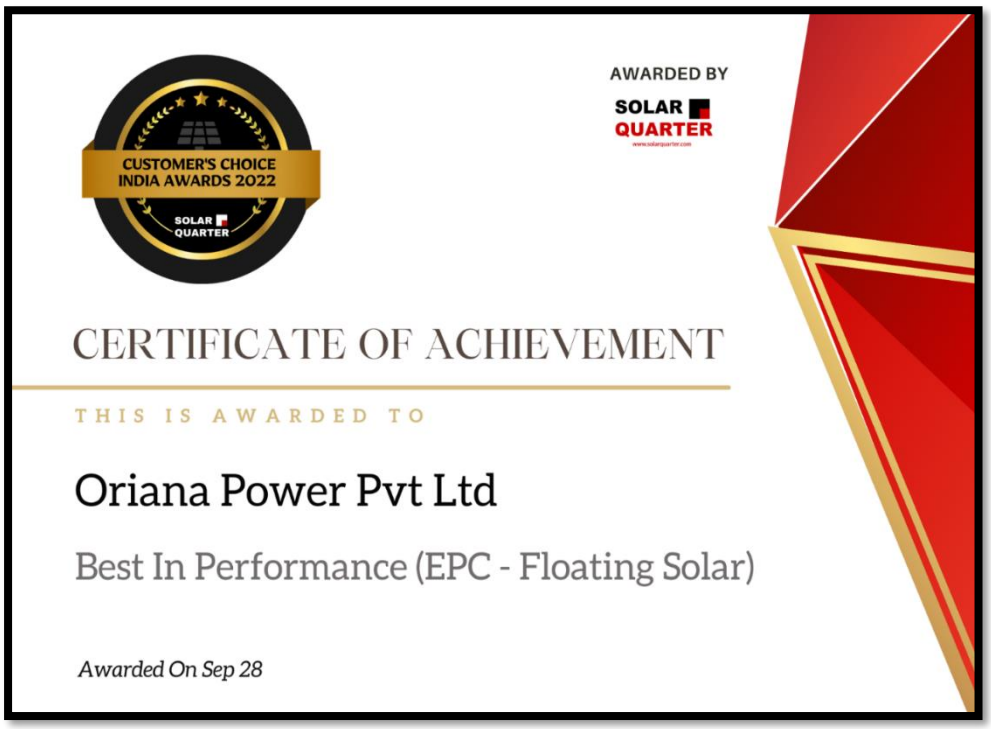
We look forward to your response and are at your full disposal if you require any further information.

