

# HARYANA RENEWABLE ENERGY DEVELOPMENT AGENCY (HAREDA)

(DEPARTMENT OF NEW & RENEWABLE ENERGY, HARYANA)

Akshay Urja Bhawan, Sector-17, Panchkula

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Rate contract No ...HAREDA/2018-19/ 945-52

Dated: 14.06.2018

To

1. M/s Premier Solar systems Pvt Ltd.  
Survey No: 54/Part, Above Pulla Reddy Sweet House,  
Vikrampur Colony, Karkhana Main Road,  
Secunderabad - 500 015, Telangana, INDIA  
Ph- 040-27744415/16,  
E-mail- [tenders@premiersolar.co.in](mailto:tenders@premiersolar.co.in)
2. M/s Novus Green Energy Systems (P) Ltd.  
#100, 1 st & 2 nd Floor, P&T Colony, Trimulgherry, Secunderabad.  
Contact No. 9717869494, +91-40-27743245, +91-40-40045515  
E. Mail: [adithya@novusgreen.in](mailto:adithya@novusgreen.in) , [amits@novusgreen.in](mailto:amits@novusgreen.in)
3. M/s AVI Appliances Pvt. Ltd.  
65,66, Narayan Industrial Estate, Opp. Raipur Mill Compound, Saraspur,  
Ahmedabad – 380018  
Contact No. 079-22733254  
E. mail: [jain\\_pritam@hotmail.com](mailto:jain_pritam@hotmail.com) , [design01@avi-products.com](mailto:design01@avi-products.com)
4. M/s Sai Babuji Projects (P) Ltd.  
16-IDA, Balanagar, Hyderabad-500037,  
Telangana.  
Contact No. 040-23078614, 040-23078378  
E. Mail: [saibabujiprojects@gmail.com](mailto:saibabujiprojects@gmail.com)
5. M/s Ecozen Solutions Pvt. Ltd.  
Survey No. 134/1,134/2,130/3, Adjacent to Bharat Benz Showroom, Jeevan  
Nagar, Tathawade, Pune-411033, Maharashtra  
Contact No. 9970158106, 9975079419  
E.Mail:[devendragupta@ecozensolutions.com](mailto:devendragupta@ecozensolutions.com),  
[psinghal@ecozensolutions.com](mailto:psinghal@ecozensolutions.com)
6. M/s Ethos Power Pvt. Ltd.  
21-123, 1st Floor, DLF Star Tower,  
NH-8, Sector-30, Gurgaon-122001.  
0124-4369774, 4228153  
[k.mann@ethospower.in](mailto:k.mann@ethospower.in)
7. M/s Topsum Energy Ltd.  
B-101, GIDC, Electronic Zone, Sectro-25,  
Gandhinagar, 382328, Gujarat  
Contact No. +91 79 23288804, 23288805  
E. Mail: [cqpatel@topsunenergy.com](mailto:cqpatel@topsunenergy.com)

Subject-

RATE CONTRACT FOR SUPPLY, INSTALLATION AND COMMISSIONING  
OF 2 HP DC SURFACE TYPE PUMPS, 2 HP DC SUBMERSIBLE TYPE, 5.0  
HP AC SUBMERSIBLE, 7.5 HP TYPE AC SUBMERSIBLE AND 10 HP AC  
SUBMERSIBLE TYPE SOLAR WATER PUMPING SYSTEMS (TOTAL  
QUANTITY-2600 Nons.).

Reference:

- i. This office e-tender enquiry no. HAREDA/ SPV WATER PUMPING  
SYSTEMS/2017-18/01





- ii. Your offer submitted against the said tender enquiry and subsequent last correspondence in the matter.


Dear Sir,

You are hereby informed that your offer for the supply, installation and commissioning of 2 HP DC surface type pumps, 2 HP DC submersible type, 5 HP AC submersible type pump, 7.5 HP AC submersible type pump and 10 HP AC submersible type pump has been accepted on rate contract by High Power Purchase Committee in its meeting held on 18.05.2018 at the rate given in **schedule-A** inclusive of all taxes with 5 years warranty of complete system including interface charge controller and with warranty of module for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. This Rate Contract will be governed by the terms and conditions given in **schedule-B** and specification in **schedule-C** as under.

