

13. The prospective bidders shall be capable to establish field testing laboratory equipped with requisite instruments and technical staff so that if the work is finally awarded, he may establish such laboratory in the work site. Test of materials from outside recognized laboratory may be done, if required, at the discretion of the Engineer-in-charge. The cost for such testing will be borne by the agencies.
14. The intending bidders should clearly understand that whatever may be the outcome of the present invitation of bids, no cost of bidding is reimbursable from the department.
15. In case of inadvertent typographical mistake in the bill of quantity, the same will be treated to be corrected as to confirm with the prevailing relevant schedule of rates of PWD / PWD (Electrical) / PWD (Roads)/I&WD for the concerned district or as per Technically sanctioned estimate.
16. No fixed Security Deposit will be allowed.
17. No Price Adjustment in respect of certain construction material (i.e. cement components, steel components etc.) will be considered.
18. Ready Mix Concrete as per specification required for the construction work will be supplied by the agency through his own plant / from any reputed/recognized supplier if required as per EIC.
19. Running payment for the work may be made on supply of BOQ materials at site in good working conditions & as per specifications. Further running payment for the work may be made on availability of the fund after necessary certification of work along with checking of contractor's bill. Final bill will be made only after installation, erection, successful commissioning of integrated system and performance testing of total integrated system as per terms & conditions.
20. **Operation and Maintenance** – Contractor will carry out the job operation and maintenance of the total integrated project for five years from handed over the total project.

After solar plant is installed and handed over, a schedule for preventive maintenance. This includes, but is not limited to, adjustments, cleaning, lubrication, repairs, replacements, and the extension of equipment life. At least twice a year, O&M personnel conduct a general inspection of the installation-site. For maintenance following practice should conduct-

Ensure roof drainage is adequate, roof drains are not clogged and confirm that there are no signs of water pooling near the array. Ensure roof penetrations (if any) are watertight
 Confirm electrical enclosures are only accessible to authorised personnel Check for corrosion on the outside of enclosures and the racking system. Check for cleanliness throughout the site to ensure that there is no debris in the inverter pad area or elsewhere. Check for loose hanging wires in the array
 Check for signs of animal infestation under the array

Specific checks -

Modules: Modules need the maximum amount of preventive maintenance, and cleaning activities are majorly concentrated around them.

Frequency of cleaning: In normal conditions cleaning is carried out to once a week.

Water Quality: The cleaning of the modules is done keeping in mind the TDS (total dissolved solids) levels, water specifications and certain wiping details. In India, the TDS level of the water needs to be at least below 250 parts per million (ppm). The chlorine (less than 250 ppm) and calcium (less than 250 ppm) level of the water, as well as the electrical conductivity, is kept in mind while carrying out the cleaning. Water quality is tested after every six months to ensure that set standards are maintained.

Quality of cleaning equipment: Brushes without hard bristles (say fibre brushes) should be used for cleaning. A low-quality brush, like one with metal bristles, could negatively impact the glass surface of the modules. In some cases where hard substances like bird droppings have gotten stuck on the module, engineers use detergent to clean the surface. However, the detergent is not highly concentrated and has very high-water content.

Post wash care: Post extensive cleaning, modules are wiped off properly to ensure no stain is left to avoid affecting the generation capacity. After the system returns to steady-state temperature (i.e. there is no remaining impact from the cooling effect of wash water), the current produced is noted along with weather conditions including temperature, irradiance etc. This maintenance work is recorded in the log book, and the production of the clean system to the previous production values is compared.

Inverter: servicing on a monthly basis as there is a lot more dust in India compared to other countries. The ventilation is provided via a filter, and this filter needs to be frequently cleaned. Therefore, usage of high-quality filters is advantageous. As part of preventive activities, our engineers check the voltage of the string inverter and record it in the periodic log book. This gives an understanding of voltage fluctuations if any.

MC4 Cabling Connector: Under preventive measures, ensure that there is no gap between the male and female connector pipes. Any gap, irrespective of the size, could cause a fire and damage the modules. Separately, off-takers can install a “check” meter of equal or higher accuracy with reference to the main meter to cross-check the production level on a monthly basis. All readings have to be, more or less equal, with a 2-3% correction allowance.

Transformer: For transformers at the site with installed capacity in megawatts, parameters such as the operating temperature, OTI (oil temperature), WTI (winding temperature), and oil level are monitored daily. If there is any internal disturbance in the transformer, it reflects in these parameters which are monitored at least three times in a day (at 11 AM, 02 PM and 04 PM as solar power is generated at its peak during these slots). The transformer has to be cleaned thoroughly once in six months.

Protection from external elements: To ensure that the plant is working smoothly (i.e. without any shutdown), the same has to be sealed properly. Else, rats and other rodents can enter, and get electrocuted. This, in turn, can cause a short circuit, and affect the entire plant. Many people are not aware that even high-pressure water can damage the modules.

Remote monitoring: A solar power plant constantly needs to be monitored to detect breakdowns and optimise its operation. The same function could be performed either on-site or remotely wherein we retrieve all the data either from the inverter or from communicating equipment (probes, meters etc.).

Monitoring the solar PV panels consistently is the cornerstone of the O&M of a solar power plant. It includes inspection, supervision, sending signals and messages, and receiving signals from the environment about irradiation.

21. Insurance – Plant should be insured by contractor for five years from the handed over the total project and during of works.
22. Grid connections required to be made by the contractor from his own end obtaining necessary approvals from the appropriate authorities. The expenditures if any will be borne by the contractor.
23. Entire civil works in respect of the works will be borne by the contractor at his own cost.
24. Successful bidder (L1) will have to purchase 2 (two) copies of tender documents at usual cost which mentioned in e-NIT from the office of the respective MD, SFDCL.

25. A :- Important information
Date & Time schedule

Sl. No.	Particulars	Date & Time
1.	Date of uploading of e-N.I.T. Documents online) (Publishing Date)	15.05.2023 at 4.00 P.M.
2.	Documents download/sell start date (Online)	15.05.2023 at 4.00 P.M.
3.	Documents download/sell end date (Online)	06.06.2023 upto 4.00 P.M.
4.	Pre-bid meeting date in the office of the M.D, SFDCL	24.05.2023 at 2.00 P.M.
5.	Bid submission start date (Online)	15.05.2023 at 4.00 P.M.
6.	Bid Submission closing (Online)	06.06.2023 upto 4.00 P.M.
7.	Bid opening date for Technical Proposals (Online)	08.06.2023 at 4.00 P.M.

22. LOCATION OF CRITICAL EVENT

Pre Bid Meeting →
And Bid Opening

**Office of the Managing Director
The State Fisheries Development
Corporation Limited**