



**DA SURYA SHAKTI SERVICES PRIVATE LIMITED**

# **Request for Proposal**

**For 50 MW Solar Power Plant at Rajasthan,  
Pokhran**

**DA SURYA SHAKTI SERVICES PVT. LTD.**

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# PROJECT INFORMATION

DA Surya Shakti Services Private Limited (DASS) is coming up with 50 Mega Watt solar power plant. The project is approved under REC scheme and located at Rajasthan State. For this project we are looking for Turnkey solution Providers / EPC players.

## Geographical Details of Site:

Site Location: 26°54'9.42"N; 71°59'27.54"E

## Meteorological Data:

	GlobHor kWh/m <sup>2</sup>	T Amb °C	GlobInc kWh/m <sup>2</sup>	GlobEff kWh/m <sup>2</sup>	EArray kWh	E_Grid kWh	EffArrR %	EffSysR %
January	135.0	16.50	180.1	168.2	143437	140345	10.97	10.73
February	144.0	19.10	176.7	168.3	140333	137349	10.94	10.71
March	189.0	24.50	211.0	203.1	165393	161875	10.79	10.56
April	205.0	29.50	208.8	200.4	158935	155518	10.48	10.26
May	221.0	33.50	210.1	201.1	156638	153154	10.26	10.04
June	207.0	34.20	192.1	183.0	142669	139429	10.23	10.00
July	176.0	31.80	167.3	158.7	126488	123589	10.41	10.17
August	173.0	29.80	170.4	162.1	130152	127169	10.52	10.28
September	174.0	29.60	185.2	177.2	141635	138554	10.53	10.30
October	169.0	27.10	200.0	191.2	154593	151225	10.64	10.41
November	135.0	21.80	174.9	165.0	136832	133953	10.77	10.54
December	124.0	17.80	171.1	158.6	134939	132060	10.86	10.63
Year	2052.0	26.30	2247.8	2136.8	1732044	1694220	10.61	10.38

Legends:	GlobHor	Horizontal global irradiation	EArray	Effective energy at the output of the array
	T Amb	Ambient Temperature	E_Grid	Energy injected into grid
	GlobInc	Global incident in coll. plane	EffArrR	Effic. Eout array / rough area
	GlobEff	Effective Global, corr. for IAM and shadings	EffSysR	Effic. Eout system / rough area

**Site Photos:**

**Side View**



**From Service Road**



**Front View**



**General Overview:**

1. Erection, Procurement and Commissioning of 50 MW Solar Power Plant under accomplishment of all national regulations and norms.
2. To handover the solar power plant in a satisfactory condition to the DASS.
3. To provide Operations & Maintenance Services for installed power plant. (O&M quotes should be provided separately as per mutually agreed terms.)

**Scope of Services:****A. Construction Management:**

- i. Construction management and planning for all materials and works delivered or executed by Subcontractor.
- ii. Provide project management and supervision.

**B. Modules:**

- i. Receiving and unloading of Modules with appropriate vehicle (e.g. fork lift truck, 4x4 forklift, etc.).
- ii. Check and comparison of modules delivered with delivery note and visual inspection of delivered modules.
- iii. Storage of modules (temporary) with appropriate protection against weather impacts, damage and theft (e.g. lockable containers or lockable tents).
- iv. Transport from (temporary) storage to site/point of installation with appropriate vehicles (e.g. fork lift truck).

**C. Structures for modules with the general conditions:**

- i. Evaluation of soil / ground: The ground/soil should be prepared to endure transport of all components (modules, structure, connection boxes, etc.) to the installation point on site. Confirmation of the ground / soil withstands the loads of wind and the weight of structures (incl. modules and other components).
- ii. Preparation of the soil /ground on site with all necessary works like earthmoving, digging holes for the foundations / pilings and leveling.
- iii. Surveying of structures for the modules and calibration and pitching for the foundations / pilings of the structures.
- iv. Delivery and/or manufacturing of foundations/pilings for the structures on site including all necessary material and works. The

- foundations/pilings must fulfill all necessary regulations and norms and be according to calculations by static expert.
- v. Manufacturing, delivery, installation and calibration of structures including all necessary material and works. The structures must fulfill all necessary regulations and norms and calculations of static expert as well as requirements of manufacturer. Installation on prepared foundations /pilings. Minimum quality of structure: hot-galvanized steel.
  - vi. Installation of modules on prepared structures including all necessary material and works especially the system for clamping/fixing the modules on the structures. In case the materials of module frames and structures are different (e.g. aluminum and galvanized steel) there must be installed an intermediate layer (e.g. EPDM-rubber).
  - vii. Reconstruction / Regeneration of site. Dispose or recycle surplus soil material and dispose waste material including all necessary material and works.
  - viii. Provide and deliver a certified/approved statistics for the structure including all fixings and fundamentals according regulations and norms of the Country.