- i. This rate contract shall be valid up to one year from the date of its issue or placing the work order for cumulative quantity up to 1.5 times of the tendered quantity of 2600 numbers of solar water pumping systems, whichever is earlier.
- ii. The technical specifications, terms and conditions if any left out in the schedule-B and C shall be as per DNIT.
- iii. Please acknowledge receipt of this Rate Contract within a week's time from the date of issue by returning the second copy duly signed and stamped by authorized representative of your firm.
- iv. **This Rate Contract contains 14 pages including this page.**

**Annexure:**

1. Schedule "A" - Description of Stores, Prices, Duties/Taxes.
2. Schedule "B" - Terms & Conditions of the rate contract.
3. Schedule "C" - Technical specifications.

  
(JS Kohli)  
Scientific Engineer 'A'  
for Director, New & Renewable Energy  
Department, Haryana and HAREDA

Encl: As above

**Note:**

Placing of any work order under this rate contract will require prior approval/ sanction of the Director, NRE/HAREDA. Any work order, referring to this rate contract, placed without the prior approval/ sanction of the Director, NRE/ HAREDA, will not be accepted by the contractor.



## Schedule-A

### I. DESCRIPTION OF STORES, PRICES ETC.

Sr. No.	Item	Description of Stores	Name of the Firm	Rate per system (Rs.) inclusive of all taxes with 5 years warranty of complete system including pump/motor and with warranty of module for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years	State of Billing
1	2 HP, DC Surface Type with 1800 watt solar array as per specifications at schedule- C	Supply, installation and commissioning of 2 HP DC surface type Solar water Pumps with 1800 watt solar array	M/s Premier Solar, Hyderabad	1,80,000	Haryana
2	2 HP, DC Submersible Type with 1800 watt solar array as per specifications at schedule- C	Supply, installation and commissioning of 2 HP DC Submersible type Solar water Pumps with 1800 watt solar array	M/s Novus Green Energy Systems (P) Ltd., Secunderabad	1,93,000	Haryana
3	5 HP, AC Submersible Type with 4800 watt solar array as per specifications at schedule- C	Supply, installation and commissioning of 5 HP AC submersible type Solar water Pump with 4800 watt solar array	M/s. AVI Appliances Pvt. Ltd., Ahmedabad,	3,33,000	Rajasthan
			M/s Sai Babuji Projects (P) Ltd., Hyderabad	3,33,000	Telangana
			M/s Ecozen Solutions Pvt Ltd, Pune	3,33,000	Chattisgarh
			M/s Ethos Power Pvt. Ltd. Gurgaon, Haryana (MSE of Haryana)	3,33,000	Haryana
4	7.5 HP, AC Submersible Type with 6750 watt solar array as per specifications	Supply, installation and commissioning of 7.5 HP AC submersible type Solar water Pump	M/s. AVI Appliances Pvt. Ltd., Ahmedabad	4,78,000	Rajasthan
			M/s Sai Babuji Projects (P)	4,78,000	Telangana



	at schedule- C	with 6750 watt solar array	Ltd., Hyderabad		
5	10 HP, AC Submersible Type with 9000 watt solar array as per specifications at schedule- C	Supply, installation and commissioning of 10 HP AC submersible type Solar water Pump with 9000 watt solar array	M/s. Topsun Energy Ltd. Gandhinagar, Gujarat	6,10,378	Gujarat