Harshit Pundir,

Business Development

+91-88025 78929

Company Recognition



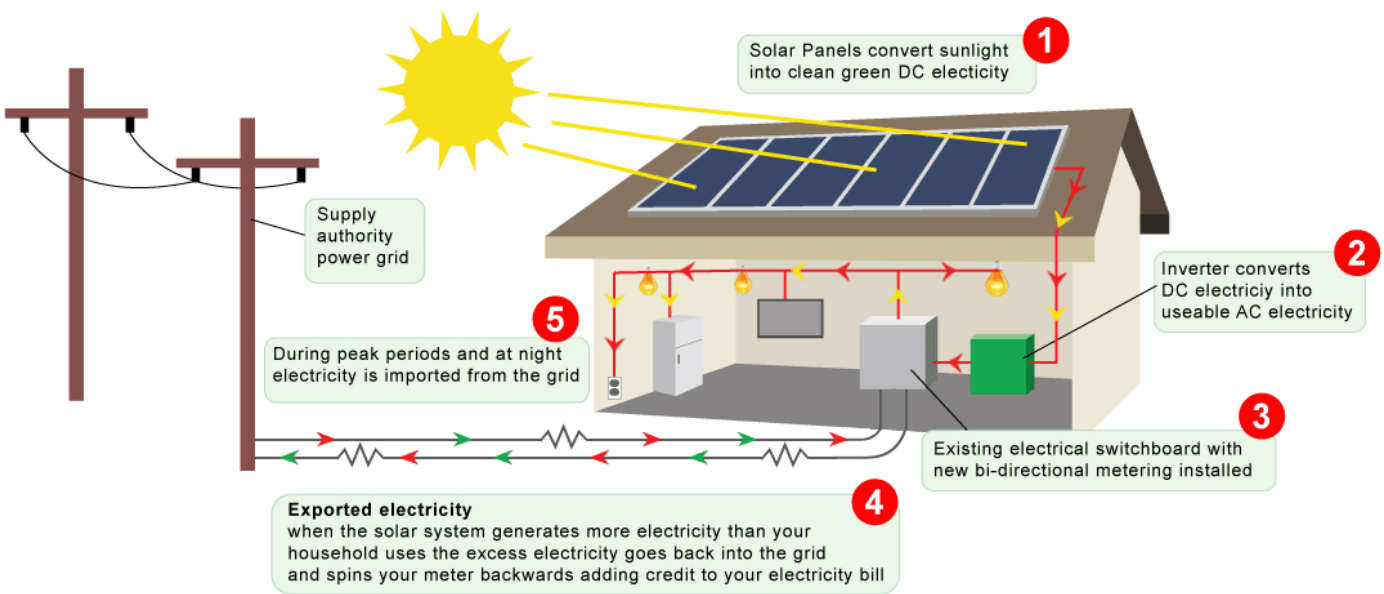
1. Solar Energy Introduction

Solar energy is radiant light and heat from the Sun that is harnessed using a range of ever-evolving technologies such as solar heating, photovoltaics, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis.

It is an important source of renewable energy and its technologies are broadly characterized as either passive solar or active solar depending on how they capture and distribute solar energy or convert it into solar power. Active solar techniques include the use of photovoltaic systems, concentrated solar power and solar water heating to harness the energy. Passive solar techniques include orienting a building to the Sun, selecting materials with favorable thermal mass or light-dispersing properties, and designing spaces that naturally circulate air.

A photovoltaic system, also PV system or solar power system, is a power system designed to supply usable solar power by means of photovoltaics. It consists of an arrangement of several components, including solar panels to absorb and convert sunlight into electricity, a solar inverter to change the electric current from DC to AC, as well as mounting, cabling, and other electrical accessories to set up a working system. It may also use a solar tracking system to improve the system's overall performance and include an integrated battery solution, as prices for storage devices are expected to decline. Strictly speaking, a solar array only encompasses the ensemble of solar panels, the visible part of the PV system, and does not include all the other hardware, often summarized as balance of system (BOS). Moreover, PV systems convert light directly into electricity and shouldn't be confused with other technologies, such as concentrated solar power or solar thermal, used for heating and cooling.

PV systems range from small, Rooftop/Ground-mounted or building-integrated systems with capacities from a few to several tens of kilowatts, to large utility-scale power stations of hundreds of megawatts. Nowadays, most PV systems are grid-connected, while off-grid or stand-alone systems only account for a small portion of the market.



Operating silently and without any moving parts or environmental emissions, PV systems have developed from being niche market applications into a mature technology used for mainstream electricity generation. A Rooftop/Ground system recoups the invested energy for its manufacturing and installation within 0.7 to 2 years and produces about 95 percent of net clean renewable energy over a 25-year service lifetime

2. Solar PV Modules

Photovoltaic solar panels absorb sunlight as a source of energy to generate electricity. A photovoltaic (PV) module is a packaged, connected assembly of typically 6x12 photovoltaic solar cells. Photovoltaic modules constitute the photovoltaic array of a photovoltaic system that generates and supplies solar electricity in commercial and residential applications.

Each module is rated by its DC output power under standard test conditions (STC), and typically ranges from 100 to 350 Watts (W). The efficiency of a module determines the area of a module given the same rated output – an 8% efficient 230 W module will have twice the area of a 16% efficient 230 W module. There are a few commercially available solar modules that exceed efficiency of 20%.

A single solar module can produce only a limited amount of power; most installations contain multiple modules.

Mechanical & General

Dimensions

Given in inches and/or millimeters, a module's size determines how many can fit in a given space, whether on a roof or on a ground- or pole-mount. If rack information is also known, the number of rows and each row length can be determined, based on the space intermodule clips add between modules (typically 1/2- to 1-inch per gap). Many manufacturers will also diagram the appropriate rail positioning for their modules, such as how much of the module can overhang the rails, and whether rails can cross the module in a landscape or portrait orientation or both.

Area

Simply width times length, the area of a module is useful for checking power density. The total module area can be used along with site-specific data to calculate wind uplift forces and thus lag bolt requirements, or to calculate weight loading on a structure.

Thickness

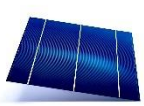
The frame thickness determines what rack components to use, like slip-in racks, or the required size of end and intermodule clips. Typically, thicker frames result in sturdier, although heavier, modules.