**D. Service Station for inverters, transformers and metering/safety system:**

- i. Planning, delivery and installation of the service stations for inverters, transformers and switchboards including all installation for appropriate ventilation and electrification with lights, plugs, auxiliary supply, etc. of the stations including all necessary material and works.
- ii. The station will fulfill all necessary regulations, norms and special specifications of the utility company. (The Details will be defined by the DASS and the utility company at the right stage or during installation of plant).

**E. Security and protection system:**

- i. Delivery and installation of a fence around the site of the power plant including all necessary material and works. The fence will be as per the DASS specifications.
- ii. Delivery and installation of security system for the power plant including all necessary material and works. The security system must fulfill all necessary regulations, norms and as well specifications due to insurance necessities.

#### **F. Earth moving works:**

- i. Installation and laying of DC-Main-Cables from connection boxes to main junction boxes and to inverters, including earth moving work due to national regulations and norms. Including all necessary material and works.
- ii. (Alternatively to F. i.) Installation and laying of DC-Main-Cables in cable channels from connection boxes to main junction boxes and to inverters, due to national regulations and norms including all necessary material and works.

#### **G. Electrical Installation of solar generator:**

- i. Connections of modules to strings including all necessary material and works.
- ii. Installation of connection boxes at the metal structure including all necessary material and works.
- iii. Installation of main junction boxes in the service station including all necessary material and works.
- iv. Delivery, installation and connection in the connection boxes of Cables (or similar) for the module strings. Including all necessary material and works.
- v. Delivery, installation and connection in between the connection boxes with Cables NYY (or similar) including all necessary material and works. (The specification of the cables will be defined DASS)
- vi. Delivery, installation and connection between the connection boxes and main junction boxes and the inverters of Cables NYY (or similar) including all necessary material and works. (The specification of the cables will be defined DASS)
- vii. Delivery and installation of Cable Conduits/Cable Channel with cover at metal structure including all necessary material and works.

#### **H. Earthing / Grounding of solar generator:**

- i. Delivery, installation and connection for the earthing / grounding of solar inverter (modules, structures, cable channels, connection boxes and other required instruments) including all necessary material and works.

#### **I. Installation of inverters and AC-cables from inverters to transformer:**

- i. Receiving and unloading of inverters at the site with appropriate vehicle (e.g. fork lift truck).

- ii. Check of inverters delivered with delivery note and visual inspection of delivered inverters.
- iii. Transport to service station with appropriate vehicles (e.g. fork lift truck) and installation in service station.
- iv. Delivery, installation and connection between the inverters and transformers of Cables NYY (or similar) including all necessary material and works.
- v. Delivery, installation and connection of remote monitoring system including all necessary material and works.

**J. Transformers, metering and safety system and switch board medium voltage:**

- i. Delivery, installation and connection of transformers for medium voltage, metering and safety system as well as switch board for medium voltage level including all necessary material and works. The components have to accomplish all national regulations and norms.
- ii. Delivery, installation and connection of a low voltage connection point, metering and safety system for auxiliary power (e.g. for the inverters, lights, sockets, etc.) including all necessary material and works. The components have to accomplish all national regulations and norms.

**K. Evacuation System**

The Complete Solution for evacuation of power and feeding into the State Electricity Grid (SEB) through a sub-station.

**Note:** 132KVA Substation 6Km far from Plant, 33KVA Special Grid Applied on site.

**L. Lightning protection for service station:**

- i. Delivery, installation and connection of lightning arresters for the service stations.

**M. Site facilities:**

- i. Delivery, installation and operation of office for project management/site management with all installation like electricity, light, telephone/fax, etc. including all necessary material and works.
- ii. Delivery, installation and operation of containers for the construction team including all necessary material and works.