II. DESCRIPTION OF MAKES, APPROVED QUANTITY ETC.

Sr. No.	Item	Name of the Firm	Make of their SPV modules, Pumpset and charge controller	Approved Quantity (percentage)
1	2 HP, DC Surface Type with 1800 watt solar array as per specifications at schedule- C	M/s Premier Solar, Hyderabad	Module- Premier Solar Motor Pumpset- Rotomag Controller- Rotomag	150 Nos. (100%)
2	2 HP, DC Submersible Type with 1800 watt solar array as per specifications at schedule- C	M/s Novus Green Energy Systems (P) Ltd., Secunderabad	Module- Icon Solar Motor Pumpset- Shakti Controller- Shakti	150 Nos. (100%)
3	5 HP, AC Submersible Type with 4800 watt solar array as per specifications at schedule- C	M/s. AVI Appliances Pvt. Ltd., Ahmedabad,	Module- Goldi Green Motor Pumpset- Falcon Pumps Controller- Hermes Technologies	350 Nos. (16%)
		M/s Sai Babuji Projects (P) Ltd., Hyderabad	Module- Sri Savitr Motor Pumpset- Sugana by Archana Controller- Sri Babuji	650 Nos. (30%)
		M/s Ecozen Solutions Pvt Ltd, Pune	Module-Icon Motor Pumpset-Falcon Controller-Ecozen	320 Nos. (14%)
		M/s Ethos Power Pvt. Ltd. Gurgaon, Haryana	Module-Enfros Technologies Motor Pumpset-Kirloskar Controller-Ethos	880 Nos. (40%)
4	7.5 HP, AC Submersible Type with 6750 watt solar array as per specifications at schedule- C	M/s. AVI Appliances Pvt. Ltd., Ahmedabad	Module- Goldi Green Motor Pumpset- Falcon Pumps Controller- Hermes Technologies	25 Nos. (50%)
		M/s Sai Babuji Projects (P) Ltd., Hyderabad	Module- Sri Savitr Motor Pumpset- Sugana by Archana Controller- Sri Babuji	25 Nos. (50%)
5	10 HP, AC Submersible Type with 9000 watt solar array as per specifications at schedule- C	M/s. Topsun Energy Ltd. Gandhinagar, Gujarat	Module- Topsun Motor Pumpset- Falcon Controller- Hermes Technologies	50 Nos. (100%)



## Schedule -B

### DETAILED TERMS & CONDITIONS FOR SUPPLY, INSTALLATION AND COMMISSIONING OF SOLAR WATER PUMPING SYSTEMS

#### 1. SCOPE OF WORK

Supply, installation and commissioning of 2600 nos. of Solar Water Pumping Systems of capacities 2600 nos. of 2HP/5HP/7.5HP/10HP Solar Water Pumping System at various locations in the state of Haryana, India on annual rate contract, as per the technical specifications given in schedule-C with five years warranty of the complete system(s) from the date of commissioned and PV modules used in the power plant must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. However, total nos./ capacity as indicated above may go up to 1.5 times of indented nos./ capacity, if required. Successful bidders will have to unconditionally agree to the additional quantum beyond the indented nos./ capacity under the same terms and conditions.

#### 2. SECURITY DEPOSIT / PERFORMANCE SECURITY DEPOSIT

- 2.1 The successful supplier shall deposit Security Deposit (SD) equivalent to **5% of the work order value within 15 days** from the date of issue of the work order. The EMD of such successful bidders shall be released on submission of SD in the shape of DD or Bank guarantee valid for a period of five year & six months. After the successful completion of the work order, the SD shall be treated as Performance Security Deposit (PSD) & shall be released on successful completion of the warrantee period of five years from the date of commissioning of the project. If required, the validity of the SD/PSD will be extended by the firm failing which it will be en-cashed.
- 2.2 The Performance Security shall be denominated in the currency of the Country, and shall be in one of the following forms:
- A Bank guarantee, issued by a Nationalized/ Commercial bank located in the purchaser's country, acceptable to the Purchaser, in the form provided in the Bidding Documents ; or
  - Demand Draft in favour of Director, HAREDA or indenting organisation, payable at Panchkula.
- 2.3 If the successful bidder fails to deposit security deposit within 15 days of issue & receipt of the work order, HAREDA or indenting organisation reserves the right to forfeit EMD of the supplier & cancel the work order.

#### Note:

Concession in performance security deposit ((as per GO No. 2/2/2016-4IBII (2) dated 20.10.2016:-

Sr. No.	Type of Firm/Enterprises	Value of Performance Security Deposit
1.	Haryana based firms:- #Haryana based Micro and Small Enterprises (MSEs)  Haryana based other firms/enterprises	@ 0.2% of the order value or estimated value of Rate Contract (where maximum value of rate contract (RC) is indicated, it will be on the basis of the same)  @ 2% of the order value or estimated value of Rate Contract (where maximum value of rate contract (RC) is indicated, it will be on the basis of the same)
2.	Other States/UTs based firms	@ 5% of the order value or estimated value of Rate Contract (where maximum value of rate contract (RC) is indicated, it will be on the basis of the same)

#Haryana based MSEs will be eligible for performance security deposit @ 0.2% who have filed Entrepreneurs Memorandum (Micro or Small Enterprise Category) in the Industries Department, Haryana and who participate directly in the tendered/quoted items and offering to supply the entire quoted quantity manufactured from their own Haryana based unit.