Weight

Most permitting authorities will ask for basic structural engineering data for roof-mounted PV arrays, and there will be a limit to the weight that can be added to a roof structure. Module weight, rack weight, and engineering data will restrict the quantity of PV modules that can be installed. Crystalline, glazed modules with plastic backsheets typically weigh about 10 kg per square meter.

Cells

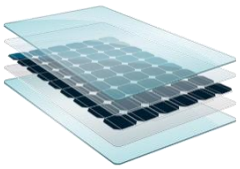
Cells will be either monocrystalline, polycrystalline, ribbon silicon, thin-film, or even multiple silicon layers, such as with Panasonic's HIT module. Electrical characteristics, efficiencies, and appearance vary by cell type. Modules can have variable numbers of cells (usually between 36 and 108), with each crystalline cell operating at around 0.5 VDC, wired in series or series-parallel configurations. For example, a 72-cell module with all cells in series will operate at a voltage of about 36 volts. But a 72-cell module with two series strings of 36 cells paralleled will operate at about 18 V, perfect for charging a 12 V battery.



Cell Dimensions

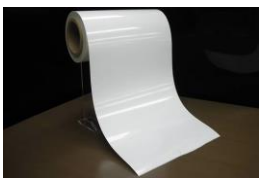
While all crystalline PV cells operate near 0.5 volts per cell, the diameter of the cell (normally 5 or 6 inches) will partially determine the current output of the cell, with larger cells producing higher current.

Glazing



Most crystalline modules use low-iron, high-transparency tempered glass with an antireflection surface treatment. Low-iron glass has high clarity, and tempered glass shatters into small fragments, instead of sharp shards, if broken. Modules are strenuously tested for weight loading and impact resistance, and the front glazing of a module is extremely durable. Thin-film modules may use a polymer film (plastic) as the front sheet, which is designed for arrays in high-impact environments.

Backsheet



Most crystalline modules have a plastic backing material that seals the cells against environmental infiltration. The most common material is Tedlar, a polyvinyl fluoride film. This backsheet is the fragile underbelly of the module, and care must be taken not to scratch it.

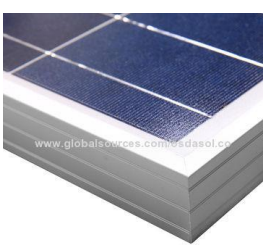
Some crystalline modules have a glass backing (such as bifacial modules that can also utilize light reflected to the back side). Thin-film modules have a wider range of backings, including glass, stainless steel, and varieties of tough plastic polymers.

Encapsulation

A glue laminate, such as ethylene vinyl acetate, is used to seal and protect the back and front of cells within the module glazing and backsheet.

Frame

Some crystalline modules are frameless, with a glass front and back, similar to the technique used for many thin-film modules. But most crystalline modules have anodized aluminum frames, with clear-coated aluminum and silver gray being the most commonly available colors. Noting the frame information can help with other decisions, for example making sure that the color of the frame matches rack and clips, and to help blend with the roof color.



3. Solar Inverters

A solar inverter or PV inverter, is a type of electrical converter which converts the variable direct current (DC) output of a photovoltaic (PV) solar panel into a utility frequency alternating current (AC) that can be fed into a commercial electrical grid or used by a local. It is a critical balance of system (BOS)–component in a photovoltaic system, allowing the use of ordinary AC-powered equipment. Solar power inverters have special functions adapted for use with photovoltaic arrays, including maximum power point tracking and anti-islanding protection.

Solar grid-tie inverters are designed to quickly disconnect from the grid if the utility grid goes down. This is an NEC requirement that ensures that in the event of a blackout, the grid tie inverter will shut down to prevent the energy it produces from harming any line workers who are sent to fix the power grid.

Grid-tie inverters that are available on the market today use a number of different technologies. The inverters may use the newer high-frequency transformers, conventional low-frequency transformers, or no transformer. Instead of converting direct current directly to 120 or 240 volts AC, high-frequency transformers employ a computerized multi-step process that involves converting the power to high-frequency AC and then back to DC and then to the final AC output voltage.

Historically, there have been concerns about having transformer-less electrical systems feed into the public utility grid. The concerns stem from the fact that there is a lack of galvanic isolation between the DC and AC circuits, which could allow the passage of dangerous DC faults to the AC side. Since 2005, the NFPA's NEC allows transformer-less (or non-galvanically) inverters. The VDE 0126-1-1 and IEC 6210 also have been amended to allow and define the safety mechanisms needed for such systems. Primarily, residual or ground current detection is used to detect possible fault conditions. Also isolation tests are performed to ensure DC to AC separation.

