



राष्ट्रीय बीज निगम लिमिटेड

(भारत सरकार का उपक्रम-मिनिरत्न कम्पनी)

NATIONAL SEEDS CORPORATION LTD.

(A Govt. of India Undertaking- Miniratna Co.)

CIN: U74899DL1963G-OI003913

केन्द्रीय राज्य फार्म / Central State Farm

10 किमी0 सिरसा रोड, हिसार / 10 KM. Sirsa Road Hisar-125001



मुख्यालय: बीज भवन, पूसा परिसर, नई दिल्ली-12 / BEEJ BHAWAN, PUSA COMPLEX, NEW DELHI-12

NOTICE INVITING TENDER

National Seeds Corporation Ltd. (NSC) ,invites sealed tenders(two bid system1.Technical 2.Finicial), from reputed Contractors Registered in appropriate class with CPWD/PWD/Municipal Authorities/Semi Govt. Organization and having executed the similar kind of work & who are having EPF, GST & ESI Registration no.

Name of work	Estimated Cost	Period of completion	Earnest money (Rs.)	Cost of tender document (Rs.)
Installation and commissioning of 5K.V.A. off-grid Solar Photovoltaic power plant at Rajkiya Uchch Madhyamik Vidhyalaya, Khalipur, Noonh of Haryana under CSR 2018-19	Rs. 3,85,000/-	15Days	Rs.11600/-	Rs.118/-(incl. GST 18%)

1. Tender document may be obtained from the central state farm Hisar on any working day on payment of cost of tender Rs. 100/- (non refundable) on or before 15/03/2019 upto 12:00pm through cash/Bank draft in favor of NSC Ltd., Hisar.
2. Earnest money mentioned above should be accompanied with the tender in the shape of DD drawn on any Nationalized Bank payable at NSC, Hisar.
3. Tender shall be received in two envelopes i.e. one for technical & 2nd for financial bid on 15/03/2019 up to 13.00 hours at central state farm, NSC Ltd, Hisar and technical bid will be opened on the same day at 14.00 hours in presence of tenderer who wish to attend. Financial bids will be opened after evaluating of technical bids and it will be intimated on phone or by mail.
4. Change in terms and conditions or the specifications & schedule of completion shall not be accepted. Such conditional tenders are liable for rejection.
5. The Corporation reserves the right to accept or reject any/all tenders without assigning any reason whatsoever and decision of the Corporation shall be final and binding on tenderer.

A.M.(Engg.)
For D.G.M.(Farm)



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TERMS AND CONDITIONS FOR INSTALLATION AND COMMISSIONING OF 5KVA OFF GRID SPV POWER PLANT UNDER CORPORATE SOCIAL RESPONSIBILITY.

1. Last date of receipt of tender is.....upto 1.00PM and will be opened on the same date at 3.00PM.
2. The EMD amounting to Rs. 11600/-only have to be deposited as D.D. in favour of National Seeds Corporation Ltd., Hisar. This may be released after placing of work order.
3. 5% performance security has to be deposited within 5 working days after issuance of work order.
4. 5% Security deposit/Retention money will be deducted from the bills which will be released after 1 year of satisfactory completion of work. EMD may be adjusted in this security.
5. The tender should be sent in two bid system. One is technical & other is financial. Both the bids should be in sealed envelope indicating the name of work and date of opening. Certificate of registration and experience certificate with period of work should be enclosed. Also registration of P.F. & E.S.I. and challans and returns of the same are to be enclosed.
6. The contractor should quote the rates items wise offered by them. The unit of items quote for should be same as given in the letter of enquiry.
7. Rates should be quoted on through rates including all taxes, packing and forwarding charges, transportation charge and transit insurance charges and labour charges.
8. Work is to be done as per Govt. specifications. The work is required to be done within 15days after placing of order.
9. The payment of the bill will be made within 15days after satisfactory completion of the work subject to submission of bill.
10. Conditional tenders will not be accepted.
11. On the basis of tender received, if the firm does not complete the work within stipulated period, liquidated damage shall be levied from the contractor at the rate of 0.5% of the contract price per week of delay, subject to maximum of 10% of the contract price. The decision of the DGM will be final and binding to the Contractor.
12. The right to reject and accept any or all the tenders without assigning any reason is reserved.
13. Farm will not be responsible for any type of accident or mishappening.

14. Before releasing the bill amount, the contractor will give a certificate that he has given the due payment to his labours. In further, if any payment will become due on this account, he will be responsible for payment of the same.
15. Before start of the work Affidavit will be given by the firm on stamp paper of Rs.100/- only indicating the terms and conditions.
16. 2% TDS will be deducted from the bill.
17. The contractor should have to submit completion/experience certificate of three nos. same or higher type of works.
18. It may be certified that you have not been debarred/black listed for any reason by DGS&D, DS&D Haryana or any State Govt./University/PSU etc. If so particulars of the same to be furnished. Concealing of facts will not only lead to cancellation of the supply order but may also warrant legal action.
19. The material shall be supplied by the supplier within the time limit specified in the supply order. The delivery period can be extended by the Central Purchase Committee/or Store Purchase Officer only in exceptional cases on written request of the supplier explaining reasons/circumstances due to which the delivery period could not be adhered to. In case the material is not supplied within the delivery period, the supplier shall be liable to pay us compensation amount equivalent to one percent each day or such amount as the CPC/ Store Purchase Officer may decide that the quantity remains incomplete including installation, provided that entire amount of compensation shall not exceed 10% of the total amount of the cost of the material supplied.
20. Warranty and make of the items are to be clearly mentioned in the bid. Warranty period of the items are to be started after commissioning of the whole system.
21. In case of failure of any components or items which are under warranty period, the contractor has to replace or repair the system with his own expenses.
22. **ARBITRATION:** In case of any dispute arising out of or concerning this work order will be short out mutually failing which the dispute will be settled by adopting Arbitration and conciliation Act1996 process. For that an Arbitrator will be appointed as per provision of the Act with the approval of the chairman cum managing director of the N.S.C. ltd. The decision of the arbitrator will be final and acceptable/binding to both the parties. The place of arbitration and judicial jurisdiction of the court will be Hisar (Haryana). Before raising the dispute in the court, Arbitration procedure must be followed.
23. **LEGAL JURISDICTION:** All legal disputes and civil proceedings arising out of the deal would have the jurisdiction of the court of law situated at Hisar.

