

(EOI NOTICE No. Dag/Agri/Crop-11 )

## **EXPRESSION OF INTEREST (EOI)**

**For**

**EMPANELMENT OF MANUFACTURERS  
FOR SUPPLY AND INSTALLATION  
OF  
SOLAR PHOTOVOLTAIC (SPV) WATER PUMPING SYSTEM**

**BY**

**DIRECTOR OF AGRICULTURE  
KRISHI BHAVAN- SECTOR 10A, "CH-ROAD",  
GANDHINAGAR-382010**

**Phone :** (079) 23256154/45

**E-mail:** [cottongujarat@gmail.com](mailto:cottongujarat@gmail.com)

**August, 2019**

**PRICE: Rs. 5, 000/- (Rupees Five Thousand only)**

## INVITATION FOR EXPRESSION OF INTEREST (EOI)

The agro vision of Government of Gujarat envisages improving the quality of life of the rural population by widening their employment opportunities and increasing their income. 63% of the population of Gujarat, who lives in rural areas, depends for its livelihood on agriculture and its allied activities. The Government of Gujarat is sensitive to the role of Agriculture in Economic development with a vision of:

- Greater wealth creation for farmers and farm labourers
- Offer a sustainable increase in productivity
- Ensures Food Security
- Offer higher value addition to agricultural produce and exports

To achieve this vision, the Government of Gujarat through its Director of Agriculture and Director of Horticulture implements various Agriculture and Horticulture developmental programs and provides financial assistance to farmer for better farm practice and irrigation purpose.

➤ ***NFSM/RKVY/SPAM etc.- Scheme Detail:***

For the purpose of motivating farmers for fast adoption of better farm practices and using efficient mechanized equipment for the agriculture activity, Department of Agriculture Co-operation & Farmer Welfare, Government of Gujarat is providing financial assistance to the farmers for the purchase of various farm equipments. It is under this initiative GoG is also providing various subsidies for water pumpsets for irrigation purposes.

**The Financial Assistance will be as per the Government norms prevailing at the time of sanction of financial assistance.**

With an objective to see that the farmers get the best quality above stated equipment at reasonable price, the Director of Agriculture (D.Ag.) has been directed to empanel manufacturers of solar photovoltaic (spv) water pumping system for the successful large scale implementation of this scheme.

The Director of Agriculture on behalf of farmer is calling the best price offer from the manufacturers of this equipment. This may also help the manufacturers to increase their market share in the State considering the large scale implementation of the scheme.

Proposal in the form of Expression of Interest (EOIs) in duplicate is requested in complete accordance with the documents/attachments as per following guidelines. **The agency will have to provide the price offer as per the format through online system only. Please note that No offer in physical form will be accepted and any such offer if received will be outright rejected.**

All schemes other than stated above of Government of Gujarat and Government of India implemented by Department of Agriculture and Co-operation are also covered under this empanelment. *Only those manufacturers who will be successful in empanelment at the end of this exercise will be able to supply SPV Pump-setto the farmers who want to avail financial assistance under any scheme implemented by Department of Agriculture, Co-operation& Farmer Welfare.* The list of empaneled manufacturers containing details such price offer and their dealer network in the State will be published in the public domain with an objective to facilitate the farmer to select specified quality of all this equipment at reasonable price across the State.

### SCHEDULE FOR INVITATION OF EOI

**NAME:** Empanelment of manufacturers For supply and installation of Solar photovoltaic (spv) water pumping system for supply to farmers Under Various Schemes of Agriculture, Co-Operation & Farmer Welfare Department, Government of Gujarat.

<b>To</b>	
<b>Issue of EOI</b>	Dt. 20 /08 /2019 at 00:01 hrs
<b>Last Date for online Submission of EOI Proposal</b>	Dt. 09/ 09 /2019 up to 23.59 hrs.
<b>Last Date for Physical Submission of EOI Proposal</b>	Dt.12/ 09 /2019 up to 18.00 hrs.
<b>Technical Proposal Opening Date &amp; Time:</b>	Dt.13 /09 /2019 at 12.00 hrs
<b>Price Offer Opening Date &amp; Time:</b>	Will be communicated once the technical scrutiny of the EOI document will be completed.
<b>Department Name/Authority Name</b>	Director of Agriculture (D.Ag.), KrishiBhavan, Sector-10A, "CH-Road", Gandhinagar- 382010
<b>Pre-EOI Meeting</b>	On Dt. 27/08 /2019 at <b>12.00</b> hrs at the Office of Director of Agriculture, KrishiBhavan, Sector -10A, "CH-Road", Gandhinagar- 382010
<b>EOI Submission Address</b>	Director of Agriculture, KrishiBhavan, Sector- 10A, "CH-Road", Gandhinagar- 382010 (Registry Branch Ground Floor)
<b>EOI document Fee</b>	Rs. 5,000/- (Rupees Five Thousand Only) in form of Demand Draft from any Scheduled/Nationalised Bank <b>(The List of acceptable banks for tender fee is given in Annexure-11)</b>
<b>EOI Fee Payable to</b>	<b>"Account officer Directorate of Agriculture",</b> Payable at Gandhinagar
<b>Price Offer</b>	The agency shall submit their best possible price offer in electronic format only on website <a href="http://www.nprocure.com">www.nprocure.com</a> after digitally signing the same. Offers which are not digitally signed will not be accepted. No offer in physical form will be accepted and any such offer if received will be outright rejected. Also any reference of the Price, quotes etc in physical submission shall result in rejection of the offer of the agency.
<b>Joint Venture/Consortium</b>	Not allowed
<b>EOI currency Setting</b>	Indian Rupee (INR)

**Note:**

- 1 Please address all queries and correspondence to the Director of Agriculture, KrishiBhavan, Sector- 10A, “CH-Road”, Gandhinagar- 382010 or D.Ag email address: [cottongujarat@gmail.com](mailto:cottongujarat@gmail.com)
- 2 If the Office of the Director of Agriculture happens to be closed on the day of receipt of the EOIs as specified, the EOIs will be received and opened on the next working day on opening of the Office upto the same time and at the same venue.
- 3 Please quote Ref. Number in all your correspondence.