Many solar inverters are designed to be connected to a utility grid, and will not operate when they do not detect the presence of the grid. They contain special circuitry to precisely match the voltage, frequency and phase of the grid.

4. Balance of System

The balance of system (BOS) encompasses all components of a photovoltaic system other than the photovoltaic panels and Solar Inverter. This includes wiring, switches, a mounting system, ACCB, Meters, Earthing etc.

Other optional components include, renewable energy credit revenue-grade meter, Energy management software, solar irradiance sensors, or task-specific accessories designed to meet specialized requirements for a system owner.

Major BOS components are described here:

Module Mounting Structure

The solar array of a PV system can be mounted on Rooftop/Grounds, generally with a few inches gap and parallel to the surface of the roof. If the Rooftop/Ground is horizontal, the array is mounted with each panel aligned at an angle. If the panels are planned to be mounted before the construction of the roof, the roof can be designed accordingly by installing support brackets for the panels before the materials for the roof are installed. The installation of the solar panels can be undertaken by the crew responsible for installing the roof. If the roof is already constructed, it is relatively easy to retrofit panels directly on top of existing roofing structures. For a small minority of roofs (often not built to code) that are designed so that it is capable of bearing only the weight of the roof, installing solar panels demands that the roof structure must be strengthened before-hand. In all cases of retrofits particular consideration to weather sealing is necessary There are many low-weight designs for PV systems that can be used on either sloped or flat roofs (e.g. plastic wedges or the PV-pod), most however, rely on a type of extruded aluminum rails. In some cases, converting to composition shingles, the weight of the removed roof materials can compensate the additional weight of the panels structure. The general practice for installation of roof-mounted solar panels include having a support bracket per hundred watts of panels.

LT Panels

The combiner box's role is to bring the output of several solar strings together. Solar combiner boxes also consolidate incoming power into one main feed that distributes to a solar inverter. This saves labor and material costs through wire reductions. Solar combiner boxes are engineered to provide overcurrent and overvoltage protection to enhance inverter protection and reliability.

If a project only has two or three strings, like a typical home, a combiner box isn't required. Rather, you'll attach the string directly to an inverter. It is only for larger projects, anywhere from four to 4,000 strings that combiner boxes become necessary. However, combiner boxes can have advantages in projects of all sizes. In residential applications, combiner boxes can bring a small number of strings to a central location for easy installation, disconnect and maintenance. In commercial applications, differently sized combiner boxes are often used to capture power from unorthodox layouts of varying building types. For utility-scale projects, combiner boxes allow site designers to maximize power and reduce material and labor costs by distributing the combined connections.

Solar Cable

A solar cable is the interconnection cable used in photovoltaic power generation. Solar cables interconnect solar panels and other electrical components of a photovoltaic system. Solar cables are designed to be UV resistant and weather resistant. They can be used within a large temperature range and are generally laid outside.

One common factor for most of the photovoltaic power systems is outdoor use, characterized by high temperatures and high UV radiation. Single-core cables with a maximum permissible DC voltage of 1.8 kV Umax. The phase to ground DC voltage rating must be Uo1.5kVDC and a temperature range from -40 °C to +90 °C ambient, 120 °C on the conductor for 25 year service life against thermal ageing. Ambient temperature and conductor temperature is derived from the Arrhenius law for ageing of polymers - ageing of polymers doubles for every 10 °C rise. DC string cables must be class II double insulated to protect against short circuits and ground faults

AC Cables

Cross-linked polyethylene, commonly abbreviated XLPE, is a form of polyethylene with cross-links. It is used predominantly in solar outdoor applications, outdoor heating and cooling systems, and insulation for high tension (high voltage) electrical cables. It's outdoor armored surface provide mechanical strength to cable.

Earthing and Protection

A major cause of catastrophic failures in PV systems is lightning and the related static discharge of electricity. The lightning strike does not have to be to the solar panel directly in order to damage equipment like inverters, string boxes or other electronic controls. The strike can actually occur miles away and be completely invisible to the area where the surge produces the damage, doing so by inducing voltage surges throughout wiring, even in very long lines. There are two crucial elements involved in the protection of PV systems from the damages of lightning surges: proper grounding and the installation of surge protective devices. Without proper grounding and protection, damage can be sustained at nearly any point in the equipment chain from the photovoltaic panel onward.