#### 3. PAYMENT TERMS

- The payments shall be made as per the following terms and conditions:
- 60% of the ordered value** after the supply of the complete material at site/indenting office supported with pre-dispatch inspection report, list of material with complete details, material receipt issued by user /P.O of the concerned district and bill of material.



- b. **Balance payment** within 30 days on submission of Joint Commissioning Report (JCR) with list of beneficiaries to the indenting organization/HAREDA. The JCR must be countersigned by the respective ADC-cum-CPO of the district.

#### 4. **WARRANTY**

- (i) The Warranty period shall be five (5) years for complete system from the date of commissioning and handing over of the system (or as per latest MNRE, GoI guidelines). The contractor shall rectify/replace defective parts of the system within Warranty period promptly i.e. **within 72 hours**.
- (ii) During the warrantee period, the firm shall ensure proper functioning of the systems and complaint, if any, forwarded to the supplier against the system, will have to be attended within 72 hours of forwarding such complaints.
- (iii) If the firm fails to repair/replace the defective system, penalty @ 0.1% of the system cost per day (subject to maximum of 10% of the cost) after expiry of 72 hrs. period shall be imposed.
- (iv) If the whole PSD/ bank guarantee is utilized and the complaints are still pending then an online/registered notice will be sent to the firm to attend the complaint immediately.
- (v) If the firm still does not attend the complaint within the above mentioned period then the firm may be blacklisted and a legal proceeding may be initiated against the firm for Breach the agreement.
- (vi) The supplier shall affirm as per standards for quality that anything to be furnished shall be new, free from all defects and faults in material, workmanship and manufacture, shall be of the highest grade and consistent with established and generally accepted standards for material of the type ordered, shall be in full conformity with the specifications, drawing or samples, if any and shall if operable, operate properly.
- (vii) Performance of Equipment: In addition to the warranty as already provided, the supplier shall guarantee satisfactory performance of the equipment and shall be responsible for the period or up to the date specified in sub-clause (iii) hereof after the equipment has been accepted by the HAREDA or indenting organisation to the extent for any defects that may develop such defects shall be removed at his own cost when called upon to do so by the HAREDA or indenting organization.
- (viii) HAREDA/the consignee will have the liberty to get the sample for the item(s) supplied tested from any of the Govt. approved laboratory at any time during the installation or warranty period to ascertain the performance of the item(s) as per DNIT specifications. If during the lab test, sample fails then supplier has to repair/replace the defective systems within 15 days of issue of such notice. If on the request of the supplier more than one samples are drawn for lab test and any one of them fail the lab test, bidder has to replace all the defective system at his own cost.
- (ix) The Contractor in consultation with concerned Project Officer will conduct training programme for users, focusing on main features, operation and maintenance of the systems. After successful supply/commissioning of the system and training, the system will be handed over to the person designated by the end user.
- (x) The Contractor/supplier shall continue to provide spare parts for 2 years after the expiry of warranty period at the users cost. If the contractor fails to continue to supply spare parts and services to users then HAREDA shall take appropriate action against the firm which can be to ban the supplier for participating in future tenders of the HAREDA.
- (xi) **Service Centers**: Each successful bidder (either from Haryana or outside Haryana) will have to establish at least one service centre at the divisional level in their area of operation in the State, where a skilled technician and readily available spare parts will be made available during the entire period of Warranty/ Guarantee. The supplier will convey name & address of the outlet along with name of contact person, his/ her address, mobile number & e-mail address within 90 days of placing of the work order to the Director, HAREDA or indenting organization. The name & address of the service outlet and contact number will be displayed on the web portal of HAREDA [www.hareda.gov.in](http://www.hareda.gov.in).



## 5. TIME SCHEDULE, PENALTY/LIQUIDATED DAMAGES

- a. The ordered system/s are allowed to be got **inspected, supplied, installed and commissioned** within **three (04) months** time from the date of issue of work order during which following milestones should be achieved by the firm for execution of the project:

Sr.No.	Description	Time Required
1.	Award of contract/ issue of work order	Say X date
2.	Acknowledge the receipt of the work order	X+ 7days
3.	Submission of Security Deposit / Performance Bank Guarantee	X + 15 days
4.	Pre-dispatch Inspection by Purchaser	X + 90 days
5.	Progressive deliveries of complete material, erection, tastings and Commissioning etc.	X + 120 days

Note: In case, where name of beneficiary not provided with work order, the list of beneficiaries will be provided by the HAREDA or/ by PO/APO of the district to the supplier at the time of receipt of material or at the time of pre-dispatch inspection.