**General Instructions**

- 1.0 The manufacturer can download the EOI document free of cost from the website, but will need to submit the EOI document along with the DD for EOI Document Fee at the time of physical submission.
- 2.0 **The manufacturer has to submit best price offer in electronic form only.** Offers in physical form will have to be submitted for technical proposal alone. Such submission will have to be accompanied by required forms and documents, and instrument for payment of EOI Document Fee.
- 3.0 EOI Document Fee and EOI Security shall have to be paid of the amount stated in the Notice Inviting Online Tenders section
- 4.0 **Technical Proposal:** Interested Party shall submit physically their proposal in sealed envelopes super-scribed with due date, time, project and nature of EOI. Original and one copy of **TECHNICAL PROPOSAL** comprising **Annexure- 1, 2, 3, 4, 6, 7,9,10,12 and 8**(if applicable) complete with all technical details asked for. Original printed document shall be considered as authentic. **All pages of the offer must be signed.**
- 5.0 The agency shall submit their best possible price offer in electronic format only on website [www.nprocure.com](http://www.nprocure.com) after digitally signing the same. No price offer in physical form will be accepted and any such offer if received will be outright rejected. Also any reference of the Price, quotes etc in physical submission shall result in rejection of the offer of the agency. However, agency has to submit invoices for the product offered as asked in the EoI document.
- 6.0 Services offered should be strictly as per specifications mentioned in this EOI Document. Please spell out any unavoidable deviations, article-wise, in your proposal under the heading “Deviations”.
- 7.0 The price of one copy of the **EOI Document is Rs. 5000/-**, which can be paid by crossed Demand Draft. The Demand Draft may be drawn in favour of “**Account officer, Directorate of Agriculture**”, payable at **Gandhinagar**.

Yours faithfully,  
For and on behalf of

Director of Agriculture  
Gandhinagar

***To be pasted on the outer envelope containing EOI Fees & Technical Proposal***

**DO NOT OPEN – THIS IS A EOI**

Empanelment of manufacturers For supply and installation of Solar photovoltaic (spv) water pumping system to farmers Under Various Schemes of Agriculture, Co-Operation& Farmer Welfare Department, Government of Gujarat.		
Due Date	:	Dt.12/09/2019
Time	:	18.00 hrs
From		To
		Director of Agriculture
		Krushibhavan, Sector 10 A, (Registry Branch Ground Floor) Gandhinagar
	:	Phone : (079) 23256154/45

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## **1.0 OBJECTIVE OF THE EOI**

- To derive the best price for the specified quality and specification of SPV Pumpset, through price discovery method.
- To ascertain the specified quality product is available to farmer directly from the manufacturers/through its authorised dealer.
- To facilitate farmer in procuring the specified product at reasonable rate and at the time same ensuring the quality of supply as per specification.
- To enable the farmer to get transparent and uniform price across the state for the specified quality of SPV Pumpset.
- To provide clean, green and assured source of energy to farmer for irrigation.
- To replace Diesel/Grid electric operated water pump set by SPV water pump to reduce carbon footprint in environment.
- To promote as a means of Climate-Smart Agriculture (FAO-2010) to increase productivity in an environmentally and socially sustainable way and strengthen farmers' resilience to climate change.
- To improve energy use efficiency in agriculture sector.
- Culminating to empowerment of the farming community

Hence with above objectives and to safe guard the interest of farmer it was envisaged to empanel manufacturers.

## **2.0 TERMS OF REFERENCE FOR THE AGENCY**

- i.) At the end of this exercise, a separate list of empanelled manufacturers and their price offer for various types of SPV pump sets will be published in public domain. The best price offer discovered would be applicable from 1<sup>st</sup> April 2019 to 31st March 2020.
- ii.) No dealers/traders or system integrators are allowed to participate in the EOI process. The manufacturer shall issue power of attorney as per Annexure-8 to its employee only.



- iii.) The manufacturers should provide the list of their Authorised dealers / distributors in the State of Gujarat through which the products and services will be available to farmers.
- iv.) During the empanelment period no escalation charges will be allowed.
- v.) The farmer will directly purchase SPV pump sets from any of the authorised dealer declared by the manufacturer or from the manufacturer.
- vi.) The SPV pump set supplied must be covered with warranty for **five years** from the date of supply against any defective manufacture/workmanship, etc. The repairs/replacements shall be attended free of cost within the warranty period.
- vii.) The Authority may levy a penalty on the empanelled manufacturers if found that supplied component are not conforming to minimum IS standards/BEE Star Rating/IEC standards/Specification as mentioned in the test certificates or EOI document. The cost of such product/s would be recovered from the bank guarantee submitted by the manufacturer.
- viii.) The Authority will publish the list of empanelled manufacturers along with their price offer and dealer network detail. The farmer will purchase through manufacturer/its authorised dealer. The farmer will submit the required document to Authority for claim of financial assistance. The Authority will release the financial assistance to farmer on verification of the required documents. The manufacturer has to submit the list of farmer/beneficiary who has purchased their product with required documents to the Authority.
- ix.) The manufacturer will have to submit detail specification & the valid certificate of BIS/BEE Start Rating/IEC/ test certificate from MNRE authorised labs for each product they are offering for empanelment. The manufacturer will submit their price offer only for the product for which they have submitted the specification and valid BIS/BEE/IEC certificate/test certificate from MNRE authorised labs. They will be empanelled for that particular product/s only.
- x.) The Authority has right to disengage the empanelment of the manufacturer if found that product supplied by manufacturer is not as per the minimum specified BIS/BEE/IEC/ standard and specification or its BIS/BEE certification/ test

certificate from MNRE authorised labs gets invalid. The manufacturer shall have to submit the renewed BIS/BEE certificate/test certificate from MNRE authorised labs to the authority as and when the certificate gets invalid during the period of empanelment.