System Design

BOQ with Makes & Specifications				Document No: OPPL/N/EPC/BOM		
				Version 00	Date	16th Mar, 23
Project Name: 5MWp						
Location:		***Rajasthan***				
	DC Capacity			5	MWp	
SN.		**Item Description**	***Technical Specifications***	**Quantity**	**Unit**	**Make**
A	***PV Section***					
	1	*Solar PV module*	*230Wp-550Wp Mono-PERC/Multi-Si 25yrs. Linear warranty Certifications: IEC 61215, IEC 61730 & UL 1703; IEC 62804 (PID) IEC 62716 (Ammonia Resistance), IEC 60068-2-68 (Blowing Sand) IEC 61701 (Salt Mist level 6), , ISO 11925-2 (Class E) ISO 9001: 2015, ISO 14001: 2004, OHSAS 18001: 2007*	*5*	*MWp.*	*ALMM Approved/As per Policy*
	2	*Connectors (male& female) pair MC4*	*Connectors (male& female) pair, MC4 Connector Pin Copper with tin coating Insulation Voltage: 1000V*	*As per requirement*	*Nos.*	*Multi Contact*
	3	*Solar String Inverter – 50/100/250kVA, 415V*	*50/100/250kVA, 415V output, Outdoor type-IP65, Eff. >98%*	*As per Design*	*Nos.*	*Sungrow/Growatt /Equivalent*
Structures						
B	1	*Design & Supply of Module Mounting structure supply.*	*Roof Mounted Ballasted Solar Module Mounting Structure. **Material: MS HDG** **Grade: E 250** Galvanisation: 80micron Structure designed at 170kmph wind speed as per IS-875 Ground Clearance 1 mtr.*	*As per requirement*		*Oriana Power*
	2	*Structure & Module Mounting Accessories.*	***Material: SS Grade: SS 304*** *Structure designed at 170kmph wind speed as per IS-875*	*As per requirement*		*Oriana Power*
Remote Monitoring System						
C	1	*Ambient Temperature sensor*	*PT1000 sensor element*	1	Set	*IMT*
	2	*Module Back Surface Temperature sensor*	*PT1000 sensor element*	1	Set	*IMT*
	3	*Solar Irradiation sensor for radiation measurement*	*Cell Based sensor with calibration certificate*	1	Set	*IMT*
	4	*2 Pair Twisted Un - armoured communication cable, Cu*		*As per Design*	Mtr	*K-flex/parasheild*
	5	*HDPE DWC Conduit, Size of 32/26mm &*	*Double Wall Corrugated HDPE Conduit for communication cable laying over shed. Conduit will*	*As per Design*	Mtrs	*Duraline/ equivalent*

		Accessories (PVC bends & couplers etc.)	*be fixed with shed using GI Saddles and aluminium pop rivets.*			
	6	*3C 1.5Sq. mm Armored Copper Cable - Data Logger Power cable*		*As per Design*	Mtr	*Polycab*
	7	*CAT 6 cable*		*As per Design*	Mtr	*Dlink*
	8	*Data logger Installation and IP 65 Box*	*For Remote monitoring*	*As per Design*	Nos	*Webdyn*
	9	*Scada for Solar Plant monitoring and Grid monitoring*	*Visual inter-facing for plant monitoring and data analysis*	*As per Design*	Lot	*Webdyn*
DC side - Cables & Accessories						
D	1	*1 Core 4 Sqmm Cu Solar Cable*	*Solar DC cable, Tin-coated copper cable as per EN standard. UV protected double sheathed XLPO, Halogen free cable.*	*As per Design*	Mtrs	*Apar/Siechem/ Equivalent*
	2	*1C 2.5 Sq mm Green Cable (for Earthing), with accessories*	*2.5sqmm. Single core flexible PVC insulated cable for module to module earthing with SS-304 fasteners, teeth washer and copper thimbles.*	*As per Design*	Mtrs	*Polycab/KEI*
	3	*DC Electrical accessories*	*(Consumables like Lugs, Glands, Ferrules, Cable Ties, uPVC tape, uPVC saddle, Cable clips etc.)*	*As per Design*	Set	*As per Design RFQ*
	4	*HDPE DWC Conduit, Size of 32/26mm & Accessories (PVC bends & couplers , T Joints etc.)*	*Double Wall Corrugated HDPE Conduit for DC cable laying over shed. Conduit will be fixed with shed using GI Saddles and aluminium pop rivets.*	*As per Design*	Mtrs	*Apollo/ Duraline/ equivalent*
AC side - Cables & Accessories						
E	1	*4 C, 25 Sq.mm Cu PVC Flexible Cable.*	*1.1kV insulated, Copper conductor, PVC insulated, PVC outer sheathed cable*	*As per Design*	Mtrs	*Polycab/KEI/ Havells*
	2	*3.5 C, 150 Sq.mm AL XLPE Arm Cable.*	*1.1kV insulated, Aluminium conductor, XLPE insulated, GI strip armoured, PVC outer sheathed cable as per IS-7098 Part-1*	*As per Design*	Mtrs	*Polycab/KEI/ Havells*
	2	*Cable for earthing- 1C 10 sq.mm Cu flexible (for Inverter earthing)*		*As per Design*	Mtrs	*As per Design RFQ*
	3	*Field ACDB for inverters output*	3 phase, 415 V, 50 Hz ACCB Panel with - Enclosure material made of CRCA with Powder coated paint - 4P, MCCB's - as per requirement - 4P, Isolator - 3 phase, 4 W, AL, bus bar. - IP 65 with canopy - Panel with double door & lock - SPD Type 2 - with mounting arrangement	*As per Design*	Nos	*Breakers Make: L&T*
	4	*Isolator Panel near Metering Panel*	3 phase, 415 V, 50 Hz ACCB Panel with - Enclosure material made of CRCA with Powder coated paint - 4P, 700A MCCB's - 3 phase, 4 W, AL, bus bar. - IP 54 with canopy - Panel with single door & lock - with mounting arrangement	*As per Design*	Nos	*Breakers Make: L&T*

