



**BAIF Institute for Sustainable Livelihoods and Development**  
**Lachhakadi, PO Gangpur, Vandsa, Navsari – 396580**  
**Tel.: 02630 244005**

**Notice Inviting Tender**

Tender notice no.: BISLD/IDI/02/2017 – 18

Date: 25 October 2017

Sealed tenders in prescribed format in two parts (Techno-commercial bid & price bid) are being invited from reputed & authorized vendors for **supply, installation, commissioning & testing of solar photovoltaic water pumping systems at Waghai block in Dang district.**

Location: 3 villages in Waghai block, Dang district, Gujarat

Requirement: One 5 hp system, One 7.5 hp system & two 10 hp systems

Tender document / processing fee: ₹500/- (Rupees five hundred only).

Period: 25 October 2017, 09.30 am to 04 November 2017, 02.00 pm



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Sealed tenders in prescribed format in two parts (Techno-commercial bid & price bid) are being invited from reputed & authorized vendors for **supply, installation, commissioning & testing of solar photovoltaic water pumping systems at Waghai block in Dang district.**

**1. Scope of work**

- 1.1 Name of work: Installation & commissioning of solar photovoltaic water pumping system at villages in Waghai block, Dang district.
- 1.2 The above work shall be carried out as per the technical specification mentioned in Chapter -II of this tender document.

**2. Availability of tender documents**

- 2.1 The non – transferable tender documents can be obtained from the office of BAIF Institute for Sustainable Livelihoods and Development (BISLD), Lachhakadi, PO Gangpur, Vansda, Navsari, Gujarat – 396580 on payment of ₹500/- (Rupees Five hundred only) in cash or demand draft drawn from any scheduled bank favoring “BAIF Institute for Sustainable Livelihoods and Development” and payable at Vansda, Navsari district.
- 2.2 Tender not submitted with cost of tender documents as prescribed above shall be considered as invalid and shall be rejected.
- 2.3 All other terms and conditions shall remain the same as stipulated in the tender notice. Further corrigendum/ addendum etc. if any, will be made available on our web site only.

**3. Rate to be quoted**

The bidders are required to quote their costs both in figures and words in the “Price Bid” format enclosed in Annexure 9. The quoted rate shall be inclusive of all prevailing taxes and duties. In case of change in the taxes by the Government during the contract period, the same shall be considered and will be paid extra.

3.2 The bidder will be evaluated on the basis of quoted rate in the price bid.

3.3 Tenders containing overwriting, corrections without authentication with signature on the pages of “Price Bid” will be liable for rejection. In case there is any discrepancy between figures and words, then the amount quoted in words will be considered for evaluation.



3.4 In case the quoted rate is abnormally lower than the estimate, BISLD reserves the right to call justification from bidder. Further the bidder may have to submit a performance guarantee in form of bank guarantee towards the differential amount.

#### **4. Earnest Money Deposit (EMD)**

4.1 EMD amounting to 10% of total cost must be submitted in the form of demand draft / bankers' cheque / pay order drawn in favor of 'BAIF Institute for Sustainable Livelihoods and Development' and payable at Vansda, Navsari district along with the bid. Cheques, bonds, guarantee bonds and govt. securities (stock certificates, bearer bonds, promissory notes and cash certificates) will not be accepted towards the earnest money. No interest will be paid on EMD. EMD of the unsuccessful bidders shall be refunded / returned immediately after the final evaluation of the tender and issue of the work order to the successful bidder.

4.2 The EMD amount shall not bear any interest. In case the awarded bidder denies to accept the work order their EMD shall be forfeited.

4.3 Tender without EMD shall be summarily rejected.

4.4 EMD of successful bidder will be converted into security deposit to be retained without interest for a period of 12 (twelve) months after date of issue of completion certificate. In case of submission of bank guarantee towards EMD, the successful bidder will have to extend the validity period of the guarantee till the end of 12 (twelve) months after date of issue of completion certificate.

#### **5. Submission of tender**

5.1 Tenders shall be submitted in sealed envelopes only.

5.2 Envelope 1 (approx. 30 cm x 25 cm) should be sealed and super scribed "**Techno-Commercial Bid for supply, installation, commissioning & testing of solar PV water pumping system (notice no. BISLD/IDI/02/2017 – 18)**". Contact details of the bidder should be stated on front side bottom left of the envelope. This envelope should contain

- a. Techno-commercial bid filled as per format with signature / seal on all pages.
- b. Enclosures / supporting documents as required.

5.3 Envelope 2 (approx. 30cm x 25 cm) should be sealed and super scribed "**Price Bid for supply, installation, commissioning & testing of solar PV water pumping system (notice no. BISLD/IDI/02/2017 – 18)**". Contact details of the bidder should be stated on front side bottom left of the envelope. This envelope should contain

- a. Price bid as per format with signature / seal on all pages.
- b. EMD demand draft

5.2 Envelope 1 and Envelope 2 should be put inside Envelope 3 (approx. 40 cm x 30 cm). Envelope 3 should be sealed and super scribed "**Offer for supply, installation, commissioning & testing of solar PV water pumping system**". Contact details of the bidder should be stated on front side bottom left of the envelope.

5.3 Envelope 3 should be submitted / sent to the following.

**The Addl. Chief Programme Executive  
BAIF Institute for Sustainable Livelihoods and Development**



### **Lachhakadi, PO Gangpur, Vandsa, Dist. Navsari – 396580**

- 5.4 Last date of submission: 04 November 2017, 02.00 pm.
- 5.5 Submission “by hand” is preferred. However, the bidder may opt to send the offer by Speed post / Courier.
- 5.6 Tenders received after the deadline will not be accepted. It is the responsibility of the bidder to ensure and confirm that the tender is received in time.
- 5.7 Queries pertaining to tender, if any, may be clarified by contacting Mr. V.U. Patil, Sr. Engineer during office hours at the number given above.
- 5.8 Interested bidders are advised to visit the site at own cost and familiarize themselves with the site conditions, concerned areas and to go through the terms and conditions of the tender document before submission.
- 5.9 Tenders not received in prescribed form will be liable to be summarily rejected.
- 5.10 Tenders not adhering to the terms and conditions are liable to be rejected.
- 5.11 BISLD reserves the right to accept or reject any or all tenders without assigning any reason thereof.
- 5.12 The tender documents have to be signed by the bidder on each page and the terms and conditions must not be altered, failing which the tender will be rejected.
- 5.13 Tender form containing ‘overwritten’ or ‘erased’ rate or rates and amount not showing figures and words in English will be liable to rejection.
- 5.14 Tender containing clerical or arithmetical mistakes may be rejected.
- 5.15 Any request from the bidder in respect of additions, alterations, modifications etc. of either terms or conditions or rates of his tender after opening of the tender may lead to rejection of tender.
- 5.16 In case of submitting tender documents downloaded from website, tender document / processing fee of ₹500/- should be paid during / before tender submission separately by cash / electronic transfer / cheque.
- 5.17 Pre-bid meeting: A pre-bid meeting is scheduled on 27 October 2017 at 02.00 pm at BAIIF Institute for Sustainable Livelihoods and Development (BISLD), Lachhakadi, PO Gangpur, Vandsa, Navsari, Gujarat – 396580 for any clarifications pertaining to offer, specifications, requirements, site etc. Interested bidders may attend the same.

### **6. Tender opening**

- 6.1 Techno-commercial bids shall be opened in the presence of the designated committee of BISLD. Price bids of bidders whose techno-commercial bids are found acceptable will be opened at a later date in the presence of the designated committee. Tender opening dates shall be conveyed to the bidders. Interested bidders may be present during opening.
- 6.2 BISLD reserves the right not to accept the lowest offer. BISLD also reserves the right to cancel the tender. No claims of any bidder in this regard shall be entertained.
- 6.3 The validity of the offer shall be 180 days from the date of submission of the tender.

### **7. Date of commencement of work**

- 7.1 The successful bidder should commence the work within 10 days after issuing of the work order.

### **8. Contract period**

- 8.1 The contract period shall be for 30 days from the date of issuing the work order.



## 9. Jurisdiction

9.1 The jurisdiction shall be Vandsa.

## 10. Salient features of the bid

Sr.	Particular	Details
1	Tender notice no. & date	BISLD/IDI/02/2017 – 18, dated 25 October 2017
2	Name of the work	Supply, installation, commissioning & testing of solar photovoltaic water pumping systems at Waghai block, Dang district
3	Tender document / processing fee	₹500/- (Rupees five hundred only)
4	Earnest Money Deposit	10% of total cost
5	Availability of tender document	BAIF Institute for Sustainable Livelihoods and Development, Lachhakadi, PO Gangpur, Vandsa, Navsari – 396580
6	Period of issue	25 October 2017, 9.30 am – 04 November 2017, 12.00 noon
7	Date of submission	Till 04 November 2017, 02.00 pm
8	Period of contract	30 days from the issue of work order
9	Validity of offer	180 days from the date of submission

## 11. Eligibility criteria

11.1 The bidder should be a reputed & authorized vendor with experience of minimum 3 (three) years in solar photovoltaic water pumping systems. The bidder should have undertaken at least 1 (one) work of solar photovoltaic water pumping of similar nature in last 3 years (2014 – 15, 2015 – 16, 2016 – 2017). Similar work refers to a single installation of 5 hp and above. Also the bidder should have successfully completed cumulative installations of 50 hp in the last three years (2014 – 17).

11.2 The bidder should have an annual turnover of not less than ₹15 lacs for the preceding three years (2014-15, 2015-16, 2016-17).

11.3 Documents in support of above clauses 11.1 and 11.2 should be enclosed with the techno-commercial bid. Submission of any incorrect / forged / false documents will attract legal action including rejection of tender and cancellation of contract at the risk and cost of the bidder.

11.4 The bidder should have paid the tender document cost of ₹500/- and the offer should be accompanied by the EMD of specified amount.

11.5 As single party accountability is mandatory, consortium or joint venture is not allowed for bidding.

## 12. Evaluation of the bids

12.1 Two bid evaluation system shall be followed.

## 13. Area of works

13.1 The area of works is located in 3 villages of Waghai block in Dang district. The bidders are advised to visit the site at own cost to acquaint themselves with the working conditions before submitting the tender. BISLD will provide the exact location of the site.



#### **14. Award of the contract**

14.1 After evaluation of the received offers through two bid process, the contract may be awarded to the L1 bidder.

14.2 Notwithstanding the above, BISLD deserves the right not to award the contract to the L1 bidder and may cancel or reject any part or whole of the tender without assigning any reasons whatsoever. The bidders shall not be entitled to any claims on account of the incidental expenses incurred.

14.3 Acceptance of the bid shall be intimated through letter of intent / work order. In turn the bidder has to counter sign and return the same as token of acceptance.

14.4 An agreement may be entered between BISLD and the selected contractor for execution of work.

#### **15. Work schedule, maintenance of record and measurement**

15.1 The successful bidder will draw work schedule of each activity along with time schedule of completion of work. The work schedule is to be drawn in consultation with Sr. Engineer, BISLD. However, the quantities set out in the schedule of items are only the estimated quantities of the works and are subject to alterations / modifications as per the instructions of the engineer.

15.2 The engineer may make any variations in the quantity of the works to be performed for whatsoever reason in the interest of BISLD, sponsor and community as per the following.

- a. Increase or decrease the quantity of any work included in the contract
- b. Omit any such work
- c. Change the levels, lines, positions and dimensions of any part of the works
- d. Execute additional work of any kind necessary for the completion of the works and no such variation shall in any way vitiate or invalidate the contract but the value (if any) of all such variations shall be taken into account in ascertaining the amount of the contract price.