- xi.)** If at any time it is noticed that the manufacturer has supplied same product/model at a lower price to the farmer in the open market during the period of this empanelment, the Authority shall take suitable appropriate course of action against the empanelled manufacturer.
- xii.)** If the manufacturer or its authorised dealer sells the empanelled model at a price higher than the empanelled price to the farmer beneficiary under the subsidy scheme, the Authority may initiate suitable action and it will be binding on the manufacturer.
- xiii.)** If the interested manufacturer will be backed out at any stage of this exercise, the manufacturer will become ineligible to participate in any such empanelment exercise to be carried out by the authority in future.
- xiv.)** *The Authority/its authorised representative may conduct site visit of manufacturing facility to ascertain the manufacturer status and manufacturing facility of the manufacturer. In case if the authority finds during the site visit that applicant is not a manufacturer, its proposal/empanelment shall be cancelled with immediate effect and the bank guarantee shall be forfeited in case of empanelled manufacturer.*

### **3.0 MINIMUM ELIGIBILITY CRITERIA**

[A] The party is eligible to apply for Empanelment as SPV water Pump System Supplier if they fulfil the following criteria:

- A Registered Company with manufacturing facility in India for SPV Cells / Modules OR Motor-pump Sets. (please note that the party must submit Udhyog Aadhar, Memorandum of Association, Certified copy of Certificate of incorporation etc. as a documentary proof.)

- Test Certificates from MNRE approved lab shall be submitted for the products/models offered for empanelment under this EoI.
- Submit Agreement/ MOU between EoI applicant and the SPV Modules/SPV water Pump manufacturer.(whichever the case may be)

- [B] Financial strength of the organization; the party must have average turnover of minimum Rs. 3 crore in business of manufacturing and selling of Solar PV Module and/or water pump system and positive net worth (should be proved by documentary evidence) for FY 15-16, FY 16-17 and FY 17-18.Certificate from Chartered accountant in this regard is required to be submitted As per annexure-7 with UDIN number.
- [C] EOI Applicant should have Valid Test Certificate for the solar PV water pump system from a MNRE authorized testing center. A copy of which should be enclosed
- [D] The SPV water pump supplier will have to supply and install the SPV water pump material of same make/model/specification as mentioned in the valid test report for the offered Model of Solar Water Pumping System from a MNRE authorized testing centre.
- [E] The EOI applicant should have valid GST/CST/ State VAT/ TIN registration certificate. A copy of which should be enclosed.
- [F] The EoI applicant should have valid IEC/BIS certificates for solar PV cells/modules offered for empanelment. A copy of which should be enclosed.
- [G] D.Ag if required may pick up samples from the manufacturing facility or SPV water pump material supplied & Installed at beneficiaries' site at random for quality check only. The samples picked up will be tested for acceptance test at MNRE/Government approved laboratory as per relevant BIS/IEC specifications.
- [H] If the SPV water pumping system fails in any of the acceptance tests carried out, then full supply of materials will be considered as rejected and SPV water pump supplier has to replace the entire material with satisfaction of D.Ag. The D.Ag may impose suitable amount of penalty at its own discretion on SPV water pump manufacturers and all these will be binding on the manufacturer. All Testing fees and other expenses incurred by D.Ag for such test will be borne by SPV water pump supplier.

#### **4.0 SELECTION PROCESS**

- i.** The interested manufacturer shall submit its technical proposal of EOI as per **Annexure -1 2, 3, 4, 5,7,9,10.12 and 8 (if applicable)**. Incomplete information in Technical proposal will lead to disqualification of the manufacturer for this exercise.
- ii.** To safeguard the interest of farmer and to streamline the cost of equipment, the authority on behalf of farmer, is asking the manufacturer to submit their best possible price offer for specified minimum quality and specification of equipment as given at **Annexure-3**.
- iii.** **The price offer is to be submitted online only as per the format given at Annexure-6.**
- iv.** The price offer should be uniform across the State for a minimum specification of equipment as described in this document.
- v.** The price offer of only those manufacturers will be opened who will be declared qualified at the end of technical scrutiny.
- vi.** The manufacturer shall have at least one service centre in the state of Gujarat.
- vii.** A list of selected manufacturers along with the best price discovered will be prepared and published.
- viii.** This empanelment will be for one year and can be extended after approval from Government of Gujarat upto another year or upto the next empanelment exercise whichever is earlier.
- ix.** Authority reserves the right to seek clarification/ justification from the manufacturer on the technical document/details submitted in case Authority deems it necessary.

#### **5.0 PRICE OFFER**

- i.)** The price offer should cover all applicable taxes and at FOR dealer's place (As per the List Dealer Attached with EOI).
- ii.)** The price offer should be valid from **1<sup>st</sup> April 2019 to 31<sup>st</sup> March, 2020**. The price offer has to be submitted online only (Annexure-6). Any mention of price offer in the physical form of EOI will be liable for rejection of entire EOI.
- iii.)** The manufacturer should submit at least 3 latest invoices\* for each model/product

proposed for empanelment. The invoices that have been raised during last twelve months for each model is required to be submitted.

(Note: \* Invoices means (1) GST Invoice Copy

The invoice should be clearly marked with the model no. specified in the price offer for clear identification. **Any mismatch between the product description mentioned in the invoice and that of model for which the price offer has been submitted will be considered as partial submission of the proposal.)**

- iv.) The manufacturer shall categorically confirm strict compliance with the following stipulation in respect of their offer.
- a) Any effort by manufacturer or manufacturer's agent/consultant or representative whosoever described to influence the Authority in any way concerning scrutiny/ consideration/ evaluation/ comparison of the EOI or decision concerning empanelment shall entail rejection of the EOI.
  - b) EOI should be submitted directly by the Manufacturer.
- v.) Authority reserves the right to seek clarification/ justification/negotiation from the manufacturer on the price offer in case Authority deems it necessary. Based on the justification provided by the manufacturer, if Authority feels that the price offer is unrealistic/ unfeasible in order to execute a project of this nature, Authority reserves the right to reject the said price offer. The manufacturer shall be governed by the decision of Authority.

## 6.0 PERFORMANCE SECURITY

- i.) The empanelled manufacturer shall submit a Performance Security of Rs. 5,00,000 (Rupees Five Lacs only) in the form of Bank Guarantee in favour of Director of Agriculture on successful selection for empanelment. The performance security shall be appropriated against breach of the terms and condition of this EOI document. The bank guarantee shall be for the period of empanelment and it should be from Nationalized Bank only.