	4	*Cable tray for AC cable laying after inverter*	50mmX50mmX2mm Hot dip galvanised cable tray with cover and other accessories i.e. cable tray stand, cable tray cover clamp, cable tray coupler, M8 MS HDG Fasteners, anchor bolts etc.	*As per Design*	Nos	*Oriana Power*
Civil Works						
	1	*As per site requirement*	*Civil work for Structure, electrical panel foundations, Structure Foundation, earthing pit chamber construction.*	1	Set	*As per RFQ*
Safety & Protections						
	1	*Fire extinguisher With sand bucket (4 Kg ABC type)*	*4 Kg ABC type fire extinguishers with stand*	*As per deisgn*	*Set*	*As per Design RFQ*
	2	*Earthing Kit for plant AC and DC earthing*	*Copper Bonded rods 3m, 17.2 mm, chemical bags and other required accessories. Earthing pit chamber will be constructed and Cast iron cover will be installed*	*1*	*Set*	*VNT/JMV/GS Electrode*
	3	*Lightning Arrester for protection of solar power plant*	*ESE Type, GI mast, 2 Earthing pit , 1 C 70 mm2 Cu PVC cable, 2 set of earthing for one lightning arrester, R-109 Meter , Stay Set support.*	*As per design*	*Nos.*	*VNT/JMV/Allied Power*
	4	*GI Strip 25X3 mm for DC side*	*Hot dip galvanised earthing strip with minimum 80 micron. Material grade E-250*	*As per Site Req*	*Meter*	*As per Design RFQ*
Services						
	1	*Installation, testing and Commissioning*	*Complete plant service work*	*5*	*MWp*	*As per Design RFQ*
	2	*Module cleaning system with uPVC pipe line system and pump.*	*1 HP, 230V Centrifugal pump, CPVC Pipe (1/2 inch) line over roof with shut-off valves, CPVC pipe will be fixed over roof with SS saddles gitti-pench. Flexible Hosepipe (1 inch) of 40 Meter length, Wiper 1.5 Meter length, Extendable Pole Piping for Each Roof, Piping as per detail drawing*	*1*	*Set*	*Ashirwad/Astral/Equivalent*

Client's Scope of work

1) Provision of permission to work on site
2) Clear shadow free area / Tin shed for the installation of PV modules & equipment's
3) Entrance/working permission for local labour for loading/un-loading work.
4) Electrical power point nearby to site for electricity requirement during construction.
5) Water tap points (minimum 1 inch) at PV plant site for module cleanings system
6) Internet / SIM card with data packs shall be provided at site for remote monitoring of inverters and other devices.
7) Documents required for CEIG approval/DISCOM NOC/Bi-directional Meters.

Commercial Terms

5MWp Roof/Ground Mounted Solar PV Plant – Commercials.