DETAILED SPECIFICATIONS OF 5 K.V.A. SPV POWER PLANT

The 5 K.V.A. off-grid solar photovoltaic (SPV) power plant consists of the following

A. PV array

- Capacity **5 KVA**.
- Should be mounted on a suitable structure with a provision of automatic tracking of the sun.

The SPV power plant should be operated with a PV array capacity in the range of **300 Watts peak to 5000 Watts peak**, measured under Standard Test Conditions (STC). Sufficient number of modules in series and parallel could be used to obtain the required PV array power output.

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.

- The PV modules used should be made in India.
- Modules must qualify to IEC 61730 Part I and II for safety qualification testing.
- The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar crystalline modules of minimum 300 Wp and above wattage. Module capacity less than minimum 300 watts shall not be accepted.
- Adequate protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.
- The module frame shall be made of corrosion resistant materials, preferably having anodized aluminium.
- I-V curves at STC should be provided by EoI holder.
- 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 IP 65 rated protection and a provision for “Opening” for replacing the cable, if required.
- There should be a Name Plate fixed inside the module which will give:
 - Name of the Manufacturer or Distinctive Logo.
 - Model Number
 - Serial Number
 - Year of manufacture

B. Mounting Structures and Tracking System.

The PV modules should be mounted on hot dip galvanized MS mounting structures. Minimum thickness of galvanization should be atleast 120 microns. Necessary protection towards rusting need to be provided either by coating or anodization. Each metallic structures should have adequate strength and appropriate design, which can withstand load of modules and high wind velocities up to 150 km per hour. To enhance the performance of SPV power plant, auto tracking system must be used.

C. Electronics and Protections

- Maximum Power Point Tracker (MPPT) or controller drive should be included to optimally use the Solar panel.

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

D. Junction Boxes and Distribution boards

- The junction boxes are to be provided in the PV array for termination of connecting cables. The junction boxes are to be MNRE approved. The junction boxes (JBs) shall be made of GRP / FRP / Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement. All wires / cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.
- Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.
- DC Distribution panel to receive the DC output from the array field. DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.
- AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors.
- All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- Should conform to Indian Electricity Act and rules (till last amendment).

E. PCU/Inverter

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit/inverter should also be DG set interactive. If necessary. Inverter output should be compatible with the grid frequency. It must have high efficiency and reliability. The PCU/Inverter should have in-built protection against any sustainable fault in feeder line and against lightning on feeder line. The PCU should be tested as per IEC standard with robust built. It must have display to show and configure different parameters of the system.

F. Protections

- **Surge protection**
Protection against internal surge must be provided with specific type of protection devices.
- **Lighting protection**
The SPV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard. The protection against induced high-voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

- **Earthing protection**

Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lighting arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Department/MEDA as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly. Earth resistance shall not be more than specific ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

G. Cables

Cables of appropriate size to be used in the system shall have Temperature Range:-10oC to +80oC, voltage rating 660/1000V, excellent resistance to heat, cold, water, oil, abrasion, UV radiation, flexible. The cables should fire proof with sufficient insulation and be ISI standard. Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. Cables are to be laid in conduit pipes for protection of the system. Cables must conform to the latest edition of IEC.

H. Battery bank

Top quality tested batteries for solar system of rating 150Ah have to be used. Batteries have to be low maintenance tubular type. Battery bank is to be placed securely so that it does not get affected by outer atmosphere and other things.

I. Operation and Maintenance Manual

An Operation and Maintenance Manual, in English and in Hindi language, should be provided with the solar PV pumping system. The Manual should have information about solar energy, photovoltaic, modules, tracking system, mounting structures, electronics and switches. It should also have clear instructions about mounting of PV module, DO's and DON'T's and on regular maintenance and trouble shooting of the 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, inverter and battery bank should also be provided.

J. 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 shall be warranted for 5 years. Required Spares for trouble free operation during the warranty period should be provided along with the system.

K. Sign Board

One sign board is to be provided clearly mentioning the name of the Corporation along with the project name and a small message about the corporation. The sign board has to be sturdy and long lasting and must be placed as such no damage is done to it.

Table: 1 Requirement of materials and equipment:-

Sr. No.	Name of the item	Quantity	Make
1.	Module /PV Array (Total 5000 W output)	1	TATA, Luminous, Inter solar
2.	PCU/Inverter (5 K.V.A.)	1	TATA, Luminous, Su-kam, Intersolar
3.	Module mounting structure	L.S.	MNRE Approved
4.	Cable (DC and AC) with conduits	L.S.	Havells, Finolex, Polycab
5.	Battery Bank 150Ah, 12V	8nos.	Exide, Luminous or same
6.	Protective devices (e.g. lightning arrestors, earthing etc.)	L.S.	MNRE and IEC approved
7.	Junction boxes and panel boards	L.S.	-Do-
8.	Other parts and accessories	L.S.	-Do-
9.	Sign board of appropriate size	1	Local