**ANNEXURE – 1**  
**PROFILE OF BIDDER**

Sr.	Particular	Detail
1	Name of Organisation	
2	Nature of the Organisation	
a	In case of Public/Pvt. Ltd company ** (Certified copy of Certificate of incorporation & Memorandum and Articles of Associations)	
b	In case of Partnership Firm** (Partnership deed)	
c	In case of Proprietorship ** (Registration certificate, Factory registration, DIC –industrial registration)	
3	Name of Products Manufactured by the bidder (i.e. SPV Cells / Modules OR Motor-pump Sets )	
4	Name of product for which company has entered in MOU with manufacturer for supply	
5	Registered Address of Manufacturing unit with Phone No. and Fax No.:	
6	Registered Address of Corporate office with Phone No. and Fax No.: Email Id:	
7	PAN (attach attested copy )	
8	GST Registration No.(attach attested copy )	
9	Name of the Authorized person	
	Contact Details	
	Phone No. of Land line	
	Mobile No.	
	<b>Email Address</b>	

**Please note that any communication regarding this empanelment exercise will be sent to the details provided on this page.**

**ANNEXURE-2**

**LIST OF AUTHORISED DEALER DISTRICT  
WISE IN THE STATE OF GUJARAT**

<b>Sr.</b>	<b>District</b>	<b>Name of Authorised Dealer</b>	<b>Location /Address</b>	<b>Name of Main Person</b>	<b>Mobile No.</b>	<b>Email ID</b>
<b>1</b>						

**ANNEXURE-3****SPECIFICATION SHEET****(To be provided For Each Model presented for Empanelment)****DETAILS OF SOLAR PUMP MODELS AND CONFIGURATION**

1.0 The details of Solar pump model offered under the EoI and its configuration is as under

<b>S.No.</b>	<b>Particulars</b>	<b>Remarks</b>
1	Name/Model No. of MNRE approved SPV Water pump Model offered for Empanelment	
2	Name of MNRE approved Laboratory from where Test Certificate is issued	
<b>Details of PV Arrays</b>		
2	PV Array Model Name	
3	Test Certificate No for PV Arrays	
6	SPV Array Used Wp, Make and Model	
7	Proposed No. of SPV Modules with Wp (minimum 200 Wp)	
8	Type of Module Cell Used	
<b>Water Pump Details</b>		
9	Water Pump Model Name/No. and Make	
	HP and type of Pump (AC/DC), (Submersible/Surface)	
10	Pump Controller Make and Model No.	
11	Total Dynamic Head (M)	
12	Water Output (Ltrs. /day)	



13	HDPE pipe specification (i.e. mm/kg, length)	
14	Other accessories such as nipple for connection, nut bolt, clamp etc. (please mention size and number of the same)	

( Pls attach the copy of Valid test certificate for each offered solar pumpset)

Note: Head v/s discharge details of every model of pump should be provided with this document. Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation “condition of 7.15 KWH / sq. m/ day on the surface of PV array (i.e. coplanar with the PV modules).

The SPV water pump supplier will have to supply and install the SPV water pump material of same make/model/specification as mentioned in the valid test report for the offered Model of Solar Water Pumping System from a MNRE authorized testing centre.

Seal of Organization

Signature

**Date:**

**(For and on behalf of Name and Designation with Seal)**

**ANNEXURE –4**

**Company's Experience in  
Supplying and Installation of SPV Water Pump System In Farmers' Field  
In Gujarat or In any State of India**

1. List of total SPV Water pump System commissioned

Sr. No	Name of Implementing Agency with Full Address, Phone, Fax and Contact Person with Email Id	Work Description/ Qty Supplied	Ref and Date of the Work Order	Work Order Value	Ref and Date of Work completion certificate	Page no. of work Order/Work completion certificate

**ANNEXURE-5**  
**CHECKLIST FOR FULFILMENT OF ELIGIBILITY CRITERIA**

Sr.	Criteria	Documents/Detail required	Documentary Proof attached (Y/N)	Page No.
1	<b>The manufacturer having minimum valid BIS/IEC Certificate/test certificate from the MNRE authorised labs for the product offered for Empanelment.</b>	A copy of following shall be submitted. 1.BIS/IEC license 2.test certificate from the MNRE authorized labs for each SPV water pump model (Annexure-3) offered for empanelment		
2	<b>The manufacturer will provide the list of its authorised dealer network across the State</b>	List of Authorised dealer as per Annexure-2.		
3	<b>The manufacturer should have minimum annual average domestic sales of Rs. 3.00 Crores and positive net worth for last 3 years ending on 31st 2018 (i.e. for the year 2015-16, and 2016-17, 2017-18).</b>	CA certificate indicating annual domestic sales from SPV Pumpset for last 3 years ending on 31 <sup>st</sup> 2018 (i.e. for the year 2015-16, and 2016-17, 2017-18) as per the format given at Annexure-6.		
4	<b>MOU/Agreement with the manufacturer of either SPV Cells/modules OR Motor-pump Sets for which the bidder don't have in house manufacturing facility</b>	MOU/Agreement		
5	<b>Acceptance of Minimum Technical Requirements for Solar PV modules and Performance Standards for Solar PV pumping System and Technical Specifications of SPV Water Pumping System. As per Annexure –12.</b>			

**ANNEXURE-6**  
**PRICE OFFER FOR SUPPLY OF EQUIPMENT**

**EOINotice No.:**

**To:**

Director of Agriculture

Krishi Bhavan, Sector-10A,

Gandhinagar - 382010, Gujarat

**Dear Sir:**

I/ We hereby offer best price to the farmer for supply of SPV Pump Set for the specified quality and specification given at **annexure- 3** and as per the Terms of Reference given in this EOI Document. The rates are quoted in the prescribed format given below:

**PRICE FOR EQUIPMENT TO FARMER/BENEFICIARY**

(Amt. in Rs.)

Sr No	Equipment/Model name as indicated in annexure-3 offered for empanelment	Type of Pump		HP	Pump Dynamic Head	Water output (Ltrs/day)	Basic Price per set for spv pumping system	GST	Total Price per set for spv pumping system offer to Farmer
		AC/DC	Submersible/Surface						
1									
2									

**Note:**

- The price is at FOR respective farmer's location in the State of Gujarat
- The above offered price should be inclusive of total system cost and its installation, commissioning, transportation, warranty and applicable fees and taxes.

**Signature of Manufacturer**

**ANNEXURE-7**

**FORMAT FOR CA CERTIFICATE**

TO WHOM SO EVER IT MAY CONCERN

**CHARTERED ACCOUNTANT CERTIFICATE**

On the basis of verification of books of accountants and other documents produced before us and maintained by the Company, we certify that M/s \_\_\_\_\_ is engaged in manufacturing of SPV Pumpsets/PV Arrays/motor pumpsets. This is to certify that they have turn over from manufacturing of SPV Pumpsets/PV Arrays/motor pumpsetsas under for the last 3 years.