- b. The time for and date of delivery (includes supply, installation & commissioning) stipulated in the work order shall be deemed to be the essence of the contract, and should the contractor fail to deliver / complete the work (includes supply, installation & commissioning) within the period prescribed for such delivery, penalty @ **2% of the pending work order value per month** subject to maximum of **10%** is recoverable. Once the maximum is reached, the "HAREDA" may consider termination of the contract. For the purpose of calculation of penalty, month will be considered of 30 days and the week of 7 days. In case of non-payment by the contractor, recovery will be made from his bills or amount of Earnest money or security deposited with Director, HAREDA, provide also that :
- No recovery of penalty will be made if the Director, HAREDA accepts the delayed supplies by extending the delivery period by recording in writing that the exceptional circumstances were beyond the control of the supplier and there was no loss to the Government on written request by the supplier, with proper documentation establishing the reasons that the delay were beyond the control of the supplier, before the expiry of the allowed time. Requests for extension received after the expiry of the allowed timeline shall not be entertained and shall be subject to penalty.
  - On the failure of the supplier/s to make supply within the extended period or otherwise and the receipt of such information in the office of the Director, HAREDA, risk purchase at the cost of the supplier will be made by the Director, HAREDA after the maximum penalty is reached by obtaining consent from the L2, L3 bidders or approved supplier/s or approved RC holder of DGS&D, GOI or any State empanelled supplier or by inviting short terms quotations from the Registered and other known suppliers within next two months. The difference of excess cost thus, incurred will be recovered from the supplier from his pending bills, earnest money or security whichever is available. This procedure will be adopted after serving a registered notice to the supplier to supply stores within 15 days.
- c. The Contractor shall not;
- Without the consent in writing of HAREDA transfer, assign or sublet the work under this contract or any substantial part thereof to any other party. HAREDA shall have at all reasonable time, access to the works being carried out by the contractor under this contract. All the work shall be carried out by the contractor to the satisfaction of HAREDA.
  - Disclose details of the conditions governing this contract to unauthorized persons (Indenting against this contract is permissible only for the bonafide use of Governments departments and quasi public and not for private parties or for the private use of the Government officers).
- d. In the event of the contractor failing duly and properly to fulfill or committing breach of any of the terms and conditions of the tender or repeatedly supplying goods liable to rejection hereunder or failing, declining, neglecting/ or delaying to comply with any demand or requisition or otherwise not executing the same in accordance with the terms of this tender, or if the bidder or his agents or servants being guilty of fraud in respect of the contract or any other contract entered into by the contractor or any of his partners or representatives thereof with Government directing, giving, promising or offering any



- bribes, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise to any person in the employment of Government in any way relating to such officers or person of persons, office or employment or if the contractor or any of his partners become insolvent or apply for relief as insolvent debtor or commence any insolvency proceedings or make any composition with his/ their creditors or attempts to do so then without prejudice to Government rights and remedies otherwise, HAREDA/ Government shall be entitled to terminate this contract forthwith and to **blacklist the contractor** for a period as deemed fit by the competent authority and purchase or procure or arrange from Government's stocks or otherwise at the contractor's risk and at the absolute discretion of the Director, HAREDA as regards the manner, place or time of such purchases, such supplies as have not been supplied or have been rejected under this agreement or are required subsequently by Government there under and in cases where issues in replacement are made from Government's stocks or supplies, the cost of value of stocks or supplies together with all incidental charges or expenses, shall be recoverable from the contractor on demand and the contractor shall not be entitled to benefit from any profit which may accrue to Government.
- e. The supplies, if any, made beyond the time limit for completion of the project defined in the work order will require prior approval of the Director, HAREDA, even the same are with penalty, means the supplier has no right to deliver the material with applicable penalty clause without written concurrence of Director, HAREDA. If any supplies fall under the warranty clause then the supplier has to obtain written permission from the Director, HAREDA, through a request letter at least seven days before the expiry of delivery period with the reason of delay.