#### **16. Payment terms**

16.1 Payment of bill shall be released to the vendor through RTGS / NEFT subject to submission of details of bank account.

16.2 20% of the total value shall be paid as advance on issue of purchase order / work order. Rest 80% shall be released on installation and commissioning subject to inspection and verification made by BISLD or third party. After verification and certification, the Head of Engineering, BISLD shall forward the same to Accounts Department for consideration of payment along with issue of work completion certificate.

16.3 Necessary pre-inspection of the materials will be made by the engineer in order to ascertain the quality and conformity with standards.

16.4 10% security deposit will be released on completion of defect liability period of 12 months after issue of completion certificate.

16.5 No payment will be made for any temporary works which are required for successful completion of work.

#### **17. Penalties**

17.1 Liquidated damages: If the vendor fails to successfully complete the work as per the specification within the stipulated time period mentioned in the work order, the necessary



liquidated damage will be deducted from the bill. For the purpose of liquidated damage deduction, the total value of actual work done against the work order will be considered. The rate of liquidated damage will be 0.5% (half percent) per day subject to a maximum of 10% of the total value of contract. No liquidated damage is applicable if the completion period of the work gets extended beyond the stipulated period of the contract due to no fault of the contractor. Decision of BISLD shall be binding and final in this regard.

17.2 Forfeiture: In case the successful bidder fails to take up the work after issuance of work order BISLD may at its discretion impose upon any or all of the following penalties.

- a. Cancellation of work order. In case of cancellation the recovery of extra cost incurred by BISLD for getting the work done through other sources / agencies, which may be without any notice to the vendor, will be recovered from the vendor.
- b. Forfeiture of earnest money / security deposit / bank guarantee wholly or partly without notice to the vendor.
- c. Blacklisting of the vendor.
- d. Recovery from any of the other present / future pending bills of the vendor.

## **18. Price escalation**

18.1 No price escalation during the period of validity of the offer shall be accepted by BISLD.

## **19. Signing of agreement**

The successful bidder shall be required to sign an agreement with BISLD within 10 days of the issue of work order / purchase order / LoI or within such extended period as may be specified. In case the vendor fails to sign the agreement within the stipulated time, BISLD will have right to terminate the contract and forfeit the EMD of the bidder and the bidder stands debarred from future participation in any tender of BISLD.

## **20. Obligation of the vendor**

20.1 The vendor will commence and complete the work as stipulated in the tender document.

20.2 The vendor will have to make own arrangements for travelling, boarding, lodging etc.

20.3 The job cannot be sublet in part or in whole without the written consent of the Addl. Chief Programme Executive, BISLD.

20.4 The vendor will comply with the directions of BISLD from time to time.

20.5 All security arrangement for the materials to be utilized in the project shall be done by the vendor till completion and hand over.

20.6 The contract assumes a proper degree of skill on the part of the vendor and all his workmen employed. The vendor shall consult with engineer whenever in his judgment a variation in the work or in the quality of the materials specified would be beneficial or necessary to fulfill the guarantees called for in the contract. Such variations shall be carried out by the vendor only when authorized by the engineer in writing. The request for such changes shall be made before the contract agreement is executed otherwise guarantees will be understood to hold good for work as specified in the contract and any variation necessary to fulfill such guarantee shall be carried out by the vendor at his own cost.





20.7 The guarantee / warrantee period for all the equipments / accessories etc. should conform to MNRE specifications from the date of commissioning. All the documents related with guarantee / warrantee are to be submitted to BISLD.

20.8 The vendor shall report occurrence of any accidents at the work site including particulars of his employees involved to the concerned authorities and effect payment of compensation as per the Workmen's Compensation Act as amended from time to time within the prescribed time limit.

20.9 The vendor shall at his own cost, observe, perform and comply with the provisions of the Contract Labour (Abolition and Regulation) Act, 1971, and the rules made there under as amended from time to time. The vendor shall have to observe, perform and discharge his / their obligations under the said act and BISLD shall be entitled to recover from the vendor any cost of expenses that it may have to incur or suffer on account of vendor's failure.

20.10 The material to be supplied by the vendor shall be as per BIS / IEC / MNRE specifications.

20.11 If any work either in temporary or permanent nature are necessary to complete the work in all respect but not mentioned in the tender shall have to be done without extra cost.

20.12 The vendor has to arrange the adequate lighting arrangement for the work wherever necessary at his own cost.

20.13 After the work is finished, all surplus materials and temporary structures should be removed from the site of work. The site and the premises are to be left neat and clean.

20.14 The vendor shall give or provide all necessary supervision during the execution of the work. The vendor or his authorized representative is to be constantly on the work and shall give his whole time for the supervision of the same. Such authorized representative shall receive direction and instruction from the engineer on behalf of the vendor. Site meeting will be called at regular interval and the vendor or his authorized representative will be required to be present in such meetings to discuss progress of the work and other matters including any deviation from drawing or specification.

20.15 The vendor shall comply with all prevailing safety and environmental laws.

## **21. Supplementary items**

21.1 The items of the work not covered in the schedule of items or BOQ will be considered as supplementary items. The rate of the supplementary items of work will be determined in order of precedence as given below.

- a. The rate will be derived wherever possible from the rate of allied items of work quoted by the vendor in the specific schedule of probable items of work plus the contractual percentage.
- b. The rate of the items which cannot be derived by any of the above process shall be determined from the market rate of the materials and labour plus profit and overhead charges. However, the profit and overhead charges taken together shall constitute 10% of the cost of materials and labour.



## 22. Completion certificate

The work shall be said to be completed on the basis of certification of the user department and subject to completion of all sort of laboratory tests as instructed by the engineer and on receiving a written undertaking from the vendor to finish any outstanding work during the period of maintenance / defect liability period, the concerned engineer shall issue a Certificate of Completion in respect of the work. The period of maintenance of the works shall commence from the date of such certificate.

## 23. Tax deducted at source

Income tax and other taxes as applicable shall be deducted at source, at the rate prescribed in the Income Tax Act and or other Acts, from the gross value of bill.

## 24. Legal and miscellaneous

The vendor shall be fully responsible to comply with all his statutory obligations as employer towards Employees Provident Fund Act, 1952, Employees State Insurance Act, 1952, Employees Deposit Linked Benefit Act, 1961, Minimum Wages Act, 1948, Bonus Act, 1965, Gratuity Act, 1972 etc. and all other such obligations / liabilities as per applicable statutory provisions / law and Government notifications ; in respect of their labour engaged by them for the job undertaken under the contract, and will take full liability on this account. BISLD will not take any financial liability on this account. In the event of failure of the vendor to comply with the above, BISLD shall be entitled to recover the amount by deduction from any amount payable to the vendor under the contract, including security deposit.

## 25. Deviation

Deviations sought by the bidder whether they are commercial or technical must only be given within the schedule, prescribed for them. Any willful attempt by the bidders to camouflage the deviation by giving them in the covering letter or in any other documents than the prescribed schedules may render the bid itself non-responsive. Any incomplete tender or conditional tender received shall be liable for rejection.

## 26. Modification of contract

BISLD reserves the right to modify the contract from the point of view of smooth execution. The same shall be conveyed to the contractor.

## 27. Force majeure

27.1 The vendor shall have no claim whatsoever against BISLD for any loss / damage caused to the vendor by reason of war, riot, commotion, disturbance, pestilence / epidemic sickness, strike, lock-out, earthquake, fire, storm, flood, explosion, any change in the nature of deposits, breakdown at plant or machinery for whatever reason, failure / restriction of electrical or other power, act of God etc.



27.2 Either party affected by the force majeure will provide notice of happenings of any such eventuality to the other party within 7 days from the date of occurrence and failure will not give any benefit.

27.3 The vendor shall resume the work as soon as practicable after such eventuality has ceased to exist.

27.4 If the performance in whole or part of any term / obligation under the contract is prevented or delayed by any such eventuality for a period exceeding 7 days of escalation of above events the contract may be terminated at the discretion of BISLD.

## 28. Arbitration

Any dispute or difference under or arising out of or in respect of the agreement / accepted contract may be settled mutually. If not settled mutually, it shall be referred to the sole Arbitrator, a person appointed by BISLD and his decision in the matter will be final and binding on the both parties. The arbitration shall be carried out as per Arbitration Act, 1996 and Rules made there under as amended from time to time.



## Chapter 2: Technical Specifications

### Section 1: General

1. Solar photovoltaic water pumping system shall consist of PV array, AC induction motor pump with suitable inverter, electronics comprising of maximum power point tracker (MPPT), inverter for AC motor, electronic protections, interconnect cables and on-off switch.

2. The rates quoted shall be deemed to include all necessary hardware needed for successful work completion as per scope.

#### 3. PV array

3.1 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.

3.2 Indigenously produced PV module (s) containing poly-crystalline silicon solar cells should be used in the PV array for the SPV water pumping systems.

3.3 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.

3.4 The efficiency of the PV modules should be minimum 14% and fill factor should be more than 70%.

3.5 The terminal box on the module should have a provision for "Opening" for replacing the cable, if required.

3.6 There should be a Name Plate fixed inside the module which will give name of the manufacturer or distinctive logo, model number, serial number and year of manufacture.

#### 4. Motor pump set

4.1 The SPV water pumping system shall use submersible motor pump set suitable for water lifting from canal / check dam.

4.2 All parts of the pump and motor should be made of stainless steel. The pumps used for solar application should have a 5 years warranty.

4.3 It should be possible to ascertain daily water output, power generated by PV array and UP time of the pump during the year.

4.4 Motor pump set should have marking consisting of name of manufacturer / distinctive logo, model number and serial number.



## 5. Mounting structure

5.1 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.

## 6. Electronics and protection

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

6.2 Inverter shall be used to operate AC pump. The inverter must have IP54 protection or must be housed in a cabinet having at least IP54 protection.

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

6.4 Full protection against open circuit, accidental short circuit and reverse polarity should be provided.

6.5 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.

## 7. 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.

## **Section 2: Scope of work**

1. The scope of work is defined in detail under the schedule of quantities and technical specifications. The various material/works cover under the scope of work is detailed below. However the scope specified below is only indicative but not exhaustive and the vender is required to carry out any others scope as per site requirement within the items available under the tender.

2. Carryout initial site inspection, identifying existing ground water level, supply, installation & testing of submersible water pumps.

3. Supply of submersible pump, solar panels, solar inverter, mounting structure for water pump, solar panel mounting structures, earthing system, lightning protection etc. as per specification.