<b>Sr. No</b>	<b>Financial Year</b>	<b>Turnover (in Rs. Lacs)</b>
1	2016-17	
2	2017-18	
3	2018-19	
	Avg. of above	

**ANNEXURE –8**

**PERFORMA OF GENERAL POWER OF ATTORNEY**

(To be signed and executed on non- judicial Stamp Paper of Rs. 10/-)

Be it known all to whom it concern that:

1. Shri/Smt \_\_\_\_\_ S/O \_\_\_\_\_  
Residing  
at \_\_\_\_\_
  
2. Shri/Smt \_\_\_\_\_ S/O \_\_\_\_\_  
Residing  
at \_\_\_\_\_
  
3. Shri/Smt \_\_\_\_\_ S/O \_\_\_\_\_  
–  
Residing  
at \_\_\_\_\_

I/ We all the Partners/ Directors/ Board members/ trustees/ Executive council members/ Leaders of M/S \_\_\_\_\_ having its registered office at \_\_\_\_\_ hereby appoint Sri \_\_\_\_\_ S/O \_\_\_\_\_ residing at \_\_\_\_\_ as my/our attorney to act my/our name and on behalf and sign and execute all Documents/ Agreements binding the firm for all contractual obligations (including reference of cases to arbitrators) arising out of contracts to be entered into by the company/ Corporation/ society/ trust/ firm with the Office of ..... (Authority), KrishiBhavan, Sector-10A, Gandhinagar -382010 in connection with its EOI no. \_\_\_\_\_ dated \_\_\_\_\_ For \_\_\_\_\_ due for opening on \_\_\_\_\_.

In short, he is fully authorized to do all, each and everything requisite for the above purpose concerning M/s \_\_\_\_\_ and I/We hereby agree to confirm and ratify his all and every act of this or any documents executed by my/ our said Attorney within the scope of the authority hereby conferred on him including references of cases to arbitration and the same shall be binding on me/ us and my/our company/ Corporation/society/trust/firm as if the same were executed by me/us individually or jointly.

Witness (With address)

Signature of the Partners/ Directors/Board  
Members Executives/Trustees/Council  
members

- 1)
- 2)

**ANNEXURE –9****Model-wise Document Index For Invoices and BIS/IEC/test report of MNRE authorized labs**

Sr. No.	Model No./name	HP	Invoice-1* at Pg No.	Invoice-2* at Pg No	Invoice-3* at Pg No	test report of MNRE authorized labs at Pg No	BIS/IEC Certificate at Pg No

- The manufacturer should submit at least 3 latest invoices\* for each model/product proposed for empanelment. The invoices that have been raised during last twelve months for each model is required to be submitted.

(Note: \* Invoices means (1) Tax Invoice /GST Invoice Copy

The invoice should be clearly marked with the model no. specified in the price offer for clear identification. Any mismatch between the product description mentioned in the invoice and that of model for which the price offer has been submitted will be considered as partial submission of the proposal.

- The incomplete detail in **Annexure-9** will lead to non-consideration of particular model for empanelment.

**Annexure-10**

**(Declaration IN REGARD TO STOP DEAL / BLACK LIST THERE OF)**

**Sub: Declaration in regard to Stop Deal / Black List thereof.**

Ref: D.Ag's Expression of Interest Notification No. \_\_\_\_\_,  
dated:\_\_\_\_\_

I / We \_\_\_\_\_ authorized  
signatory of M/S \_\_\_\_\_ hereby  
declare that M/S \_\_\_\_\_ is not stop deal/blacklisted by  
any Central/State Government PSU / Govt. Company or by any Central/State  
Government Department in India.

Seal of Organization

Signature

Date:

(For and on behalf of Name and Designation with Seal)



**ANNEXURE – 11****LIST OF BANKS AS PER GOVERNMENT OF GUJARAT GR**

	All Nationalized Banks including the Public Sector Bank- IDBI Ltd.
	Private Sector Banks - AXIS Bank, ICICI Bank and HDFC Bank.
01	Kotak Mahindra Bank
02	RBL Bank (The Ratnakar Bank Ltd.)
03	IndusInd Bank
04	Karur Vysya Bank
05	DCB Bank
06	FEDERAL Bank
07	SOUTH INDIAN Bank
08	The Kalapur Commercial Cooperative Bank Ltd.
09	Rajkot Nagarik Sahakari Bank Ltd.
10	The Mehsana Urban Co-Operative Bank Ltd.
11	Nutan Nagarik Sahakari Bank Ltd.
12	Dena Gujarat Gramin Bank
13	Saurashtra Gramin Bank
14	Baroda Gujarat Gramin Bank
15	YES Bank

**ANNEXURE-12**  
**SPECIFICATIONS FOR SOLAR PHOTOVOLTAIC  
WATER PUMPING SYSTEMS**

**I. INTRODUCTION**

A Solar Photovoltaic (SPV) Water Pumping System consists of:

- PV Array :

*Capacity in the range of 200 Wp to 10 KWp. These ranges of Solar Photovoltaic (SPV) Water Pumping Systems are basically for “Irrigation” applications. However, these may also be used for “Drinking Water Applications wherever such capacities are required”.*

PV Array should be mounted on a suitable structure with a provision of tracking the sun.

- Motor Pump Set (Surface or submersible) :

-D.C. Motor Pump Set (with Brushes or Brush less D.C.)

OR

-A.C. Induction Motor Pump Set with a suitable Inverter

- Electronics :

-Maximum Power Point Tracker (MPPT)

-Inverter for A.C. Motors (Appropriate Electronic Controller in case of B.L.D.C.) - Electronic Protections.

- Interconnect Cables and

- “On-Off” switch.

**II. PERFORMANCE SPECIFICATIONS AND REQUIREMENTS**

Solar PV Water Pumps with PV module capacity in the range of 200 Watt to 5 KWp may be installed on a suitable bore-well / open well / Water Reservoir / Water stream etc.