#### 6. INSPECTION & COMMISSIONING

- (i) The HAREDA through its duly authorized representative(s) shall have at all reasonable times access to the contractor/ bidders premises or works and shall have the power at all reasonable time to inspect and examine the materials and workmanship of the works during its manufacture, supply, installation etc.
- (ii) Before supply of the materials, the contractor/ bidder are required to get lot of material offered for inspection get inspected at one site. In case the contractor/ bidder fails to get the offered material inspected, the total expenses of the further inspection will be borne by the supplier/contractor/ bidder.
- (iii) **HAREDA will bear the inspector's cost at only one site. No request, to inspect the component(s) of the material at different location would be entertained.**
- (iv) The inspection by HAREDA and issue of dispatch instruction thereof shall in no way limit the liabilities and responsibilities of the contractor/ bidder in respect of the agreed quality assurance forming a part of the contract.
- (v) After receipt of call for inspection, the material shall be inspected by the Director, HAREDA or a committee authorized by her/him or indenting organisation at firm's premises or in exceptional cases at site and material shall be dispatched/erected after acceptance of the same by the Inspection Committee.
- (vi) The Supplier shall offer inspection **with 15 Days notice within 90 days of placement of work order with firm date and thereafter, should complete the project within the allowed time.** To illustrate it further, if the last date of supply is 31<sup>st</sup> March & supplier sends the inspection call on 30<sup>th</sup> March for inspection on 31<sup>st</sup> March, the inspection date shall be considered as 15<sup>th</sup> April (15 days notice) & period from 1st April to 14th April shall be under penalty clause.
- (vii) If the proposal for pre-dispatch inspection is received within defined & valid time period in the office of Director, HAREDA or indenting organisation from the supplier and inspection is not carried out by the HAREDA due to any reasons within 15 days of receipt of such letter, the time period for supply, installation & commissioning will be extended equivalent to delayed period, from the next day of expiry of these 15 days till the date of actual inspection and no penalty will be imposed for this extended period.
- (viii) In case the material offered for inspection fails to meet the specifications stipulated in DNIT /Order /Contract and the material is rejected by the Inspecting Committee or complete material offered for inspection is not available for inspection, HAREDA or Indenting Organisation will levy a penalty at 0.1% of the order value. In case the material offered for inspection fails during the 2<sup>nd</sup> inspection also, the Indenting Department will have the right to increase the penalty to 0.25% of the order value. In case, the material offered fails during the 3<sup>rd</sup> and final inspection also, the firm will be liable for penal action including forfeiture of EMD/PSD, risk purchase, debarring/blacklisting in future, and no further opportunity for inspection will be provided to the supplier firm.



- (ix) The proposal for inspection received complete in all respect shall be processed by the dealing officer within seven (7) days of receipt of the same by him/her, failing which he/she will be liable to explain the reason for delay.
- (x) The firm will print the words "**PROMOTED BY HAREDA & YEAR 2018-19**" on the body of the Systems in a permanent manner so as to minimize any possible malpractices.
- (xi) The inspection report should be submitted to HAREDA or Indenting Organisation within seven days from the date of inspection either by hand or by e-mail/fax. Similarly, the commissioning report should be submitted to the concerned district office and an advance copy to HAREDA or Indenting Organisation **within seven days** from the date of commissioning either by hand and by e-mail/fax failing which the commissioning date shall be considered seven days prior to the date of submission of the report in HAREDA or Indenting Organisation and the period of late submission of JCR shall be counted towards delay. The district office after verification will issue the JCR or shall report any discrepancy to the supplier with a copy to HAREDA or Indenting Organisation within seven days. In case of discrepancy in the system commissioned, the commissioning date shall be counted from the date when the discrepancy has been removed to the entire satisfaction of District Office & User/HAREDA/Indenting Organisation.
- (xii) The installation work shall be carried out under the close supervision of the Project Officer/Asstt. Project Officer of the district & the user. The final inspection after installation and commissioning shall be carried out by district office and user. The supplier should plan his activities in such a way that the entire process for supply, installation and commissioning after inspection of the systems is completed within the allowed time. Therefore, it is necessary & in the interest of the supplier to get inspected the material well in advance before the stipulated delivery time so as to avoid penalty. The supplier shall provide without any extra charge, all materials, tools, testing equipments, labour and assistance of very kind which the inspecting officer may consider necessary for any test or examination. HAREDA or indenting organisation can also get the functionality of the system tested from any MNRE approved test centre/laboratory. Rejected material (if any) will have to be replaced by the supplier at its costs within 15 days of issue of such notice.
- (xiii) Before the goods and equipment are taken over by the user, the supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the user to operate, maintain, adjust and repair all parts of the works as stated in the specifications. The manuals shall be in the ruling language (English or Hindi). Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purposes of taking over until such manuals have been supplied to the purchaser/user.
- (xiv) If the goods/services or any section fails to pass the Tests. The supplier may require such tests to be repeated on the same terms and conditions. All costs to which the purchaser may be put to by the repetition of the tests under this sub-clause shall be deducted from the contract price.
- (xv) **The purchaser has the right to pick any sample in working condition in the presence of bidder**, for random testing of any of the component of the system or complete system, while erecting of material, post commissioning for testing as per the DNIT specifications. The expenditure on the tests (for maximum 2 systems) will be borne by the supplier. If more system(s) are taken for testing, the cost of testing shall be borne by the Indenting Department.
- (xvi) If the purchaser and the supplier disagree on the interpretation of the test results each shall give a statement of his views to the other within 14 days after such disagreement arises. The statement shall be accompanied by all relevant evidence. The purchaser will review both the statements and render a final decision within a further period of fourteen days which shall be binding on the supplier.