SN	Description	Qty.	Price
1	Solar Panel: multi/Mono-Si, IEC certification, BIS certification and other relevant standard as per Government	5080kWp	Rs. 13,83,40,000 Including duties and taxes
2	Solar Inverter: String inverter with multiple MPPT provision, Outdoor Mounted, IP65 Protection and all relevant standards as per Government	5080kWp	Rs. 1,93,04,000 Including duties and taxes
3	BOS: Module Mounting Structure, DC Cable, AC Cable, LT Panel, Civil material, Conduit, MCS, RMS, Earthing and Protection Systems, Lightning Arrester, Weather Sensor and monitoring system, Metering Unit, Discom approvals etc.	5080kWp	Rs. 7,58,95,200 Including duties and taxes
4	I&C: Supply of civil material, Installation, testing and commissioning of Solar Power plant as per site requirement	5080kWp	Rs. 1,65,60,800 Including duties and taxes
		5080kWp	Rs. 25,01,00,000 Including duties and taxes

- Freight & Transit Insurance: Inclusive
- **Taxes: GST – as per government norms.**
- **Net-metering fee will be paid by consumer**
- Any change in Tax/ Duties shall be borne by the Purchaser
- Excludes-
  - Any approval
  - Anything out of given BOQ

Offer Validity

Our offer will remain valid for your acceptance up to 10 days, and thereafter subject to our confirmation.

Delivery Schedule

08-10 weeks from the date of issuance of clear purchase order and submission of payment security.

Payment Terms

- 30% payment advance with Purchase order
- 60% payment after readiness at factory.
- 10% after complete installation & commissioning

General Terms & Conditions

1. Quotations made is strictly non-binding
2. The contract is only considered to be concluded when Oriana/Supplier has issued a written order confirmation after the receipt of order and this has been received by the purchaser, or a delivery has been dispatched.
3. All payments must be made within seven (7) days from date of invoice issued by the contract, by bank transfer to the account indicated on the invoice from the same. In case of delay in payment more than seven days – Due payment shall be charged with interest @ 2% month.
4. Changes and additions, if any to scope of work or to this agreement have to be done in a written form and must clearly be marked as those. The above price is on deliverables as defined in the scope of work above.
5. Any change in factory infrastructure and relocation of solar plant, shall be charged and paid by client
6. Any maintenance related solar power plant equipment shall be done by Oriana power, Any maintenance/replacement related to factory machinery, equipment's, transformer, cables, DGs etc. shall be done by client.
7. Oriana maintenance scope of solar plant shall be considered up to LT terminations only.
8. Standard force majeure clause applies.

Performance Guarantees

1. Oriana guarantees the Performance Ratio (PR) i.e. 75% (Annual Average) and solar generation 1300kWh/KW/year . **Annual guaranteed generation shall have degraded in between 0.7% linear.**

Exclusions from performance guarantees

Energy losses due to following events will not be considered to be covered by the performance guarantee. Any losses which can be attributed to these events will be treated as if the corresponding energy would have been generated by the system:

- Losses due to shut-downs caused by the contractor or third independent parties not controlled by Oriana or our subcontractors (e.g. during site visits, etc.)
- Losses due to plant/component malfunctions caused by improper operation of the plant/units/ components by the contractor or third independent parties not controlled by Oriana or our subcontractors.
- Losses due to failures of components which were not delivered by Oriana or our subcontractors.
- Losses due to inverter shut-downs because of grid outages

- Losses due to poor grid quality (grid quality out of the specifications of the inverter manufacturer).
- Losses due to lightning strikes, overvoltage, storms, floods, etc. or any other force majeure.
- Losses due to vandalism or theft.
- Losses due to excessive module soiling (in case of ground mounted system) (e.g. intensive agricultural work inside or outside the PV plant) which is out of control of Oriana or our subcontractors.
- Losses due to modifications at the site or its surroundings which are out of our control (i.e. shading due to new installations on the site or next to the site, etc.).
- Losses due to delayed reactions caused by outages of telecommunication networks.
- Losses due to delayed or not carried out repair or maintenance work which are under the obligation of the PV plant owner
- Losses due to changes caused by modified grid connection and/or feed-in conditions by the grid owner or the government.

Warranty

Complete project composite warranty for one year (without cleaning). All equipment supplied by us shall carry original equipment warranty / guarantee terms. The back-to-back warranties / Guarantee provided for components and workmanships are as highlighted below:

As mentioned in the commercial offer table.