Under the “Average Daily Solar Radiation” condition of 7.15 KWh / sq.m. on the surface of PV array (i.e. coplanar with the PV Modules), the minimum water output from a Solar PV Water Pumping System at different “Total Dynamic Heads” should be as specified below :

**For D.C. Motor Pump Set with Brushes or Brush Less D.C.(B.L.D.C. ) :**

(i) 100 liters of water per watt peak of PV array, from a Total Dynamic Head of 10 metres (Suction head, if applicable, minimum of 7 metres) and with the shut off head being at least 12 metres.

(ii) **50** liters of water per watt peak of PV array, from a Total Dynamic Head of 20 metres (Suction head, if applicable, up to a maximum of 7 metres) and with the shut off head being at least 25 metres.

(iii) 35 liters of water per watt peak of PV array, from a Total Dynamic Head of 30 metres and the shut off head being at least 45 metres.

(iv) 21 liters of water per watt peak of PV array, from a Total Dynamic Head of 50 metres and the shut off head being at least 70 metres.

(v) 14 liters of water per watt peak of PV array, from a Total Dynamic Head of 70 metres and the shut off head being at least 100 metres.

***(vi) 9.5 liters of water per watt peak of PV array, from a Total Dynamic Head of 100 metres and the shut off head being at least 150 metres.***

The actual duration of pumping of water on a particular day and the quantity of water pumped could vary depending on the solar intensity, location, season, etc.

Indicative performance specifications for the Shallow and Deep well SPV Water Pumping Systems are given in the Annexure I.

**For A.C. Induction Motor Pump Set with a suitable Inverter :**

➤ 90 liters of water per watt peak of PV array, from a Total Dynamic Head of 10 metres (Suction head, if applicable, minimum of 7 metres) and with the shut off head being at least 12 metres.

➤ **45** liters of water per watt peak of PV array, from a Total Dynamic Head of 20 metres (Suction head, if applicable, up to a maximum of 7 metres) and with the shut off head being at least 25 metres.

➤ 32 liters of water per watt peak of PV array, from a Total Dynamic Head of 30 metres and the shut off head being at least 45 metres.

- 19 liters of water per watt peak of PV array, from a Total Dynamic Head of 50 metres and the shut off head being at least 70 metres.
- 13 liters of water per watt peak of PV array, from a Total Dynamic Head of 70 metres and the shut off head being at least 100 metres.
- ***8.5 liters of water per watt peak of PV array, from a Total Dynamic Head of 100 metres and the shut off head being at least 150 metres.***

The actual duration of pumping of water on a particular day and the quantity of water pumped could vary depending on the solar intensity, location, season, etc.

Indicative performance specifications for the Shallow and Deep well SPV Water Pumping Systems are given in the Annexure II.

### **III. PV ARRAY**

The SPV water pumping system should be operated with a PV array capacity in the range of ***200 Watts peak to 10000 Watts peak***, measured under Standard Test Conditions (STC). Sufficient number of modules in series and parallel could be used to obtain the required PV array power output. The power output of individual PV modules used in the PV array, under STC, should be a minimum of 125 Watts peak, with adequate provision for measurement tolerances. Use of PV modules with higher power output is preferred.

Indigenously produced PV module (s) containing mono/ multi crystalline silicon solar cells should be used in the PV array for the SPV Water Pumping systems.

- Modules supplied with the SPV water pumping systems should have certificate as per IEC 61215 specifications or equivalent National or International/ Standards.
- Modules must qualify to IEC 61730 Part I and II for safety qualification testing.
- The efficiency of the PV modules should be minimum 14% and fill factor should be more than 70%.
- The terminal box on the module should have a provision for “Opening” for replacing the cable, if required.
- There should be a Name Plate fixed inside the module which will give:
  - a. Name of the Manufacturer or Distinctive Logo.
  - b. Model Number
  - c. Serial Number

- d. Year of manufacture

#### IV MOTOR PUMP-SET

- The SPV water pumping systems may use any of the following types of motor pump sets:
  - a. Surface mounted motor pump-set
  - b. Submersible motor pump set
  - c. Floating motor pump set
  - d. Any other type of motor pump set after approval from Test Centers of the Ministry.
  
- The “Motor Pump Set” should have a capacity in the range of **0.2 hp to 10 hp and** should have the following features.
  - The mono block DC/ AC centrifugal motor pump set with the impeller mounted directly on the motor shaft and with appropriate mechanical seals which ensures zero leakage.
  - The motor of the capacity ranging from 0.2 hp to 10 hp should be AC, PMDC or BLDC type. The suction and delivery head will depend on the site specific condition of the field.
  - Submersible pumps could also be used according to the dynamic head of the site at which the pump is to be used.
  - It is recommended that all parts of the pump and the motor of the submersible pumps should be made of stainless steel.

- The manufacturers of pumps should self certify that, the pump and **all external parts of motor used insubmersible pump which are in contact with water, are of stainless steel.** The pumps used for solar application should have a 5 years warranty so it is essential that the construction of the pump be made using parts which have a much higher durability and do not need replacement or corrode for at least 5 years.

- ***Provision for remote monitoring of the installed pumps must be made in the controllers or the inverters either through an integral arrangement or through an externally fitted arrangement. It should be possible to ascertain the daily water output, the power generated by the PV array, the UP TIME of the pump during the year, Number of days the pump was unused or under breakdown/repairs.***
  
- The suction/ delivery pipe (GI/HDPE), electric cables, floating assembly, civil work and other fittings required to install the Motor Pump set.

- The following details should be marked indelibly on the motor pump set
  - a. Name of the Manufacturer or Distinctive Logo.
  - b. Model Number.
  - c. Serial Number.

## V. MOUNTING STRUCTURES and TRACKING SYSTEM.

The PV modules should be mounted on metallic structures of adequate strength and appropriate design, which can withstand load of modules and high wind velocities up to 150 km per hour. The support structure used in the pumping system should be hot dip galvanized iron with minimum 80 micron thickness.

The structure design (along with the civil work) declared by the manufacturer should technically be full proof / sufficiently strong against the prevailing wind load. The manufacturing firm will be fully responsible for any damages caused by high wind velocity within guarantee period. The parameters of prevailing wind speed, soil conditions, load, and upward lift should be taken care of while preparing the design and the same is required to be mentioned on design.