## 7. PRICE FALL CLAUSE:

- (i) The prices charged for the stores supplied under the Contract by the Contractor shall in no event exceed the lowest price at which the Contractor sells the Stores or offer to sell stores of identical description to any Department of the Central Government or any Department of a State Government or any statutory undertaking of the Central or a State Government, as the case may be, during the period till all Orders placed during the currency of Contract is completed.



If at any time during the said period, the Contractor reduces the Sale price, sells or offers to sell such stores irrespective of quantity to any person(s)/organization(s) including the Purchaser or any Statutory Undertaking of the Central or a State Government, as the case may be, at a price lower than the price chargeable under this Contract, he shall forthwith notify such reduction or Sale or offer of Sale to the Director, New & Renewable Energy Department, Haryana/HAREDA and the price payable under the Contract for the stores supplied after the date of coming into force of such reduction or sale or offer of sale stand correspondingly reduced. The above stipulation will, however, not apply to :

- (a) Export/deemed Export by the Contractor
  - (b) Sale/ normal replacement.
- (ii) The Contractor shall furnish the following certificate to the Paying Authority along with each bill for payment for supplies made against the Contract.
- "I/We certify that there has been no reduction in sale price of the Stores of Description identical to the Stores supplied to the Government under the contract herein and such Stores have not been offered/sold by me/us to any person(s)/organization(s) including the purchaser or any Department of Central Government or any Department of a State Government or any statutory Undertaking of the Central or State Government as the case may be up to the date of the bill of supplies against all orders placed during the currency of the Contract at a price lower than the price charged to the Government under the Contract except for quantity of Stores as mentioned at para (ii) above.

#### 8. FORCE MAJEURE

- (i) Notwithstanding the provisions of clauses contained in this deed; the contractor shall not be liable for forfeiture of its performance security, liquidated damages, termination for default, if he is unable to fulfill his obligation under this deed due to event of force majeure circumstances.
- (ii) For purpose of this clause, "Force majeure" means an event beyond the control of the contractor and not involving the contractor's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of God either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and fright embargoes.
- (iii) Obstruction in procurement of components /raw material by the firm from the manufacturers with whom they have tied up for execution of the projects under this tender shall not be covered under force majeure condition. The bidders are advised to make suitable arrangements for supply of parts and components for implementation of the tendered projects within allowed timeframe.
- (iv) However, if a force majeure situation arises, the contractor shall immediately notify the "HAREDA" in writing. The decision of the Director General, HAREDA, in above conditions, shall be final.

#### 9. ARBITRATION:

If any question, dispute or difference what so ever shall arises between HAREDA and the contractor, in the connection with this agreement except as to matters, the decisions for which have been specifically provided, either party may forthwith give to the other notice in writing of existence of such question, dispute or difference and the same shall be referred to the sole arbitration of the Principal Secretary, Govt. Haryana, New & Renewable Energy Department or a person nominated by him/her. This reference shall be governed by the Indian Arbitration Act, and the rules made there under. The award in such arbitration shall be final and binding on both the parties. Work under the agreement shall be continuing during the arbitration proceedings unless the HAREDA or the arbitrator directs otherwise.

#### 10. JURISDICTION FOR SETTLING DISPUTES

Where a contractor has not agreed to Sole Arbitration Clause of the Conditions of the Contract, Governing contracts the dispute/claims arising out of the contract entered into with him will be subject to the jurisdiction of Civil Court Panchkula.

