

RFP FOR

REPLACEMENT OF BATTERY BANK OF CAPACITY 120V DC, 3600AH @C10, AT IAO HANLE.

INTRODUCTION:

Indian Institute of Astrophysics, Bangalore operates Indian Astronomical Observatory, at Hanle in the Ladakh region of Jammu and Kashmir, India. Hanle is situated at about 270 Kms from Leh, at an altitude of 4,500M above sea level.

In the year 2005, a 30KWp Solar Power Plant was installed at IAO Hanle Base camp for providing power to the HAGAR telescopes. The battery bank capacity of this solar power plant is 120V, 3600HA @C10. Since the plant is now more than 13 years old, the cells have become weak and its back up time has reduced. It is thus necessary to replace the old battery bank with a new one so that the operations at the base, including HAGAR are not affected due to any power problem.

The existing cells specifications are as follows:

1. Cell container ó Hard rubber
2. Cell voltage- 2 volt per cell
3. Cell capacity- 1200 AH at C10.
4. Cell type- tubular lead-acid
5. Electrolyte- 1.280 sp. Gr.
6. Total number of cells in a Bank- 180 nos.
7. Cell connection- 60 in series and 3 parallel.
8. Battery Bank room size: 9.5mx7m.

SCOPE OF THE WORK:

It is proposed to replace the existing battery bank with a new set of Battery Bank of capacity 120V DC, 3600AH @C10. The battery bank needs to be installed in already existing room size of 9.5mx7m.

Scope of the work includes dismantling of the old battery bank, supply of new batteries, installation, testing and commissioning of new battery bank consisting of 120 numbers of 2V, 1800AH batteries at IAO-Hanle, with a minimum Warranty/Guarantee period of 2 years.

SITE INFORMATION:

Latitude : 32d46m46s N
Longitude : 78d57m51s E
Altitude : 4500 meters above msl

Climatic conditions

Outdoor Temp : -35 deg C to +40 deg C
Indoor Temp : -10 deg C to +40 deg C
Wind Speed : Maximum 200km/hr
Humidity : 0-95%

PERIOD OF COMPLETION:

The work of supplying, installation and commissioning of the battery bank is 6 months from the date of getting the work order.

GENERAL TECHNICAL SPECIFICATION:

The General Technical specifications of the new cells to be purchased is as given below:

1. Cell container ó Transparent SAN container
2. Cell voltage- 2 volt per cell
3. Cell capacity- 1800 AH at C10.
4. Cell type- the batteries shall be solar photovoltaic of flooded electrolyte, low maintenance, Lead-Acid and Electrolyte of specific gravity of 1.280 to be used.
5. Vent plug- Ceramic vent plug with microporous.
6. The self-discharging should be less than 3% per month.
7. The charging efficiency should be more than 90% up to 70% state of charge.

8. Battery terminal shall be provided with covers
9. Charging instructions shall be provided along with the batteries.
10. A suitable battery rack with interconnection and end connectors shall be provided to suitably house the batteries in the bank. The drawing of the battery rack shall be provided along with the other document.
11. The batteries shall be suitable for charging by means of solar charge controller using solar panels.
12. Total number of cells in a bank- 120 nos
13. Cell connection- 60 in series and 2 parallel.

VENTING:

The venting device shall be of micro porous/ ceramic vent plug to reduce the water losses during the use.

GRID ALLOY:

To ensure minimum maintenance, less resistance to the charging and ability for deep discharging, the grid should be a lead alloy with antimony. The battery should be capable of with standing discharge upto a level of 75% of its rated capacity between fully charged and load cut off conditions, without any damage or loss of cycle life.

Watt-hour, ampere-hour, efficiency and other specifications of battery should be as per Bureau of Indian Standard 13369: 1992.

Suitable clamps, nut-bolt etc. should be provided with each battery.

DETAILS REQUIRED:

Following details must be submitted along with the Bid:

1. Charge Curve at C/10 rating.
2. Discharge curve at C/10, C/20 and C/50 rating
3. Battery life vs. depth of discharge at 10, 50 & 80% DOD.
4. State of charge vs. specific gravity.
5. Expected life of battery for operating with Solar power plant.
6. Necessary drawing related to connecting 120 cells in series and 2 parallel connection to be provided.
7. Detail design and drawing of the wooden rack for mounting the cell in a single tier to be provided.

QUALITY, WARRANTEE/ GUARANTEE:

The complete battery bank must be warranted against any manufacturing/ design defects for a minimum period of Two (2) years.

The supplier/contractor shall warrant the Batteries as per applicable standards of quality. Anything to be furnished shall be new, free from any defects and faults in material and workmanship. The manufacture shall be in accordance with the specified technical parameters and should be of the highest grade and consistent with established and generally accepted standards for material. It shall be in full conformity with the drawing or samples if any and shall operate properly if operable.

After installation of the Batteries at site, the contractor shall ensure satisfactory performance of the equipments for a period of time as specified in the scope of work.

The contractor shall rectify defects developed in the Battery/ replace the defective parts within Warrantee/Guarantee period promptly. In case the contractor does not rectify the defects within the time limit as defined in the scope of work, IIA may restore the Battery to working condition at contractor's expenses.

Frequent and unjustified delays in rectifying defects during the Warrantee/ Guarantee period may lead to cancellation of the contract, recovery of losses and imposing of additional penalty. In such circumstance, IIA shall have the full liberty to recover the losses/penalty from the contractor pending claims, security deposit or in other lawful manner. The amount of losses/penalty shall be decided by Director, IIA, and will be binding on the contractor.

STANDARDS:

The goods supplied and works executed under this contract shall confirm to the standard mentioned in the technical specification, and where no

applicable standard is mentioned, the latest version of Indian Standard Institution or Bureau of Indian Specification shall be applicable.

SPARE PARTS:

The contractor shall make arrangement to maintain a sufficient stock of essential spares and consumable spare parts to ensure proper maintenance of the Batteries promptly. Also, 2 spare cells should be supplied along with the main consignment.

LOCAL CONDITIONS:

It will be imperative on the contractor to have full information of all local conditions and factors which may have any effect on the execution of the works. The contractor shall be deemed to have collected all relevant data regarding the proposed place of work/site, its local environment, approach road and connectivity, actual prevailing working conditions, availability of required materials and labour and all other information/ data required for proper completion of the proposed work.

If required, the contractor may pre-visit the site before starting the work. IIA shall not entertain any request of contractor for clarifications related to such local conditions and shall bear no responsibility in this regard.

TOOLS & TACKLES:

The contractor shall arrange all necessary tools & tackles for proper execution of work and operation/ maintenance of Batteries after supply. IIA shall, in no way, be responsible for supply of any tools & tackles.

TEST REPORT:

Test certificate from a Government approved test laboratory for 2V cells should also be provided.