4. Erection, commissioning & testing of total solar power plant along with existing water pump etc.



5. Supply, erection, commissioning & testing of foundation material, foundation bolt with templates for foundation including all necessary work for foundation & painting. This does not include civil works which is in BSLD's scope.
6. Supply, erection, commissioning & testing of cable and cable laying except digging / excavation work for cable trench.
7. Display of "Danger" sign board.
8. All materials required for the job will have to be arranged by the vendor meeting the relevant codes and as per specifications.
9. The vendor will have to make his own arrangement to transport the required materials outside and inside the working place and leaving the premises in a neat and tidy condition after the completion of the job to the satisfaction of the In-charge Engineer.
10. The vendor will have to arrange for safe keeping of his materials and should provide necessary security arrangements for safe guarding the materials. BSLD will not be responsible for any claims with regard to this.
11. Vendor should arrange movable scaffolding, cherry picker, crane, safety equipment wherever required.
12. The vendors are advised to visit the site and get acquainted with the site conditions. BSLD will not provide any roads, infrastructure such as power, water, lighting etc. at site. Vendor has to make their own arrangements for transportation of material, movement of equipment at site.
13. The bidders should note the site conditions before quoting. The site will be offered on AS IS WHERE IS for the execution of this job and it will be sole responsibility of the vendor to ensure that they abide by the various rules, regulations, bye-laws and other statutory requirements, etc. imposed by the Government / semi-Government and / or other local authorities governing execution of this job.
14. All entries and rates in the tender form must be written in permanent ink or typewritten. Erasures, overwriting or corrections, if any, should be attested under the full signatures of the bidders. All rates should be both in figures and words. The total amount should be given both in figures and words in the tender form. In case of any difference, the rate expressed in words will be taken as authentic.
15. As far as possible, the bidders should endeavor not to stipulate any counter terms / conditions or modifications of tender clauses and should quote strictly as per tender conditions. This will assist in proper evaluation of each offer. However, should there be any specific comments in respect of any clauses the same may be highlighted in a separate deviation schedule.



16. Material / equipment may be inspected & tested by third party at vendor's place / company before dispatch. Cost of third party inspection will be in BISLD's scope.

17. Preliminary commissioning of system will be inspected & tested by third party at site before final testing.

18. Post commissioning testing of system will be inspect & tested By third party at site before final testing.

19. BISLD reserves the right to reject offers not meeting its technical specification requirements and commercial conditions.

20. BISLD shall not be bound to accept the lowest tender and reserves right to accept any or more tenders in part. Decision of BISLD in this connection shall be final.

21. BISLD reserves the right to accept any tender in whole or in part or reject any or all tenders without assigning any reason.

### **Section 3: Special terms & conditions**

1. Completion period: Work shall commence within 10 days after issue of purchase / work order. Commissioning shall be completed within 30 days of issue of purchase / work order.

2. Defect liability period: 1 year from the date of commissioning and issue of work completion certificate.

3. Materials, infrastructure, labour: Arrangement of materials & infrastructure like water, power etc. & labour shall be in the scope of the vendor.

### **Section 4: Standards**

1. The materials shall conform to the codes of Bureau of Indian Standards and other applicable national / international standards. In case of any contradiction, the requirements of this specification shall govern. In addition, the installation shall conform to the stipulations of the latest editions of the Indian Electricity Rules & Act, Regulations lay down by the Chief Electrical Inspector of respective State Govt., Fire Insurance regulations and Any other regulations lay down by Central/State local authorities.

### **Section 5: Site and system particulars**

1. The equipment and the materials to be supplied and installed by the vendor shall be suitable for continuous and trouble free operation under the following site conditions.

- Temperature: Max. 50 degree C & Min. 2 degree C
- Relative Humidity: 85% (Max.)
- Seismic Condition: As applicable to the location
- Atmosphere: polluted with dust storm & Fog etc.
- Wind load: Max. 50 m/sec (as per IS 875 latest edition)



- Wind Direction: to be considered
2. The equipment and materials to be supplied by the vendor shall be designed for the following power supply conditions:
- Voltage: (380 V - 415V) +/- 10%
  - Frequency: 50 Hz +/- 3%
  - Fault level: 10kA at 415 Volts
  - System Neutral Earthling: Solidly earthed

For BAIF Institute for Sustainable Livelihoods and Development





## Annexure 1

### Schedule of quantities

Site 1: Dagadpada Bejpase (5 hp system)

No	Description	Unit	Qty
1	<p><b>Supply, installation, commissioning &amp; testing of solar submersible pump</b></p> <p>Supply of 3 Phase - 5 hp submersible pump including mounting structure (excluding civil work) for water pump, earthing system, lightning protection, protection system, cable (3C x 6 sq.mm. flat cable &amp; PVC insulated AC 3Ø as per IS-694:1990 up to 150 m (actual as per site) length laying in high density PVC pipe) (excluding trench excavation) etc. complete in all respect and as per site condition data provided in Annexure 2 &amp; specifications provided in Annexure 4 &amp; Annexure 5</p>	Nos.	1
2	<p><b>Supply, installation, commissioning &amp; testing of solar electrical power plant</b></p> <p>Supply of PV module including mounting structure (except civil works), earthing system, lightning protection, protection system, combiner box, PV cable, SPD, MC4 – connector, MCB, solar fuse etc. complete in all respect and as per instrument specifications provided in Annexure 5</p>	Nos.	1

Site 2: Barkhandiya Bejpase (7.5 hp system)

No	Description	Unit	Qty
1	<p><b>Supply, installation, commissioning &amp; testing of solar submersible pump</b></p> <p>Supply of 3 Phase - 7.5 hp submersible pump including mounting structure (excluding civil work) for water pump, earthing system, lightning protection, protection system, cable (3C x 6 sq.mm. flat cable &amp; PVC insulated AC 3Ø as per IS-694:1990 up to 150 m (actual as per site) length laying in high density PVC pipe) (excluding trench excavation) etc. complete in all respect and as per site condition data provided in Annexure 2 &amp; specifications provided in Annexure 4 &amp; Annexure 5</p>	Nos.	1



2	<b>Supply, installation, commissioning &amp; testing of solar electrical power plant</b>  Supply of PV module including mounting structure (except civil works), earthing system, lightning protection, protection system, combiner box, PV cable, SPD, MC4 – connector, MCB, solar fuse etc. complete in all respect and as per instrument specifications provided in Annexure 5	Nos.	1
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Site 3: Dokpatal Taledagad (10 hp system)

No	Description	Unit	Qty
1	<b>Supply, installation, commissioning &amp; testing of solar submersible pump</b>  Supply of 3 Phase - 10 hp submersible pump including mounting structure (excluding civil work) for water pump, earthing system, lightning protection, protection system, cable (3C x 6 sq.mm. flat cable & PVC insulated AC 3Ø as per IS-694:1990 up to 150 m (actual as per site) length laying in high density PVC pipe) (excluding trench excavation) etc. complete in all respect and as per site condition data provided in Annexure 2 & specification provided in Annexure 4 & Annexure 5	Nos.	1
2	<b>Supply, installation, commissioning &amp; testing of solar electrical power plant</b>  Supply of PV module including mounting structure (except civil works), earthing system, lightning protection, protection system, combiner box, PV cable, SPD, MC4 – connector, MCB, solar fuse etc. complete in all respect and as per instrument specification provided in Annexure 5	Nos.	1



Site 4: Dagadpada Sambarchond (10 hp system)

No	Description	Unit	Qty
1	<p><b>Supply, installation, commissioning &amp; testing of solar submersible pump</b></p> <p>Supply of 3 Phase - 10 hp submersible pump including mounting structure (excluding civil work) for water pump, earthing system, lightning protection, protection system, cable (3C x 6 sq.mm. flat cable &amp; PVC insulated AC 3Ø as per IS-694:1990 up to 150 m (actual as per site) length laying in high density PVC pipe) (excluding trench excavation) etc. complete in all respect and as per site condition data provided in Annexure 2 &amp; specification provided in Annexure 4 &amp; Annexure 5</p>	Nos.	1
2	<p><b>Supply, installation, commissioning &amp; testing of solar electrical power plant</b></p> <p>Supply of PV module including mounting structure (except civil works), earthing system, lightning protection, protection system, combiner box, PV cable, SPD, MC4 – connector, MCB, solar fuse etc. complete in all respect and as per instrument specification provided in Annexure 5</p>	Nos.	1



## Annexure 2

### Site condition & input data

Site 1: Dagadpada Bejpase (5 hp system)

Project category	:	Renewable energy, solar
Project summary	:	Solar water pumping system
Type of plant	:	Stand alone
Location	:	Waghai, Dang, Gujarat
Land	:	Flat
Irradiation details considered	:	Yes
Type of PV module mounting structure	:	Fixed structure
Type of PV modules considered for the offer	:	Poly-crystalline
System capacity pump / solar system	:	5 hp / 5 kW
Inverter capacity	:	Refer technical specification
<b>Input data</b>		
Water consumption (litres / day)	:	186000 (considering 6 hours / day)
Pipe length (m)	:	150 (actual as per site)
Pipe size (mm)	:	90
Total head (m)	:	26
Calculated pump capacity (hp)	:	5

Site 2: Barkhandiya Bejpase (7.5 hp system)

Project category	:	Renewable energy, solar
Project summary	:	Solar water pumping system
Type of plant	:	Stand alone
Location	:	Waghai, Dang, Gujarat
Land	:	Flat
Irradiation details considered	:	Yes
Type of PV module mounting structure	:	Fixed structure
Type of PV modules considered for the offer	:	Poly-crystalline
System capacity pump / solar system	:	7.5 hp / 7.5 kW



Inverter capacity	:	Refer technical specification
<b>Input data</b>		
Water consumption (litres / day)	:	216000 (considering 6 hours / day)
Pipe length (m)	:	150 (actual as per site)
Pipe size (mm)	:	90
Total head (m)	:	23
Calculated pump capacity (hp)	:	7.5

### Site 3: Dokpatal Taledagad (10 hp system)

Project category	:	Renewable Energy, solar
Project summary	:	Solar water pumping system
Type of plant	:	Stand alone
Location	:	Waghai, Dang, Gujarat
Land	:	Flat
Irradiation details considered	:	Yes
Type of PV module mounting structure	:	Fixed structure
Type of PV modules considered for the offer	:	Poly-crystalline
System capacity pump / solar system	:	10 hp / 10 kW
Inverter capacity	:	Refer technical specification
<b>INPUT DATA</b>		
Water consumption (litres / day)	:	227000 (considering 6 hours / day)
Pipe length (m)	:	150 (actual as per site)
Pipe size (mm)	:	90
Total head (m)	:	38
Calculated pump capacity (hp)	:	10



Site 4: Dagadpada Sambarchond (10 hp system)

Project category	:	Renewable Energy, solar
Project summary	:	Solar water pumping system
Type of plant	:	Stand alone
Location	:	Waghai, Dang, Gujarat
Land	:	Flat
Irradiation details considered	:	Yes
Type of PV module mounting structure	:	Fixed structure
Type of PV modules considered for the offer	:	Poly-crystalline
System capacity pump / solar system	:	10 hp / 10 kW
Inverter capacity	:	Refer technical specification
<b>INPUT DATA</b>		
Water Consumption (litres / day)	:	162000 (considering 6 hours / day)
Pipe length (m)	:	150 (actual as per site)
Pipe size (mm)	:	90
Total head (m)	:	58
Calculated pump capacity (hp)	:	10



### Annexure 3

#### List of equipment

Sr. No.	Description
1	Solar PV VFD inverter
2	Solar PV module
3	Combiner box DC
4	Fuse DC
5	SPD DC (Surge Protection Device)
6	MCB DC
7	DC cable
8	Combiner box AC
9	Fuse AC
10	SPD AC (Surge Protection Device)
11	MCB AC
12	MC - 4 connector
13	AC cable
14	Solar PV module mounting structure
15	Structure hardware system
16	Earthing system
17	Lightning arrester system
18	Solar pump - Submersible pump



## Annexure 4

### Technical specifications: Pump

Site 1: Dagadpada Bejpase (5 hp system)