The SPV water pump supplier shall ensure that mounting structure is efficient, strong enough to sustain load and is capable against high wind velocity. The standalone type cylindrical base panel mounting structure is would be used. The Antitheft bolts must be provided for fixing of solar panel with structure.

To enhance the performance of SPV water pumping system, manual tracking system must be provided so that the panel can be manually adjusted three times a day (east-south-west) to face the sun optimally. This adjustment could be done in the early morning, noon and afternoon time to increase total solar radiation on the solar panel surface substantially. This provision helps the motor pump-sets to start early in the morning and function efficiently till late in the afternoon, thereby increasing the total output of the pumping system. Also, the arrangement for seasonal tilt angle adjustment should be provided to adjust the optimal tilt throughout the year.

## VI. ELECTRONICS AND PROTECTIONS

- Maximum Power Point Tracker (MPPT) should be included to optimally use the Solar panel and maximize the water discharge.

- Inverter could be used, if required, to operate an A.C. Pump. The inverter must have IP 54 protection or must be housed in a cabinet having at least **IP54** protection.
- Controller for BLDC motor driven pumps, if required be used. The controller must have **IP 54** protection or must be housed in a cabinet having at least IP 54 protection.
- Adequate protections should be incorporated against dry operation of motor pump set, lightning, hails and storms.
- Full protection against open circuit, accidental short circuit and reverse polarity should be provided.

## VII. ON/OFF SWITCH

A good reliable switch suitable for DC use is to be provided. Sufficient length of cable should be provided for inter-connection of the PV array, Controller / Inverter and the motor pump set. Preferably the Inver/Controller should have a arrangement to switchover from solar to Grid connection and vice versa for easy operation.

VIII. Any other item not specifically mentioned in the specifications but which are required for Supply, Installation & Commissioning of Solar Water Pumping system are deemed to be included in the scope of the specification as per relevant and latest IS, IEC, MNRE guidelines, standards of Rural Electrification Corporation (REC) and specified by D.Ag unless specifically excluded.

Specification of all the items covered under this EoI is mentioned above. However, if any item is left out, standard specification of relevant and latest IS,IEC, MNRE, Rural Electrification Corporation (REC) and specified by D.Ag will be applicable for the same.

## IX. WARRANTY

The PV Modules must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. The whole system including submersible/ surface pumps shall be warranted for 5 years. Required Spares for trouble free operation during the Warrantee period should be provided along with the system.

## X. OPERATION AND MAINTENANCE MANUAL

An Operation and Maintenance Manual, in English and the local language, should be provided with the solar PV pumping system. The Manual should have information about solar energy, photovoltaic, modules, DC/AC motor pump set, tracking system, mounting structures, electronics and switches. It should also have clear instructions about mounting of PV module, DO's and DONT's and on regular maintenance and Trouble Shooting of the pumping system. Name and address of the person or Centre to be contacted in case of failure or complaint should also be provided. A warranty card for the modules and the motor pump set should also be provided to the beneficiary.

## **XI. NOTES**

- Wherever the “Water table” or the level of water in the reservoir or the water source (e.g. Diggie) from which the water is to be pumped, is within 10 metres depth, ‘Surface Motor Pump sets’ should be preferred.
- The type of pump set used must match the total dynamic head requirement of the site (i.e. the location at which it is installed). Moreover, it should be appropriately tested and certified by the authorized test centres of the Ministry to meet the performance and water discharge norms specified in section II above.
- There should not be any compulsion to use only one or the other type of Motor-pump set. The beneficiary may select an appropriate Model (i. e. Capacity of PV Array and Type of Motor Pump Set) as per site requirement.

## **XII. NAME PLATE:**

Name Plate in Gujarati Language of size 2ft by 2 ft on iron plate is required to be prepared as per following details and required to be fixed on the system for every installation.

1	Name of beneficiary (farmer)	
2	Name of Village Taluka /District	
3	Solar PV capacity in Wp and DC/AC submersible Pump capacity in HP	
4	Pump head	
5	Name of Supplier of the system	
6	Address and Contact no of Supplier 's Service centre for informing faults in the system	
7	Programme Implemented by Directorate of Agriculture, Government of Gujarat	



**ANNEXURE – I**

Indicative Technical Specifications of Shallow Well (Surface) Solar Pumping Systems , With D.C. Motor Pump Set with Brushes or Brush Less D.C.(B.L.D.C.)

Description	Model-I	Model-II	Model-III
PV array	900 Wp	1800 Wp	2700 Wp
Motor capacity	1 hp	2 hp	3 hp
Shut Off Dynamic Head	12 metres	12 metres	25 metres
Water output *	90,000 litres per day from a total head of 10 metres	180,000 litres per day from a total head of 10 metres	135,000 litres per day from a total head of 20 metres

\* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of **7.15 KWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).**

Notes:

1. Suction head, if applicable, minimum 7 metres.
2. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause II. (i.e. performance specifications and requirements) specified earlier.
3. If submersible pumps are used in lieu of surface pumps, the water output must match that of the surface pumps as specified in this table.
4. Module mounting structure shall be MS hot dipped galvanised, with a facility of manual tracking at least three times a day.

- Indicative Technical Specifications of Solar Deep well (submersible) Pumping Systems:
- With D.C. Motor Pump Set with Brushes or Brush Less D.C.(B.L.D.C.)

Description	Model-I	Model-II	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII
PV array	1200 Wp	1800 Wp	3000 Wp	3000 Wp	3000 Wp	4800 Wp	4800 Wp	4800 Wp
Motor capacity	1 hp submersible with controller	2 hp submersible with controller	3 hp submersible with controller	3 hp submersible with controller	3 hp submersible with controller	5 hp Submersible with controller	5 hp Submersible with controller	5 hp Submersible with controller
Shut Off Dynamic Head	45 metres	45 metres	45 metres	75 metres	100 metres	70 metres	100 metres	150 metres
Water output*	42,000 litres per day from a total head of 30 metres	63,000 litres per day from a total head of 30 metres	105,000 litres per day from a total head of 30 metres	63,000 litres per day from a total head of 50 metres	42,000 litres per day from a total head of 70 metres	100,800 litres per day from a total head of 50 metres	67,200 litres per day from a total head of 70 metres	45,600 litres per day from a total head of 100 metres

\* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of **7.15 KWh/sq.m. on the surface of PV array (i.e. coplanar with the PV Modules)**.