#### 11. OTHER TERMS AND CONDITIONS

- (i) Material shall be strictly as per DNIT specifications.
- (ii) The remaining terms and conditions shall be as per the DNIT.



## Schedule-C

### TECHNICAL SPECIFICATIONS FOR 2/5/7.5/10 HP SOLAR WATER PUMPING SYSTEMS

#### A. 2HP Solar Water Pump (DC, Surface type)

##### Technical Details

Solar PV Panels	1800 Wp
Motor Pumpset type	2HP
Shut off Dynamic Head	12.0 meters
Water Output*	180,000 litres per day from a total head of 10 metres.

#### B. 2HP Solar Water Pump (DC, Submersible)

##### Technical Details

Solar PV Panels	1800 Wp
Motor Pumpset type	2 HP with controller
Shut off Dynamic Head	45.0 meters
Water Output*	63,000 litres per day from a total head of 30 metres.

#### C. 5 HP Solar Water Pump(AC, Submersible)

Technical details:

Solar PV Panels	4800 Wp
Motor Pumpset type	5 HP with controller
Shut off Dynamic Head	70.0 meters
Water Output*	91,200 litres per day from a total head of 50 metres.

#### D. 7.5 HP Solar Water Pump(AC, Submersible)

Solar PV Panels	6750 Wp
Motor Pumpset type	7.5 HP with controller
Shut off Dynamic Head	100.0 meters
Water Output*	87,750 litres per day from a total head of 70 metres.

#### E. 10 HP Solar Water Pump(AC, Submersible)

Solar PV Panels	9000 Wp
Motor Pumpset type	10 HP with controller
Shut off Dynamic Head	100.0 meters
Water Output*	1,17,000 litres per day from a total head of 70 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. 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 galvanized, with a facility of manual tracking at least three times a day.

## II. PERFORMANCE SPECIFICATIONS AND REQUIREMENTS

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. ) :



1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. **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.

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

1. 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.
2. **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.
3. 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.
4. 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.
5. 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.
6. **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.

**III. PV ARRAY**

The SPV water pumping system should be operated with a PV array capacity in the range of **200 Watts peak to 10 kW 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:**
  - i. Name of the Manufacturer or Distinctive Logo.
  - ii. Model Number



- iii. Serial Number
- iv. Year of manufacture
- v. HAREDA logo (available on-line)
- vi. Made in India

#### IV. MOTOR PUMP-SET

1. The SPV water pumping systems should use the following types of motor pump sets:
  - a. Surface mounted motor pump-set
  - b. Submersible motor pump set
2. The "Motor Pump Set" should have the following features:
  - a) 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.
  - b) The motor of the capacity 2HP and 10 HP should be AC, PMDC or BLDC type. The suction and delivery head will depend on the site specific condition of the field.
  - c) Submersible pumps could also be used according to the dynamic head of the site at which the pump is to be used.
3. 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 in submersible 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.

4. 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.
5. The following details should be marked indelibly on the motor pump set
  - i. Name of the Manufacturer or Distinctive Logo.
  - ii. Model Number.
  - iii. Serial Number.
6. The suction/ delivery pipe (GI/HDPE), electric cables, floating assembly, civil work and other fittings required to install the Motor Pump set.

#### 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.

To enhance the performance of SPV water pumping systems, manual or passive or auto tracking system must be used. For manual tracking, arrangement for seasonal tilt angle adjustment and three times manual tracking in a day should be provided.

#### VI. ELECTRONICS AND PROTECTIONS

1. Maximum Power Point Tracker (MPPT) should be included to optimally use the Solar panel and maximize the water discharge.
2. 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.



3. 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.
4. Adequate protections should be incorporated against dry operation of motor pump set, lightning, hails and storms.
5. 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.

#### **VIII. 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.

#### **IX. 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.

#### **Note:**

- a. The material should confirm to the latest MINIMAL TECHNICAL REQUIREMENTS / STANDARDS FOR **SPV WATER PUMPING SYSTEMS** UNDER THE PROGRAMMES OF MINISTRY OF NEW AND RENEWABLE ENERGY, GOI and as amended from time to time.
- b. Material shall be strictly as per DNIT specifications. If there is any left out specification, the same shall be considered as per the latest specifications applicable as per MNRE/ BIS/International Standards.