Warranty does not cover

1. Damage, deterioration or malfunction resulting from accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
2. Repair or attempted repair by anyone not authorized by producer.
3. Causes external to the product, such as electric power fluctuations or failure or insufficient ventilation.
4. Freight costs.
5. Removal, installation, and set-up service charges.
6. There are no warranties, express or implied, which extend beyond the description contained herein including the implied warranty of merchantability and fitness for particular purpose. Oriana's liability is limited to the cost of repair or replacement of the product. Oriana shall not be liable for:
   6.1. Damage to other property caused by any defects in the product, damages based upon inconvenience, loss of use of the product, loss of time, loss of profits, loss of business opportunity, loss of goodwill, interference with business relationships, or other commercial loss, even if advised of the possibility of such damages.
   6.2. Any other damages, whether incidental, consequential or otherwise.

6.3. Any claim against the customer by any other party.

ORIANA COMPLETE PRODUCT RANGE

- SOLAR MOUNTING STRUCTURE (MMS)
- INVERTER COMBINER BOX (ACCB)
- LT & METERING PANEL
- SOLAR - DG SYNC PANEL
- DC SPD BOX (AJB / SCB /DCDB)
- WEATHER SENSORS
- BOS (LA, CABLE TRAY, WALKWAY)

PROJECT REFERENCE LIST

PROJECT REFERENCES (25MW+)

1 Renew Power (KIIT Orisha)-1MWp
2 Bharti Waters (KVs Delhi) -1.25 MWp
3 NDMC Electrical 20 Substation-920kwp
4 RGS-Chandigarh (CREST) -2.35Mwp
5 Adani solar (Lupin Pharma)-200kWp
5 Azure (Orrisa At 10 Different Sites) -856kwp
6 AMP Solar (Ace Cranes-Faridabad) -1.1Mwp
7 Sector 26-Chandigarh (CREST)-1 Mwp
8 1MW ground mounted Pabuwal HP
9 Water Works Manimajra-350Kwp
10 Johnson & Johnson Company-220kwp
11 Africa - Kenya- 1MW+
12 Johnson & Johnson Company-220kwp
13 Deendayal Singh College-100kwp
14 Orissa at 4 different sites -376kwp
15 Noida NEPZ-1MWP
16 Austrian Embassy-20kwp
17 AMPLUS Solar –Synergy Enng 100kW)

17 Sanatan Dharm Mandir Jhandewaala -20kwp
18 Ganga Matamandirharidwar – 50kwp
19 Pragati Maidan-50kwp
20 Dayalsingh College DELHI University-100kwp
20 Water Works CHD.-445kwp
21 Dhanas High School CHD.1- 70kwp
22 Dhanas High School CHD.2- 70kwp
23 Khuda Laura School CHD.- 20kwp
24 Khudajassu School CHD.- 10kwp
25 Chandigarh Housing Board Sector 9D-50kwp
26 Central Library Sector 17 CHD.-30kwp
27 Regional Institute Of English Sector 32 CHD.-25kwp
28 Nariniketan Sector 26 CHD.-20kwp
29 Blind School Sector 26 CHD.-30kwp
30 Micron Instrutments-242kwp
31 High School CHD.-50kwp
32 National Inst. Of Technical Teacher Sect 26 CHD.-35kwp
33 Chandigarh High Court At 3 Different Buildings-90kwp
34 Govt. High School Sector -48 Chd. –50kwp

35 Govt. High School Sector -49 Chd. – 50Kwp
36 Govt Model High School Kishangarhchd. -50KWP
37 Govt Model High Schl Pocket-1 Manimajrachd. – 50kwp
38 Govt High School Sector -54 Chd. – 50 Kwp
38 Mysore Engg. College-100kwp
39 Govt Model High Schl Pocket 8 Manimajrachd – 45kwp
40 Govt High School Sector32 Chd – 30kwp
41 Govt High School Sector -29b Chd. -30kwp
42 Govt High School Sector – 30a Chd. – 30kwp
43 Govt High School Sector – 40 Chd. – 25kwp
44 Govt Senior Sec School Raipur Khurdchd. – 25kwp
45 Govt Model High School Sector 7 Chd. – 20kwp
46 Govt Model High School Sector 38(West) Chd. – 20kwp
47 Govt High School Sector 19d Chd, - 20kwp
48 CCRT Institute Dwarka-90kwp
49 PRANAV VIKAS-100kwp
50 SATA VIKAS-60kwp
51 More Than 5000 Solar Street Lights In U.P And CHD.
52 800 Solar Water Pump In U.P

PROJECTS PICTURES

Thanks & with Best Regards,

Harshit Pundir

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