Notes:

1. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause II. (i.e. performance specifications and requirements) specified earlier.
2. If surface pumps are used in lieu of submersible pumps, the water output must match that of the submersible pumps as specified in this table.
3. Module mounting structure shall be MS hot dipped galvanised, with a facility of manual tracking atleast three times a day.

Indicative Technical Specifications of Solar Deep well (submersible) Pumping Systems:  
With D.C. Motor Pump Set with Brushes or Brush Less D.C.(B.L.D.C.) :

Description	Model-IX	Model-X	Model-XI	Model-XII	Model-XIII	Model-XIV
PV array (minimum)	6750 Wp	6750 Wp	6750 Wp	9,000 Wp	9,000 Wp	9,000 Wp
Motor capacity	7.5 hp Submersible with controller	7.5 hp Submersible with controller	7.5 hp Submersible with controller	10 hp Submersible with controller	10 hp Submersible with controller	10 hp Submersible with controller
Shut Off Dynamic Head	70 metres	100 metres	150 metres	70 metres	100 metres	150 metres
Water output*	141,750 litres per day from a total head of 50 metres	94,500 litres per day from a total head of 70 metres	64,125 litres per day from a total head of 100 metres	189,000litres per day from a total head of 50 metres	126,000 litres per day from a total head of 70 metres	85,500 litres per day from a total head of 100 metres

\* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of **7.15 KWh/sq.m. on the surface of PV array (i.e. coplanar with the PV Modules)**.

Notes:

1. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause II. (i.e. performance specifications and requirements) specified earlier.
2. If surface pumps are used in lieu of submersible pumps, the water output must match that of the submersible pumps as specified in this table.
3. Module mounting structure shall be MS hot dipped galvanised, with a facility of manual tracking at least three times a day.

**ANNEXURE – II**

Indicative Technical Specifications of Shallow Well (Surface) Solar Pumping Systems , With A.C. Induction Motor Pump Set and a suitable Inverter:

Description	Model-I	Model-II	Model-III	Model-IV	Model- V	Model- VI
PV array	900 Wp	1800 Wp	2700 Wp	2700 Wp	4800 Wp	4800 Wp
Motor capacity	1 hp	2 hp	3 hp	3 hp	5 hp	5 hp
Shut Off Dynamic Head	12 metres	15 metres	15metres	25 metres	15metres	30 metres
Water output *	81,000 litres per day from a total head of 10 metres	162,000 litres per day from a total head of 10 metres	243,000 litres per day from a total head of 10 metres	121,500 litres per day from a total head of 20 metres	432,000 litres per day from a total head of 10 metres	216,000 litres per day from a total head of 20 metres

\* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of **7.15 KWh/sq.m. on the surface of PV array (i.e. coplanar with the PV Modules)**.

Notes:

1. Suction head, if applicable, minimum 7 metres.
2. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause II. (i.e. performance specifications and requirements) specified earlier.
3. If submersible pumps are used in lieu of surface pumps, the water output must match that of the surface pumps as specified in this table.
4. Module mounting structure shall be MS hot dipped galvanised, with a facility of manual tracking at least three times a day.

**ANNEXURE – II (CONTD.)**

Indicative Technical Specifications of Solar Deep well (submersible) Pumping Systems:  
With A.C. Induction Motor Pump Set and a suitable Inverter:

Description	Model-I	Model-II	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII
PV array	1200 Wp	1800 Wp	3000 Wp	3000 Wp	3000 Wp	4800 Wp	4800 Wp	4800 Wp
Motor capacity	1 hp submersible with controller	2 hp submersible with controller	3 hp submersible with controller	3 hp submersible with controller	3 hp submersible with controller	5 hp Submersible with controller	5 hp Submersible with controller	5 hp Submersible with controller
Shut Off Dynamic Head	45 metres	45 metres	45 metres	75 metres	100 metres	70 metres	100 metres	150 metres
Water output*	38,400 litres per day from a total head of 30 metres	57,600 litres per day from a total head of 30 metres	96,000 litres per day from a total head of 30 metres	57,000 litres per day from a total head of 50 metres	39,000 litres per day from a total head of 70 metres	91,200 litres per day from a total head of 50 metres	62,400 litres per day from a total head of 70 metres	40,800 litres per day from a total head of 100 metres

\* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of **7.15 KWh/sq.m. on the surface of PV array (i.e. coplanar with the PV Modules)**.

Notes: For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause II. (i.e. performance specifications and requirements) specified earlier.

1. If surface pumps are used in lieu of submersible pumps, the water output must match that of the submersible pumps as specified in this table.
2. Module mounting **structure shall** be MS hot dipped galvanised, with a facility of manual tracking at least three times a day.

**ANNEXURE –II (CONTD.)**

Indicative Technical Specifications of Solar Deep well (submersible) Pumping Systems:

With A.C. Induction Motor Pump Set and a suitable Inverter (**Contd.**):

Description	Model-IX	Model-X	Model-XI	Model-XII	Model-XIII	Model-XIV
PV array (minimum)	6750 Wp	6750 Wp	6750 Wp	9,000 Wp	9,000 Wp	9,000 Wp
Motor capacity	7.5 hp Submersible with controller	7.5 hp Submersible with controller	7.5 hp Submersible with controller	10 hp Submersible with controller	10 hp Submersible with controller	10 hp Submersible with controller
Shut Off Dynamic Head	70 metres	100 metres	150 metres	70 metres	100 metres	150 metres
Water output*	128,250 litres per day from a total head of 50 metres	87,750 litres per day from a total head of 70 metres	57,375 litres per day from a total head of 100 metres	171,000 litres per day from a total head of 50 metres	117,000 litres per day from a total head of 70 metres	76,500 litres per day from a total head of 100 metres

\* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of **7.15 KWh/sq.m. on the surface of PV array (i.e. coplanar with the PV Modules)**.

Notes:

- 1) For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause II. (i.e. performance specifications and requirements) specified earlier.
- 2) If surface pumps are used in lieu of submersible pumps, the water output must match that of the submersible pumps as specified in this table.
- 3) Module mounting structure shall be MS hot dipped galvanised, with a facility of manual tracking at least three times a day.

Seal of Organization

Signature

Date:

(For and on behalf of Name and Designation with Seal)