- iii. Delivery, installation and operation of storage facilities for all components, material and tools, etc. including all necessary material and works.
- iv. Delivery, installation and operation of containers with bathroom/lavatory facilities including all necessary material and works.
- v. Delivery, installation and operation of temporary power generator for electricity on site including all necessary material and works.
- vi. Delivery, installation and operation of containers for the collection of waste including all necessary material and works.

**N. Documentation:**

- i. Provide and deliver a complete documentation with all drawings, plans, datasheets, statics, calculations, and measurements etc of the plant.

**O. Indicative Scope of Work for the DASS (All Clearances only):**

- i. Providing sufficient shadow-free required land area.
- ii. All statutory and government approvals and clearances required with regards to setting up the SPV farm, and clearances for the evacuation of power feeding into the State Electricity Grid(SEB) through a sub-station.
- iii. Any other points which may come up prior to finalization of the contract.

## **FEE STRUCTURE**

- No Application fees.
- No RFQ Document fees.

## **EARNEST MONEY DEPOSIT**

- 1% non refundable EMD on selection of your quotation in form of cashiers cheque or DD.
- 25% EMD of your quotation in form of bank guarantee on selection.

# SUBMISSION AND EVALUATION REQUIREMENTS

## Inductive Bill of Material with Segregated Costing:

BOM 50 MWp Grid Connected System with a-Si or C-Si PV modules						
Sr.No	Description of Item	Qty	UoM	Ratings	Track Record	
<b>A</b>	<b>Civil Work</b>					
1	Soil Testing					
2	Civil -Leveling of land					
3	Civil- Fencing work					
4	Internal Road with in array area					
5	Water Supply					
6	Control Room					
7	Bore well					
8	Civil foundation for array structure					
9	Cable Trench					
<b>B</b>	<b>General Work</b>					
1	Security for solar farm during execution					
2	Pota Cabin					
3	Diesel Generator xxKVA with diesel					
4	Electrical Design					
5	Yard street Lighting with xxW CFL					
6	Lighting Arrestor					
7	Earting kit					
<b>C</b>	<b>Solar Modules</b>					
1	<b>Solar Module xxWp</b>					
2	AJB xx					
3	MJB xx					
<b>D</b>	<b>M. S. Structure</b>					
1	xx module M S Structure for solar modules with					
<b>E</b>	<b>PCU</b>					
1	PCU -Make- xx -Type- xx					
2	PCU mounting structure in array area					
3	Whether proof, water resist, Junction Boxes between PCU to Grid					
4	Communication accessories web box and cable					
<b>F</b>	<b>Cables</b>					
1	Interconnection between module & AJB (Type)					
2	Interconnection cable between AJB & inverter (Type)					
3	Interconnection cable between inverter & junction box (Type)					
4	Interconnection between junction box & LT panel (Type)					
5	interconnection between LT panel & xx/xx/xxKV transformer (Type)					
6	Interconnection between xx/xx KV transformer to xx/xx KV (Type)					
<b>G</b>	<b>Power Evacuation System</b>					
1	Transformer x MVA - xxx/xx kVA					
2	LT panel with CT/PT					
<b>H</b>	<b>Installation and commissioning services</b>					
1	Errection of Transformer and LT panel etc.					
2	Installation and commissioning					
<b>H</b>	<b>Others</b>					
	xx					

**Note:** EPC players and Turnkey solution providers are requested to provide Ratings and Proven Track Record of equipments used in plant where ever applicable.

**EPC player and turnkey solution providers are requested to send their proposal including the above bill of material and with the following information.**

## **Installation Guarantee and Time Line**

- Project Execution Plan with time line for 50 MW or X size of MW as per your proposal.

**Note:** 10% of the quoted project cost from your provided bank guarantee will be encashed as penalty in case of time line failure.

## **Performance and Unit Generation**

- Performance guarantee of plant and Unit generation for 25 years with de-rating factor.
- PLF factor according to site.
- Plant yield factor.
- Auxiliary consumptions at plant.
- Efficiency curves of modules according to temperature at site and its life cycle.
- Segregated Losses due to each equipment used.

**Note:** Define penalties or bonuses in case of plant performance and unit generation escalation or de-escalation as per the EPC players Commitment.

## **Operations and Maintenance Responsibilities**

- O & M per year quotation for 15 years.
- In scope and out of scope services of O & M.
- Minimum capacity of water required at the site.
- Any other points which may come up prior to finalization of the contract.

For DA Surya Shakti Services Private Limited.

Athar Walile  
(Technical Director)



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