No.	Particular	Details / Range	Unit	Remarks
1	Type of application	Water lifting–irrigation		
	Type of pump	Submersible		
	Required discharge	31000	lph	
	Total head	26	m	
	Allowed liquid temperature	Atmosphere		
	System pressure (Max.)	3.5 to 6	kg	
	Main power supply	380V - 415 V, 50 Hz, three phase	V	
	Efficiency	More than 60%		
2	Pump			
	Pump head	SS 304		
	Pump base	SS 304		
	Impeller	SS 304		
	Chamber	SS 304		
	Shaft	SS 316		
	Shaft seal	Sic / Carbon		
	Rubber parts	EPDM		
3	Motor			
	Efficiency class	IE3		
	Insulation class	F		
	Enclosure	IP 66		
	Supply frequency	50	Hz	
	Supply voltage	380V - 415 V, 50 Hz, three phase	V	
	Vibration Level	Accordance with ISO 10816		
	Cooling standard	Accordance with IEC 6034-6		
Maximum noise level	< 75 dB @ 1 m			
4	Application	Low voltage operating pump for solar system		

Site 2: Barkhandiya Bejpase (7.5 hp system)

No.	Particular	Details / Range	Unit	Remarks
1	Type of application	Water lifting–irrigation		
	Type of pump	Submersible		
	Required discharge	36000	lph	
	Total head	23	m	
	Allowed liquid temperature	Atmosphere		
	System pressure (Max.)	3.5 to 6	kg	
	Main power supply	380V - 415 V, 50 Hz, three phase	V	





	Efficiency	More than 60%		
2	Pump			
	Pump head	SS 304		
	Pump base	SS 304		
	Impeller	SS 304		
	Chamber	SS 304		
	Shaft	SS 316		
	Shaft seal	Sic / Carbon		
	Rubber parts	EPDM		
3	Motor			
	Efficiency class	IE3		
	Insulation class	F		
	Enclosure	IP 66		
	Supply frequency	50	Hz	
	Supply voltage	380V - 415 V, 50 Hz, three phase	V	
	Vibration Level	Accordance with ISO 10816		
	Cooling standard	Accordance with IEC 6034-6		
	Maximum noise level	< 75 dB @ 1 m		
4	Application	Low voltage operating pump for solar system		

Site 3: Dokpatal Talegad (10 hp system)

No.	Particular	Details / Range	Unit	Remark
1	Type of application	Water lifting–irrigation		
	Type of pump	Submersible		
	Required discharge	38000	lph	
	Total head	38	m	
	Allowed liquid temperature	Atmosphere		
	System pressure (Max.)	3.5 to 6	kg	
	Main power supply	380V - 415 V, 50 Hz, three phase	V	
	Efficiency	More than 60%		
2	Pump			
	Pump head	SS 304		
	Pump base	SS 304		
	Impeller	SS 304		
	Chamber	SS 304		
	Shaft	SS 316		
	Shaft seal	Sic / Carbon		
	Rubber parts	EPDM		
3	Motor			
	Efficiency class	IE3		
	Insulation class	F		



	Enclosure	IP 66		
	Supply frequency	50	Hz	
	Supply voltage	380V - 415 V, 50 Hz, three phase	V	
	Vibration Level	Accordance with ISO 10816		
	Cooling standard	Accordance with IEC 6034-6		
	Maximum noise level	< 75 dB @ 1 m		
4	Application	Low voltage operating pump for solar system		

Site 4: Dagadpada Sambarchond (10 hp system)

No.	Particular	Details / Range	Unit	Remark
1	Type of application	Water lifting–irrigation		
	Type of pump	Submersible		
	Required discharge	27000	lph	
	Total head	58	m	
	Allowed liquid temperature	Atmosphere		
	System pressure (Max.)	3.5 to 6	kg	
	Main power supply	380V - 415 V, 50 Hz, three phase	V	
	Efficiency	More than 60%		
2	Pump			
	Pump head	SS 304		
	Pump base	SS 304		
	Impeller	SS 304		
	Chamber	SS 304		
	Shaft	SS 316		
	Shaft seal	Sic / Carbon		
	Rubber parts	EPDM		
3	Motor			
	Efficiency class	IE3		
	Insulation class	F		
	Enclosure	IP 66		
	Supply frequency	50	Hz	
	Supply voltage	380V - 415 V, 50 Hz, three phase	V	
	Vibration Level	Accordance with ISO 10816		
	Cooling standard	Accordance with IEC 6034-6		
	Maximum noise level	< 75 dB @ 1 m		
4	Application	Low voltage operating pump for solar system		



## Annexure 5

### Technical specifications: Equipment

Solar inverter (5 hp system)

Sr. No.	Particular	Range / Details	Units	Remarks
<b>1</b>	<b>Input DC side</b>			
	Maximum input power (Wp)	5500	W	
	Max. DC input voltage (Vdc)	800	V	
	MPPT voltage range (Vdc)	250 - 800	V	
	Max. input current for each MPPT	15.6 – 18	A	
<b>2</b>	<b>Output AC Side</b>			
	Nominal AC output power (kW)	5.5	kW	
	AC output voltage (Vac)	380V - 415 V, 50 Hz, three phase	V	
	Max. AC output current	< 9.7	A	
	Power factor	1		
	Grid frequency (Hz)	50	Hz	
<b>3</b>	<b>Efficiency</b>			
	Max. efficiency	97	%	
	Euro efficiency	96.4	%	
<b>4</b>	<b>MPPT</b>			
	No of MPPT	2		
	No of MPPT algorithms	≤ 1		
<b>6</b>	<b>Power ports</b>			
	No of input DC port for each MPPT	2 pair		
	Type of protected port	MCB		
	Type of AC output protected	MCB		
<b>7</b>	<b>Protection</b>			
	Surge arrestor DC side	Yes		
	Surge arrestor AC side	Yes		
	PV insulation monitor	No		
	O/U voltage protection	Both DC & AC		



	Over current protection	Both DC & AC		
	Earth fault protection	Yes		
<b>8</b>	<b>Others</b>			
	Minimum start up voltage	200	V	
	Relative humidity	95	%	
	Cooling method	Self ventilated		
	Weight (kg)	As per size		
	Protection	IP 54		

Solar inverter (7.5 hp system)

Sr. No.	Particular	Range / Details	Units	Remarks
<b>1</b>	<b>Input DC side</b>			
	Maximum input power (Wp)	7500	W	
	Max. DC input voltage (Vdc)	800	V	
	MPPT voltage range (Vdc)	250 - 800	V	
	Max. input current for each MPPT	23.1 - 25	A	
<b>2</b>	<b>Output AC Side</b>			
	Nominal AC output power (kW)	7.5	kW	
	AC output voltage (Vac)	380V - 415 V, 50 Hz, three phase	V	
	Max. AC output current	< 13	A	
	Power factor	1		
	Grid frequency (Hz)	50	Hz	
<b>3</b>	<b>Efficiency</b>			
	Max. efficiency	98	%	
	Euro efficiency	97.5	%	
<b>4</b>	<b>MPPT</b>			
	No of MPPT	2		
	No of MPPT algorithms	≤ 1		
<b>6</b>	<b>Power ports</b>			
	No of input DC port for each MPPT	2 pair		



	Type of protected port	MCB		
	Type of AC output protected	MCB		
<b>7</b>	<b>Protection</b>			
	Surge arrestor DC side	Yes		
	Surge arrestor AC side	Yes		
	PV insulation monitor	No		
	O/U voltage protection	Both DC & AC		
	Over current protection	Both DC & AC		
	Earth fault protection	Yes		
<b>8</b>	<b>Others</b>			
	Minimum start up voltage	200	V	
	Relative humidity	95	%	
	Cooling method	Self ventilated		
	Weight (kg)	As per size		
	Protection	IP 54		

#### Solar inverter (10 hp system)

Sr. No.	Particular	Range	Units	Remarks
<b>1</b>	<b>Input DC side</b>			
	Maximum input power (Wp)	11000	W	
	Max. DC input voltage (Vdc)	800	V	
	MPPT voltage range (Vdc)	250 - 800	V	
	Max. input current for each MPPT	31 - 33	A	
<b>2</b>	<b>Output AC side</b>			
	Nominal AC output power (KW)	11	kW	
	AC output voltage (Vac)	380V - 415 Volt, 50 Hz, three phase	V	
	Max. AC output current	< 19.2	A	
	Power factor	1		
	Grid frequency (Hz)	50	Hz	
<b>3</b>	<b>Efficiency</b>			



	Max. efficiency	97.8	%	
	Euro efficiency	97.1	%	
<b>4</b>	<b>MPPT</b>			
	No of MPPT	2		
	No of MPPT algorithms	≤ 1		
<b>6</b>	<b>Power ports</b>			
	No of input DC port for each MPPT	2 pair		
	Type of protected port	MCB		
	Type of AC output protected	MCB		
<b>7</b>	<b>Protection</b>			
	Surge arrestor DC side	Yes		
	Surge arrestor AC side	Yes		
	PV insulation monitor	No		
	O/U voltage protection	Both DC & AC		
	Over current protection	Both DC & AC		
	Earth fault protection	Yes		
<b>8</b>	<b>Others</b>			
	Minimum start up voltage	200	V	
	Relative humidity	95	%	
	Cooling method	Self ventilated		
	Weight (kg)	As per size		
	Protection	IP 54		

#### Solar module (5, 7.5 & 10 hp system)

Sr. No.	Specification	Range	Units	Remarks
<b>1</b>	<b>Electrical characteristics</b>			
	Maximum power (Pm) Nominal	250	W	
	Voltage @ maximum power (Vmpp)	≥ 30.8	V	
	Current @ maximum power (Impp)	≤ 8.12	A	
	Open circuit voltage (Voc)	≥ 37.2	V	
	Short circuit current (Isc)	≈ 8.96	A	
	Maximum system voltage	1000	V	
	Number of solar cells per panel	60	Nos.	



	Type of cell	Poly-crystalline silicon cells		
<b>2</b>	<b>Temperature co-efficient</b>			
	Open circuit voltage (Voc)	-0.2941	% / °C	
	Short circuit current (Isc)	0.0681	% / °C	
	Rated (nominal) power (Pmax)	-0.3845	% / °C	
	Nominal operating cell temperature (NOCT)	46 +/- 2	°C	
<b>3</b>	<b>Mechanical loading</b>			
	Frame material type (Al/Cu/GI/FB)	Anodized aluminum	type	
	Frame thickness	> 1.2	mm	
	Front panel (Front face glass material)	Tempered glass (Low iron)	type	
	Panel dimensions (L X W X T) (approx.)	1640 × 990 × 42	mm	
	Weight (approx.)	18.5	kg	
	Junction box type	(IP 65 / IP 67)		
	Connector type (MC-4 / MC-3 / MC-2 / LC-4)	MC - 4 type		
<b>4</b>	<b>Limits</b>			
	Maximum operating temperature range	-40 to 85	°C	
	Reverse current protection	Bypass diodes		
<b>5</b>	<b>Warranty</b>			
	Product warranty	05	years	
	Performance warranty	10	years for 90% of power	
		25	years for 80% of power	
<b>6</b>	Standard	IEC 61215, IEC 61730-1&2, IEC 60068-2-68, IEC 61701, IEC 62716		

#### AC combiner box (5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Combiner box - AC</b>			
	IP protection	≥ IP 55		Ventilation required
	Number of inputs	2 Nos.	3C X 6sqmm cable	Gland



	Earthing input	1 Nos	6 sqmm cable	Gland
	Number of outputs	1 Nos	3C X 6 sqmm Cable	Gland
	Input terminal	8+1	6 sq.mm.	Cable
	Output terminal	4	6 sq.mm.	Cable
	SPD (Surge Protection Device) 3Phase	1	440 V AC	Type 2
	Circuit breaker (MCB -4P)	1	440 V AC, 10A	B Curve
	Selector switch (4 Pole )	1	440V AC, 10A	
	Incitation lamp	3	LED AC	
	Dimension	1	≥ (300 x 300 x 170) mm	≥ IP55

#### AC combiner box (7.5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Combiner box - AC</b>			
	IP protection	≥ IP 55		Ventilation required
	Number of inputs	2 Nos.	3C X 6sqmm cable	Gland
	Earthing input	1 Nos	6 sqmm cable	Gland
	Number of outputs	1 Nos	3C X 6 sqmm Cable	Gland
	Input terminal	8+1	6 sq.mm.	Cable
	Output terminal	4	6 sq.mm.	Cable
	SPD (Surge Protection Device) 3Phase	1	440 V AC	Type 2
	Circuit breaker (MCB -4P)	1	440 V AC , 16A	B Curve
	Selector switch (4 Pole )	1	440V AC, 16A	
	Incitation lamp	3	LED AC	
	Dimension	1	≥ (300 x 300 x 170) mm	≥ IP55





AC combiner box (10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Combiner Box - AC</b>			
	IP protection	≥ IP55		Ventilation required
	Number of inputs	2 Nos	3C X 6sqmm Cable	Gland
	Earthing input	1 Nos	6 sq mm cable	Gland
	Number of outputs	1 Nos	3C X 6 sq mm cable	Gland
	Input terminal	8+1	6 sq.mm.	Cable
	Output terminal	4	6 sq.mm.	Cable
	SPD (Surge Protection Device) 3 phase	1	440V AC	Type 2
	Circuit breaker (MCB -4P)	1	440 V AC , 25A	B Curve
	Selector switch (4 Pole )	1	440V AC, 25A	
	Incitation lamp	3	LED AC	
	Dimension	1	≥ (300 x 300 x 170) mm	≥ IP55

Surge Protection Device AC (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Type 2 PV SPD</b>			
	Maximum PV voltage (Uocstc) (Vdc)	1000	V	
	Protection mode	CM/DM		
	Maximum operating voltage (Ucpv) (Vdc)	1060	V	
	Current withstand short circuit (Iscwpv)	> 1000	A	
	Operating current (Ipe) to voltage Ucpv	< 0.1	mA	
	Leakage current (Ipe) to voltage Ucpv	< 0.1	mA	



	Nominal discharge current (In) (15 x 8/20 mic-sec Impulses)	20	KA	
	Protection level at In (Up)	< 3.6	KV	
	<b>Mechanical characteristics</b>			
	Connection	by screw terminal: 4 - 25 sq.mm	sq.mm.	
	End of life mode	Disconnection of the SPD from PV line		
	Disconnection indicator	By mechanical indicator		
	Remote signaling of disconnection	Option DS50PVS-xxx		
	Mounting	Symmetrical Rail 35	mm	
	Operating temperature	- 40 / + 85	°C	
	Protection class	IP20		
	Housing material	Thermoplastic UL94-VD		
	<b>Standards compliance</b>			
	prEN50539- 11: Europe	PV surge protection - Class I and II testing		
	UL 1449 3rd Edition: USA	Type 4, for use in type 2 locations		

#### MCB AC (5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>MCB AC</b>			
	No of poles	TPN		
	Characteristic	B Curve		
	Breaking capacity	10	kA	
	Rated current	10	A	
	Rated voltage	440	V	
	Current limitation class	Class 3		



	Frequency	50	Hz	
	Minimum operating voltage	12 V AC / DC	V	
	Mounting position	Vertical / horizontal / upside down / on the side		
	Fixing	On symmetric rail EN / IEC 60715		
	Applied connection torque	Recommended: 2.5 Nm, Max.: 3 Nm, Min.: 2 Nm		
	Standard	IS / IEC 60898 -1 2002		
	Mechanical endurance	20000 operation without load		
	Electrical endurance	10000 operation with load		
		2000 operation under In, DC current		
	Permissible ambient temperature	-25 to 70	°C	

#### MCB AC (7.5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>MCB AC</b>			
	No of poles	TPN		
	Characteristic	B Curve		
	Breaking capacity	10	kA	
	Rated current	16	A	
	Rated voltage	440	V	
	Current limitation class	Class 3		
	Frequency	50	Hz	
	Minimum operating voltage	12 V AC / DC	V	



	Mounting position	Vertical / horizontal / upside down / on the side		
	Fixing	On symmetric rail EN / IEC 60715		
	Applied connection torque	Recommended: 2.5 Nm, Max.: 3 Nm, Min.: 2 Nm		
	Standard	IS / IEC 60898 -1 2002		
	Mechanical endurance	20000 operation without load		
	Electrical endurance	10000 operation with load		
		2000 operation under In, DC current		
	Permissible ambient temperature	-25 to 70	°C	

#### MCB AC (10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>MCB AC</b>			
	No of poles	TPN		
	Characteristic	B Curve		
	Breaking capacity	10	kA	
	Rated current	25 A	A	
	Rated voltage	440	V	
	Current limitation class	Class 3		
	Frequency	50	Hz	
	Minimum operating voltage	12 V AC / DC	V	
	Mounting position	Vertical / horizontal / upside down / on the side		
	Fixing	On symmetric rail		



		EN / IEC 60715		
	Applied connection torque	Recommended: 2.5 Nm, Max.: 3 Nm, Min.: 2 Nm		
	Standard	IS / IEC 60898 -1 2002		
	Mechanical endurance	20000 operation without load		
	Electrical endurance	10000 operation with load		
		2000 operation under In, DC current		
	Permissible ambient temperature	-25 to 70	°C	

AC cable (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
1	<b>AC Cable</b>	3C x 6 sq.mm flat cable & PVC insulated 3 phase		As per IS 694:1990
	Maximum operating voltage		V	
	Maximum operating current	> 45	A	
	Temperature rating	-40 to 90	°C	
	Conductor material	Bright electrolytic grade copper		
	Insulation material	Special PVC compound		
	Jacket material	Abrasion resistant PVC compound		
	Min. bend radius	8 x diameter	mm	
	Flame resistance	VW-1 , National Electric Code (NEC), NFPA 70		



DC combiner box (5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Combiner Box DC</b>			
	IP protection	≥ IP55		
	Number of inputs	2 Nos.	1 Male/1Female	MC4 connector
	Earthing input	1 Nos.	6 / 10 sqmm cable	Gland IP65
	Number of outputs	2Nos.	1 Male/1 female	MC4 connector
	Input terminal	5	4 / 6 sq.mm.	Cable
	Output terminal	4	4 / 6 sq.mm.	Cable
	Fuse box (Fuse Base)	4	16A,1000V DC	Cartridge
	SPD (Surge Protection Device)	2	1000 V DC	Type-2
	Circuit breaker (MCB -2P)	1	800 V DC , 16A	B Curve
	Dimension	1	≥ (300 x 300 x 170) mm	≥ IP 55

DC combiner box (7.5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Combiner Box DC</b>			
	IP protection	≥ IP55		
	Number of inputs	2 Nos.	1 Male/1Female	MC4 connector
	Earthing input	1 Nos.	6 / 10 sqmm cable	Gland IP65
	Number of outputs	2Nos.	1 Male/1 female	MC4 connector
	Input terminal	5	4 / 6 sq.mm.	Cable



	Output terminal	4	4 / 6 sq.mm.	Cable
	Fuse box (Fuse Base)	4	25A,1000V DC	Cartridge
	SPD (Surge Protection Device)	2	1000 V DC	Type-2
	Circuit breaker (MCB -2P)	1	800 V DC , 25A	B Curve
	Dimension	1	≥ (300 x 300 x 170) mm	≥ IP 55

DC combiner box (10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Combiner Box DC</b>			
	IP protection	≥ IP 55		
	Number of inputs	2 Nos	1 Male/1Female	MC4 Connector
	Earthing Input	1 Nos	6 / 10 sqmm cable	Gland IP65
	Number of outputs	2Nos	1 Male/1 female	MC4 Connector
	Input terminal	5	4 / 6 sq.mm.	Cable
	Output terminal	4	4 / 6 sq.mm.	Cable
	Fuse box (Fuse base)	4	32A,1000V DC	Cartridge
	SPD (Surge Protection Device)	2	1000 V DC	Type-2
	Circuit breaker (MCB -2P)	1	800 V DC , 32A	B Curve
	Dimension	1	≥ (300 x 300 x 170) mm	≥ IP 55



PV fuse (5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>PV fuse rating</b>			
	Voltage	1000	V	
	Current	16	A	
	Breaking capacity	10 kA DC	kA	
	Min. interrupting	1.3 x I <sub>n</sub>		
	Time constant	Under 1	ms	
	Poles	1	Nos.	
	Finger safe fuse holder			
	CMD - 1D Fuse Holder	10		
	Poles	1	Nos.	

PV fuse (7.5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>PV fuse rating</b>			
	Voltage	1000	V	
	Current	25	A	
	Breaking capacity	10 kA DC	kA	
	Min. interrupting	1.3 x I <sub>n</sub>		
	Time constant	Under 1	ms	
	Poles	1	Nos.	
	Finger safe fuse holder			
	CMD - 1D Fuse Holder	10		
	Poles	1	Nos.	

PV fuse (10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>PV fuse rating</b>			





	Voltage	1000	V	
	Current	32	A	
	Breaking capacity	10 kA DC	kA	
	Min. interrupting	1.3 x I <sub>n</sub>		
	Time constant	Under 1	ms	
	Poles	1	Nos.	
	Finger safe fuse holder			
	CMD - 1D Fuse Holder	10		
	Poles	1	Nos.	

Surge Protection Device DC (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Type - 2 SPD DC</b>			
	Maximum PV voltage (U <sub>ocstc</sub> ) (V <sub>dc</sub> )	1000	V	
	Protection mode	CM/DM		
	Maximum operating voltage (U <sub>cpv</sub> ) (V <sub>dc</sub> )	1060	V	
	Current withstand short circuit (I <sub>scwpv</sub> )	> 1000	A	
	Operating current (I <sub>pe</sub> ) to voltage U <sub>cpv</sub>	< 0.1	mA	
	Leakage current (I <sub>pe</sub> ) to voltage U <sub>cpv</sub>	< 0.1	mA	
	Nominal discharge current (I <sub>n</sub> ) (15 x 8/20 mic-sec Impulses)	10	kA	
	Protection level at I <sub>n</sub> (U <sub>p</sub> )	< 3.6	kV	
	<b>Mechanical characteristics</b>			
	Connection	by screw terminal: 4 - 25 sq.mm	sq.mm	
	End of life mode	Disconnection of the SPD from PV line		
	Disconnection indicator	By mechanical		



		indicator		
	Remote signaling of disconnection	Option DS50PVS-xxx		
	Mounting	Symmetrical rail 35	mm	
	Operating temperature	- 40 / + 85	°C	
	Protection class	IP20		
	Housing material	Thermoplastic UL94-VD		
	<b>Standards Compliance</b>			
	prEN50539- 11: Europe	PV surge protection - Class I and II testing		
	UL 1449 3rd Edition: USA	Type 4, for use in type 2 locations		

#### MCB DC (5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>MCB DC</b>			
	No of poles	DP		
	Characteristic	B Curve		
	Breaking capacity	10	kA	
	Rated current	16	A	
	Rated voltage	1000 V DC	V	
	Current limitation class	Class 3		
	Frequency	50	Hz	
	Minimum Operating Voltage	12 V AC / DC	volts	
	Mounting Position	Vertical / Horizontal / Upside down / On the Side		
	Fixing	On symmetric Rail EN / IEC 60715		
	Applied Connection Torque	Recommended: 2.5 Nm, Max.: 3 Nm, Min.: 2 Nm		



	Standard	IS / IEC 60898 -1 2002		
	Mechanical Endurance	20000 operation without load		
	Electrical Endurance	10000 operation with load		
		2000 operation under In, DC Current		
	Permissible ambient Temp.	0.5 A to 63A - -25 to 70	°C	

MCB DC (7.5 hp system)

Sr. No.	Particular	Range	Unit	Remarks
1	<b>MCB DC</b>			
	No of poles	DP		
	Characteristic	B Curve		
	Breaking capacity	10	kA	
	Rated current	25	A	
	Rated voltage	1000 V DC	V	
	Current limitation class	Class 3		
	Frequency	50	Hz	
	Minimum Operating Voltage	12 V AC / DC	volts	
	Mounting Position	Vertical / Horizontal / Upside down / On the Side		
	Fixing	On symmetric Rail EN / IEC 60715		
	Applied Connection Torque	Recommended: 2.5 Nm, Max.: 3 Nm, Min.: 2 Nm		
	Standard	IS / IEC 60898 -1 2002		



	Mechanical Endurance	20000 operation without load		
	Electrical Endurance	10000 operation with load		
		2000 operation under In, DC Current		
	Permissible ambient Temp.	0.5 A to 63A - -25 to 70	°C	

#### MCB DC (10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>MCB DC</b>			
	No of poles	DP		
	Characteristic	B Curve		
	Breaking capacity	10	kA	
	Rated current	32 A	A	
	Rated voltage	1000 V DC	V	
	Current limitation class	Class 3		
	Frequency	50	Hz	
	Minimum operating voltage	12 V AC / DC	V	
	Mounting position	Vertical / horizontal / upside down / on the side		
	Fixing	On symmetric rail EN / IEC 60715		
	Applied connection torque	Recommended: 2.5 Nm, Max.: 3 Nm, Min.: 2 Nm		
	Standard	IS / IEC 60898 -1 2002		
	Mechanical endurance	20000 operation without load		



	Electrical endurance	10000 operation with load		
		2000 operation under In, DC current		
	Permissible ambient temperature	-25 to 70	°C	

MC-4 connector (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Units	Remarks
<b>1</b>	<b>MC - 4 connector</b>			
	Maximum voltage	1000	V	
	Maximum current	45for 4 sq.mm.	A	
	Rated impulse voltage	8	kV	
	Protection class	Class-2		
	Test voltage	6 kV (50Hz, 1 min.)		
	Protection class	Class - 2		
	Application class	A		
	Flammability class	UL94-V0		
	Existence of an enclosure	Enclosed connector		
	Pollution degree	2	deg C	
	Temperature range	-40 to + 105	°C	
	Operating humidity	5% - 95%		
	Contact material	Copper tin plated		
	Cable cross section area	2.5 ,4 ,6 sq.mm	sq.mm	
	Degree of protection	IP67		
	UV protection	Anti UV capability		

PV cable (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>PV - Cable</b>	1C x 4 sq.mm. Cable		



	Maximum Operating Voltage	<1000 VRMS (UL PV)	Volts	
	Maximum Operating Current	>48	Amps.	
	Temperature Rating	-40 to 90	°C	
	Conductor Material	Soft Annealed tinned stranded copper		
	Separator	Paper Tape/PVC		
	Insulation Material	XLPE		
	Jacket Material	Sunlight-Resistant PVC		
	Min. Bend Radius	8 x Diameter	mm	
	Flame Resistance	VW-1 , National Electric Code (NEC), NFPA 70		

#### Earthing (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Earthing</b>			
	Type	Pipe-in pipe / pipe-in-strip / rod		
	Material of construction	GI with copper bonded / pure copper		
	Outer wall thickness	≥ 3 ( Applicable for pipe type)	mm	
	Copper coating thickness	≥ 200 (Applicable for pipe type)	micron	
	Length	≥ 2	Mtr.	
	Chemical	BFC		
	Approved by	ERDA & CRPI (Equivalent)		
	Nuts & bolt material	SS 316		
	Total dia. of electrode	Compatible with		



		fault level		
	Earth pit cover size	300 × 300 × 60	mm	
	Pit cover construction	RCC type		
	Pipe type outer diameter (fault kA)	>19 (≥ 7.5 kA) or equivalent	mm	
	Required earth resistance after Installation ≤ 5 Ω			

#### Lightning arrester (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
	<b>Lighting arrester</b>			
1	Type	Copper bonded		
2	Lightning rod height (h) total	2	m	Copper
3	Rod diameter	> 19	Sq.mm.	Copper
4	Rating of surge current	10	kA	
5	Maximum resistance of system	5	Ω	
	<b>Protection Level Standards</b>			
6	IS 2309: 1989 Protection of Buildings And Allied Structures Against Lighting code of Practice			
7	IS 732 : 1989 Code of practice for Electrical wiring Installation			
8	IS 3043 : 1987 Code of practice for Earthing			
9	IEC 62305 Series Protection against lightning			

#### Mounting structure (5, 7.5 & 10 hp system)

Sr. No.	Particular	Range	Unit	Remarks
<b>1</b>	<b>Module mounting structure</b>			
	Type	Rectangular purline MS hot dip galvanized coating as per ASTM standard (50mm X 25mm X 1.2mm). Vertical supports of GI 75 mm dia GI class B pipe.		As per drawing
	Base plate	MS hot dip galvanized coating as		As per



		per ASTM standard (150 x 150 x 4) mm		drawing
	Nuts & bolt	As required SS 304	Nos.	
	J Bolt Material	As required	Nos.	
	Welding Type	As per standard		
	Provision for housing inverter & controls			

Vendor should submit mounting structure drawing with techno-commercial bid.





## Annexure 6

### Bill of quantities

Site 1: Dagadpada Bejpase (5 hp system)

Sr. No.	Description	Specifications	Quantity
1	Solar PV VFD inverter	5.5 kW	1 Nos.
2	Solar PV panel	250 W	20 Nos.
3	Combiner box AC	AC combiner box / Array junction box	1 Nos.
4	SPD AC (Surge Protection Device)	1000 V, 10 kA, Type-2 SPD	1 Nos.
5	MCB AC	440 V, 10 A TPN	2 Nos.
6	MC - 4 connector	1000V, 45A, 4 Sq.mm.	4 Nos.
7	AC Cable	3C x 6 sq.mm. Flat cable & PVC insulated 3 phase - As per IS-694:1990	150 m (Actual as per site)
8	Combiner box DC	DC combiner box/Array junction box	1 Nos.
9	Fuse DC	1000 V, 16 A, 33kA S/C Rating	2 Nos.
10	SPD DC (Surge Protection Device)	1000 V, 10 kA, Type-2 SPD	1 Nos.
11	MCB DC	1000 V, 16 A DP, 10 kA S/C Rating	1 Nos.
12	DC cable	4 / 6 sq.mm. - PV Cable	As required
13	Solar PV module mounting structure	Hot dip galvanized	As per design
14	Structure hardware system	GI / SS	As required
15	Earthing system	Pipe-in Pipe / Pipe-in-Strip / Rod- GI - (2m, 19-25 mm Dia.) - 7.5 kA Rating	3 Nos.
16	Lightning arrester system with base	GI / Cu, Length 2m	As per Annexure 5
17	Submersible pump	5hp pump, 3 phase, 415 V, 50 Hz	1 Nos.



Site 2: Barkhandiya Bejpase (7.5 hp system)

Sr. No.	Description	Specifications	Quantity
1	Solar PV VFD inverter	7.5 kW	1 Nos.
2	Solar PV panel	250 W	30 Nos.
3	Combiner box AC	AC combiner box / Array junction box	1 Nos.
4	SPD AC (Surge Protection Device)	1000 V, 10 kA, Type-2 SPD	1 Nos.
5	MCB AC	440 V, 16 A TPN	2 Nos.
6	MC - 4 connector	1000V, 45A, 4 Sq.mm.	4 Nos.
7	AC Cable	3C x 6 sq.mm. Flat cable & PVC insulated 3 phase - As per IS-694:1990	150 m (Actual as per site)
8	Combiner box DC	DC combiner box/Array junction box	1 Nos.
9	Fuse DC	1000 V, 25 A, 33kA S/C Rating	2 Nos.
10	SPD DC (Surge Protection Device)	1000 V, 10 kA, Type-2 SPD	1 Nos.
11	MCB DC	1000 V, 25 A DP, 10 kA S/C Rating	1 Nos.
12	DC cable	4 / 6 sq.mm. - PV Cable	As required
13	Solar PV module mounting structure	Hot dip galvanized	As per design
14	Structure hardware system	GI / SS	As required
15	Earthing system	Pipe-in Pipe / Pipe-in-Strip / Rod- GI - (2m, 19-25 mm Dia.) - 7.5 kA Rating	3 Nos.
16	Lightning arrester system with base	GI / Cu, Length 2m	As per Annexure 5
17	Submersible pump	7.5hp pump, 3 phase, 415 V, 50 Hz	1 Nos.



Site 3: Dokpatal Taledagad (10 hp system)

Sr. No.	Description	Specifications	Quantity
1	Solar PV VFD inverter	7.5 kW	1 Nos.
2	Solar PV panel	250 W	40 Nos.
3	Combiner box AC	AC combiner box / Array junction box	1 Nos.
4	SPD AC (Surge Protection Device)	1000 V, 10 kA, Type-2 SPD	1 Nos.
5	MCB AC	440 V, 25 A TPN	2 Nos.
6	MC - 4 connector	1000V, 45A, 4 Sq.mm.	4 Nos.
7	AC cable	3C x 6 sq.mm. Flat Cable & PVC insulated, 3 Phase - As per IS-694:1990	150 m (Actual as per site)
8	Combiner box DC	DC combiner box/Array junction box	1 Nos.
9	Fuse DC	1000 V, 32 A, 33kA S/C Rating	2 Nos.
10	SPD DC (Surge Protection Device)	1000 V, 10 KA, Type-2 SPD	1 Nos.
11	MCB DC	1000 V, 32 A DP, 10 kA S/C Rating	1 Nos.
12	DC cable	4 / 6 sq.mm. - PV cable	As required
13	Solar PV module mounting structure	Hot dip galvanized	As per design
14	Structure hardware system	GI / SS	As required
15	Earthing system	Pipe-in Pipe / Pipe-in-Strip / Rod- GI - (2m, 19-25 mm Dia.) - 7.5 kA rating	3 Nos.
16	Lightning arrester system with base	GI / Cu, Length - 2m	As per Annexure 5
17	Submersible pump	10 hp, 3 phase, 415V, 50 Hz	1 Nos.



Site 4: Dagadpada Sambarchond (10 hp system)

Sr. No.	Description	Specifications	Quantity
1	Solar PV VFD inverter	7.5 kW	1 Nos.
2	Solar PV panel	250 W	40 Nos.
3	Combiner box AC	AC combiner box / Array junction box	1 Nos.
4	SPD AC (Surge Protection Device)	1000 V, 10 kA, Type-2 SPD	1 Nos.
5	MCB AC	440 V, 25 A TPN	2 Nos.
6	MC - 4 connector	1000V, 45A, 4 Sq.mm.	4 Nos.
7	AC Cable	3C x 6 sq.mm. Flat cable & PVC insulated, 3 phase - As per IS-694:1990	150 m (Actual as per site)
8	Combiner box DC	DC combiner box/Array junction box	1 Nos.
9	Fuse DC	1000 V, 32 A, 33kA S/C Rating	2 Nos.
10	SPD DC (Surge Protection Device)	1000 V, 10 kA, Type-2 SPD	1 Nos.
11	MCB DC	1000 V, 32 A DP, 10 kA S/C Rating	1 Nos.
12	DC cable	4 / 6 sq.mm. - PV Cable	As required
13	Solar PV module mounting structure	Hot dip galvanized	As per design
14	Structure hardware system	GI / SS	As required
15	Earthing system	Pipe-in Pipe / Pipe-in-Strip / Rod- GI - (2m, 19-25 mm Dia.) - 7.5 kA Rating	3 Nos.
16	Lightning arrester system with base	GI / Cu, Length - 2m	As per Annexure 5
17	Submersible pump	10 hp, 3 phase, 415V, 50 Hz	1 Nos.



## Annexure 7

### List of vendors / make

Sr. No.	Description	Make
1	Solar PV VFD inverter	ABB, Schneider, Siemens, L&T
2	Solar PV panel	Waree, Vikram, Emmvee, Navitas, Photonix
3	Combiner box AC	Hensel, Hummel
4	SPD AC (Surge Protection Device)	CITEL, ABB, Phoenix
5	MCB AC	Siemens, ABB, Hager, Anchor
6	MC - 4 Connector	Nordic Solution, Phoenix
7	AC cable	RR, KEI, Polycab, Finolex, Havells, Anchor
8	Combiner box DC	Hensel, Hummel
9	Fuse DC	Hager, Cooper Bussmann
10	SPD DC(Surge Protection Device)	CITEL, ABB, Phoenix
11	MCB DC	Siemens, ABB, Hager
12	DC cable	RR, KEI, Polycab, Finolex, Havells, Anchor
13	Solar PV module mounting structure	As per fabrication drawing
14	Structure hardware system	Local vendor
15	Earthing system	JMV LPS, ASHLOK, JEF
16	Lightning arrester system	JMV LPS, ASHLOK, JEF
17	Submersible pump	KSB, Kirloskar, Shakti, CRI, Crompton, Lubi, Grundfos



Annexure 8



**BAIF Institute for Sustainable Livelihoods and Development**  
**Lachhakadi, PO Gangpur, Vansda, Navsari – 396580**  
**Tel.: 02630 244005**

**Techno-Commercial Bid**

Tender notice: BISLD/IDI/02/2017 – 18, dated 25 October 2017

Supply, installation, commissioning & testing of solar photovoltaic water pumping systems at Waghai block, Dang

**A. Commercial terms**

Sr.	Particular	Information by bidder
1	Name of the bidder	
2	Address of the bidder	
3	Contact person, number and email	
4	EMD DD no., date, bank (Amount <b>NOT</b> to be mentioned)	
5	Whether experience certificate is enclosed. (Work completion certificates of single & cumulative works must be enclosed as per eligibility criteria given in chapter 1, clause 11.1) (Also Annexure 11 to be filled)	
6	Whether documentary proof of annual turnover is enclosed. (As per eligibility criteria given in chapter 1, clause 11.2) (IT returns / P&L / balance sheet / auditor's report of three years)	
7	Permanent account number (PAN) (Enclose copy)	
8	GST registration number (Enclose copy)	
9	Certificate of incorporation / registration (Enclose copy)	
10	Whether the bidder is a manufacturer or authorized dealer (Enclose authorization / dealership certificate)	



11	Whether the bidder is an employee or a relative of employee working in BISLD. If yes, please mention the name, designation and department.	
12	Whether the bidder has visited the site and acquainted with work scope & conditions	

## B. Technical specifications & scope

Site 1: Dagadpada Bejpase (5 hp system)

Sr.	Particular	Bidder response	Remarks
1	Submersible pump as per Annexure 1, 2, 4, 6 & 7 Make Model Head range (m) Discharge range (lph) Catalog / brochure / data sheet Quantity: 01 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
2	Delivery pipe from pump up to GL (HDPE PE 63 PN6) (Rising main pipe NOT in scope of work)	<i>Agree / disagree</i>	
3	Dry run protection	<i>Agree / disagree</i>	
4	PV module of 250 Wp as per Annexure 1,2, 5, 6 & 7 Make Catalog / brochure / data sheet Quantity: 20 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
5	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As per Annexure 1,2, 3, 5, 6 & 7) Make Catalog / brochure / data sheet Quantity: 1 set	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
6	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 2 sets of 10 modules each. (As per Annexure 1,2,3,5,6 & 7) Structure drawing from bidder Quantity: 1 unit	<i>Agree / disagree</i> <i>Enclosed / not enclosed</i>	



7	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench excavation) (As per Annexure 1,2, 3, 5, 6 & 7)  Make  Length: 150 m (Actual as per site)	<i>Agree / disagree</i>  <i>Mention</i>	
8	Supply, installation, commissioning, testing & on-site training for operations	<i>Agree / disagree</i>	
9	Provision of operational manual in Gujarati	<i>Agree / disagree</i>	
10	Duty cycle: 6-8 hours per day	<i>Agree / disagree</i>	
11	Water source: canal / check dam	<i>Agree / disagree</i>	
12	All components should conform to BIS/IEC/MNRE / applicable specifications & certifications (As per Annexure 4, 5 & 7)	<i>Agree / disagree</i> <i>Enclosed / not enclosed</i>	
13	Layout / SLD	<i>Enclosed / not enclosed</i>	
14	Warranty – 5 years system warranty. Solar module peak output wattage should be more than 90% of rated peak output for 10 years & 80% of rated peak output after 10 years till 25 years. 2 years comprehensive maintenance from date of commissioning covering on-site parts replacement & complaint redressal within 5 days.	<i>Agree / disagree</i>	
15	Exclusions: Civil works, excavation, rising main pipeline above GL.	<i>Agree / disagree</i>	

Site 2: Barkhandiya Bejpase (7.5 hp system)

Sr.	Particular	Bidder response	Remarks
1	Submersible pump as per Annexure 1, 2, 4, 6 & 7 Make Model Head range (m) Discharge range (lph) Catalog / brochure / data sheet Quantity: 01 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
2	Delivery pipe from pump up to GL (HDPE PE 63 PN6) (Rising main pipe NOT in scope of work)	<i>Agree / disagree</i>	
3	Dry run protection	<i>Agree / disagree</i>	





4	PV module of 250 Wp as per Annexure 1,2, 5, 6 & 7 Make Catalog / brochure / data sheet Quantity: 30 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
5	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As per Annexure 1,2, 3, 5, 6 & 7) Make Catalog / brochure / data sheet Quantity: 1 set	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
6	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 3 sets of 10 modules each. (As per Annexure 1,2,3,5,6 & 7) Structure drawing from bidder Quantity: 1 unit	<i>Agree / disagree</i> <i>Enclosed / not enclosed</i>	
7	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench excavation) (As per Annexure 1,2, 3, 5, 6 & 7) Make Length: 150 m (Actual as per site)	<i>Agree / disagree</i> <i>Mention</i>	
8	Supply, installation, commissioning, testing & on-site training for operations	<i>Agree / disagree</i>	
9	Provision of operational manual in Gujarati	<i>Agree / disagree</i>	
10	Duty cycle: 6-8 hours per day	<i>Agree / disagree</i>	
11	Water source: canal / check dam	<i>Agree / disagree</i>	
12	All components should conform to BIS/IEC/MNRE / applicable specifications & certifications (As per Annexure 4, 5 & 7)	<i>Agree / disagree</i> <i>Enclosed / not enclosed</i>	
13	Layout / SLD	<i>Enclosed / not enclosed</i>	



14	Warranty – 5 years system warranty. Solar module peak output wattage should be more than 90% of rated peak output for 10 years & 80% of rated peak output after 10 years till 25 years. 2 years comprehensive maintenance from date of commissioning covering on-site parts replacement & complaint redressal within 5 days.	<i>Agree / disagree</i>	
15	Exclusions: Civil works, excavation, rising main pipeline above GL.	<i>Agree / disagree</i>	

Site 3: Dokpatal Taledagad (10 hp system)

<b>Sr.</b>	<b>Particular</b>	<b>Bidder response</b>	<b>Remarks</b>
1	Submersible pump as per Annexure 1, 2, 4, 6 & 7 Make Model Head range (m) Discharge range (lph) Catalog / brochure / data sheet Quantity: 01 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
2	Delivery pipe from pump up to GL (HDPE PE 63 PN6) (Rising main pipe NOT in scope of work)	<i>Agree / disagree</i>	
3	Dry run protection	<i>Agree / disagree</i>	
4	PV module of 250 Wp as per Annexure 1,2, 5, 6 & 7 Make Catalog / brochure / data sheet Quantity: 40 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
5	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As per Annexure 1,2, 3, 5, 6 & 7) Make Catalog / brochure / data sheet Quantity: 1 set	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	



6	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 4 sets of 10 modules each. (As per Annexure 1,2,3,5,6 & 7) Structure drawing from bidder Quantity: 1 unit	<i>Agree / disagree</i>  <i>Enclosed / not enclosed</i>	
7	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench excavation) (As per Annexure 1,2, 3, 5, 6 & 7) Make Length: 150 m (Actual as per site)	<i>Agree / disagree</i>  <i>Mention</i>	
8	Supply, installation, commissioning, testing & on-site training for operations	<i>Agree / disagree</i>	
9	Provision of operational manual in Gujarati	<i>Agree / disagree</i>	
10	Duty cycle: 6-8 hours per day	<i>Agree / disagree</i>	
11	Water source: canal / check dam	<i>Agree / disagree</i>	
12	All components should conform to BIS/IEC/MNRE / applicable specifications & certifications (As per Annexure 4, 5 & 7)	<i>Agree / disagree</i> <i>Enclosed / not enclosed</i>	
13	Layout / SLD	<i>Enclosed / not enclosed</i>	
14	Warranty – 5 years system warranty. Solar module peak output wattage should be more than 90% of rated peak output for 10 years & 80% of rated peak output after 10 years till 25 years. 2 years comprehensive maintenance from date of commissioning covering on-site parts replacement & complaint redressal within 5 days.	<i>Agree / disagree</i>	
15	Exclusions: Civil works, excavation, rising main pipeline above GL.	<i>Agree / disagree</i>	

Site 4: Dagadpada Sambarchond (10 hp system)

Sr.	Particular	Bidder response	Remarks
1	Submersible pump as per Annexure 1, 2, 4, 6 & 7 Make Model Head range (m) Discharge range (lph) Catalog / brochure / data sheet Quantity: 01 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	



2	Delivery pipe from pump up to GL (HDPE PE 63 PN6) (Rising main pipe NOT in scope of work)	<i>Agree / disagree</i>	
3	Dry run protection	<i>Agree / disagree</i>	
4	PV module of 250 Wp as per Annexure 1,2, 5, 6 & 7 Make Catalog / brochure / data sheet Quantity: 40 nos.	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
5	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As per Annexure 1,2, 3, 5, 6 & 7) Make Catalog / brochure / data sheet Quantity: 1 set	<i>Agree / disagree</i> <i>Mention</i> <i>Enclosed / not enclosed</i>	
6	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 4 sets of 10 modules each. (As per Annexure 1,2,3,5,6 & 7) Structure drawing from bidder Quantity: 1 unit	<i>Agree / disagree</i> <i>Enclosed / not enclosed</i>	
7	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench excavation) (As per Annexure 1,2, 3, 5, 6 & 7) Make Length: 150 m (Actual as per site)	<i>Agree / disagree</i> <i>Mention</i>	
8	Supply, installation, commissioning, testing & on-site training for operations	<i>Agree / disagree</i>	
9	Provision of operational manual in Gujarati	<i>Agree / disagree</i>	
10	Duty cycle: 6-8 hours per day	<i>Agree / disagree</i>	
11	Water source: canal / check dam	<i>Agree / disagree</i>	
12	All components should conform to BIS/IEC/MNRE / applicable specifications & certifications (As per Annexure 4, 5 & 7)	<i>Agree / disagree</i> <i>Enclosed / not enclosed</i>	
13	Layout / SLD	<i>Enclosed / not enclosed</i>	



14	Warranty – 5 years system warranty. Solar module peak output wattage should be more than 90% of rated peak output for 10 years & 80% of rated peak output after 10 years till 25 years. 2 years comprehensive maintenance from date of commissioning covering on-site parts replacement & complaint redressal within 5 days.	<i>Agree / disagree</i>	
15	Exclusions: Civil works, excavation, rising main pipeline above GL.	<i>Agree / disagree</i>	

Date:

Signature with seal of bidder

Note: Techno-Commercial Bid must strictly adhere to the above format and must be typed & printed on A4 pages. The column “Particular” must be presented as it is. Response should be given in the column “Bidder response” as follows.

- Offered / not offered – Whether the particular / item is included in the offer.
- Agree / disagree – Whether the bidder agrees to the terms / requirement.
- Comply / does not comply – Whether the bidder complies with the requirement
- Mention – Details / specifications to be mentioned.
- Enclosed / not enclosed – Relevant enclosure to be included.

Remarks – Any point desired to be mentioned by the bidder. For response / enclosure which is not applicable to the respective bidder, “Not applicable” should be stated against the item in the Remarks column. For the response which defers from the requirement or not in line with the requirement, reason / justification should be clearly stated in the Remarks column.

Signature and seal required on all pages of Techno-Commercial Bid.

A word copy of the Techno-Commercial Bid is available at

<https://drive.google.com/open?id=0Bxlc1IveY0ztQjI0NUF4MFJWR3M>



Annexure 9



**BAIF Institute for Sustainable Livelihoods and Development**  
**Lachhakadi, PO Gangpur, Vansda, Navsari – 396580**  
**Tel.: 02630 244005**

**Price Bid**

Tender notice: BISLD/IDI/02/2017 – 18, dated 25 October 2017

Supply, installation, commissioning & testing of solar photovoltaic water pumping systems at Waghai block, Dang

Table 1: Offer summary (Details in Table 2)

Sr.	Description	Qty	Price (₹)	GST ( __%) (if applicable) (₹)	Any other (₹)	Final offered price (₹)
A	Site 1: Dagadpada Bejpase (5 hp system)					
B	Site 2: Barkhandiya Bejpase (7.5 hp system)					
C	Site 3: Dokpatal Taledagad (10 hp system)					
D	Site 4: Dagadpada Sambarchond (10 hp system)					
E	Supply, installation, commissioning, testing & on-site training including transportation					
F	Comprehensive maintenance of 2 years					
<b>Total</b>						



Table 2: Offer details

<b>A. Site 1: Dagadpada Bejpase (5 hp system)</b>						
Sr.	Description	Qty	Price (₹)	GST (___%) (if applicable) (₹)	Any other (₹)	Final offered price (₹)
1	Submersible pump & delivery pipe up to GL (As given in Techno-Commercial Bid)	01 nos.				
2	PV module of 250 Wp (As given Techno-Commercial Bid)	20 nos.				
3	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As given in Techno-Commercial Bid)	1 set				
4	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 3 sets of 10 modules each. (As given in Techno-Commercial Bid)	1 unit				
5	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench excavation) (As given in Techno-Commercial Bid) (Actual as per site)	150 m				
<b>Sub-total A</b>						
<b>B. Site 2: Barkhandiya Bejpase (7.5 hp system)</b>						
Sr.	Description	Qty	Price (₹)	GST (___%) (if applicable) (₹)	Any other (₹)	Final offered price (₹)
1	Submersible pump & delivery pipe up to GL (As given in Techno-Commercial Bid)	01 nos.				
2	PV module of 250 Wp (As given Techno-Commercial Bid)	30 nos.				



3	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As given in Techno-Commercial Bid)	1 set				
4	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 3 sets of 10 modules each. (As given in Techno-Commercial Bid)	1 unit				
5	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench excavation) (As given in Techno-Commercial Bid) (Actual as per site)	150 m				

**Sub-total B****C. Site 3: Dokpatal Taledagad (10 hp system)**

Sr.	Description	Qty	Price (₹)	GST (___%) (if applicable) (₹)	Any other (₹)	Final offered price (₹)
1	Submersible pump & delivery pipe up to GL (As given in Techno-Commercial Bid)	01 nos.				
2	PV module of 250 Wp (As given Techno-Commercial Bid)	40 nos.				
3	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As given in Techno-Commercial Bid)	1 set				
4	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 3 sets of 10 modules each. (As given in Techno-Commercial Bid)	1 unit				
5	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench	150 m				





	excavation) (As given in Techno-Commercial Bid) (Actual as per site)					
<b>Sub-total C</b>						
<b>D. Site 4: Dagadpada Sambarchond (10 hp system)</b>						
Sr.	Description	Qty	Price (₹)	GST (___%) (if applicable) (₹)	Any other (₹)	Final offered price (₹)
1	Submersible pump & delivery pipe up to GL (As given in Techno-Commercial Bid)	01 nos.				
2	PV module of 250 Wp (As given Techno-Commercial Bid)	40 nos.				
3	Control, electronics & protection (inverter, SPD, connectors, DC cable, MCBs, fuse, combiner box, earthing, lightning protection etc.) (As given in Techno-Commercial Bid)	1 set				
4	Solar PV module mounting structure – Hot dip galvanized iron (80 microns) structure (Fixed structure as per drawing, excluding civil work). 3 sets of 10 modules each. (As given in Techno-Commercial Bid)	1 unit				
5	AC cable (3C x 6 sq.mm. flat cable & PVC insulated 3Ø as per IS-694:1990, laying in high density PVC pipe) (excluding trench excavation) (As given in Techno-Commercial Bid) (Actual as per site)	150m				
<b>Sub-total D</b>						
E	Supply, installation, commissioning, testing & on-site training including transportation					
F	Comprehensive maintenance of 2 years (As given in Techno-Commercial Bid)					
<b>Total (A+B+C+D+E+F)</b>						



Rupees (in words): \_\_\_\_\_ only

Date:

Signature with seal of bidder

Signature and seal required on all pages of Price Bid.

Note: Price Bid must strictly adhere to the above format and must be typed and printed on A4 pages. A word copy of the Price Bid is available at

<https://drive.google.com/open?id=0Bxlc1IveY0ztQjI0NUF4MFJWR3M>



**Annexure 10**



## **Undertaking**

04 November 2017

To

The Addl. Chief Programme Executive  
BAIF Institute for Sustainable Livelihoods and Development  
Lachhakadi, PO Gangpur, Vandsa, Navsari – 396580

Ref.: Tender notice: BISLD/IDI/02/2017 – 18  
Supply, installation, commissioning & testing of solar photovoltaic water pumping systems  
at Waghai block, Dang

Dear Sir,

In response to the tender invited by you, I / We have examined the notice, conditions, specifications and terms of the contract and I / We agree to abide by all instructions in these documents attached here to and hereby bind myself / ourselves to execute the work as per schedule stipulated in the tender notice.

I / We further agree to sign and execute all agreements / bonds as may be required by BISLD to abide by the all conditions of the contract and to carry out all work as per specifications, failing which, I / We shall have no objection for the for feature of the earnest money / security money deposited with BISLD.

I / We also undertake that I / We have not been blacklisted by any entities any time.

I / We enclose herewith the required documents.

Sincerely yours,

Signature of bidder with seal

Encl.:

1. Techno-commercial bid with supporting documents
2. Price bid
3. EMD demand draft (along with price bid)

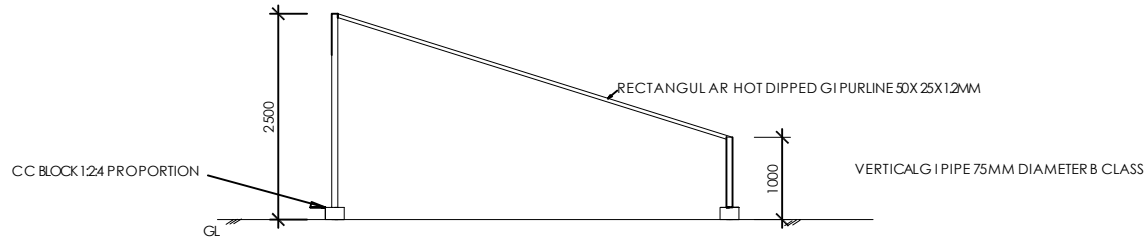


**Annexure 11**

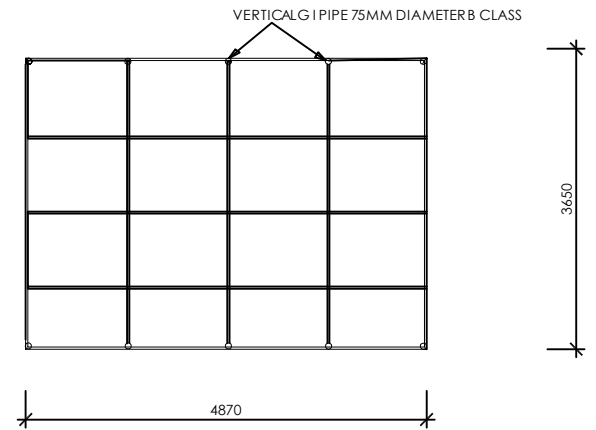
**List of previous works**

<b>Sr.</b>	<b>Location</b>	<b>Date of commission</b>	<b>Capacity (hp)</b>	<b>Client</b>	<b>Reference contact (name, tel. no. &amp; email)</b>
1					
2					
3					
4					
5					
-					
-					
-					
-					

Note: Annexure 11 should be typed and printed on A4 page adhering to the above format.



SIDE ELEVATION



PLAN

Note:  
 1) All dimensions are in MM  
 2) One mounting structure contains 10 panels of 250 Wp each

DRAWING FOR PV MODULE MOUNTING STRUCTURE  
 FOR PROPOSED LIFT IRRIGATION SCHEMES  
 UNDER IDI PROJECT DANG

PREPARED BY: BISLD, GUJARAT



### **Enclosure check-list**

1. Certifications
2. Catalogue / brochure / data sheet of components
3. Layout / SLD
4. Undertaking in Annexure 10
5. Annexure 11 as per Chapter 1, 11.1
6. Copy of previous work completion details as per Chapter 1, 11.1
7. Auditor's report, Balance sheet, P&L / I&E, notes to accounts of three years as per Chapter 1, 11.2
8. Copy of GST registration
9. Copy of PAN card
10. Copy of certificate of registration / incorporation
11. Authorization / dealership certificate from manufacturer
12. Company brochure & product catalogue
13. Solar PV module mounting structure drawing
14. Any other supporting documents